The genus *Heteromenopon* (Mallophaga: Menoponidae), with Description of a New Subgenus and Six New Species

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ABSTRACT

The genus *Heteromenopon* Carriker is divided into 2 subgenera, *Heteromenopon* with 10 species from Neotropical parrots, and *KEAMENOPON*, new subgenus, with 2 species from Australian and New Zealand parrots. New species and their type-hosts are: *H. (H.) militaris* from *Ara militaris, H. (H.) jugularis* from *Brotogeris jugularis, H. (H.) viridicatae* from *Pyrhrhura viridicata, H. (H.) pictae* from *Pyrhrhura picta subandina, H. (H.) aurifrons* from *Psilophasogn aurifrons, and H. (H.) pionopnites* from *Pionopnites haematotis pulchra. Heteromenopon (H.) macrorum* (Eichler), *H. (K.) kea* (Kellogg), and *H. (K.) psittacum* (Le Souëf and Bullen) represent new combinations. Descriptions and a key are given for the known species.

The genus *Heteromenopon* Carriker, 1954, which contains lice that are members of the large *Collopcephalum*-complex, has been separated elsewhere (Price and Beer 1966) from the other genera of Menoponidae occurring on parrots (Psittaciformes). There are at present only 3 recognized species of this genus, all described by Carriker (1954, 1963). It is our purpose here to redefine the genus, to describe a new subgenus, and to treat at the specific level not only the described species but also those represented by other material available to us now.

The known distribution of *Heteromenopon* is restricted to Neotropical parrots, to *Strigops* and *Nestor* of New Zealand, and to *Platycercus* of Australia. Carriker (1963) stated that species of *Heteromenopon* are "...parasitic only on Neotropical Parrots (Pam. Psittacidae)." Even though the lice from New Zealand and Australia are morphologically closer to each other than to the Neotropical *Heteromenopon*, and are thereby included within a new subgenus, their overall similarities indicate a sufficiently close phylogenetic relationship to justify their inclusion within *Heteromenopon*, thus broadening the *Heteromenopon* concept somewhat beyond what Carriker envisioned.

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In the following descriptions, the value in parentheses following a statement of range represents the mean. All measurements are in millimeters. Unless it is stated to the contrary, reference to tergites, pleura, and sternites refers to the abdomen, and the illustrations are prepared from specimens from the type-host. The postspiracular setae, even though they are often recessed from the margin, are included in the marginal tergal setal counts. The nomenclature of the psittaciform hosts follows that of Peters (1937).

Genus *Heteromenopon* Carriker, 1954


The individuals in the genus are characterized as follows. Head wider than long; without ventral spinous processes; with narrow deep precocular slit; usually 2–3 longer setae preceding subocular comb row; characteristic sitophore sclerite of hypopharynx (Fig. 12–14); terminal antennal segment undivided; deep antennary fossa completely enclosing antennae beneath head; inner pair of middorsal setae short to minute, outer pair minute to absent; 4 + 4 long gular setae. Prosternal plate moderately developed, typically with 1–6 longer setae in addition to the anterior minute pair. Venter of femur III with several comb

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rows of short spiniform setae. Postspiracular setae very long on I–VIII. Sternite III with at least 2 well developed comb rows on each side; sternite IV with 0–2 short comb rows on each side. Lacking marked sexual dimorphism. Abdomen of ♀ with tergites I–VIII of essentially same length, all undivided; vulva without lateral auxiliary row of hooked setae. Abdomen of ♂ very close to that of ♀, except for usual differences associated with terminalia; genitalia close to Fig. 22–29; generally with slight asymmetry of endomeral plate; with or without conspicuously developed genital sclerite and without evident penis.

Subgenus Heteromenopon Carriker

The members of this subgenus form a compact group of closely related taxa that are known to occur only on Neotropical parrots. They may be separated from members of the other subgenus by the following characteristics:

1. Anus of ♀ ventrally with fringe of short, fine setae and typically 8 longer stouter inner setae immediately adjacent to this row (Fig. 4).
2. ♂ genitalia with slightly to distinctly asymmetrical endomeral plate; parameres not extending to end of endomeral plate, and each with 2–4 minute apical setae (Fig. 22–24).
3. At least tergites III–VI with marginal seta posterior to or latero-posterior to very long postspiracular seta.
4. Usually with small internal structure of ♀ genital chamber, shaped as in Fig. 7–11.
5. Outer occipital setae distinctly shorter than inner.
6. Dorsum of head with scattered minute alveoli.

Heteromenopon (Heteromenopon) sincipitalis Carriker

(Fig. 1–5, 10, 14, 19, 22, 26, 30)


