

NOTES ON THE MENOPONIDAE OF NORTH AMERICA. II.

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Genus **MACHAERILAEMUS** Harrison, 1915

- Machaerilaemus* Harrison: Parasitology, VII, p. 389 (1915).  
*Machaerilaemus* Harrison: Harrison, Parasitology, IX, p. 60 (1916).  
*Hirundoecus* Ewing: Proc. U. S. N. M., LXXVII, Art. 20, p. 12 (1931).  
*Machaerilaemus* Harrison: Bedford, 18th Rept. Dir. Vet. Serv. and Anim.  
Ind. Un. S. Africa, p. 377 (1932).  
*Hirundoecus* Ewing: Bedford, *ibid*, p. 380.  
*Machaerilaemus* Harrison: Malcomson, Ann. Entom. Soc. Amer., XXX,  
p. 53 (1937).  
*Machaerilaemus* Harrison: Clay and Meinertzhagen, Ann. and Mag.  
Nat. Hist., ser. 11, VII, p. 330 (1941).  
*Machaerilaemus* Harrison: Carriker, Boletín de Entomología Venezo-  
lana, III, p. 65 (1944).

Head broad, twice as wide as long or more; sides of forehead swollen with lateral margins entire. Deep pouchlike antennal fossae in which lie the last segments of the antennae. Dorsal surface of the head with or without a Y shaped suture. Gular plate large, distinct, not fused to the chitinous framework; and with or without a central opening; its lateral margins either with a pair of backward-projecting processes or somewhat swollen anteriorly and without definite processes.

Prothorax broad and winged; prosternal plate distinctive. Mesonotum small and separated from the prothorax by a narrow suture. Third femora without combs or patches of setae.

Abdominal segments broad, armed caudally with single rows of marginal setae and a few lateral spines; paratergal plates without internal thickenings. Sternal plates narrow, each with two irregular rows of setae but without combs or patches of setae. Sternites II-VII each with one to six pairs of short stout spines on the posterolateral angles, the latter being sometimes slightly produced posteriorly.

Male genitalia with an elongate somewhat flat basal plate, free paramera, and bluntly pointed mesomal plate.

Distribution: Apparently confined to the Passeres, where it is uncommon.

Genotype: *Machaerilaemus latifrons* Harrison, 1915.

### MACHAERILAEMUS MAESTUM (Kellogg and Chapman, 1899)

(Figs. 9 and 16)

*Menopon maestum* Kellogg and Chapman: New Mallophaga, III, p. 130, pl. ix, f. 2 (1899); Harrison, Parasitology, IX, p. 40 (1916); Essig, Insects of Western North America, p. 128 (1926); Geist, Ohio Jour. Sci., XXXI, p. 505 (1931).

*Machaerilaemus maestum* (Kellogg and Chapman): Peters, Bird-Banding, VII, p. 25-27 (1936); Malcomson, Ann. Entom. Soc. Amer., XXX, p. 55 (1937); Clay and Meinertzhagen, Ann. and Mag. Nat. Hist., ser. 11, VII, p. 331-332 (1941); Carriker, Boletin de Entomologia Venezolana, III, p. 71-73 (1944).

Type host: *Zonotrichia coronata* (Pallas), Golden-crowned Sparrow, and *Melospiza melodia samuelis* (Baird), Samuel's Song Sparrow, both collected in California.

In addition to the types, this form has been collected from the hosts and localities from North America as listed:

*Pipilo erythrophthalmus erythrophthalmus* (Linn.), Red-eyed Towhee—Ohio, N. H., N. Y., and S. C.

*Pipilo maculatus oregonus* Bell, Oregon Towhee—Oregon.

*Poaecetes gramineus gramineus* (Gmelin), Eastern Vesper Sparrow—Mich.

*Junco hyemalis hyemalis* (Linn.), Slate-colored Junco—N. H.

*Zonotrichia albicollis* (Gmelin), White-throated Sparrow—S. C.

*Melospiza melodia melodia* (Wilson), Eastern Song Sparrow—N. H.

Carriker has noted that the description and illustrations by Kellogg and Chapman did not agree with specimens from the Oregon Towhee and after examining the type specimens, the writer concurs in Carriker's findings.

**MACHAERILAEMUS LATICORPUS** (Carriker, 1903)

(Fig. 3)

*Menopon laticorpus* Carriker: Univ. Studies, Univ. Nebr., III, No. 2, p. 68, pl. vii, f. 5 (1903).

