

The Genus *Psittacomenopon* (Mallophaga: Menoponidae) of the Psittaciformes¹

ROGER D. PRICE AND JAMES R. BEER

Department of Entomology, Fisheries, and Wildlife, University of Minnesota, St. Paul

ABSTRACT

Descriptions and a key are given for the known species. *Psittacomenopon gulielmi* (type-host: *Poicephalus gulielmi massaicus*) is described as new. New synonymies include *Psittacomenopon heterocephalum* (Nitzsch) (=

Menopon acuticeps Piaget) and *P. impar* (Piaget) (= *Colpocephalum pachypus* Piaget, *Menopon impar* var. *poicephalus* Bedford, and *P. africanus* Eichler).

The treatment of the lice of the *Colpocephalum*-complex from the Psittaciformes presents a problem somewhat different from those encountered by us in previous revisional studies (Price and Beer 1963, 1964, 1965). In these earlier papers, we chose to apply the name *Colpocephalum* to the heterogeneous mixture of species, since this was consistent with the

generally accepted mallophagan classification. In so doing we were well aware that several of these species undoubtedly would ultimately come to lie in other genera, new or otherwise; however, we chose to defer any decisions at the generic level until we had revised all groups within the complex. In this way we felt there would be a minimum of generic changes.

One of the reasons for the situation within the Psittaciformes is that the name *Colpocephalum* is not currently applied to any species from this bird order.

¹ Paper no. 5835, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul, Minnesota 55101. Accepted for publication December 13, 1965.

Hopkins and Clay (1952), with only *Psittacomenopon* Bedford and *Franciscoloa* Conci described to that time, chose to treat all included species as congeneric with *Psittacomenopon*, thus interpreting this genus in a sensu lato rather than a sensu stricto. Shortly thereafter, Carriker (1954) provided convincing evidence for recognition of 5 genera—*Psittacomenopon* and 4 new genera—of comb-bearing parrot menoponids. We have found the species within *Psittacomenopon* s. str. to be so uniquely divergent from all other known species of this *Colpocephalum*-complex that we agree with Carriker (1954) in an inability to justify utilizing this genus as a dumping ground for the myriad of other species. To call all species *Colpocephalum* would be a step in the wrong direction. The main problem then centers around what generic limits to establish for the species not in *Psittacomenopon* s. str.

An examination of extensive material from parrots has likewise convinced us that not only *Psittacomenopon*, but also *Heteromenopon* Carriker, represents a well-defined generic unit separable from other known genera. *Epiara* Carriker and *Heterokodeia* Carriker, while not so well known or so well differentiated, are sufficiently so to merit recognition as genera for the present. This leaves the remaining species primarily within *Psittacobrosus* Carriker and *Franciscoloa*; of the parrot lice, it is these that approach closest to the *Colpocephalum* s. str., although many, if not all, have differences that indicate they are not *Colpocephalum* s. str. Treatment of generic limits in the described fashion is not intended to represent our final thoughts on the subject, but rather is intended to give us what we believe the most logical framework within which to organize the *Colpocephalum*-like parrot menoponids. Once the entire *Colpocephalum*-complex has been revised, then it is intended to survey the entire group of more than 200 species to establish the most logical system of supra-specific classification. To facilitate recognition of the known menoponid genera of parrots now, we offer the following key:

KEY TO THE GENERA OF
PARROT MENOPONIDAE

1. Without comb rows of short spiniform setae on venter of femur III; at least 1 pair of ventral spinous head processes 2
 With at least 2 comb rows of short spiniform setae on venter of femur III; no ventral spinous head processes 3
2. With 1 comb row on each side of sternite III (Subocular setae of 1 longer among several shorter ones anterior to subocular comb row; sitophore sclerite of hypopharynx as in Fig. 6; oval to oblong internal structure in female genital chamber; single pair of ventral head processes at latero-anterior margin)..... *Eomenopon* Harrison
 Without comb row on any abdominal sternites (Subocular setae numerous, close set, increasing in length anteriorly; sitophore sclerite of hypopharynx as in Fig. 5; without evident internal structure of female genital chamber; 2 pairs of ventral spinous head processes, a large process near antennal base and a smaller process near maxillary palpal base)..... *Kelerimenopon* Conci