FEMALE.—As in Fig. 1. Dorsal setae anterior to preocular nodus as in Fig. 19, with single seta medio-anterior to setal complex; temple seta “a” (Fig. 5) relatively heavy, 0.17–0.24 (0.20) long, up to ½ to ⅓ as long as adjacent very long marginal temple seta; ocular seta “b” (Fig. 5) relatively long, 0.034–0.045 (0.040); inner occipital seta long, outer minute or absent (Fig. 30), not more than 0.016 long. Pronotum marginally with 13–14 long, 3–5 short setae; prothorax plate with 2–3 longer setae. Metanotal margin with 15–17 long setae, medio-anteriorly with only 1–2 pairs of short setae; mesothorax plate elongate, with 7–10 longer setae; metasternal plate long with 13–14 setae. Marginal tergal setae: I, 26–27; II, 29–36 (32.8); III–IV, 33–36 (34.7); V, 30–37 (34.3); VI, 30–34 (32.0); VII, 26–31 (28.3); VIII, 16–19; total on III–VIII, 171–187 (182.5). Last tergite with 3 very long setae on each side, preceded by a fine, median to long lateral seta and with 3–5 short to minute inner posterior setae. No tergites with anterior setae. Sternal setae (aside from those in comb rows): I, 10–12; II, 52–61 (56.0); III, 39–43 (40.7); IV–V, 51–65 (55.1); VI, 44–49 (46.3); VII, 37–41 (38.3). Sternite III with 3 well-developed comb rows on each side; IV with 1 row of 6–8 close-set, spiniform setae on each side, setae arranged as compactly as those on III. Sternites VII–VIII fused laterally. Vulva marginally and submarginally with 50–60 short to medium setae (28–32 of these marginal between long lateral posterior setae, area “x” of Fig. 3), anteriorly 41–45 short to very long setae. Anal fringe ventrally with 47–56 (51.0) short, fine setae (36–40 of these in area delimited by the 8 long inner setae); dorsally with 35–40 fine, medium to longer setae in irregular row (Fig. 4). Inner structure of genital chamber as in Fig. 10, longer than wide, with well-defined, thick margin, and slight indication of tapering at 1 or both ends. Dimensions: preocular width, 0.49–0.53; temple width, 0.62–0.68; head length, 0.38–0.40; prothorax width, 0.47–0.53; metathorax width, 0.59–0.65; total length, 2.46–2.65.

MALE.—Chaetotaxy much as for ♀. Marginal tergal setae on I–VIII, respectively, 26, 29, 34, 35, 34, 32, and 16; total on III–VIII, 179. Sternal setae on I–VIII, respectively, 13, 57, 37, 57, 51, 47, and 39. Terminalia as in Fig. 2; sternite VIII with 35 setae. Genital plate with 29 marginal and 6 long, 13 medium anterior setae; sternites VIII–IX apparently not fused. Genitalia as in Fig. 22; parameres with 1–2 minute setae further up shaft, in addition to minute apical ones; endomeral plate with pronounced distal expansion to 1 side; basal plate slender, narrowed anteriorly; prominent, slender, deep V-shaped sclerite (Fig. 26) associated with genital sac. Dimensions: as for ♀, except prothorax width, 0.46; metathorax width, 0.56; total length, 2.26; genitalia length, 0.73.

Material Examined.—4♀ (including 3♀ paratypes of H. sincipitalis), 1♂, Ara ararauna, Bolivia, Trinidad.

Heteromenopon (Heteromenopon) militaris, new species

(Fig. 11, 16)

Type-host: Ara militaris (L.).

FEMALE.—Very close to H. sincipitalis, differing only as follows. Slightly shorter temple seta “a”, 0.12–0.22 (0.17) long, intermediate between Fig. 5–6. Outer occipital setae minute, 0.008–0.016 (0.012) long. Total marginal setae on III–VIII, 159–191 (172.6). Sternite IV without well-defined, compact comb row on each side, but with up to 6 short, spiniform setae in irregularly spaced row (Fig. 16). Vulva with only 22–26 marginal setae between long lateral posterior setae, and only 30–37 (34.0) anterior setae. Anal fringe ventrally of fewer setae, with 28–34 short fine setae in area delimited by 8 long inner setae. Inner structure of genital chamber (Fig. 11) essentially the same, but with tendency for evenly rounded ends.

MALE.—Likewise close to H. sincipitalis, but dif-
Fig. 1-4.—*Heteromenopon sincipitalis* Carriker. 1, female; 2, male terminalia; 3, vulval margin; 4, female anus. Fig. 5-6.—Temple margin. 5, *H. sincipitalis*; 6, *H. laticapitis* Carriker. Fig. 7-11.—Internal structure of female genital chamber. 7, *H. viridicatae*, n. sp.; 8, *H. laticapitis*; 9, *H. clavae* Carriker; 10, *H. sincipitalis*; 11, *H. militaris*, n. sp. Fig. 12-14.—Sitophore sclerite of hypopharynx. 12, *H. kea* (Kellog); 13, *H. pitticacum* (Le Souef and Bullen); 14, *H. sincipitalis*. Fig. 15.—*H. pionopsita*, n. sp., female. Fig. 16-17.—Abdominal sternite IV. 16, *H. militaris*; 17, *H. laticapitis*. Fig. 18-20.—Dorsal setae anterior to preocular nodus. 18, *H. laticapitis*; 19, *H. sincipitalis*; 20, *H. viridicatae*. 
ferring as follows. Somewhat fewer marginal tergal setae: I, 22–25; II–V, 27–32 (29.5); VI, 26–31 (27.8); VII, 22–24; VIII, 13–16; total on III–VIII, 149–164 (154.7). Spiniform setae on sternite IV as for 9. Sternite VIII with only 22–28 (26.0) setae; genital plate with only 5–9 medium anterior setae, in addition to 6 long setae.

The less developed comb row on sternite IV, as well as quantitative details of 9 and $\delta$ terminalia chaetotaxy, best separates H. militaris from H. sincipitalis. We have series also from 3 other species of Ara which we consider to be conspecific with H. militaris. Some specimens tend to be slightly smaller and to have quantitative features slightly beyond the ranges given for H. militaris, but we attach no significance to this now, pending availability of more and better material enabling a more detailed comparison.