*Machaerilaemus laticorpus* (Carriker): Harrison, Parasitology, IX, p. 60 (1916); Geist, Ohio Jour. Sci., XXXI, p. 506 (1931); Thompson, Canad. Entom., LXVI, p. 279 (1934); Malcomson, Ann. Entom. Soc. Amer., XXX, p. 55 (1937); Clay and Meinertzhagen, Ann. and Mag. Nat. Hist., ser. 11, VII, p. 331-332 (1941); Carriker, Boletín de Entomología Venezolana, III, p. 67-68 (1944).

Type host: *Thamnophilus dolia. us mexicanus* collected in Costa Rica. North American collections of this species are:

*Dolichonyx oryzivorus* (Linn.), Bobolink—Ohio.

*Passerina cyanea* (Linn.), Indigo Bunting—Ohio.

*Molothrus ater ater* (Boddaert), Eastern Cowbird—Ohio.

*Euphagus carolinus* (Müller), Rusty Grackle—Quebec, Canada.

Specimens examined in this study were collected off the Antillean Elaenia, *Elaenia martinica martinica*, from St. Lucia, British West Indies.

**MACHAERILAEMUS COMPLEXUS** Malcomson, 1937

(Fig. 5)

*Machaerilaemus complexus* Malcomson: Ann. Entom. Soc. Amer., XXX, p. 53 (1937); Clay and Meinertzhagen, Ann. and Mag. Nat. Hist., ser. 11, VII, p. 331-332 (1941).

Type host: *Spizella pusilla pusilla* (Wilson), Eastern Field Sparrow, collected in Pennsylvania.

This species is known only from the type series, a part of which was used for this study.

**MACHAERILAEMUS AMERICANUS** (Ewing, 1930)

(Figs. 18 and 19)

*Hirundoecus americanus* Ewing: Proc. U. S. N. M., 77 (20), p. 13-16, f. 6 and 7f (1930).

*Machaerilaemus americanus* (Ewing): Clay and Meinertzhagen, Ann. and Mag. Nat. Hist., ser. 11, VII, p. 331-332 (1941).

Type host: *Progne subis subis* (Linn.), Purple Martin, collected in New Mexico.

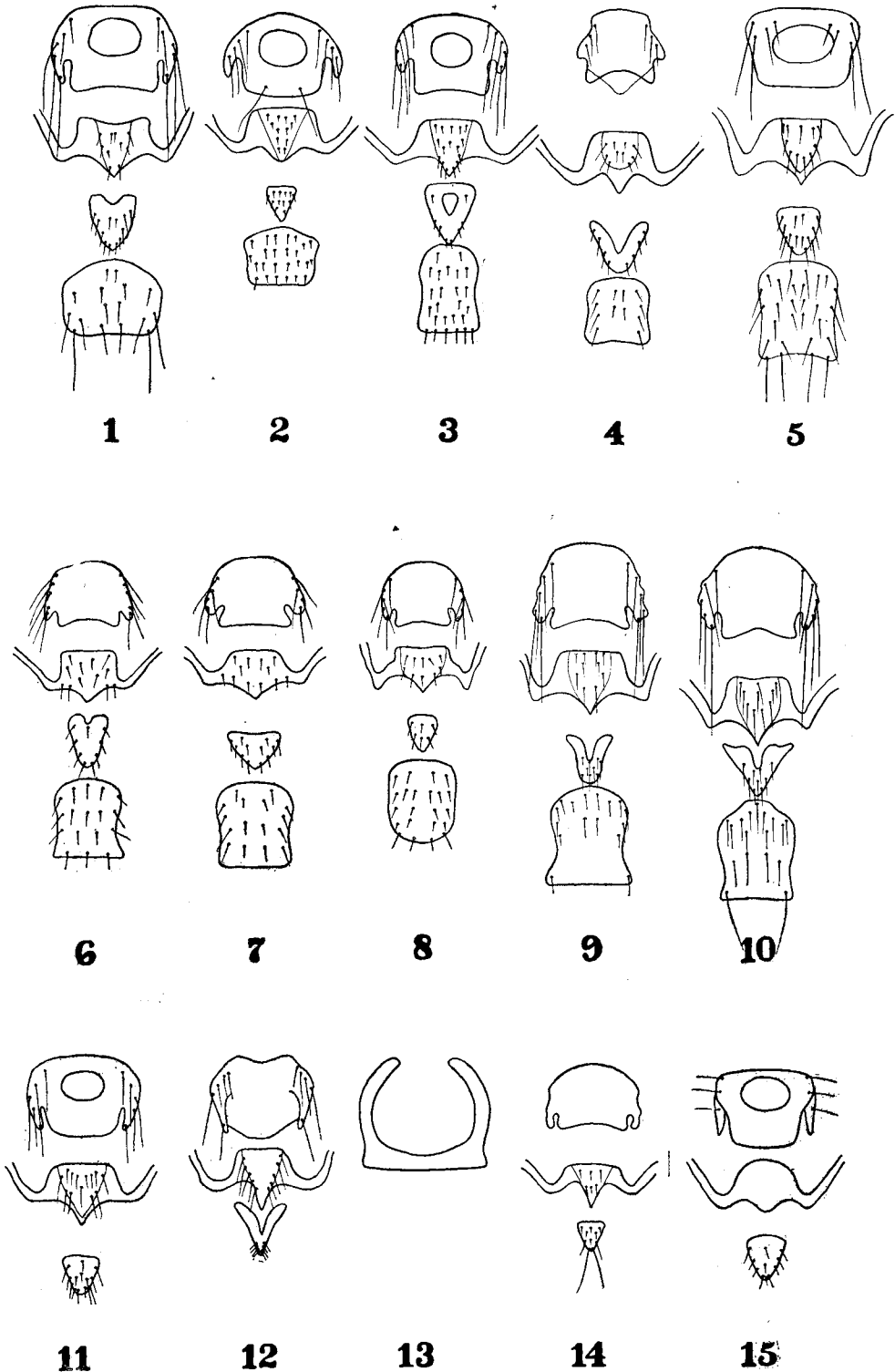
This species is known only from the type specimen, a female, which was used in this study.

