Studies on Amblycerous Mallophaga of Japan.

By

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With Seventeen Figures in the Text.

CONTENTS

In continuation of my paper on the Bird-infesting Mallophaga of Japan,* I propose here to give short descriptions of all Japanese forms of Amblycerous Mallophaga.

The specimens, upon which the present paper is based, were taken mostly from birds and mammals of Japan proper and a small part from birds of Formosa, Micronesia and Caroline Islands.

The collection includes 63 species, taken from 74 species of birds and two species of mammals. Of the above number of Mallophaga species, 17 are apparently new to science. I have been led to erect six new genera for the reception of some of the species. All the aforesaid 63 species are referable to five families and eighteen genera.

A list of the parasites and their hosts is as follows :

* Annotationes Zoologicae Japonenses IX, 1915-1917.

PARASITES.	*HOSTS.*

Fam. 1. BOOPIDAE Mjöberg.

HETERODOXUS Le Souëf.

Heterodoxus longitarsus (Piaget)	Canis familiaris.

Fam. 2. GYROPIDAE Burmeister.

GLIRICOLA Mjöberg.

Gliricola porcelli (L.)	Cavia cobaya.

Fam. 3. MENOPONIDAE Mjöberg.

MYRSIDEA Waterston.

Myrsidea subdissimilis n sp.	Cyanoptila cyanomelana.
Myrsidea ishizawai n. sp.	Oreocinchla dauma aurea.
Myrsidea alaskensis (Kell. & Chap.)	Cinclus pallasi.
Myrsidea takayamai n. sp.	Periclocotes cinereus cinereus.
Myrsidea latifrons (Carr. & Shull)	Hirundo daurica nipalensis, Hirundo rustica gutturalis.
Myrsidea brunnea (Nitzcsh)	Buchanga atra.
Myrsidea longipecta (Uchida)	Buchanga atra.
Myrsidea inaequalis (Piaget)	Lanius schach.
Myrsidea shirakii (Uchida)	Corvus coronoides colonolum, C. coronoides japonensis, Butastur indicus.
Myrsidea mesoleuca (Nitzsch)	Corvus colone interpositas, Strix uralensis fuscessens.
Myrsidea cyanopicae n. sp.	Cyanopica cyanus japonica.
Myrsidea cucularis (Nitzsch)	Sturnus violacea.
Myrsidea flavescens (Piaget)	Aethyopsar cristatus formos.
Myrsidea rustica (Nitzsch)	Zosterops palpebrosa peguensis.
Myrsidea teraokai Uchida	Demiegretta sacra ringeri, Porzana tabuensis tabuensis, Micranous leucocapillus, Aplonis kittlitzi.
Myrsidea kikuchii Uchida	Egretta garzetta garzetta.

MENACANTHUS Neumann.

Menacanthus alaudae (Schrank)	Chionophilos alpestris.
Menacanthus micropteri n. sp.	Microscelis amaurotis.
Menacanthus nogoma n. sp.	Calliope calliope calliope.
Menacanthus takayamai n. sp.	Horornis cantans cantans.
Menacanthus dubium (Piaget)	Buchanga atra cathoeca.
Menacanthus coarctatum (Scopoli)	Lanius bucephalus.
Menacanthus percignatum (Kell. & Chap.)	Cyanopica cyanus japonica.
Menacanthus chrysophaeum (Kellogg)	Chloris sinica.
Menacanthus subspinosus n. sp.	Passer rutilans rutilans.

NEUMANNIA n. gen.

Neumannia perdicis (DENNY) ... ... Arboricola crudigularis.
Neumannia okadai n. sp. ... ... Rollulus roulroul.
Neumannia albicans (PIAGET) ... ... Gennaeus nyctemerus.
Neumannia pallidulum (NEUMANN) ... ... Graphophasianus scintillans.
Neumannia numidae (GIEBEL) ... ... Numida meleagris.

EOMENACANTHUS n. gen.

Eomenacanthus biseriatum (PIAGET) ... ... Gallus domesticus.

EOMENOPON HARRISON.

Eomenopon denticulatus HARRISON ... ... Eos rubiginosa.

DENNYUS NEUMANN.

Dennyus truncatus (OLFERS) ... ... Apus pacificus,
Hirundo daurica nipalensis.

TAKAMATSUIA n. gen.

Takamatsuia major n. sp. ... ... Hirundapus caudacutus caudacutus.

TRINOTON NITZSCH.

Trinoton querquedulae (L.) ... ... Anas platyrhyncha,
Eunetta falcata,
Bucephala clangula,
Nettion crecca crecca,
Dafila acuta acuta,
Maleca penelope,
Aix galericulata.
Scuatarola sq. hypomelaena.

PSEUDOMENOPON MJÖBERG.

Pseudomenopon pacificum (KELLOGG) ... ... Gallinula chrolopus.

COLPOCEPHALUM NITZSCH (s. str.).

Colpocephalum decimfasciatum BOIS. & LACORD. ... ... Demiegretta sacra ringeri,
Butorides striatus amur,
Thalasseus bergii cristi,
Gygisterna sumatrae sum.

Colpocephalum nyctardae DENNY ... ... Demiegretta sacra ringeri,
Ixobrychus sinensis sinensis.

Colpocephalum maculatum PIAGET ... ... Buteo buteo japonicus.

Colpocephalum tamamurensis n. sp. ... ... Nycticorax nycticorax,
Columba livia domestica.

Colpocephalum gallinulae n. sp. ... ... Gallinula chrolopus.
Colpocephalum semicinctum RUDOW ... ... Corvus coronoides japon.
Colpocephalum flavescens NITZSCH ... ... Thallasoetus pelagicus p.
Colpocephalum horii n. sp. ... ... Gallinago sp.

COMATOMENOPON UCHIDA.

Comatomenopon elongatum UCHIDA ... ... Sterna albifrons sinensis.

FERRISIA n. gen.

Ferrisia turbinata (DENNY) ... ... Columba livia domestica.
Ferrisia minor n. sp. ... ... Diomedia albatrus.
Ferrisia osborni var. costariense (CARRIKER) ... ... { Milvus lineatus lineatus, / Milvus lin. formosanus.

CUCULIPHILUS n. gen.

Cuculiphilus fasciatus (SCOPOLI) ... ... Cuculus canolus telephones.
C. fasciatus hototogisu n. var. ... ... Cuculus intermedius inter.
Cuculiphilus coromandus n. sp. ... ... Entomothera coromanda major.

KURODAIA n. gen.

Kurodaia haliaeti (DENNY) ... ... Pandion haliaetus haliaetus.

Fam. 4. LAEMOBOTHRIIDAE MJÖBERG.

LAEMOBOTHRION NITZSCH.

Laemobothrion nigrum BURMEISTER ... ... Gallinula chrolopus.
Laemobothrion titan PIAGET ... ... { Milvus lineatus formosanus, / Milvus lineatus lineatus.
Laemobothrion tinnunculi L. ... ... Cerchneis tinnunculus japonica.

Fam. 5. RICINIDAE NEUMANN.

RICINUS DEGEER.

Ricinus serratus magnus n. var. ... ... Alauda alvensis intermedia.
Ricinus japonicus (UCHIDA) ... ... Anthus spinoletta japonica.
Ricinus mugimaki (UCHIDA) ... ... Poliomyias mugimaki.
Ricinus elongatus OLFERS. ... ... Merula eunomus.
Ricinus frenatus NITZSCH ... ... Regulus regulus japonicus.
Ricinus medius nom. nov. ... ... { Periparus ater insularis, / Poecile atricapilus restr.
Ricinus bombycillae (DENNY) ... ... { Bombycilla japonica, / Bombycilla garrula.