3. Sitophore sclerite of hypopharynx as in Fig. 4, 7, 8; antennae completely concealed beneath head (Prosternal plate with setae; little sexual dimorphism; no evident internal reticulate structure in female genital chamber; female tergites undivided and without any extremely developed) *Heteromenopon* Carriker
 Sitophore sclerite of hypopharynx essentially as in Fig. 5; antennae projecting from beneath head... 4
4. Abdominal tergite I of female much enlarged, overlapping at least part of following tergite; uniquely shaped internal structure of female genital chamber (Fig. 1, 9); female with tergite VII extending forward to, or within (?), VI, with region between VI-VII marked by oblong area with fine vermiform reticulation; male genitalia asymmetrical, with broad basal plate (Tergites IV-VIII of female tripartite, IX bipartite; prosternal plate not developed, without setae; marked sexual dimorphism)..... *Psittacomenopon* Bedford
 Abdominal tergite I of female not so enlarged; internal genital chamber structure of female otherwise; female without tergite VII extending forward to VI and lacking oblong area with reticulation; male genitalia usually symmetrical, with slender tapered basal plate..... 5
5. Female tergites I-III each much longer than any of IV-VII, with III markedly convex posteriorly; prosternal plate developed, with setae; female with chaetotaxy as in Carriker (1954) (Tergites I-VIII of female undivided, IX bipartite; marked sexual dimorphism; vulva without lateral auxiliary row of hooked setae; no evident internal structure of female genital chamber; genitalia of male as illustrated by Carriker (1954); 3 comb rows on each side of sternite III, none on IV)..... *Epiara* Carriker
 Female tergites I-III each not much longer than any of IV-VII; prosternal plate without setae; female chaetotaxy different from above..... 6
6. Without precocular slit; head but little wider than prothorax, with temples only slightly wider than precocular expansion; male genitalia as illustrated by Carriker (1954); little sexual dimorphism of abdomen..... *Heterokodeia* Carriker
 With precocular slit; head usually considerably wider than prothorax, with temples much wider than precocular expansion; male genitalia otherwise... 7
7. Usually 0, rarely 1-4, spiniform setae in comb row on both sides of sternite IV. Female: tergites III-VIII either undivided or divided; abdomen widest at III, tapered straight sided from IV-VII; vulval margin flat to concave, rarely extending to ventral anal rim, and usually with single row of even-length setae..... *Psittacobrosus* Carriker
 Typically short comb row of up to 15 spiniform setae on each side of sternite IV. Female: tergites III-VIII undivided; abdomen either widest at IV or equally wide on III-IV, with sides gently rounded from IV-VII; vulval margin generally semicircular to slightly flattened, even with or overlapping ventral anal rim, and with complex irregular double row of fairly long setae..... *Franciscoloa* Conci

The specific purpose of this paper is to present a review of the species within *Psittacomenopon*. *Heteromenopon*, *Psittacobrosus*, and *Franciscoloa* will be handled in subsequent papers; *Epiara* and *Heterokodeia* have been adequately treated by Carriker (1954) and require no further action at this time. Work has already been completed on the *Eomenopon* and *Kelerimenopon*, which are not considered by us to be in the *Colpocephalum*-complex.

In the following descriptions, all measurements are

given in millimeters. A value in parentheses following a statement of range represents the mean. Reference to tergites, pleura, or sternites, unless stated to the contrary, is applicable to the abdomen. The nomenclature of the psittaciform hosts follows that of Peters (1937).

Genus *Psittacomenopon* Bedford, 1930

Psittacomenopon Bedford, 1930. Rep. Vet. Serv. & Anim. Indust. 16: 154. Type-species: *Menopon poicephalum* Bedford.

The members of this genus may be characterized as follows.

