

REVIEW OF THE GENUS *MENOPON* NITZSCH, 1818
(MALLOPHAGA).

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IN April 1953, while visiting the British Museum (Natural History), I was able to examine certain material of the genus *Menopon* present in that Mallophaga Collection; especially the Piaget types. I am indebted to the Trustees of the Museum and to Mr. N. D. Riley for permission to study in the Museum, and especially to Miss Theresa Clay and Mr. G. H. E. Hopkins for their assistance and suggestions.

All British Museum material has been indicated, where possible, by the slide number.

Menopon gallinae (Linnaeus, 1758).

Systema Naturae, Edition X, p. 613.

Menopon longicephalum Kellogg, 1896.

Menopon pallidum (Nitzsch, 1818).

Menopon trigonocephalus (Olfers, 1816).

Type-host: *Gallus domesticus*.

Johnston & Harrison (1911) designated this species as the type for the genus *Menopon* Nitzsch, 1818. Clay & Hopkins (1950) selected neotypes from material in the British Museum (Natural History). The species has been well illustrated by Ferris (1924) and is well known. The male genitalia is illustrated in fig. 8.

Material examined.—Neotype male and neallotype female (B.M. No. 2490) from Scotland and neoparatypes (B.M. No. 11176) from Colombia collected from the domestic chicken. Additional material as follows:—

Gallus domesticus.—Many specimens from North America, Philippines, Colombia, Mexico, Transvaal and Germany.

Gallus gallus murghi Robinson & Kloss.—Thirty-four specimens (B.M. Nos. 345, 4293 and 4856) from Sikkim and Nepal.

Gallus gallus gallus (Linnaeus).—Forty-three specimens (B.M. Nos. 3845 and 3846) from Siam and Burma.

Gallus gallus jabouillei Delacour & Kinnear.—Twenty-one specimens (B.M. No. 3847) from Annam.

Gallus gallus bankiva Temminck.—Ten specimens from Java.

Gallus lafayettei Lesson.—Twenty-two specimens (incl. B.M. Nos. 3497 and 3498) from Ceylon.

Gallus sonneratii Temminck.—Eighty-five specimens (incl. B.M. Nos. 3849 and 14279) from India.

Numida meleagris galeata Pallas.—Fifteen specimens from West Africa.

Heretofore, the following have been considered to be valid; but an examination of the types, or material from the type-host, discloses no morphological basis for their separation from *Menopon gallinae* (Linnaeus, 1758).

Menopon brevipes Piaget, 1885. Les Pèdiculines, Supplément, p. 110, pl. xii, fig. 1. Lectotype male (B.M. No. 201a), three males and one female paratype (B.M. Nos. 201b and 202) from *Crossoptilon mantchuricum* Swinhoe were examined.

Menopon lunalale Eichler, 1947. Arkiv för Zoologi, 39a, No. 2, p. 17, figs. 35-38. One male and one female in the Piaget Duplicate Collection* from *Lophura ignita* (Shaw), the type-host, were examined.

Menopon productum var. *major* Piaget, 1880. Les Pèdiculines, p. 462 (nec p. 441). Lectotype male and paratype female (B.M. No. 373) from *Lophophorus impeyanus* (Latham) were examined.

Menopon productum Piaget, 1880. Les Pèdiculines, p. 461, pl. xxxvii, fig. 8. Lectotype male and paratype female (B.M. No. 364 b) from *Chrysolophus pictus* (Linnaeus) were examined.

Menopon subaequale var. *producta* Piaget, 1885. Les Pèdiculines, Supplément, p. 109. Lectotype male (B.M. No. 376 b), three paratype males and four paratype females (B.M. Nos. 374, 375, 376 and 376 a) from *Hierophasis swinhoi* (Gould) were examined.