I am under special obligation to Dr. NAGAMICHI KURODA for the acts of sympathies shown towards me. To Messrs. T. MOMIYAMA, S. KUZU, K. OIWA, K. ISHIZAWA of Tokyo, Mr. R. TAKAMATSU of Nagano, the late Mr. E. HORII of Kagoshima, I am indebted for helping me in collecting the material. Further I should not forget to mention the name of Mr. T. TAKAYAMA, the collecter of the Pref. Nagano, who expended for me no small labour in the acquirement of the specimen.

KEY TO THE GENERA.

A
1 Tarsi with one claw; infesting mammals. ..... GLIRICOLA
2 Tarsi with two claw; infesting birds (excepting Heterodoxus). ..... B

B
1 Ventral side of head with one or two pairs of spinous processes. C
2 Ventral side of head without spinous processes. ..... G

C
1 Spinous processes on the anterior margin of head. ..... EOMENOPON
2 Spinous processes on the root of palpi. ..... D

D
1 Species infesting mammals. ..... HETERODOXUS
2 Species infesting birds. ..... E

E
1 Oesophageal gland present. ..... NEUMANNIA n. g.
2 Oesophageal gland absent. ..... F

F
1 Terminal segment of antenna globular. ..... MENACANTHUS
2 Terminal segment of antenna elongate. ..... EOMENACANTHUS n. g

G
1 Under side of posterior femora with combs of spines. ..... H
2 Under side of posterior femora without combs of spines. I

H
1 Body extremely elongate. ..... COMATOMENOPON
2 Body normal. I

I
1 Sexes dimorphic. ..... J
2 Sexes alike. ..... K

J
1 Combs on the third abdominal segment. ..... FERRISIA n. g.
2 Combs on several abdominal segments ..... CUCULIPHILUS n. g.

K
1 Gastric teeth present. ..... COLPOCEPHALUM
2 Gastric teeth absent. ..... KURODAIA n. g.

L
1 With three lobed chitinous plates in the gular region. ..... PSEUDOMENOPON
2 Gular region normal. ..... M

M
1 Ocular emargination distinct. ..... N
2 Ocular emargination absent or very slight. ..... O

N
1 Mesothorax separated from metathorax by suture. ..... TRINOTON
2 Meso- and metathorax fused. ..... LAEMOBOTHRION

O
1 Sides of the head straight or slightly concave; with two small projecting labral lobes. ..... RICINUS
2 Sides of the head sinuous; forehead without labral lobes. ..... P

P
1 Second sternite with asters of spines. ..... MYRSIDEA
2 Second sternite without asters of spines. ..... Q

Q
1 Male genitalia simple. ..... DENNYUS
2 Male genitalia quite characteristic. ..... TAKAMATSUIA n. g.

Family **BOOPIDAE** MJÖBERG.

Genus **Heterodoxus** LE SOUËF and BULLEN.

LE SOUËF and BULLEN, 1902, b, p. 159; HARRISON and JOHNSTONE, 1916, p. 352; PAINE, 1912, a, p. 360.

Heterodoxus longitarsus (PIAGET).

JOHNSTONE and HARRISON, 1916, p. 353, fig. 19; *Menacan'hus longitarsus* NEUMANN, 1912, p. 359; *Menopon longitarsus* PIAGET, 1880, p. 504, pl. XLI. fig. 7; *Heterodoxus armniferus* PAINE, 1912 a, p. 362, fig. A; *Heterodoxus macropus* LE SOUËF and BULLEN, 1902 b, p. 159, fig. 11; *Menopon spiniger* ENDERLEIN, 1909, p. 80; *Menacanthus spinigerum* NEUMANN, 1912, p. 364.

Two males and three females were collected from a dog by Mr. T. MAKINO in Tokio.

Family **GYROPIDAE** BURMEISTER.

Genus **Gliricola** MJÖBERG.

MJÖBERG, 1910, p. 18.

Gliricola porcelli (LINNE).

Pediculus porcelli LINNE, 1758, p. 611; *Gyropus bicaudatus* PAINE, 1912, b, p. 441, fig. 3; *Gyropus gracilis* NITZSCH, in BURMEISTER, 1838, p. 443.

Very numerous specimens of this species were collected on a Guinea pig, *Cavia cobaya* in captivity at the Agricultural College, Tokyo Imp. Univ., Aug. 20, 1918.

Family **MENOPONIDAE** MJÖBERG.

Genus **Myrsidea** WATERSTON.

WATERSTON, 1915, pp. 12, 13, pl. I; FERRIS, 1916, pp. 307, 308, fig. 14.

Myrsidea subdissimilis n. sp. (Fig. 1).

Two males and two females of the new species were collected from a Japanese blue-flycatcher, *Cyanoptila cyanomelana* captured in Pref. Nagano, May 7, 1918.

It is allied to *Myrsidea dissimilis** from *Progne subis* but differs from it in smaller body and broader abdomen.

* Kellogg: New Mallophaga II, 1896, p. 536, pl. 73, fig. 5.

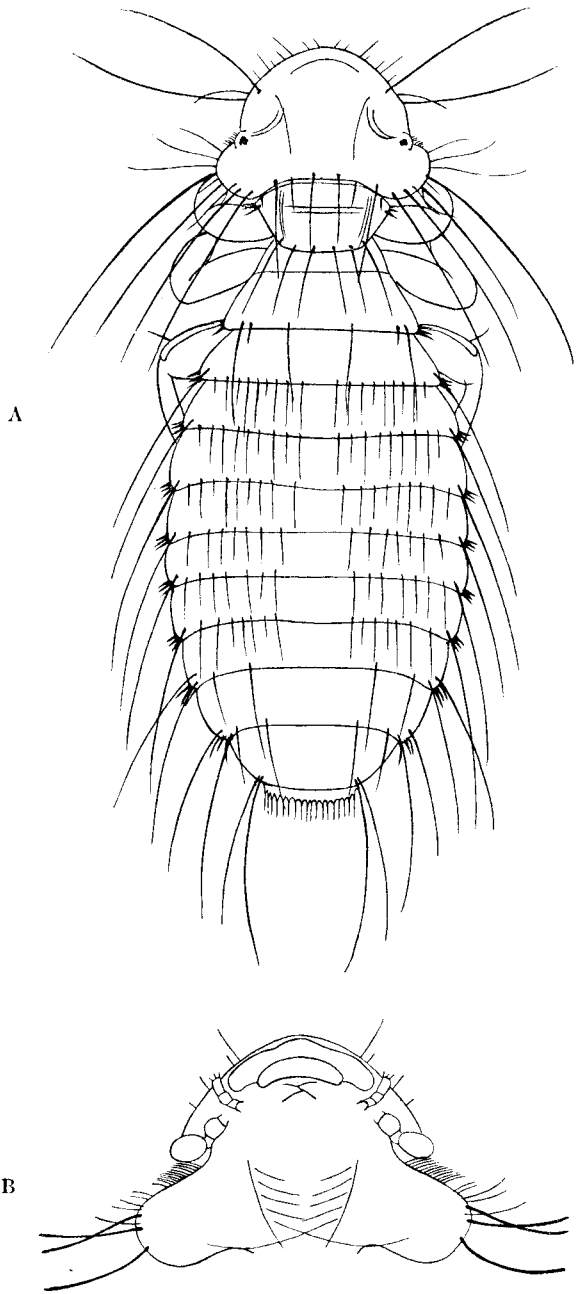

Fig. 1.
A. *Myrsidea subdissimilis* n. sp., female. ×70.
B. Ventral aspect of the head. ×100.