**Material Examined.**—Holotype 9, Ara militaris, Cincinnati, Magdalena, Colombia, Nov. 24, 1942, M. A. Carriker, Jr., at U.S. National Museum. 59, 59$, 57$ paratypes, same data as holotype; 19, 17$, 1 paratypes, A. militaris, El Bosque, La Guajira, Colombia, June 19, 1941, M. A. Carriker, Jr.; 59, 9, 9, A. amboyna (Beckstein), Colombia; 59, 39, A. chloroptera R. Gray, Colombia, Bolivia; 29, 19, 9, A. severa (L.), Bolivia.

**Heteromenopon (Heteromenopon) laticapitis**
Carriker

(Fig. 6, 8, 17, 18, 23, 27)


**FEMALE.**—Grossly as for H. sincipitalis (Fig. 1). Dorsal setae anterior to precocular nodus as in Fig. 18, with single seta almost directly anterior to complex; temple seta "a" (Fig. 6) shorter, finer, 0.08–0.12 (0.10) long; ocular seta "b" (Fig. 6) much shorter, 0.010–0.018 (0.014) long. Outer occipital seta minute, not over 0.018 long. Pronotum marginally with 14–15 long, 3–5 short setae; prosternal plate with 2–3 medium setae. Metanotal margin with 15–17 long setae; mesosternal plate with 7–8 longer setae; metasternal plate with 10–13 setae. Somewhat fewer marginal tergal setae: I, 20–25 (22.7); II, 25–27 (26.3); III–IV, 27–31 (28.7); V, 29–32 (30.3); VI, 27–28; VII, 23–25 (24.0); VIII, 13–15 (14.3); total on III–VIII, 152–155 (153.3). Last segment with 2–3 short, but not minute, inner posterior setae. Fewer sternal setae: I, 10–11; II, 44–48 (44.3); III, 29–36 (33.3); IV, 49–54 (51.3); V, 41–45 (43.3); VI, 35–41 (37.7); VII, 31–34 (32.3). Sternite IV (Fig. 17) without indication of comb row. Vulva marginally and submarginally with 49–50 setae (21–26 of these marginal between long lateroposterior setae), anteriorly with only 25–28 setae. Anal fringe ventrally with 36–37 short, fine setae (24–26 of these within portion delimited by 8 long inner setae), dorsally with 31–38 setae. Inner structure of genital chamber as in Fig. 8, irregularly circular, with weakly developed margin. Dimensions: precocular width, 0.49–0.50; temple width, 0.60–0.62; head length, 0.34–0.35; pronotarch width, 0.48–0.49; metathorax width, 0.60–0.63; total length, 2.46–2.52.

**MALE.**—Essentially as for 9. Prosternal plate with 3–6 medium setae. Marginal tergal setae: I, 22–24 (22.8); II, 26–28 (26.8); III–V, 26–30 (27.9); VI, 24–27 (26.0); VII, 23–25 (24.0); VIII, 12–15 (14.3); total on III–VIII, 144–151 (148.0). Sternite VIII with 22–26 setae; genital plate with 20–30 marginal, 4–6 long; 4–7 medium anterior setae. Genitalia as in Fig. 23; smaller than for H. sincipitalis; endosomal plate almost symmetrical, with both distal corners evenly rounded; weakly developed sclerite (Fig. 27) associated with genital sac, only sclerotized along narrow V-shaped portion; minute setae only at or near apical end of parameres. Dimensions: precocular width, 0.47–0.49; temple width, 0.57–0.59; head length, 0.33–0.34; pronotarch width, 0.42–0.47; metathorax width, 0.54–0.57; total length, 2.11–2.16; genitalia length, 0.77–0.85.

This species is best separated from H. sincipitalis and H. militaris on the basis of features of the dorsal head chaetotaxy, the shape of the inner structure of the 9 genital chamber, and the shape of the endosomal plate and genital sclerite of the $\delta$ genitalia.


**Heteromenopon (Heteromenopon) jugularis**, new species

(Fig. 29)

Type-host: Brotogetis jugularis (P. L. S. Müller).

**FEMALE.**—Much as in Fig. 1. Dorsal setae anterior to precocular nodus and temple seta "a" as for H. laticapitis (Fig. 6, 18). Ocular seta "b" rather variable, but close to that of H. sincipitalis, 0.020–0.041 (0.031) long. Outer occipital seta short (Fig. 31), but longer than for any of foregoing species, 0.016–0.038 (0.023) long. Thoracic chaetotaxy as for H. sincipitalis. Marginal tergal setae: I, 27–32 (28.6); II–V, 29–36 (32.2); VI, 28–30 (29.0); VII, 24–26 (25.3); VIII, 16–19 (18.3); total on III–VIII, 162–176 (168.7). Sternal combs as for H. militaris. Sternal setae: I, 11–16 (13.0); II, 43–49 (45.9); III, 35–41 (38.7); IV, 54–61 (57.7); V, 40–49 (45.6); VI, 40–47 (41.6); VII, 31–35 (33.4). Terminalia and inner structure of genital chamber as for H. laticapitis. Smaller than any of foregoing species: precocular width, 0.41–0.44; temple width, 0.52–0.56; head length, 0.32–0.33; pronotarch width, 0.41–0.45; metathorax width, 0.53–0.58; total length, 1.93–2.03.