If the action taken on the species described by Piaget is questioned, it should be remembered that most of the material studied by him was obtained from captive hosts in Zoological Gardens and from skins in the Leyden Museum. Therefore, it is entirely possible that his material did not represent the form normally found on each host. The contamination which occurs on museum skins and in zoological gardens is well known to most modern workers, and the common practice in zoological gardens of hatching pheasants under *Gallus domesticus* should not be forgotten.

I was unable to obtain material for this study from wild birds of each host listed. Fifty specimens obtained from museum skins of the type-hosts and related hosts were examined. All of the material proved to be this species; however, these results must be considered questionable for the reasons previously stated.

The differences given by Piaget must have resulted from poor mounting technique, as they are no longer apparent since the types have been remounted.

The original description and illustrations of *Menopon lunalale* Eichler, disclose no satisfactory characters by which the form can be separated from *Menopon gallinae* Linnaeus.

Menopon subgallinae, n. sp.

Type-host: *Gallus varius* (Shaw).

Material examined.—Five males and two females collected in Java.

Male.—Body measurements as given in Table I. Chaetotaxy and general form same as *Menopon gallinae*. Male genitalia as illustrated in fig. 12.

Female.—Except for size, same as *M. gallinae*.

* The Piaget Duplicate Collection, recently acquired by the British Museum, is almost certainly the unmounted residue of the specimens on which Piaget based his published descriptions.

Both sexes of this species are too large and robust to be confused with *M. gallinae*, even though the body form and chaetotaxy of the two are similar. A comparison of the male genitalia of the two forms serves as an additional means of separation.

Type material.—Holotype male and allotype female (B.M. No. 3848 a) in the British Museum (Natural History).

Menopon interpositum Ansari, 1951.

Proc. Nat. Inst. Sci. India, xvii, p. 167.

Type-host : *Francolinus pondicerianus interpositus* Hart.

Material examined.—Type male, allotype female, and paratype female (B.M. Nos. 600 and 601). Additional material from the type-host (B.M. No. 4765) collected in Rajputana, India.

This species is similar to *Menopon pallens*, but is accepted for the differences in the male genitalia as illustrated in fig. 9.

Menopon pallens Clay, 1949.

Ann. & Mag. Nat. Hist. (12) ii, p. 901 (*Nomen novum* for *Menopon pallescens* Nitzsch, 1874, *nec* Giebel, 1866).

Type-host : *Perdix perdix perdix* (Linnaeus).

Material examined.—Paratype male and female (B.M. No. 534).

Heretofore, the following have been considered to be valid, but an examination of the types discloses no morphological basis for their separation from *Menopon pallens* Clay.

Menopon pallescens var. *major* Piaget, 1880. Les Pèdiculines, p. 471 (*nec* p. 441 or p. 462). Lectotype male (B.M. No. 211 a), and paratype female (B.M. No. 211) from *Alectoris rufa rufa* (Linnaeus) were examined.

Menopon pallescens var. *pallida* Piaget, 1880 (*nec* Nitzsch, 1818). Les Pèdiculines, p. 471, pl. xxxviii, fig. 7. Two males (B.M. unnumbered) were examined which had been collected from the type-host, *Alectoris graeca saxatilis* (Bechstein), at Zengg, Croatia.

Considerable material has been examined from the host genera *Perdix* and *Alectoris*, all of which proved to be this species. Since most of this material had been obtained from wild birds, I am of the opinion that it is normally found on birds of these two genera. The male genitalia is illustrated in fig. 11.