Description of the female:– Colour of body pale brownish yellow with pitchy brown markings on head and brown markings on thorax and abdomen.

Head comparatively long; front rounded with a slight angulation on the meson; two long and several short marginal hairs on each side of the front; a rather long hair in front of each brown antennal blotch. Eye prominent with distinct, triangular, black fleck; ocular fringe distinct, composed of about nine stiff, curved hairs; palpus projecting with the half length of its terminal segment. Temples expanded, margins rounded, each furnishing four very long and a few short hairs; occipital margin slightly concave, with four hairs and four prickles. Ground colour of head pale brownish yellow; occipital margin and a curved line bounding each antennal region pitchy brown. On the ventral aspect of head, each side of the quadrate posterior ventral sclerite with five hairs.

Prothorax short; anterior lateral margin short; lateral angles projecting, each with three spines; posterior lateral margins nearly straight; posterior margin convex, with six longish hairs, the two terminal

ones being located on two posterior angles. Colour of prothorax slightly paler than the head, with short transverse, uncoloured chitin bar. Metathorax trapezoidal, with faint sutural line between meso- and metathorax; lateral margins bare, slightly concave; posterior lateral angles produced, each bearing three spines; posterior margin straight, with four longish hairs and two weak spines. Colour of metathorax pale brownish yellow, with somewhat darker, lateral margins. Legs slightly paler than thorax, with very narrow, clear brown, dorsal markings on femora and tibiae. Hind femora with a group of numerous short, stiff hairs on its ventral surface.

Abdomen elongate elliptical; widest at the fourth segment; posterior angles projecting, with three spines and one or two long hairs; length of segments subequal; posterior margins straight, each furnished with a single row of weak, submarginal hairs; posterior margin of the eight segment with two very long hairs, each arising from the middle of lateral half; the last segment small; posterior margin rounded, with two long hairs and a fringe of fine colourless hairs. Colour of abdomen pale brownish yellow, lateral bands narrow, translucent brown, transverse bands brownish, entire across each segment. Ventral surface of each abdominal segment bearing a transverse row of ten to twelve short, weak hairs along the posterior margin; segments third and fourth, with a patch of closely set spines in each posterior lateral angle. Asters on each side of the second abdominal sternite composed of five dark coloured spines.

Description of the male :– Very similar to the female, but smaller, especially abdomen which is more pointed than in the female. Genitalia slender, of the usual *Myrsidea* type, reaching from the posterior margin of the third segment to the end of the last segment.

Measurements of the present specimens :–

	♀ m.m.	♀ m.m.	♂ m.m.	♂ m.m.
Length of body	1.41	1.40	1.16	1.10
Width of body	0.61	0.57	0.46	0.47
Length of head	0.27	0.27	0.26	0.26
Width of head	0.45	0.43	0.40	0.41
Length of prothorax	0.13	0.13	0.13	0.13
Width of prothorax	0.27	0.25	0.23	0.23
Length of metathorax	0.16	0.16	0.15	0.15
Width of metathorax	0.38	0.38	0.31	0.32

Myrsidea ishizawai n. sp. (Fig. 2).

Nine male, sixteen female and six young individuals were collected by

* Giebel, Insecta Epizoa, p. 284, pl. XV, fig. 5.

Mr. Ishizawa from a white ground thrush, *Oreocinclla dauma aurea* taken at Subashiri, Mt. Fuji, May 14, 1924.

This new species much resembles *Menopon cuculare* NITZSCH* from *Sturnus vulgaris*, but differs from it in chaetotaxy and in the size of body.

Measurements :

	♂ m.m.	♂ m.m.	♂ m.m.	♀ m.m.	♀ m.m.	♀ m.m.	♀ m.m.
Length of body	1.40	1.50	1.50	1.84	1.85	1.94	1.85
Width of body	0.63	0.61	0.52	0.72	0.76	0.75	0.72
Length of head	0.32	0.33	0.32	0.34	0.35	0.34	0.34
Width of head	0.51	0.51	0.50	0.56	0.55	0.56	0.56
Length of prothorax	0.17	0.18	0.18	0.19	0.19	0.20	0.21
Width of prothorax	0.31	0.32	0.31	0.35	0.35	0.35	0.35
Length of metathorax	0.23	0.23	0.24	0.29	0.29	0.29	0.28
Width of metathorax	0.40	0.40	0.40	0.57	0.56	0.56	0.55

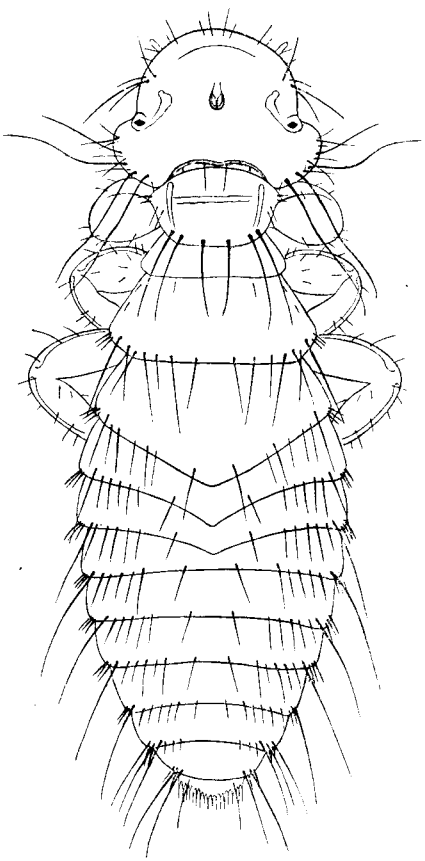

Fig. 2.
Myrsidea ishizawai n. sp., female. ×50.

Description of the female : – The form is large with curiously deformed abdominal segments. Colour of body pale yellowish brown, with brownish markings on head and thorax.

Head broad; front rounded; its lateral parts slightly swollen above the base of antennae and each part with three kinds of hairs, one long, four short and three minute, dorsal surface of the forehead bearing two long hairs in front of each brown antennal blotch; eye prominent, emarginate, with an irregular, black fleck; ocular fringe distinct, composed of twelve, stiff, curved hairs; temples expanded; margins rounded; each bearing four long and six short hairs; occipital margin concave, with two weak and four minute hairs. Ground colour of head pale yellowish brown; the curved line bounding the antennal region brown; a brown spot near the margin just above each palpus; occipital margin edged with brown, paler in middle. On the ventral surface of head, each side of the quadrate ventral sclerite bear six hairs.

Prothorax hexagonal in outline; lateral angles produced, nearly rectangular, each bearing two spines; posterior lateral margins nearly straight, diverging posteriorly, each furnishing a spine; posterior margin slightly convex, with six hairs of equal length. Colour of prothorax pale brown; longitudinal bars and transverse bar clear brownish. Metathorax trapezoidal, lateral margins straight, diverging posteriorly, each furnishing very minute spine; posterior lateral angles produced, each with three spines, posterior margin convex, bearing six or seven submarginal hairs on each side; suture between meso- and metathoracic segment distinct and two fine spines on it. Legs concolourous with body, with clear brown dorsal markings on femora and tibiae; ventral surface of the hind femora with a group of numerous stiff hairs.