**MALE.**—Head and thorax as for 9. Marginal tergal setae: I, 23–28 (26.8); II–IV, 27–33 (30.4); V, 27–31 (29.0); VI, 26–27; VII, 21–24 (22.8); VIII, 16–18 (16.6); total on III–VIII, 151–160 (155.5). Sternal setae, terminalia, and size and structure of genitalia much as for H. laticapitis; endosomal plate often with 1 side slightly more protruding (Fig. 29).
Fig. 21.—*Heteromenopon clayae* Carriker, female. Fig. 22-25.—Male genitalia. 22, *H. sincipitalis* Carriker; 23, *H. laticapitis* Carriker; 24, *H. macruum* (Eichler); 25, *H. kea* (Kellogg). Fig. 26-28.—Male genital sclerite. 26, *H. sincipitalis*; 27, *H. laticapitis*; 28, *H. clayae*. Fig. 29.—*H. jugularis*, n. sp., outline of distal portion of male genitalia. Fig. 30-31.—Occipital setae. 30, *H. sincipitalis*; 31, *H. viridicatae*, n. sp.
Smaller than any of foregoing species: preocular width, 0.39–0.41; temple width, 0.49–0.52; head length, 0.29–0.31; prothorax width, 0.37–0.41; metathorax width, 0.48–0.50; total length, 1.66–1.77.

This species is close to *H. latipennis*, having similar terminalia and genital features, as well as many aspects of chaetotaxy. It is separable by the longer ocellar setae "b" and outer opicellar setae, the somewhat larger number of tergal and sternal setae, and the consistently smaller dimensions.

**Material Examined.** — Holotype ♀, *Brotopes jugularis* El Bosque, La Guajira, Colombia, June 20, 1941, M. A. Carricker, Jr. (1338–41); at U.S. National Museum. 7♀, 10♂ paratypes, same data as holotype; 1♀, *Boborhynchus ferrugineipennis* (Lawrence), Colombia; 3♂, 1♂, *Pyrhrura molinae* (Mansena and Souancé), Bolivia.

**Heteromenopon (Heteromenopon) macrum** (Eichler), new combination

(Fig. 24)


Type-host: *Falco sparverius cinnamominus* Swainson—error. Some Neotropical member of the Psittacidae.

**FEMALE.**—Chaetotaxy of head and thorax as for *H. jugularis*. Marginal tergal setae: I, 18–24 (21.7); II, 25–27 (26.3); III–VI, 26–29 (27.8); VII, 22–25 (23.5); VIII, 15–16; total on III–VIII, 144–151. Last segment with 4–6 short, but not minute, inner posterior setae. Sternal combs as for *H. latipennis*. Sternal setae: I, 14–15; II, 51–55; III, 41–47; IV, 61–64; V, 47–50; VI, 42–46; VII, 36. Vulva marginally and submarginally with 72–74 setae (28 of these marginal between long, lateroposterior setae), anteriorly with 41–46 setae. Anal fringe ventrally with 41–46 short, fine setae (23–28 of these within portion delimited by 8 long inner setae), dorsally with 34–38 setae. Inner structure of genital chamber as in Fig. 8, with weakly developed margin. Dimensions: preocular width, 0.52–0.53; temple width, 0.66; head length, 0.38–0.41; prothorax width, 0.54–0.55; metathorax width, 0.71; total length, 2.47–2.51.

**MALE.**—Known to us only by a specimen from *Sternia*. In close general agreement with ♀. Slightly fewer marginal tergal setae on I–VIII, respectively, 18, 22, 22, 25, 26, 22, 21, and 15, with total of 131 on III–VIII. Genitalia (Fig. 24) possibly unique, with distally expanded endomeral plate and genital sclerite as illustrated; right paramere, although not shown, is undoubtedly present. Dimensions somewhat smaller that for ♀.

Eichler (1952) described *K. macrum* from 10 specimens (WEC Slide 1252) supposedly from *Falco* *sparverius* and 2 specimens (WEC Slide 1182) supposedly from *Sternia paradisaea* Pontoppidan (= *S. macrum*). Since both slides bore identical collection data and since the specimens were similar, he assumed the *Sternia* lice to be contaminants from the *Falco*, thereby establishing *F. sparverius* as the type-host. Yet the louse was named after *Sternia macrum* and the only illustration, that of the head outline, was from a *Sternia* louse of WEC Slide 1182! Eichler himself expressed doubt whether his louse species could remain in *Kurodaia*. We shared this uncertainty, but could take no action without seeing type-material, since the description was totally inadequate for proper placement.

Through the courtesy of Dr. H. Weidner, Zoologisches Museum, Hamburg, we have been able to borrow the WEC Slide 1182 and 2♀ from WEC Slide 1252. These specimens are obviously members of the Neotropical *Heteromenopon*; comparison has convinced us that this series is very close to those of *H. latipennis* and *H. jugularis*. However, the ♀ genitalia, the larger dimensions, and the more numerous ♀ vulval and anal setae are sufficiently different to leave *H. macrum* apart from other known species for the time being, even though no speculation can now be made as to the correct type-host. Only gross contamination could have resulted in ascribing a psittaciform louse to both *Falco* and *Sternia*.

**Material Examined.**—2♀ paratypes of *K. macrum* (WEC Slide 1252), *Falco sparverius*, Chile; 1♀, 1♂ paratypes of *K. macrum* (WEC Slide 1182), *Sternia macrum*, Chile—both hosts in error.

**Heteromenopon (Heteromenopon) viridicatae**, new species

(Fig. 7, 20, 31)

Type-host: *Pyrhrura viridicata* Todd.