**MACHAERILAEMUS MALLEUS** (Burmeister in Nitzsch, 1818)

(Fig. 13)

*Eureum malleus* Burmeister in Nitzsch, Germar's Mag. Entom., III, p. 301 (1818); Burmeister, Handbuch d. Entom., II, pt. ii, p. 441 (1838); Denny, Monographia Anoplurorum Britanniae, p. 238 (1842); Giebel, Insecta Epizoa, p. 249 (1874); Piaget, Les Pediculines, p. 608 (1880); Piaget, Les Pediculines, Supplement, p. 139, pl. xv, f. 3 (1885); Harrison, Parasitology, IX, p. 62 (1916); Essig, Insects of Western North America, p. 130 (1926).

*Menopon malleus* (Nitzsch): Kellogg and Chapman, New Mallophaga, III, p. 133-135, pl. ix, f. 3 (1899); Paine, Rept. Laguna Marine Lab., p. 176 (1914).



Figs. 1-15, Gular region and thoracic sternal plates of *Machaerilaemus* spp.: 1, *M. hawaiiensis* (Kellogg and Chapman); 2, *insignis* Carriker (redrawn); 3, *laticarpus* (Carriker); 4, *atrocephalus* Carriker (redrawn); 5, *complexus* Malcomson; 6, *juninensis* Carriker (redrawn); 7, *robertsi* Carriker (redrawn); 8, *bolivianus* Carriker (redrawn); 9, *maestum* (Kellogg and Chapman); 10, *submaestum* n. sp.; 11, *latifrons* Harrison; 12, *plöcei* Bedford (redrawn); 13, *malleus* (Burmeister); 14, *tachuris* Carriker (redrawn); 15, *poecilottis* Carriker (redrawn).

*Hirundoecus malleus* (Nitzsch): Bedford, 18th Rept. Dir. Vet. Serv. and Anim. Ind. Un. S. Africa, p. 380 (1932).

*Machaerilaemus malleus* (Nitzsch): Clay and Meinertzhagen, Ann. and Mag. Nat. Hist., ser. 11, VII, p. 331 (1941).

Type host: *Hirundo rustica* Linn.

North American collections of this species from the Cliff Swallow, *Petrochelidon albifrons albifrons* (Rafinesque), taken in California by Kellogg and Paine, were studied by the author.

#### DISCUSSION

The genus as now defined, is world wide in distribution, and rarely collected. It is a homogeneous one, the species being remarkably similar in most characters, yet there is little difficulty in separating them. The characters which seem to be most stable have been used in a key. An examination of the type specimen of *Menopon hawaiiensis* Kellogg and Chapman shows that it must be included in the genus as well as *M. submaestum* n. sp., *vide infra*.

#### OTHER SPECIES IN THE GENUS

*Machaerilaemus latifrons* Harrison, 1915, type host: *Poephila gouldiae*.

*Machaerilaemus plocei* Bedford, 1920, type host: *Quelea sanguinirostris lathamii*.