Abdomen elliptical widening gradually toward the fifth segment; posterior angles slightly projecting, each furnished with a hair and three spines. Posterior margin of the first segment is angulated posteriorly and the angle projects so far backward that it reaches the front of the line connecting posterior angles of the third segment; posterior margins of the second and third segment also angulated but angles not so far projected; those of the fourth to eighth almost straight; dorsal surface of each abdominal segments with five to eight hairs on each side of the posterior margin; the posterior margin of the last segment broadly rounded, bearing two short and two long hairs on each side and a fringe of fine hairs. Ground colour of abdomen pale yellowish; transverse band brownish yellow, entirely across each segment; lateral band narrow, clear yellow; ventral aspect of each abdominal segment, bearing a transverse row of short hairs along the posterior margin; third to sixth segments with a patch of roughly arranged short hairs. Aster on each side of the second sternite composed of four short spines.

Description of the male:– similar to the female; size smaller and slender; posterior margin of the first three abdominal segments not angulated but straight. Genitalia of the type common to the genus, reaching from the posterior margin of the fourth segment to the middle of the last segment.

Myrsidea alaskensis (KELLOGG & CHAPMAN).

Menopon alaskensis KELLOGG & CHAPMAN, 1902, p. 27, pl. III, fig. 5; *Menopon alaskense*, HARRISON, 1916, p. 32.

Two young females were obtained from a Siberian blackbellied dipper, *Cinclus pallasi pallasi* taken at Uenogahara, Pref. Yamanashi; and a young specimen was obtained from a same host species shot in Pref. Nagano.

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* Giebel, Insecta Epizoa, 1874, p. 288.

Myrsidea takayamai n. sp.

A male and a female obtained by Mr. T. TAKAYAMA from a Siberian minivet, *Pericrocotus cinereus cinereus* shot in Pref. Nagano, May 1, 1918.

This new species somewhat resembles *Menopon rustica* NITZSCH* from *Hirundo rustica* but differs from it by smaller size and broader abdomen.

Description of the female :- Body broad, length 1.5m.m., width 0.65m.m.; colour of body pale brownish yellow, with pitchy markings on head and brownish transverse bands and dark brown lateral bands on abdomen.

Head length 0.31m.m., width 0.49m.m. ; front broadly rounded, with several short weak hairs and two strong hairs on the weak swelling in front of each eye ; a rather long hair on each side of the dorsum of head. Eye prominent, slightly emarginate, with a black quadrangular fleck ; ocular fringe distinct, composed with about ten curved, stiff hairs. Temples expanded ; margin angulated in front and behind ; each bearing four long and a few shorter hairs; occipital margin nearly straight, with four hairs. Ground colour of head pale brownish yellow ; the curved line bounding the antennal region pitchy brown; a reddish brown spot near the margin just above each palpus; occipital margin edged with pitchy brown, paler in middle. On the ventral surface of head, each side of the quadrate ventral sclerite bears five hairs, of which hindermost one is the longest.

Prothorax length 0.16m.m., width 0.30m.m. ; hexagonal in outline; lateral angles produced, nearly rectangular ; each with three spines ; posterior lateral margins very slightly concave ; posterior margin bearing six hairs, of which the outermost one is the longest and situated on each posterior angle. Metathorax trapezoidal ; suture between meso- and metathorax distinct ; lateral margins of mesothorax slightly convex ; those of metathorax straight ; each posterior lateral angles bears two spines and a hair ; posterior margin slightly convex with eight weak, marginal hairs. Colour of thorax paler than the head ; transverse band and longitudinal bars of the prothorax pale but distinct. Legs paler than the body, with clear brown dorsal markings on femora and tibiae ; ventral surface of the hind femora with a group of roughly distributed short, stiff hairs.

Abdomen broadly elliptical ; length 0.88m.m., width 0.65m.m. ; widest at the fourth segment ; each segment almost equal in length ; posterior angles projected, each with two long hairs and three spines ; posterior margin of segments almost straight, each bearing eight to twelve weak, short hairs ; the last segment broad, flatly rounded, with a short and two long hairs on each side and a fringe of five hairs. Ground colour of abdomen pale yellowish ; transverse band brownish yellow, entirely across each segment ; lateral band

distinct, brown. Ventral surface of each abdominal segment bearing one or two transverse row of short, marginal hairs; aster on each side of the second abdominal sternite composed of four brownish spines.

Description of the male : – Very similar to the female but size smaller, abdomen narrower. Genitalia of the type common to the genus ; reaching from the posterior margin of the fourth segment to the end of the last segment.

The measurements of the male are as follows : –

Length of body.	1.30 m.m.
Width of body.	0.49 〃
Length of head.	0.28 〃
Width of head.	0.43 〃
Length of prothorax.	0.14 〃
Width of prothorax.	0.26 〃
Length of metathorax.	0.18 〃
Width of metathorax.	0.34 〃

Myrsidea latifrons (CARRIKER & SHULL).

Nitzschia latifrons, CARRIKER & SHULL, 1910, p. 56, pl. V, fig. 4; *Dennyus latifrons* HARRISON, 1616, p. 63.

Two male and two female specimens were collected from a Hodgson's mosque swallow, *Hirundo daurica nipalensis* shot in Pref. Nagano, May 15, 1916 and further two males were obtained from an eastern chimney swallow, *Hirundo rustica gutturalis* taken in the same locality, April 15, 1916. This species has previously been known only from sand martin, *Riparia riparia*.

The measurements of the specimens on hands are as follows :–

	m.m.	m.m.	m.m.	m.m.
Length of body	1.40	1.40	1.65	1.60
Width of body	0.48	0.48	0.57	0.57
Length of head	0.31	0.30	0.33	0.32
Width of head	0.42	0.42	0.45	0.45
Length of prothorax	0.13	0.13	0.17	0.16
Width of prothorax	0.26	0.26	0.26	0.25
Length of mesothorax	0.50	0.50	0.50	0.50
Width of mesothorax	0.27	0.26	0.29	0.27
Length of metathorax	0.11	0.11	0.12	0.12
Width of metathorax	0.38	0.37	0.42	0.41

Myrsidea brunnea (NITZSCH).

Menopon brunneum NITZSCH, 1866, p. 120; PIAGET, 1880, p. 437, pl. XXXIV, fig. 5.

A female specimen from a Chinese black drongo, *Buchanga atra cathoeca* taken in Formosa, April 4, 1917. This species has previously been known

only from Nutcracker, *Nucifraga caryocatactes*.

Myrsidea longipecta (UCHIDA).

Menopon longipectum UCHIDA, 1917, p. 184, pl. X, fig. 2.

The second specimens of this species, a male and a female, were obtained from a Chinese black-drongo, *Buchanga atra cathoeca* taken in Formosa, April 4, 1917.

This species was described from a female taken from a Formosan tree partridge, *Arboricola crudigularis*. As the members of this genus occur for the most part on Passeriformes, the latter case probably was one of a straggler, transmitted from the game bag in which the host bird was carried.

Description of the male: Much resembles the female; size smaller; the head comparatively larger; abdomen distinctly smaller, elliptical in shape; the posterior margin of the last segment broadly rounded, with a few minute hairs, instead of a continuous fringe of fine hairs.

The measurements of the male are as follows:-

Length of body.	1.45 m.m.
Width of body.	0.58 〃
Length of head.	0.32 〃
Width of head.	0.58 〃

Myrsidea inaequalis (PIAGET).

Menopon inaequale, PIAGET, 1880, p. 443, pl. XXXV, fig. 1.

A male and two female specimens were collected from *Lanius shach shach* shot in Formosa, June 4, 1917.