Head: Wider than long, with forehead rounded; without ventral spinous processes; with preocular slit; only 2 longer setae preceding subocular comb row; sitophore sclerite of hypopharynx much as in Fig. 5; terminal antennal segment undivided; at least a portion of terminal antennal segment protruding beyond head margin. Without well-developed prosternal plate or setae thereon. Venter of femur III with several comb rows of short, spiniform setae. Tergites I–VIII with marginal and anterior setae; postspiracular setae very long on I–VIII. Sternite III with 2 well-developed comb rows on each side; sternite IV with few marginal, short, spiniform setae on each side suggestive of abortive comb row. Marked sexual dimorphism.

Female abdomen: Considerably enlarged tergite I, overlying at least a portion of 1 or more of following tergites, with or without lateral transverse thickenings; tergites IV–VIII tripartite, IX bipartite; tergite VII extending forward to, or within (?), VI, with region between VI–VII marked by oblong area with fine, vermiform reticulation; uniquely shaped internal structure of genital chamber (Fig. 1, 9); sternites VII–VIII completely fused; dorsal and ventral inner anal setae.

Male abdomen: Tergites of about equal development, none divided. Large asymmetrical genitalia (Fig. 2).

Hosts: Known distribution restricted to African birds of the genera *Poicephalus* and *Psittacus*.

Menopon bifurcatum Piaget, 1880, was described and illustrated from the male only, supposedly taken from *Psittacus erithacus* L. The whereabouts of material of *M. bifurcatum*, unfortunately, is unknown. However, the illustration shows genitalia and dorsal chaetotaxy of sufficient detail to lead us to conclude that it is not *P. heterocephalum* (Nitzsch), the type-host of which also is *P. erithacus*, nor is it even likely to be a species of *Psittacomenopon* s. str. Since there is no way now to say to what genus *M. bifurcatum* might be referable, we are for the present allowing it to remain in *Psittacomenopon*, but as a species sedis incertae.

Psittacomenopon heterocephalum (Nitzsch)

Colpocephalum heterocephalum Nitzsch, 1874, In Giebel, Insecta Epizoa: 267. Type-host: *Psittacus erythacus* = *P. erithacus* L.

Colpocephalum vittosum Giebel, 1874, Insecta Epizoa: 267. Nomen novum for *C. heterocephalum* Nitzsch.

Menopon acuticeps Piaget, 1880, Pediculines: 422. Type-host: *Sittace ararauna* = *Ara ararauna* (L.)—host in error. Probably *Psittacus erithacus* L. NEW SYNONYMY.

Menopon appendiculatum Piaget, 1880, Pediculines: 473. Type-host: *Perdix cinerea*—error. Probably *Psittacus erithacus* L.

Menopon impar var. *scalaris* Piaget, 1885, Pediculines Suppl.: 95. Type-host: *Psittacus erithacus* L.

FEMALE.—As in Fig. 1. Chaetotaxy of this and the following 2 species so complex as to preclude an extensive, useful, quantitative study. Outer occipital seta much shorter than inner. Margin of pronotum with 15–17 short to long setae on each side. Metanotum marginally with minute among very long setae, anteriorly with scattered, minute setae. Tergite I modified as shown, enlarged, slightly overlapping tergite II, with lateral, transverse thickenings, and marginally with 40–50 short to medium setae. Tergite II with about 25 marginal setae, short among very long, and without median anterior setae. Tergite III with 25–30 marginal setae, IV–V with 36–46 (40.8) marginal setae, also short among very long; usually 40–50 anterior setae extending across entire tergite. Tergite VI with 38–42 marginal setae, including several very long lateral ones, remainder uniformly short. Tergite VII with 36–41 (37.8) uniform, short, marginal setae, except for very long postspiracular setae. Anterior setae of tergite VII and medioanterior setae of tergite VIII predominantly short, but not minute. Sternal chaetotaxy as shown, with sternal setae on IV, 72–81 (76.8), and V–VI, 58–74 (64.0). Dimensions: preocular width, 0.47–0.50; temple width, 0.66–0.69; head length, 0.46–0.53; prothorax width, 0.52–0.56; metathorax width, 0.72–0.78; total length, 2.75–2.94.