**FEMALE.**—Close to Fig. 1. Dorsal setae anterior to preocular nodus as in Fig. 20, with single seta usually more mediad than anterior to complex; temple seta "a", ocular seta "b", and outer opicellar setae as for *H. jugularis*. Pronotal margin with 13–14 long, 2–4 short, and total of 16–17 setae; prosternal plate with 5–8 (6.3) medium setae. Marginal tergal setae: I, 23–29 (26.1); II, 27–32 (29.4); III, 30–32 (31.3); IV, 27–32 (29.3); V, 26–29 (27.7); VI, 23–28 (26.3); VII, 22–26 (23.9); VIII, 15–17 (15.9); total on III–VIII, 147–159 (153.3). Last segment with 2–6 inner posterior setae, all minute, none reaching beyond end of abdomen. Sternal setae: I, 15–18 (16.2); II, 37–50 (43.0); III, 32–44 (37.3); IV, 56–64 (59.3); V, 45–49 (47.0); VI, 40–41; VII, 31–34 (32.1). No compact comb row on sternite IV, but occasionally few scattered short spiniform setae. Vulva marginally and submarginally with 51–56 setae (26–31 of these marginal between long lateroposterior setae), anteriorly with 26–35 setae. Anal fringe ventrally with 38–42 short fine setae (24–27 of these within portion delimited by 8 long inner setae), dorsally with 33–41 setae. Inner structure of genital chamber as in Fig. 7, essentially round, with well defined thick margin. Dimensions: preocular width, 0.45–0.46; temple width, 0.58–0.61; head length, 0.34–0.35; prothorax width, 0.45–0.48; metathorax width, 0.58–0.63; total length, 2.20–2.40.

**MALE.**—Chaetotaxy essentially as for ♀. Dorsal setae anterior to preocular nodus somewhat variable, with 1 side often with single seta mediad (Fig. 20)
to complex, that of other side medioanterior to complex. Slightly fewer marginal setae: I, 21-27 (23.8); II-V, 24-30 (26.9); VI, 23-25 (24.0); VII, 19-23 (21.5); VIII, 12-15 (13.5); total on III–VIII, 136-145 (139.6). Sternite VIII with 21-25 (23.0) setae; genital plate marginally with 26-30 setae, anteriorly, 11-13. Genitalia close to those of *H. laticapitis* (Fig. 23), but with genital sclerite developed more for *H. succinctalis* (Fig. 26). Dimensions: preocular width, 0.34-0.44; temple width, 0.54-0.56; head length, 0.32-0.33; prothorax width, 0.41-0.43; metathorax width, 0.49-0.51; total length, 1.90-1.99; genitalia length, 0.82-0.85.

This species is best separated from the closely related *H. jugularis* by the distinctive inner structure of the 9th genital chamber, the alignment of the dorsal head setae anterior to the preocular nodus, the fewer total marginal setae on III–VIII, and the slightly larger size.

**Material Examined.**—Holotype ♀, *Pyrhrhura subandina*, Guanalito, Santander N., Colombia, June 14, 1943, M. A. Carriker, Jr. (4334–8); at U.S. National Museum. 4 ♀, 3♂ paratypes, same data as holotype.

**Heteromenopon (Heteromenopon) aurifrons,** new species

Type-host: *Psilorhaphis aurifrons* (Lesson).

**FEMALE.**—Dorsal setae anterior to preocular nodus as in Fig. 19; temple seta "a" from 0.097 to 0.170 long; ocular seta "b" from 0.032 to 0.041 long; outer occipital seta long, 0.09 or more, reaching at least to transverse thickening of prothorax (Fig. 15). Thoracic chaetotaxy much as for *H. succinctalis* (Fig. 1). Marginal setae: I, 23-27 (24.5); II–III, 28-33 (30.4); IV-V, 29-34 (31.3); VI, 26-29 (27.8); VII, 25-26 (24.4); VIII, 14-17 (16.2); total on III–VIII, 159-167 (161.8). Last tergite with 3 very long setae on each side, preceded by a fine, medium, lateral seta, and with 4-7 short, but not minute, inner posterior setae. Sternal setae: I, 10-15 (12.3); II, 40-51 (44.0); III, 35-49 (40.5); IV, 67-83 (73.8); V, 54-66 (60.0); VI, 49-57 (52.4); VII, 40-51 (45.6). Sternite III with 2-3 well-developed comb rows on each side; IV with only few scattered spiniform setae, usually not in compact row as on III. Vulva marginally and submarginally with 52-66 short to medium setae (22-26 of these marginal between long lateroposterior setae), anteriorly 36-46 short to very long setae. Anal fringe ventrally with 52-55 short, fine setae (34-41 of these in area delimited by 8 long inner setae), dorsally with 50-56 fine, medium to long setae in irregular row. Inner structure of genital chamber as for *H. laticapitis* (Fig. 8). Dimensions: preocular width, 0.42-0.44; temple width, 0.55-0.58; head length, 0.32-0.34; prothorax width, 0.41-0.44; metathorax width, 0.56-0.61; total length, 2.12-2.23.