Myrsidea shirakii (UCHIDA).

Uchida, 1920, p. 645.

Numerous specimens of both sexes were collected from a Formosan jungle crow, *Corvus coronoides colonorum*, taken on Mt. Arisan, Formosa, June 20, 1917; from a Japanese jungle crow, *Corvus coronoides japonensis*, shot in the Niisima Id. of the Seven Ids., April 30, 1916; and from an Eastern buzard hawk, *Butastur indicus*, collected in the Amami-ohshima Id., July 1, 1919. Certainly the latter was a case of the straggler from a crow, captured by the hawk, which was also parasitized by *Colpocephalum semicinctum* RUDOW, a parasite of jungle crow.

Myrsidea mesoleuca (NITZSCH).

Menopon mesoleucum BURMEISTER, 1838, p. 439 ; PIAGET, 1880, p. 426, pl. XXXIV, fig. 7.

Numerous specimen of both sexes were found on a Japanese carrion crow, *Corvus corone interpositus*, shot by Mr. WADA in the city of Aomori, Oct. 29, 1921 ; and further a female and three males were taken a Kiushiu Ural owl, *Strix uralensis fuscescens*, shot in the city of Kagoshima. (straggler !).

Myrsidea cyanopycae n. sp. (Fig. 3).

A male, two female and four young specimes were collected from a Japanese azure-winged magpy, *Cyanopyca cyanus japonica* captured in Pref. Nagano, Jan. 31, 1916.

It is allied to *Myrsidea brunnea* (NITZSCH) from *Nucifraga caryocatactes* but is distinguished from it by the broader body and the number of spines composed asters on abdominal sternite.

The measurements are as follows :-

	♀	♂
Length of body.	1.84 m.m.	1.53 m.m.
Width of body.	0.72 〃	0.60 〃
Length of head.	0.33 〃	0.29 〃
Width of head.	0.57 〃	0.49 〃
Length of prothorax.	0.20 〃	0.13 〃
Width of prothorax.	0.36 〃	0.29 〃
Length of metathorax.	0.27 〃	0.22 〃
Width of metathorax.	0.53 〃	0.42 〃

Description of the female :- Colour of body pale brownish with pitchy brown markings on head and thorax and brown markings on abdomen.

Head broad, front rounded; sides swollen above the base of the antennae and each with two short, two long and several minute hairs ; dorsal surface of the forehead bearing aeshort and two long hairs in front of each brown antennal blotch. Eye small, indistinct, with no fleck ; ocular fringe distinct composed of about ten, pale, stiff hairs ; palpus projecting with the whole length of its terminal segment. Temples expanded, margins rounded, each with three very long, pustulated hairs and several shorter hairs and prickles ; occipital margin concave, with six hairs. Colour of head pale brownish yellow ; the curved line bounding the antennal region blackish brown and a pale brown marginal band along each lateral border of antennal region; a blackish spot near the margin just above each palpus ; occipital margin narrowly edged with dark brown. On the ventral aspect of head, each side of the quadrate ventral sclerite furnishing five hairs.

Prothorax short, broad; lateral angles obtuse, each bearing a long hair and two spines; posterior lateral margins nearly straight, somewhat diverging posteriorly; posterior margin slightly convex, with ten long submarginal hairs. Colour pale brownish; brown longitudinal chitin bars distinct and connected by a narrow transverse band. Metathorax trapezoidal; lateral margins nearly straight, widely diverging posteriorly, each bearing two minute spines; posterior lateral angles produced, each with four spines and a long hair; posterior margin straight, furnishing three hairs on each side; suture between meso- and metathoracic segment distinct. Colour of metathorax pale brownish; anterior and lateral margins narrowly edged with brown. Legs short, somewhat paler than thorax, with narrow, clear brown marginal markings on femora and tibiae.

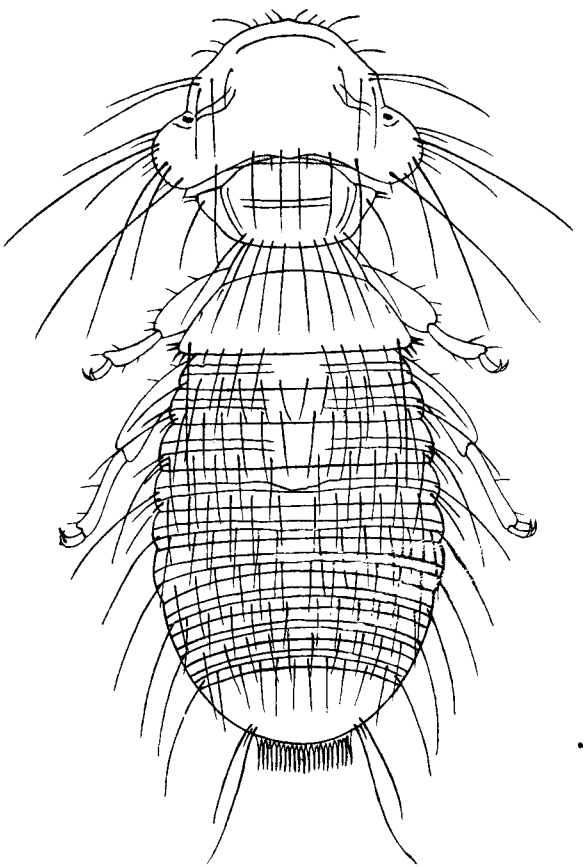

Fig. 3.
Myrsidea cyanopicae n. sp., female. ×60.

Abdomen broadly elliptical; widening gradually towards the fourth or fifth segment; posterior angles not projecting, each with a weak hair which become longer toward the end; posterior margin almost straight, bearing about ten submarginal hairs; posterior margin of the last segment broadly rounded with two long hairs and a prickle on each side and a fringe of fine hairs. Colour of abdomen pale brownish yellow; transverse band brownish, interrupted on the middle of segments first to fourth and entirely across the following segments; lateral band narrow, brownish.

Ventral surface of each abdominal segment bearing a transverse row of fourteen to eighteen short, slender hairs along the posterior margin; fifth and sixth segments, each with a patch of roughly arranged hairs. Asters on each

side of the second abdominal sternite composed of three rather short spines.

Description of the male:– Similar to the female, size smaller and slender; genitalia of the type common to the genus, reaching from the posterior margin of the fourth segment to the end of the last segment.

Myrsidea cucularis (NITZSCH).

Menopon cuculare, BURMEISTER, 1838, p. 439; GIEBEL, 1874, p. 284, pl. XV, fig. 5.

A male specimen was found on a Red-checked myna, *Sturnus violacea* shot in Pref. Nagano, May 7, 1917.

HARRISON in his "Genera and Species of Mallophaga", has listed *Myrsidea cucularis* as a synonym of *Myrsidea flavescens* PIAGET but I can not agree with this view because the form of abdominal sclerites of these two species are quite different.

Myrsidea flavescens (PIAGET).

Menopon flavescens, PIAGET, 1880, p. 439, pl. XXXV, fig. 9.

Three male, seven female and numerous young individuals of this species were collected from a Formosan crested-myna, *Aethiopsar cristatellus formosanus* killed in Formosa, June 4, 1917.

Myrsidea rustica (NITZSCH).

Menopon rusticum, in GIEBEL, 1874, p. 288; PIAGET, 1880, p. 443, pl. XXXVI, fig. 2; *Menopon dissimile* KELLOGG, 1896, p. 536, pl. LXXIII, fig. 5.