MALE.—As in Fig. 3. Forehead generally more broadly rounded. Chaetotaxy of head and thorax close to female. Posterior margin of femur III with 3–5 (3.9) setae. Tergite I with 19–21 marginal setae, minute among medium, with longest setae usually extending about halfway across tergite II; tergite II with about 25 minute to short among long marginal setae; III–VII each with 32–45 (39.6) marginal setae of variable lengths; VIII with 23–28. Anterior tergal setae on III–VII from 28–40 (33.5), VIII, 21–22. Last tergite with about 10 long anterior setae. Sternite I with 13–24 (18.3) setae; sternites II–genital plate (fused VIII–IX) each with 90 or more short to medium setae. Genitalia as in Fig. 2. Dimensions: preocular width, 0.53–0.56; temple width, 0.70–0.71; head length, 0.46–0.49; prothorax width, 0.51–0.54; metathorax width, 0.61–0.64; total length, 2.48–2.75.

Dr. Clay has kindly examined the specimens of *M. acuticeps*, *M. impar* var. *scalaris*, and *M. appendiculatum* available in the Piaget collection of the British Museum (Natural History); she has found them all to be essentially in agreement with our description of *P. heterocephalum*.

Material Examined.—12 ♀, 12 ♂, *P. erithacus*, Gold Coast, Uganda, Fr. Cameroun.

Psittacomenopon impar (Piaget)

Menopon impar Piaget, 1885, Pediculines Suppl.: 94.