**MALE.**—Head and thorax as for ♀. Slightly fewer marginal setae: I, 19-22 (20.3); II, 24-25; III-V, 25-27 (25.9); VI, 23-25 (23.7); VII, 20; VIII, 12-14 (13.3); total on III–VIII, 131-138 (134.7). Fewer sternal setae: I, 10-12 (11.3); II, 38-41 (39.7); III, 31-37 (33.7); IV, 55-62 (57.7); V, 42-47 (44.7); VI, 40-43 (41.3); VII, 31-36 (34.0); VIII, 28-30 (29.0); genital plate with 22-31 marginal, 11-13 anterior setae. Genitalia close to those of *H. laticapitis* (Fig. 23, 27). Smaller than ♀: preocular width, 0.39-0.41; temple width, 0.50-0.53; head length, 0.30-0.32; prothorax width, 0.37-0.39; metathorax width, 0.45-0.49; total length, 1.71-1.82; genitalia length, 0.73-0.77.

This species is distinctive from all of the foregoing species by having long outer occipital setae. Further differences are found in quantitative features of abdominal chaetotaxy, especially the more abundant sternal setae of the ♀, and in the dimensions.

**Material Examined.**—Holotype ♀, *Psilorhaphis ornibignyi*, Callipampia, Bolivia, June 3, 1936, M. A. Car-
Heteromenopon (Heteromenopon) pionoplatae
new species

(Fig. 15)

Type-host: Pionopsita kaematois pulchra Berlepsch.

FEMALE.—As in Fig. 15. Very long temple seta “a”, 0.28 long; outer occipital setae long, as for H. aurifrons. Margin of metanotum with 12 setae. Marginal tergal setae on I–VIII, respectively, 18, 21, 23, 21, 21, 19, and 13, with total of only 120 on III–VIII. Last segment with 2 long, inner posterior setae. Sternal setae on I–VII, respectively, 7, 31, 46, 50, 55, 52, and 45. Sternite III with 3 well-developed comb rows on 1 side, 2 plus fragments of third on other; IV with 2 comb rows on each side, compact as on III, with posterior row of 10 setae each, anterior of 4 each. Sternites VII–VIII completely separated. Vulva marginally and submarginally with 58 setae, anteriorly with 44. Anal fringe ventrally of 40 setae (28 within area delimited by 8 inner long setae), dorsally of 49. Without evident inner structure of genital chamber. Dimensions: procecal width, 0.56; temple width, 0.69; head length, 0.38; prothorax width, 0.54; metathorax width, 0.62; total length, 2.24.

MALE.—Unknown.

Although known only from the ♀, H. pionoplatae is easily separated from other described species by the long outer occipital setae in combination with the long inner posterior setae of the last segment, the 2 comb rows on each side of sete; IV, and other features of chaetotaxy and size.

Material Examined.—Holotype ♀, Eucinetus pulchra, Nazaret, Bolivar, Colombia, Mar. 4, 1949, M. A. Carriker, Jr.; at U.S. National Museum.

Heteromenopon (Heteromenopon) clayae

Carriker

(Fig. 9, 21, 28)


FEMALE.—As in Fig. 21. Head chaetotaxy close to H. laticapitis. Pronotal margin with 15–17 long, 3–5 short setae; prosternal plate with 2–5 medium setae. Metanotal margin with 17–20 setae; mesosternal plate with 5–9 medium setae; metasternal plate with 12 setae. Marginal tergal setae: I, 19–22 (20.8); II–III, 21–27 (23.8); IV–V, 26–29 (27.6); VI, 22–27 (25.3); VII, 22–25 (23.0); VIII, 13–17 (15.3); total on III–VIII, 131–152 (142.0). Single row of 10–18 medium anterior tergal setae on each of II–VI, 3–7 on VII, 0–1 on VIII. No evidence of comb row on sternite IV. Inner structure of genital chamber as in Fig. 9, with thin margin. Otherwise, sternal and terminalia chaetotaxy and dimensions essentially as for H. laticapitis.

MALE.—Much as for ♀. Metanotum with over 20 medium medioanterior setae. Anterior tergal setae of 11–19 on each of I–V, 10–15 on VI, 7–10 on VII, 2–4 on VIII. Sternal and terminalia chaetotaxy close to H. laticapitis, except for only 14–17 marginal setae on genital plate. Genitalia generally as for H. laticapitis, but with short, U-shaped sclerite (Fig. 28) associated with genital sac. Dimensions as for H. laticapitis.

This species is easily separated from all other known species of Heteromenopon in that it is the only member that possesses a row of anterior setae on most tergites.

Material Examined.—4 ♀, 4 ♂ (paratypes of H. clayae), Ara manillata, Brit. Guiana.

In addition to the material used for the foregoing descriptions and material that we consider to be conspecific with it, we have available specimens from certain other hosts. This material, all of which belongs to Heteromenopon, is either in poor condition or not in sufficient number to enable handling it either as new species or as belonging to any of the recognized species. We are listing these specimens here only to point out that Heteromenopon has been collected from these additional hosts: 1♀, 1♂, Pyrrhura frontalis (Vieillot), Brazil; 1♀, P. melanura (Spix), Colombia; 2♀, 1♂, Aratinga leucophthalus cailloynges (Salvadori), Peru; 1♀, 1♂, A. holochlora (Sclater), Mexico; 1♀, Pionus sordidus (L.), Bolivia; 1♀, Brotogeris cyanoptera (Salvadori), Colombia.

Subgenus Keamenopon, new subgenus

Type-species: Heteromenopon kea (Kellogg).