Three females were collected from a Formosan white-eye, *Zosterops palpebrosa peguensis* shot in Formosa, June 4, 1917.

The species was obtained from *Hirundo rustica* and *Riparia riparia* by PIAGET and *Progne subis* by KELLOGG. Though the present specimens were found from a quite different host species, its characters well agree with the descriptions of KELLOGG's *dissimile* as well as PIAGET's *rustica* except the size of the present specimens is intermediate between them.

Measurements:

	♀ UCHIDA	♀ UCHIDA	♀ KELLOGG	♀ PIAGET
Length of body.	1.80 m.m.	1.78 m.m.	2.16 m.m.	1.60 m.m.
Width of body.	0.61 "	0.60 "	0.81 "	0.60 "
Length of head.	0.31 "	0.30 "	0.34 "	0.30 "
Width of head.	0.49 "	0.49 "	0.56 "	0.41 "
Length of thorax.	0.42 "	0.42 "		0.34 "
Width of thorax.	0.47 "	0.45 "		0.40 "

Myrsidea teraokai UCHIDA.

UCHIDA, 1918, p. 490, fig. 2.

Numerous male and female specimens were found from the following four species of different orders, all from the Caroline Ids.

Demiegretta sacra ringeri (Ord. Gressores) Ponape Id.

Porzana tabuensis tabuensis (Ord. Orectrides) Yap Id.

Micranous leucocapillus (Ord. Lari) Ponape Id.

Aplonis kittlitzi (Ord. Passeres) Truk Id.

The cause of such wide distribution of host, may be attributed to straggling, either transmitted from game bag in which host birds were carried or from birds which often occur on the same rocks in the island.

This species was first described by me from a single female specimen taken from *Demiegretta sacra ringeri* shot in the Ponape Id. The following is the description of the male: Size smaller; posterior margin of metathorax nearly straight, bearing two short and eight long hairs instead of four short hairs; abdomen remarkably smaller; posterior margins of first to third segments not curved posteriorly, but nearly straight. Genitalia of the common type of the genus; with long, distinct basal plate; reaching from the posterior margin of the second segment to the middle of the last segment.

Myrsidea kikuchii UCHIDA.

UCHIDA, 1920, p. 643.

A single female was obtained on a Little egret, *Egretta garzetta garzetta* killed at Nanheishō, Formosa, April 3, 1917.

* * *

NEUMANN* has founded a sub-genus *Menacanthus* for the reception of certain forms, previously included in *Menopon*, which bear spinous processes on the ventral surface of the head. As has been stated by several writers, the sub-genus includes heterogeneous assemblage of forms. I propose a division into three genera, *Menacanthus* s. st., confined to Passeriformes, *Neumannia*, found on Galliformes and *Eomenacanthus*, on the domestic fowl.

These three genera may be described as follows:

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* Arcives de Parasitologie, tome XV, p. 353, 1912.

Genus **MENACANTHUS** NEUMANN (s. st.).

NEUMANN, 1912, p. 353.

Menoponidae of small size and broad, rounded abdomen; a pair of spinous processes upon ventral surface of the head, lateral margin of the head nearly continuous with the eye; forehead rounded; temples prominent; the last segment of antenna globular. Oesophageal sclerite absent. Thorax three segmented; mesothorax small but clearly distinguishable. Ventral surface of posterior femora and abdominal sternites without distinct patches of spines. Gastric teeth absent.

Genitalia of the male resembles that of the genus *Neumannia* but remarkably shorter and broader; the paramere not so much curved; chitinized, accessory apparatus absent.

Species only occurring upon Passeriformes.

Included species.

Menopon alaudae SCHRANK (Host: *Alauda arvensis*)
Colpocephalum chrysophaeum KELLOGG (Host: *Melospiza fasciatum*)
Menopon coarctatum SCOPOLI (Host: *Lanius collurio*)
Menopon curuccae SCHRANK (Host: *Motacilla curuccae*)
Menopon dubium PIAGET (Host: *Buchanga atra*)
Menacanthus microsceli n. sp. (Host: *Microscelis amaurotis*)
Menacanthus nogoma n. sp. (Host: *Calliope calliope*)
Menopon persignatum KELLOGG & CHAPMAN (Host: *Cyanocitta frontalis*)
Menopon robustum KELLOGG (Host: *Psaltriparus minimus*)
Menopon spiniferum PIAGET (Host: *Cyanocorax pileatus*)
Menopon spinosum PIAGET (Host: *Carduelis virginianus*)
Menacanthus subspinosus n. sp. (Host: *Passer rutilans*)
Menacanthus takayamai n. sp. (Host: *Horornis cantans*)

Menacanthus alaudae (SCHRANK).

Menopon alaudae SCHRANK, Beiträge, 1776, p. 115, fig. 5, 6; *Menopon parriceps* PIAGET, p. 446, pl. XXXVI, fig. 3.

A female specimen was obtained from a Shore lark, *Chionophilis alpestris euroa* shot in Pref. Nagano, Dec. 11, 1918.

Menacanthus microsceli n. sp. (Fig. 4).

Two male, five female and two young individuals were collected from a

Brown-eared bulbul, *Microscelis amaurotis* taken in the Niishima Id. of the Seven Ids.

This new species much resembles *Menopon distinctum* KELLOGG & CHAPMAN,* but is somewhat larger, while the shape and chaetotaxy of the thorax differ considerably.

Description of the female:- Ground colour of the body pale brown, with brown and pitchy markings on head and thorax and brownish bands on abdomen.

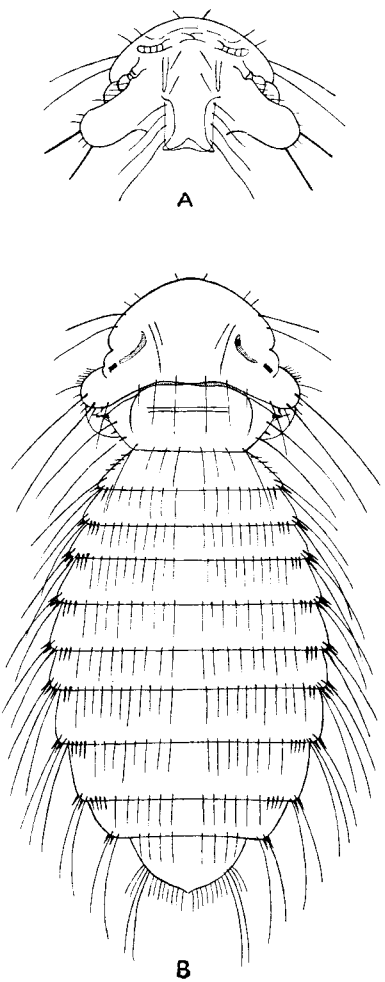

Fig. 4.
Menacanthus microsceli, n. sp.
A. Dorsal view of the female. ×50.
B. Ventral aspect of the head. ×50.

Head short, broad, front parabolic, a very slight angulation on meson, a very minute hair on each side of this angulation; two hairs on the lateral margin of the front; two long hairs on a slight swelling in front of shallow but distinct ocular emargination; a long and a short hair on the dorsal surface of the head; eye large, prominent emarginated, with black quadrangular fleck; ocular fringe made up of comparatively few stiff hairs, more numerous on the outer margin in front of temples; temples narrow, expanded each bearing two long and several shorter hairs; occipital margin slightly concave, narrowly edged with dark brown, bearing three pairs of hairs of different length; ocular blotches dark brown to black, extending foreward as far as the dark lateral blotches, but paler chestnut-brown anteriorly. On the ventral surface of the head, each side of quadrate ventral sclerite bears four hairs; antennae prominent; the last segment globular, with a few, very fine hairs on ends. Spinous processes very large, 0.12 m.m. long, slightly curved outwardly.