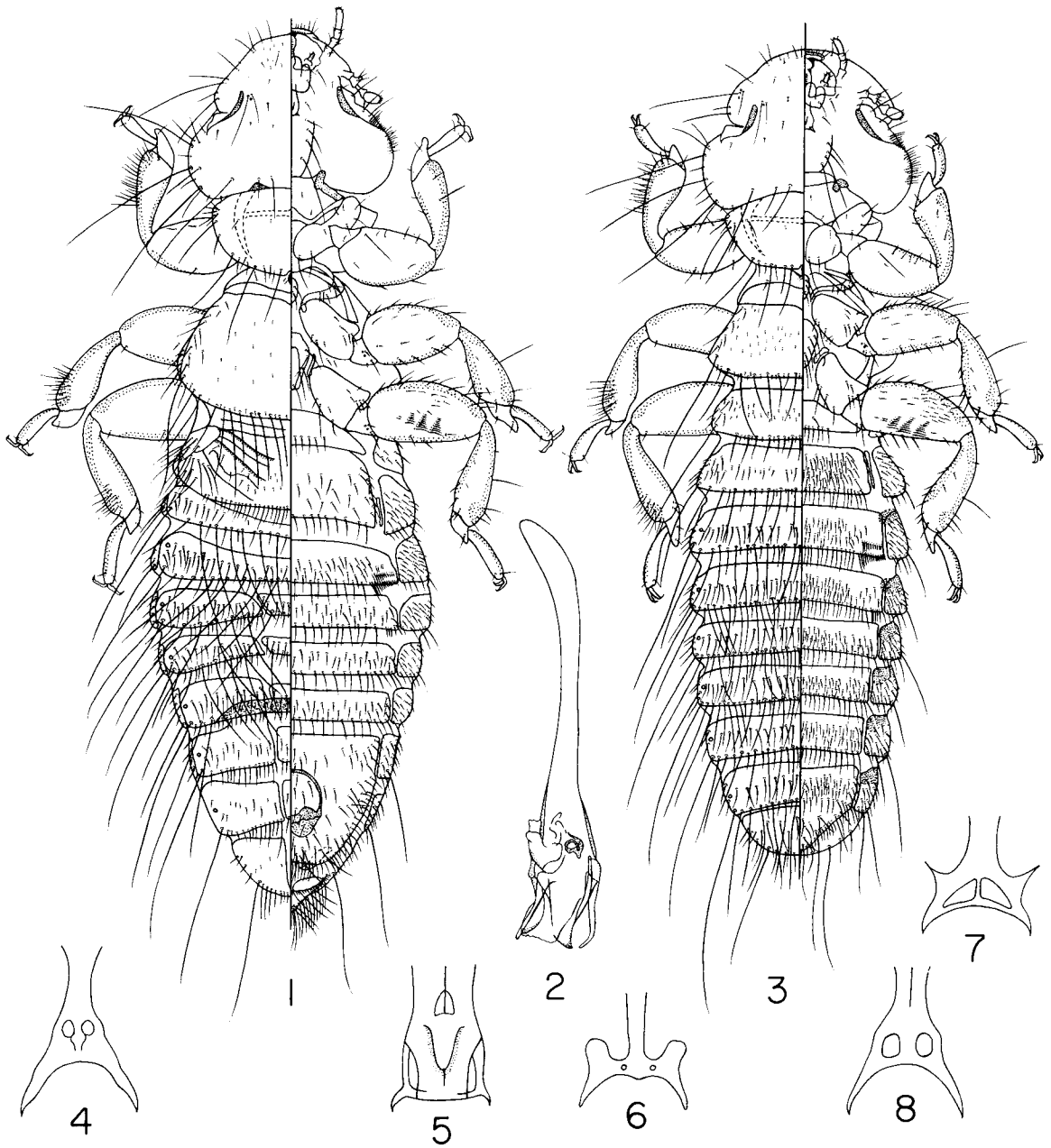


FIG. 1-3.—*Psittacomenopon heterocephalum*. FIG. 1.—Female. FIG. 2.—Male genitalia. FIG. 3.—Male. FIG. 4-8.—Sitophore sclerite of hypopharynx. FIG. 4.—*Heteromenopon* sp. FIG. 5.—*Kelerimenopon* sp. FIG. 6.—*Eomenopon* sp. FIG. 7-8.—*Heteromenopon* spp.

Type-host: *Psittacus timneh* = *Psittacus erithacus timneh* Fraser—probably error. Some member of *Poicephalus*.

Colpocephalum crassiceps Piaget, 1885, *Pediculines Suppl.*: 120. Type-host: *Psittacus timneh* = *Psittacus erithacus timneh* Fraser—possibly error.

Colpocephalum pachypus Piaget, 1890, *Tijdschr. Entomol.* 33: 258. Type-host: *Prionites brasiliensis* = *Momotus momota* (L.)—probably error. Some member of *Poicephalus*. NEW SYNONYMY.

Menopon impar var. *poicephalus* Bedford, 1920, *Rep. Vet. Res. S. Afr.* 7-8: 718. Type-host: *Poicephalus meyeri* (Cretzschmar). NEW SYNONYMY.

Psittacomenopon africanum Eichler, 1947, *Rev. Zool. Bot. Afr.* 40: 137. Type-host: *Poicephalus ruepelli* = *P. rüppellii* (G. R. Gray). NEW SYNONYMY.

FEMALE.—Very close to *P. heterocephalum*, but differing as follows. Occipital setae tend to be longer, with both pairs crossing transverse prothoracic thickening. Tergites IV-VI each with only 22-29 (23.8) marginal setae, the reduced number due to fewer and somewhat longer short setae than for *P. heterocephalum*. Tergite VII with only 29-31 marginal setae.

slightly longer than in Fig. 1. Tergites VII–VIII with majority of anterior setae minute, much as in Fig. 9. Sternal setae: IV, 55–64 (59.2); V–VI, 44–52 (46.9). Dimensions generally smaller: preocular width, 0.46–0.48; temple width, 0.60–0.61; head length, 0.41–0.48; prothorax width, 0.48–0.51; metathorax width, 0.67–0.69; total length, 2.54–2.65.

MALE.—Likewise extremely close to *P. heterocephalum*, but with the following differences. Posterior margin of femur III with only 2–3 (2.7) setae. Longest setae on tergite I extending across tergite II. Tergites III–VII with only 27–33 (30.0) marginal setae each. Sternite I with 14–21 (16.6) setae. Sternites III–VI each usually with somewhat fewer than 90 setae. Smaller dimensions: preocular width, 0.45–0.49; temple width, 0.57–0.62; head length, 0.40–0.43; prothorax width, 0.42–0.49; metathorax width, 0.54–0.58; total length, 2.15–2.32.