The lice within this subgenus are known to occur on Strigops and Nestor of New Zealand and on Platyceurus of Australia. They are separable from members of the subgenus Heteromenopon by the following characteristics:

1) Anus of ♀ ventrally with shorter among longer setae, and without suggestion of inner setae (Fig. 32, 33).
2) ♂ genitalia with essentially symmetrical endo-

moral plate; paramere length variable, but each without any minute apical setae (Fig. 25).
3) Postspicular seta outmost on I–VIII.
4) Without evident internal structure of ♀ genital chamber.
5) Outer occipital setae as long as inner.
6) Dorsum of head apparently without scattered minute alveoli.
**Heteromenopon (Keamenopon) kea** (Kellogg), new combination

(Fig. 12, 25, 32)


**FEMALE.**—As in Fig. 32. Both pairs of occipital setae long. Sitophore selerite of hypopharynx as in Fig. 12. Margin of pronotum with 10 long, 8–10 short setae; prosternal plate with 1–2 medium setae. Metanotal margin with 10–12 setae. Marginal tergal setae: I, 19–20; II–VII, 21–27 (23.7); VIII, 13–17; total on III–VIII, 129–137 (133.3). Last tergite with 2 very long setae on each side, preceded by 2 shorter, finer setae, and with 7–9 long inner posterior setae. No anterior tergal setae. Sternal setae: I, 14; II–V, 35–49 (41.4); VI, 33–40 (37.3); VII, 31–35 (33.3). Sternite III with 2 well-developed comb rows on each side, none on IV (occasionally 1–2 short spiniform setae, but no row as such). Stermites VII–VIII not fused. Vulva marginally with 45–47 rather short setae, anteriorly with 45–49. Ventral anal fringe of 24–27 setae; dorsal fringe of 26–31 setae of variable lengths, in irregular row. Dimensions: procoelar width, 0.44–0.45; temple width, 0.36–0.58; head length, 0.32; prothorax width, 0.41; metathorax width, 0.54–0.55; total length, 2.02–2.07.

**MALE.**—Except for ventral terminalia, essentially as for ♀. Sternite VIII with 25–29 setae; genital plate with 19–23 marginal, 13–14 anterior setae. Genitalia as in Fig. 25, parameres extending distinctly beyond endomeral plate, without evident selerite associated with genital sac, and with basal plate expanded toward anterior end. Somewhat smaller than ♀: procoelar width, 0.42–0.44; temple width, 0.54–0.55; head length, 0.31–0.32; prothorax width, 0.38–0.41; metathorax width, 0.49–0.51; total length, 1.78–1.86; genitalia length, 0.69–0.75.

This species was described by Kellogg (1907) from 3 adults and several young. We have obtained the loan of this entire type-series and, although the speci-
mens are not in very good condition, they are similar in all discernible respects to others we have from the kea. We here designate as lectotype the δ on the slide bearing Kellogg’s original label; the other specimens are on 4 slides carrying the same data but with labels placed on them by Dr. Emerson when he remounted the material in 1946.

Carriker (1954) stated that he had seen no specimens of this louse from the kea, and could not therefore say whether it may remain in Psittacomenepon, where it was placed by Hopkins and Clay (1952).

Now that we have been able to study specimens, we have determined its affinities to be close to Heteromenopon and have designated it as the type-species of the new subgenus Keamenopon.

Material Examined.—2♀, 7♂ (including 1♀, 2♂ of type-series of M. kea from the Kellogg Collection, Univ. of California), Nestor notabilis, New Zealand; 2♀, Strigops [habroptilus G. R. Gray], New Zealand.

**Heteromenopon (Keamenopon) psittacum**

(Le Souef and Bullen), new combination

(Fig. 13, 33)

*Menopon psittacum* Le Souef and Bullen, 1902, Vict. Nat. 18: 158. Type-host: *Platyceorus eximius* (Shaw).


**FEMALE.**—As in Fig. 33. Close to *H. kea*. Occipital setae missing, but both pairs long in other series. Sitophore sclerite of hypopharynx as in Fig. 13. Margin of pronotum with 8 long, 13 short setae; prosternal plate with 1 medium seta. Metanotum marginal with 13 setae, including 3 minute ones. Tendency for reduced number of marginal tergal setae, with 18, 20, 23, 21, 19, 19, 17, and 11 on I–VIII, respectively; total on III–VIII, 110. Only 4 inner posterior setae on last segment. Fewer sternal setae on 1, 6, 7, 30, and III, 31. Sternite IV with 2–4 short spiniform setae on each side, suggestive of very short comb row. Sternites VII–VIII fused. Vulva with 35 marginal, 38 anterior setae. Anal fringes of 23 ventral, 20 dorsal setae, the latter in single line, not giving effect of any inner setae. Pleura II–VII each with conspicuous, circular, internal thickening. Dimensions slightly larger than for *H. kea*: procoec width, 0.47; temp width, 0.59; head length, 0.39; prothorax width, 0.42; metathorax width, 0.60; total length, 2.16.

**MALE.**—Generally as for ♀, but with fewer marginal tergal setae on I–VIII, respectively, 15, 16, 18, 17, 18, 16, 15, and 7; total on III–VIII, 91. Fewer sternal setae on I–VI, respectively, 3, 28, 26, 33, 33, and 30. Genitalia much as for *H. kea*; parameres either short of or extending up to (but not beyond end of) endomeral plate; condition of basal plate not discernible. Dimensions slightly smaller than ♀ and somewhat larger than δ of *H. kea*: procoec width, 0.45; temp width, 0.56; head length, 0.37; prothorax width, 0.40; metathorax width, 0.53; total length, 1.90.