Prothorax very large, produced; lateral angles obtusely expanded, each with a spine; posterior lateral margin nearly straight, each with a spine and two long hairs; posterior margin straight, bearing eight hairs, of which the outermost one

* KELLOGG & CHAPMAN, New Mallophaga III, p. 126, pl. VIII, fig. 7.

longest; transverse band and longitudinal bars brownish, distinct. Metathorax short, broader than the prothorax; lateral margins straight, diverging posteriorly, each with four spines ; each posterior angle with a spine and two long hairs; posterior margin slightly convex posteriorly, furnishing two spines and twelve short hairs. Legs somewhat paler than the body, with pale marginal markings and roughly scattered short hairs; ventral surface of hind femora with several, stiff, short hairs.

Abdomen broadly elliptical ; widest at the fourth segment; the length of segments subequal ; posterior angles projecting, each bearing several spines and two or three long hairs; posterior margins nearly straight, each furnishing twenty-four to twenty-eight submarginal hairs, of which outer four or five becoming spinous ; posterior margin of the last segment broadly rounded, with an angulation on meson, and bearing two long and three short hairs on each side and a fringe of fine hairs. Ground colour of abdomen pale brownish ; transverse band yellowish brown, entirely across each segment ; lateral bands narrow, clear brown. Ventral surface of each abdominal sternite bearing a submarginal row of short, weak hairs and several spinous hairs on each side, merging more or less with submarginal row.

Description of the male : – Similar to the female, but body remarkably smaller, abdomen narrower and somewhat ovate in shape ; the last segment of abdomen rounded, without angulation. Genitalia pale, short, reaching from the posterior margin of the fifth segment to the end of the last segment ; parameres pale, transparent, with outwardly recurved end.

Measurements :

	♀ m.m.	♀ m.m.	♀ m.m.	♂ m.m.	♂ m.m.
Length of body.	1.60	1.58	1.62	1.35	1.35
Width of body.	0.66	0.73	0.70	0.55	0.55
Length of head.	0.25	0.25	0.26	0.22	0.22
Width of head.	0.50	0.52	0.54	0.47	0.46
Length of prothorax.	0.16	0.16	0.16	0.13	0.13
Width of prothorax.	0.44	0.44	0.44	0.37	0.37
Length of metathorax.	0.12	0.12	0.12	0.12	0.12
Width of metathorax.	0.48	0.48	0.49	0.37	0.37

Menacanthus nogoma[1] n. sp. (Fig. 5).

Three male and four female specimens were taken from a Siberian rubby-throated robin, *Calliope calliope calliope*, obtained in Pref. Nagano, Oct. 10, 1917.

Very small, wide bodied form, allied to *Menopon chrysophaeum* KELLOGG[2] but is distinguished from it in having a smaller body and much smaller

[1] "Nogoma" in Japanese means Siberian rubby-throated robin.

[2] KELLOGG, New Mallophaga II, p. 529, pl. 70, fig. I.

spinous processes of the head.

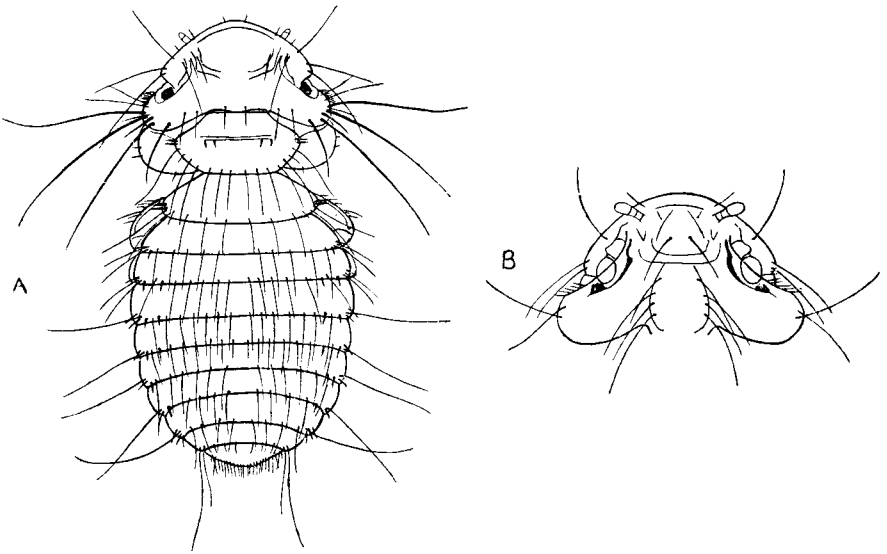

Fig. 5.
A. *Menacanthus nogoma* n. sp., female. ×60. B. Ventral aspect of the head. ×80.

Measurements of the specimens on hand are as follows.

	♀ m.m.	♀ m.m.	♀ m.m.	♂ m.m.	♂ m.m.	♂ m.m.
Length of body.	1.00	1.05	1.03	1.04	1.03	0.99
Width of body.	0.46	0.49	0.49	0.45	0.46	0.43
Length of head.	0.22	0.22	0.22	0.22	0.22	0.21
Width of head.	0.39	0.40	0.40	0.40	0.39	0.39
Length of prothorax.	0.11	0.12	0.12	0.11	0.12	0.11
Width of prothorax.	0.28	0.29	0.29	0.28	0.28	0.28
Length of metathorax.	0.10	0.11	0.11	0.10	0.10	0.10
Width of metathorax.	0.33	0.34	0.33	0.31	0.31	0.31

Description of the female : – Body small but very broad. Ground colour of body pale brownish yellow, with dark brown markings on head and thorax and brownish bands on abdomen.

Head comparatively large ; front broadly parabolic, with a minute hair in each side of middle, then two short and three long hairs, the hindermost two being in the lateral angle just in front of the ocular emargination ; a long and two short hairs on each side of the dorsum of head; ocular emargination distinct; eye large, flat, slightly emarginated, with an irregular shaped black fleck ; ocular fringe made up comparatively short, stiff hairs ; temples roundly expanded with three long and several shorter hairs; occipital margin slightly concave, with eight submarginal hairs. On each side of the quadrate ventral sclerite bears four long hairs ; the last segment of antenna large,

oblong; spinous processes on the ventral surface of the head very small, 0.02m.m. long.

Prothorax short, protruded; lateral angles rectangular, each with two very small spines; posterior lateral margins slightly convex, each bearing a spine and two hairs; posterior margin slightly convex, with eight hairs. Metathorax nearly straight, diverging posteriorly, each with two spines; posterior angles acute, each furnishing two spines and a long hair; posterior margin nearly truncate, with two spines and eight submarginal hairs. Legs paler than the body with brown marginal markings and roughly scattered hairs; ventral surface of the hind femora, with several stiff hairs, but they do not form a distinct patch.

Abdomen broadly elliptical in outline; widest at the fourth or fifth segment; the length of segments almost equal; posterior angles produced, bearing a short, a long hair and two or three spines; posterior margins of segments first to fifth straight and those of segments sixth to eighth concave, each bearing a row of numerous weak marginal hairs; posterior margin of the last segment very broadly rounded, with two long hairs on each side and a fringe of fine hairs between them. Ground colour of the abdomen pale brownish yellow; transverse bands brownish, entirely covering each segment. Lateral bands narrow, clear brown. Ventral surface of each abdominal sternite, with a row of weak, marginal hairs and an irregular row of short, weak hairs.