We could find no significant differences between our series from *Poicephalus rüppellii* and *P. meyeri* and the Piaget specimens of *M. impar*. Eichler (1947) provides no comparison or differentiation of his *Psittacomenopon africanum* from the other species; therefore, *P. africanum* must become a junior synonym of *P. impar*. We thank Dr. Clay for examining the single male of *C. pachypus* at the British Museum (Natural History) and determining that it agrees in most respects with the features given for *P. impar*.

Our lice from *Poicephalus robustus* (Gmelin) and *P. cryptoxanthus* (Peters) show a suggestion of quantitative differences from the other specimens, principally in the female having a few more marginal metanotal and first sternal setae and having a slightly broader metanotum. These differences are not believed sufficient, in absence of other separating features, to merit another taxon at this time.

Material Examined.—1 ♀, 1 ♂ paratypes of *M. impar* Piaget, *Psittacus timneh*; 11 ♀, 12 ♂, *P. meyeri*, Uganda, Bechuanaland, N. Rhodesia; 6 ♀, 5 ♂, *P. rüppellii*, S. W. Africa; 1 ♀, 1 ♂, *P. senegalus* (L.), No. Cameroon; 10 ♀, 10 ♂, *P. rufiventris* (Rüppell), Kenya, Somaliland; 11 ♀, 10 ♂, *P. robustus*, Uganda, N. W. Rhodesia; 2 ♀, 3 ♂, *P. cryptoxanthus*, Port. E. Africa, N. Transvaal; 11 ♀, 11 ♂, *Poicephalus* sp., Mozambique.

Psittacomenopon gulielmi, new species

Type-host.—*Poicephalus gulielmi massaicus* (Fischer and Reichenow).

FEMALE.—As in Fig. 9. Differs from *P. heterocephalum* and *P. impar* in the following. Metanotum more enlarged, with marginal setae minute to short, none very long except possibly in lateral region. Tergite I much enlarged, overlapping entirely across tergites II–III, and occasionally IV; minute anterior setae and marginally with few very long among numerous short to minute setae; without evidence of any lateral transverse thickenings. Tergites IV–V with 26–33 (28.3) marginal setae, VI–VII, 32–37 (33.7). Predominantly minute anterior setae on tergite VIII and medially on VII, as for *P. impar*.

Sternal setae: IV, 51–57 (53.1); V–VI, 39–49 (44.6). Dimensions: preocular width, 0.48–0.50; temple width, 0.63–0.66; head length, 0.41–0.49; prothorax width, 0.53–0.54; metathorax width, 0.75–0.80; total length, 2.43–2.71.

MALE.—Very close to *P. heterocephalum* and *P. impar*, but closest to *P. impar*, being tenuously separable in the following. Posterior margin of femur III with tendency for more setae, 2–4 (3.3). Tergites III–VII with 32–36 (33.9) marginal setae. Sternite I with 20–22 setae; sternites III–VII each with 65–82 (71.4) setae. Slightly larger dimensions: preocular width, 0.49–0.51; temple width, 0.62–0.65; head length, 0.39–0.44; prothorax width, 0.48–0.50; metathorax width, 0.58–0.60; total length, 2.04–2.46.

Material Examined.—Holotype ♀, *P. gulielmi massaicus*, Kenya, Feb. 1936, Meinertzhagen Collection, Slide 6416; at British Museum (Natural History).