This species is very close to *H. kea* in both sexes, but the δ is separable in having fused sternites VII–VIII, dorsal anal setae in an even, single row, only 8 long marginal pronatal setae, a distinctively different sitophore sclerite, as well as other features of chaetotaxy and size. The δ of *H. psittacum* also has only 8 long marginal pronatal setae, a distinct sitophore sclerite, possibly fewer tergal and sternal setae, as well as perhaps a significant difference in length of parameres. The ♀ of the other series from *Platyceorus* species either do not show the circular pleural thickenings, or are inconsistent in possessing them; since the series are so short and agree in other features, we have placed no significance on this for the present.

**Material Examined.**—1♀, 1♂, *Platyceorus eximius*, Tasmania; 2♀, *P. zonarius* (Shaw), S. W. Australia; 2♀, 1♂, *P. elegans* (Gmelin), Australia.

**KEY TO THE SPECIES OF Heteromenopon**

1. Anterior setae present on tergites II–VI (Fig. 21) ................................................................. **psittacum** Carriker Anterior setae absent on tergites II–VI ................................................................. 2

2. Outer occipital setae long, extending to or beyond transverse prothoracic thickening ............. 3

3. At least tergites III–VI with marginal seta posterior to or lateroposterior to postspiracular seta. ♀: with inner ventral anal setae. δ: parameres of genitalia with minute apical setae (δ of *pionopisittae* unknown) .......... 4


4. Sternite IV with 2 comb rows on each side. ♀: long inner posterior setae on last tergite (Fig. 15); total of fewer than 130 marginal setae on tergites III–VIII ......................................... *pionopisittae*, n. sp.

5. Sternite IV with at most only few spiniform setae in short loose single row. ♀: very short, fine, inner posterior setae on last tergite; total of more than 150 marginal setae on tergites III–VIII ................. *aurifrons*, n. sp.

5. Margin of pronotum with 10 long setae; sitophore sclerite of hypopharynx as in Fig. 13 ........ *psittacum* (Le Souef and Bullen)

6. ♀: inner structure of genital chamber as in Fig. 10 or 11, longer than wide, with relatively thick margin. δ: genitalia at least 0.90 long; endomeral plate usually having pronounced distal expansion to only 1 side (Fig. 22); with prominent V-shaped genital sclerite (Fig. 26) .......... 7

♂: inner structure of genital chamber not as above (Fig. 7 or 8). δ: usually smaller genitalia, less than 0.85 long; endomeral plate not as above (Fig. 23, 24, or 29) and genital sclerite variable ................................................................. 8

7. Sternite IV with compact comb row of 6 or more setae on each side. ♀: ventral anal fringe with 35 or more setae in area delimited by 8 long inner setae. δ: sternite VIII with more than 30 setae, genital plate with more than 17 anterior setae; total of more than 170 marginal setae on tergites III–VIII ........................................ **sincipitalis** Carriker Sternite IV without compact comb row as above, but with up to 6 loosely organized short, spiniform setae on each side. ♀: ventral anal fringe with fewer than 35 setae in area delimited by 8
long inner setae. $\delta$: sternite VIII with fewer than 30 setae, genital plate with fewer than 17 anterior setae; total of fewer than 170 marginal setae on tergites III-VIII.  

**militaris**, n. sp.

8. $\phi$: vulva marginally and submarginally with 70 or more setae, anteriorly over 40; ventral anal fringe of over 40 setae. $\delta$: genitalia as in Fig. 24.  

**macranum** (Eichler)

$\phi$: vulva marginally and submarginally with fewer than 60 setae, anteriorly fewer than 40; ventral anal fringe usually of not over 40 setae. $\delta$: genitalia not as in Fig. 24.

9. Ocular seta "b" short, 0.010-0.018 long (Fig. 6); both outer occipital setae minute, up to 0.018 long (Fig. 30). $\phi$: inner structure of genital chamber as in Fig. 8, or more rounded, with weakly developed margin; temple width 0.60-0.62. $\delta$: temple width 0.57-0.59.

**laticapitis** Carriker

Ocular seta "b" longer, at least 0.020 long (Fig. 5); at least 1, usually both, outer occipital setae longer, 0.020 or more (Fig. 31). $\phi$: inner structure of genital chamber as in Fig. 7, with well-defined, thick margin, or, if near to Fig. 8, with thin margin, then temple width 0.52-0.56. $\delta$: temple width 0.49-0.56.

10. At least 1 side with dorsal setae anterior to preocular nodus as in Fig. 20, with single seta more mediad than anterior to complex. $\phi$: total of fewer than 160 marginal setae on tergites III-VIII. $\delta$: total of fewer than 150 marginal setae on tergites III-VIII.  

**viridicatace**, n. sp.

Both sides with dorsal setae anterior to preocular nodus as in Fig. 18 or 19, with single seta more anteriorly placed. $\phi$: total of over 160 marginal setae on tergites III-VIII. $\delta$: total of over 150 marginal setae on tergites III-VIII.

11. $\phi$: inner structure of genital chamber as in Fig. 8, or more rounded, with weakly developed margin; last tergite with all inner posterior setae minute, none reaching beyond end of abdomen. $\delta$: inseparable from below.  

**jugularis**, n. sp.  

$\phi$: inner structure of genital chamber as in Fig. 7, with well-defined thick margin; last tergite with at least 1 longer inner posterior seta extending to or slightly beyond margin of abdomen.

**pictae**, n. sp.

**REFERENCES CITED**