*Machaerilaemus poecilotis* Carriker, 1944, type host: *Pogonotricus poecilotis*.

*Machaerilaemus insignis* Carriker, 1944, type host: *Ochthoeca rufipectoralis tectricialis*.

*Machaerilaemus juninensis* Carriker, 1944, type host: *Agriornis montana insolens*.

*Machaerilaemus robertsi* Carriker, 1944, type host: *Cnemarchus rufipennis*.

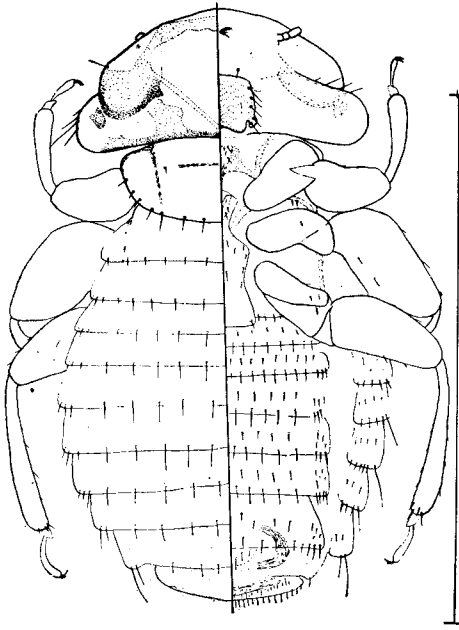
*Machaerilaemus bolivianus* Carriker, 1944, type host: *Muscisaxicola capistrata borealis*.

*Machaerilaemus tachuris* Carriker, 1944, type host: *Tachuris rubrigaster grandis*.

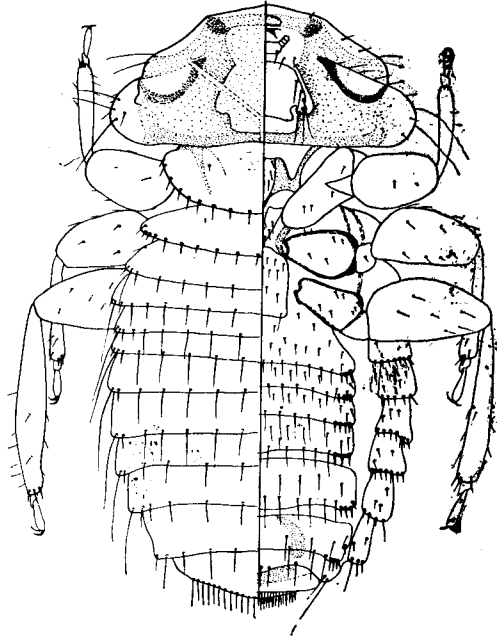
*Machaerilaemus atrocephalus* Carriker, 1944, type host: *Asthenes modesta rostrata*.

*Machaerilaemus hawaiiensis* (Kellogg and Chapman, 1902) *mihi*, type host: *Chlorodrepanis virens*.

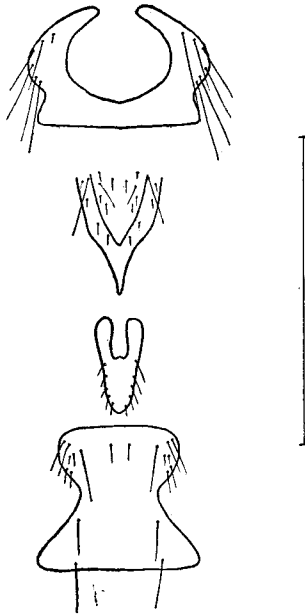
*Machaerilaemus submaestum* n. sp., type host: "Blue-backed Tanager."



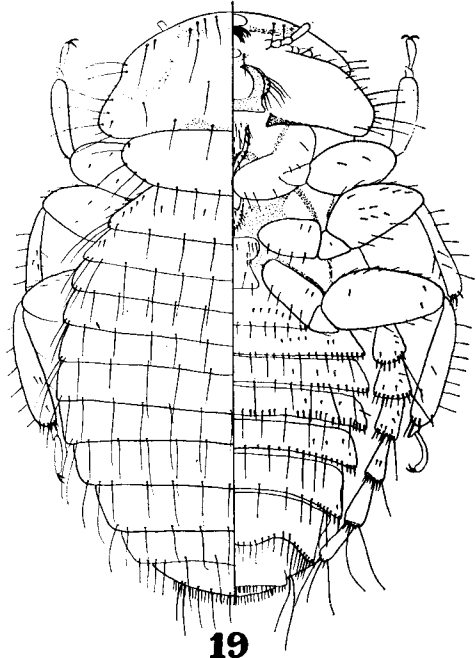
16



17



18



19

Fig. 16, *Machaerilaemus maestum* (Kellogg and Chapman), female; 17, *submaestum* n. sp., female; 18, *americanus* (Ewing), gular region and thoracic sternal plates; 19, *americanus* (Ewing), female.