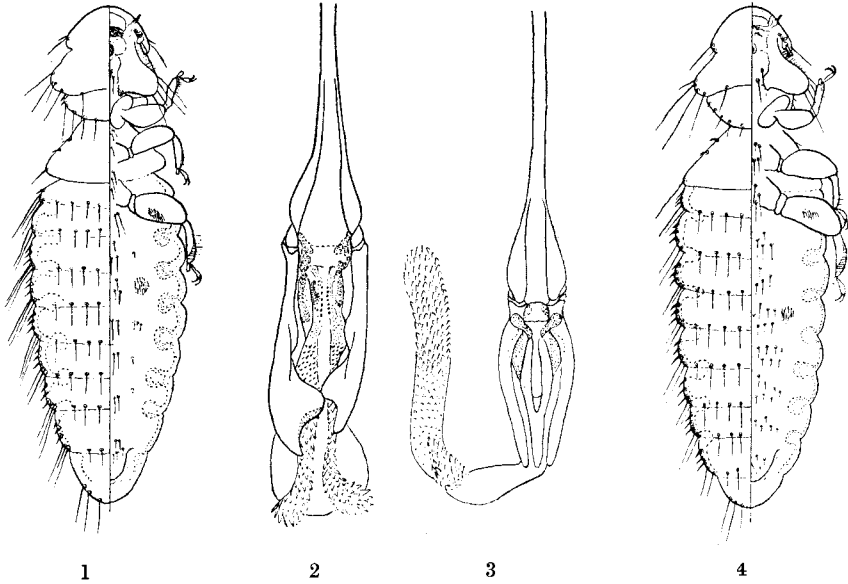
Menopon spinulosum Giebel, 1874.

Insecta Epizoa, p. 293.

Type-host : *Polyplectron bicalcaratum bicalaratum* (Linnaeus).

Material examined.—Numerous specimens of both sexes (B.M. No. 4317) from the type-host collected in Burma. This species (fig. 1) differs greatly from the previously mentioned species, especially in the form of the male genitalia, which is illustrated in fig. 2. This species and the remainder of the forms described as new in this paper are somewhat atypical. However, it does not seem appropriate at this time to erect new genera for them since all can be included in the genus *Menopon*, as defined by Clay (1947).

Figs. 1-4.



1. Dorsal-ventral view of *Menopon spinulosum* Giebel, male.
2. Male genitalia of *Menopon spinulosum* Giebel.
3. Male genitalia of *Menopon hopkinsi*, n. sp.
4. Dorsal-ventral view of *Menopon hopkinsi*, n. sp., male.

Figs. 2 and 3 are drawn to the same scale.

TABLE I.—*Menopon* species, measurements (in millimetres) of mounted specimens.

Species	Length of Head	Width of Head	Width of Pro-thorax	Width of Meta-thorax	Width of Abdomen	Total Length
<i>M. spinulosum</i> , male ..	0.34	0.48	0.37	0.53	0.65	2.16
<i>M. spinulosum</i> , female	0.34	0.52	0.39	0.57	0.75	2.26
<i>M. hopkinsi</i> , male	0.28	0.44	0.36	0.54	0.57	1.88
<i>M. hopkinsi</i> , female ..	0.31	0.41	0.34	0.49	0.54	1.55
<i>M. clayae</i> , male	0.35	0.55	0.46	0.57	0.79	1.88
<i>M. carrikeri</i> , male	0.33	0.44	0.34	0.50	0.60	2.01
<i>M. carrikeri</i> , female ..	0.32	0.44	0.36	0.50	0.65	2.11
<i>M. ferrisi</i> , male	0.35	0.50	0.38	0.56	0.68	2.29
<i>M. jellisoni</i> , male	0.28	0.46]	0.28	0.57	0.65	1.51
<i>M. subgallinae</i> , male ..	0.32	0.50	0.43	0.59	0.79	1.85
<i>M. subgallinae</i> , female	0.32	0.50	0.43	0.59	0.79	1.91

Menopon hopkinsi, n. sp.

Type-host : *Polyplectron malacensis* (Scopoli).

Material examined.—Eight males and seven females collected in Malaya.

Male.—Body measurements as given in Table I. Chaetotaxy and general form as illustrated in fig. 4. Male genitalia as illustrated in fig. 3.

Female.—Except for size and terminal abdominal segments, same as the male. Vulva rectangular in shape, with fourteen medium-length setae. Terminal segments of abdomen broadly rounded as in the male. The anus is entirely ventral; the marginal fringe is almost absent, being composed of widely spaced small short setae instead of the characteristic "anal corona".