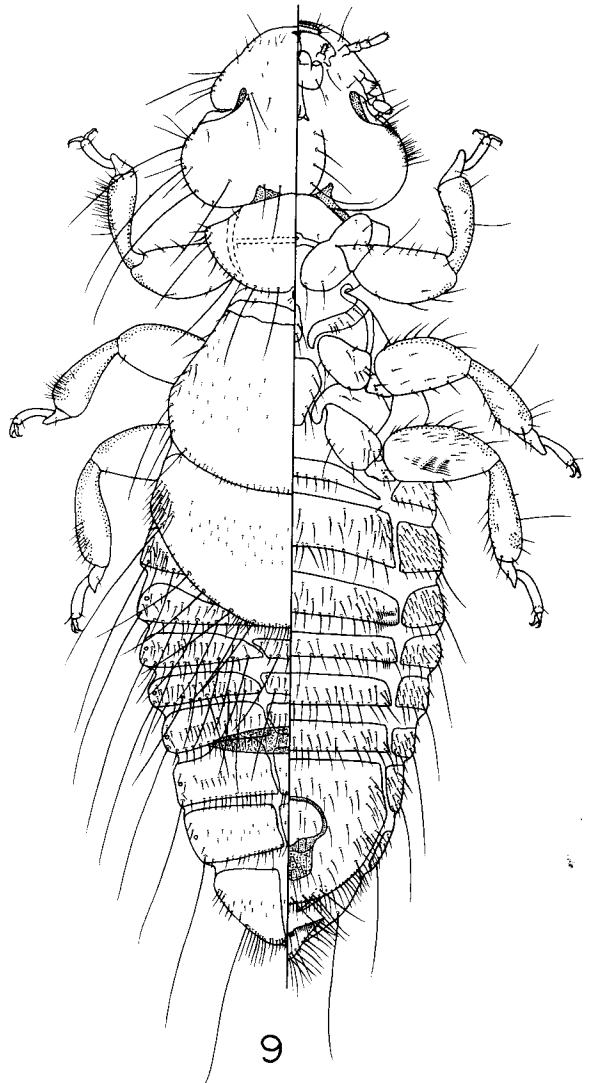


FIG. 9.—*Psittacomenopon gulielmi*, n. sp., female.

27 ♀, 22 ♂ paratypes, *P. gulielmi*, Br. E. Africa, Kenya.

In using the following key to the species of *Psittacomenopon*, it should be borne in mind that the females are readily separable, but the males are so similar that some difficulty may be encountered in their identification.

KEY TO THE SPECIES OF *Psittacomenopon*

1. Female: medioanterior setae of tergites VII-VIII short, but not minute (Fig. 1); tergites IV-V each with more than 35 marginal setae. Male: sternites IV-VII each usually with 90 or more setae; longest marginal setae of tergite I not extending entirely across tergite II (Fig. 3)..... *heterocephalum*
- Female: medioanterior setae of tergites VII-VIII minute; tergites IV-V each with fewer than 35 marginal setae. Male: sternites IV-VII each usually with fewer than 90 setae; longest marginal setae of tergite I extending entirely across tergite II..... 2
2. Female: tergite I greatly enlarged, overlapping at least following 2 tergites, without lateral transverse thickenings, and marginally with few very long setae among numerous very short ones (Fig. 9). Male: sternite I with 20-22 setae; tergites III-VII each with 32-36 marginal setae; larger specimens, e.g., temple width 0.62-0.65..... *gulielmi*

Female: tergite I not so enlarged, overlapping only a small portion of following tergite, with lateral transverse thickenings, and marginally without very long setae (Fig. 1). Male: sternite I with 14-21 setae; tergites III-VII each with 27-33 marginal setae; smaller specimens, e.g., temple width 0.57-0.62..... *impar*

REFERENCES CITED

- Carriker, M. A., Jr.** 1954. Studies in Neotropical Mallophaga (XIII)—The Menoponidae of the Neotropical Psittacidae. Rev. Brasil. Entomol. 2: 145-73.
- Eichler, W.** 1947. Notulae Mallophagologicae XIX.—Über vier afrikanische Papageiefederlinge. Rev. Zool. Bot. Afr. 40: 135-8.
- Hopkins, G. H. E., and T. Clay.** 1952. A Check List of the Genera and Species of Mallophaga. British Museum (Natural History), London. 362 p.
- Peters, J. L.** 1937. Check-List of Birds of the World. Vol. III. Cambridge, Mass. xiii + 311 p.
- Price, R. D., and J. R. Beer.** 1963. Species of *Colpocephalum* (Mallophaga: Menoponidae) parasitic upon the Falconiformes. Can. Entomol. 95: 731-63.
1964. Species of *Colpocephalum* (Mallophaga: Menoponidae) parasitic upon the Galliformes. Ann. Entomol. Soc. Amer. 57: 391-402.
1965. The *Colpocephalum* (Mallophaga: Menoponidae) of the Ciconiiformes. Ann. Entomol. Soc. Amer. 58: 111-31.

Reprinted from the

ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA
Volume 59, Number 5, pp. 950-955, September 1966