**MACHAERILAEMUS SUBMAESTUM** n. sp.

(Figs. 10 and 17)

*Menopon maestum* Kellogg and Chapman: Kellogg and Paine, Entom. News, XXII, p. 23 (1910).

**FEMALE:** The head is more than twice as broad as long, with the cephalic margin slightly angular. On the dorsal surface of the head is a Y-shaped suture present in several other species of the genus. The gular plate is entire, with posterolateral processes. Five hairs arise from the plate on each lateral margin (fig. 10). The head is more heavily pigmented than in *M. maestum*.

The prothorax is winged, with an interscapular bar not quite reaching the scapulars. Mesothorax and metathorax are alike; viewed dorsally, they resemble abdominal segments. The thoracic sterna are shown in fig. 10. The coxae of the first pair of legs are elongate; the femora, stout and strongly arched; the tibiae, long and tapering at the proximal end.

The abdomen is widest at the fourth segment and dark straw colored with brown transverse bands. The chaetotaxy of the abdomen is shown in fig. 17. Three or four short spines present on the posterolateral angles of the sternites are heavier than in *M. maestum*.

**Diagnosis:** This form is very closely related to *M. maestum*. Figs. 9 and 10 show ample differences of the gular plates and the thoracic sternal plates of the two species. The chaetotaxies of the head and abdomen and the pigmentation shown in figs. 16 and 17 clearly illustrate further differences.

Type host: "Blue-backed Tanager."

Type locality: Choros, Bolivia.

Type material: Three females, belonging to the Stanford University Natural History Museum.

**KEY TO THE SPECIES OF MACHAERILAEMUS**

- |    |   |                     |
|----|---|---------------------|
| A. | Gular plate with a circular opening in the center.....                          | B                   |
|    | Gular plate open on the cephalic margin.....                                    | N                   |
|    | Gular plate without an opening.....   | G                   |
| B. | Gular plate with a pair of caudally pointing spinose processes.....             | C                   |
|    | Gular plate without caudally pointing processes.....                            | <i>complexus</i>    |
| C. | Dorsal surface of the head with a Y-shaped suture.....                          | D                   |
|    | Dorsal surface of the head without a Y-shaped suture.....                       | E                   |
| D. | Mesothoracic sternal plate concave on caudal margin, somewhat heart-shaped..... | <i>hawaiiensis</i>  |
|    | Mesothoracic sternal plate with a straight or convex caudal margin.....         | <i>latifrons</i>    |
| E. | Mesothoracic sternal plate with an opening in the center.....                   | <i>laticorpus</i>   |
|    | Mesothoracic sternal plate solid.....   | F                   |
| F. | A pair of hairs on the caudal margin of the gular plate.....                    | <i>insignis</i>     |
|    | Gular plate without hairs on the caudal margin.....                             | <i>poecilotus</i>   |
| G. | Y-shaped suture on the dorsal surface of the head.....                          | I                   |
|    | No Y-shaped suture on the dorsal surface of the head.....                       | H                   |
| H. | Gular plate with convex cephalic margin.....                                    | <i>atrocephalus</i> |
|    | Gular plate with concave cephalic margin.....                                   | <i>plocei</i>       |

- I. Posterior margin of the head strongly convex..... *tachuris*  
 Posterior margin of the head slightly concave..... J
- J. Only four setae on each lateral margin of the gular plate..... K  
 More than four setae on each lateral margin of the gular plate..... L
- K. Three strong pustulated hairs on the temples ..... *bolivianus*  
 Two strong pustulated hairs on the temples ..... *robertsi*
- L. Metathoracic sternal plate with four vertical rows of setae and  
 prothoracic sternal plate with setae along lateral  
 margins ..... *juninensis*  
 Metathoracic and prothoracic sternal plates with scattered setae  
 only ..... M
- M. Metathoracic sternal plate with a long seta at each postero-  
 lateral angle ..... *submaestum*  
 Metathoracic sternal plate with a short seta at each posterola-  
 teral angle ..... *maestum*
- N. Gular plate as in figure 18..... *americanus*  
 Gular plate as in figure 13 ..... *malleus*