Type-material.—Holotype male (B.M. No. 602) and allotype female (B.M. No. 603) in the British Museum (Natural History).

Menopon clayae, n. sp.

Type-host : *Polyplectron emphanum* Temminck.

Material examined.—Two males collected in Palawan, Philippines.

Male.—Separated from *Menopon hopkinsi*, n. sp. by : (1) the setae of the abdominal sternites are much smaller ; (2) the abdominal sternites have four to six small median setae instead of fourteen ; (3) the male genitalia ; as illustrated in fig. 5, the cover-slip was depressed so that a lateral view of the paramera could be shown ; and (4) a much larger head as shown in the table of measurements.

Type material.—Holotype male (B.M. No. 604) and paratype male (B.M. No. 605) in the British Museum (Natural History).

Menopon carrikeri, n. sp.

Type-host : *Chalcurus chalcurus* (Lesson).

Material examined.—Male and female collected in Sumatra.

Male.—Separated from *Menopon spinulosum* Giebel by : (1) a smaller head and generally more slender form ; (2) ten long metathoracic sternal setae instead of fourteen ; and (3) the male genitalia as illustrated in fig. 6.

Type-material.—Holotype male and allotype female (B.M. No. 606) in the British Museum (Natural History).

Menopon ferrisi, n. sp.

Type-host : *Chalcurus inopinatus* Rothschild.

Material examined.—One male collected in Malaya.

Male.—Separated from *Menopon spinulosum* Giebel by : (1) a longer metathorax ; (2) a generally longer form ; (3) ten long metathoracic sternal setae instead of fourteen ; and (4) the male genitalia as illustrated in fig. 7.

Type material.—Holotype male (B.M. No. 607) in the British Museum (Natural History).

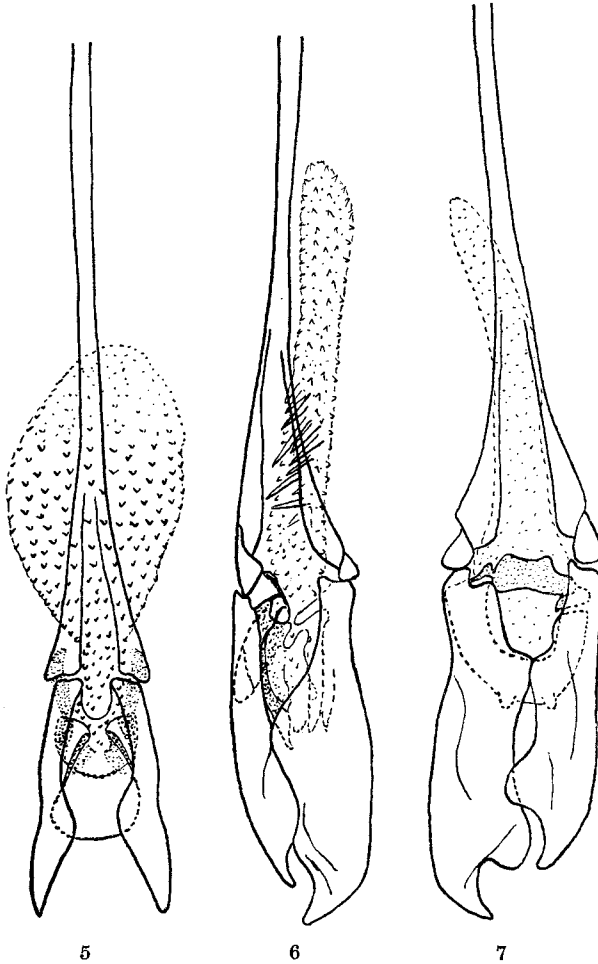
Menopon jellisoni, n. sp.

Type-host : *Galloperdix bicalcarata* (J. R. Forster).

Material examined.—Four males collected in Ceylon.

Male.—Head as in *Menopon gallinae* (Linnaeus), except each temple with three long and one medium-length setae. Two setae on each lateral

Figs. 5-7.

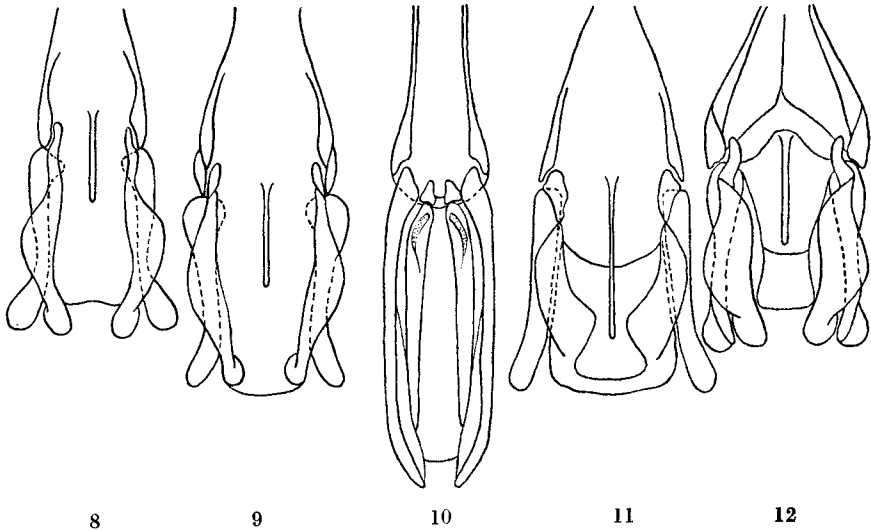


5. Male genitalia of *Menopon clayae*, n. sp.
 6. Male genitalia of *Menopon carrikeri*, n. sp.
 7. Male genitalia of *Menopon ferrisi*, n. sp.

Figs. 5-7 are drawn to the same scale.

margin of the gular region. Posterior margin of the prothorax with twelve long setæ and two short setæ. Meso- and metathorax as in *Menopon spinulosum* Giebel. In general shape, abdomen similar to *M. gallinae*. Abdominal tergites with two medium-length median setæ on the posterior margin. Lateral margins of paratergal plates with three short stout setæ and two long setæ as in *M. hopkinsi*. Internal bands of paratergal

Figs. 8-12.



8. *M. gallinae* (Linnaeus).
 9. *M. interpositum* Ansari.
 10. *M. jellisoni*, n. sp.
 11. *M. pallens* Clay.
 12. *M. subgallinae*, n. sp.

Figs. 8-12, male genitalia of *Menopon* sp., drawn to the same scale.

plates much wider than in any other known species. Chætotaxy of abdominal sternites as in *M. spinulosum*. Terminal abdominal segment rounded as in *M. spinulosum* with four long marginal setæ. Male genitalia as illustrated in fig. 10.

Type material.—Holotype male (B.M. No. 608) in the British Museum (Natural History).

DISCUSSION.

Excluding the male genitalia, which have been illustrated for comparison, the species discussed can be divided into groups as follows:—

(1) *M. gallinae*, *M. interpositum*, *M. pallens* and *M. subgallinae* are typical forms, as presently understood by most workers in Mallophaga.

(2) *M. spinulosum*, *M. ferrisi*, *M. hopkinsi*, *M. carrikeri* and *M. clayae* are not typical forms because of the slender body form, the structure of the terminal abdominal segments and the three short stout lateral spines on each paratergal plate. The genus as defined by Clay (1947) can include these forms.

(3) *M. jellisoni* is intermediate between the two previously mentioned groups.

The forms not considered valid by Hopkins & Clay (1952) have not been discussed; their decision on each has been accepted.

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Only those papers not referred to in the text are listed here.

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