Description of the male:– Very similar to the female; colour somewhat paler; size large, almost equal to the female, except being somewhat narrow. Genitalia brown, well chitinized, reaching from the middle of the fifth segment to the end of the last segment.

Menacanthus takayamai n. sp. (Fig. 6).

A single female specimen obtained by Mr. T. TAKAYAMA from a Japanese bush-warbler, *Horornis cantans cantans* shot in Pref. Nagano, Sept. 8, 1919.

A small wide bodied form, somewhat resembling to *Menopon robustum* KELLOGG* from *Psaltriparus minimus*, but is distinguished from it by smaller and narrower body.

Description of the female:– Body small but broad; length 1.30m.m., width 0.60m.m.; ground colour of body pale yellowish brown, with brownish markings on head and thorax and brownish lateral and yellowish brown transverse bands on abdomen.

Head, length 0.23m.m., width 0.50m.m.; very short and broad, crescentic in outline; front very broadly rounded, with a minute hair on each side of

* KELLOGG, New Mallophaga, p. 528, pl. LXXII, fig. 3.

middle, then two short and then three long hairs, the hindermost two being in the lateral angle just in front of the ocular emargination; two short hairs on each side of the dorsum of head; ocular emargination shallow but distinct; eye large, flat, emarginated, with distinct, black, quadrangular fleck; ocular fringe indistinct; temples narrow, produced, each bearing five long and several short hairs of which hindermost three are very long; occipital margin slightly concave, narrowly edged with brown, with six submarginal hairs. On the ventral aspect of head, each side of the quadrate ventral sclerite bears four hairs; the last segment of the antenna globular, with several minute hairs on ends. Spinous processes large, 0.08m.m. long.

Prothorax large, expanded; length 0.16m.m., width 0.35m.m.; lateral angles obtusely expanded, each with a spine; posterior lateral margins slightly concave, each bearing a spine and two long hairs; posterior margin nearly straight, with eight weak hairs, of which the outermost one stronger; the transverse bar distinct, brownish, and the curving longitudinal bars at its end distinct, brownish. Metathorax short length 0.14 m.m.; width 0.43 m.m.; lateral margins nearly straight, diverging posteriorly, each with a few minute spines; each posterior angle bearing a spine and two long hairs; posterior margin nearly straight, with two small spines and ten weak, submarginal hairs; regions of lateral posterior angles dark brown, the colour extending forward narrowly along the lateral margins. Legs concolourous with head and thorax, with brownish yellow marginal markings and roughly scattered, short hairs. Ventral surface of the hind femora, with several, stiff

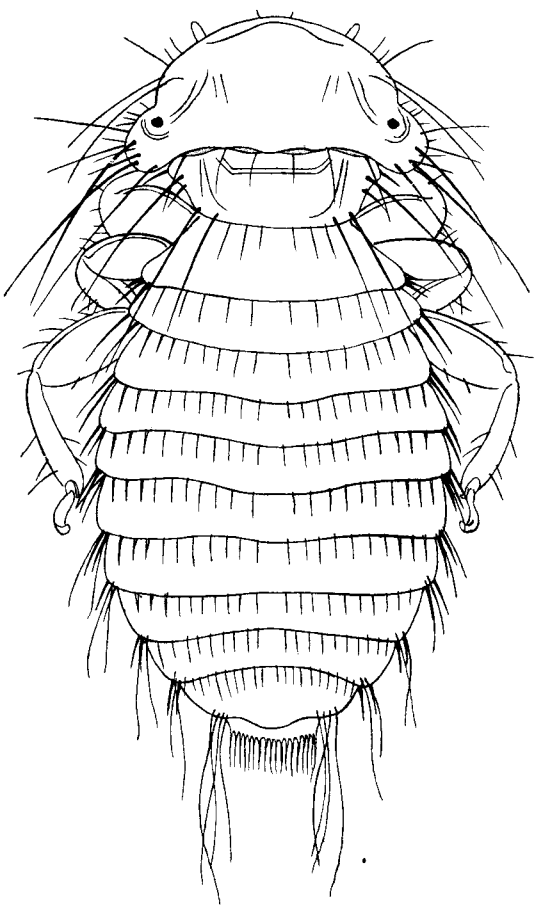

Fig. 6.
Menacanthus takayamai n. sp., female. ×70

hairs, but no distinct patch.

Abdomen broadly elliptical, length 0.72m.m., width 0.60m.m. ; widest at the fourth segment ; the length of the segments nearly subequal ; posterior angles of segments projecting, each furnishing two or three spines and two or three hairs ; posterior margins of segments first to sixth truncate and those of segments seventh and eighth concave, each bearing numerous, weak, submarginal hairs of which lateral two of three becoming spinous; posterior margin of the last segment obtusely angled posteriorly, with three long hairs on each side and a fringe of fine hairs. Ground colour of abdomen pale brownish yellow; transverse band, broad, pale yellowish brown, entirely covering each segment ; lateral band narrow, clear yellowish. Ventral surface of each abdominal sternite bearing a submarginal row of weak hairs and an irregular row of short, weak hairs and several spinous hairs on each side, merging more or less with submarginal row.

Menacanthus dubium (PIAGET).

Menopon dubium PIAGET, 1880, p. 452, pl. XXXVI, fig. 6.

Two females were taken from a Chinese black-drongo, *Buchanga atra cathoeca* shot in Formosa, June 4, 1917.

Menacanthus coarctatum (SCOPOLI).

Menopon coarctatum SCOPOLI, 1763, p. 383 ; *Menopon camelinum* NITZSCH, in GIEBEL, 1874, p. 288, pl. 7, fig. 12; *Menopon fuscocinctum* DENNY, 1842, p. 219, pl. XXI, fig. 4.

A male and a female were collected from a Bull-headed shrike, *Lanius bucephalus* taken in Pref. Nagano, May 4, 1918.

Menacanthus persignatum (KELLOGG & CHAPMAN).

Menopon persignatum KELLOGG & CHAPMAN, 1898, p. 128, pl. IX, fig. 1.

A male specimen was collected from a Japanese azurewinged magpy, *Cyanopica cyanus japonica* shot in Pref. Nagano.

Menacanthus chrysophaeum (KELLOGG).

Colpocephalum chrysophaeum KELLOGG, 1896, p. 520, pl. LXX, fig. 1.

A male specimen of this species was collected from a Chinese greenfinch, *Chloris sinica* taken in Pref. Nagano, Sept. 6, 1918 ; Four females were taken

from a Siskin, *Spinus spinus* shot in the same locality, Sept. 14, 1918. Further was collected a male from a Japanese meadow-bunting, *Emberiza cioides cioides* shot in the Niijima Id., April 30, 1916.

Menacanthus subspinosus n. sp.

A male and three females were collected from a Russetsparrow, *Passer rutilans rutilans* obtained in Pref. Nagano, Oct. 6, 1918.

The present species closely allied to *Menopon spinosum* PIAGET* from *Spinus cucullatus*, but differs from it in the smaller size as well as in much longer spines on the ventral surface of the head.

Measurements of the present specimens are as follows:

	♂ m.m.	♀ m.m.	♀ m.m.
Length of body.	1.24	1.55	1.50
Width of body.	0.47	0.63	0.65
Length of head.	0.24	0.24	0.24
Width of head.	0.43	0.48	0.48
Length of prothorax.	0.13	0.15	0.14
Width of prothorax.	0.33	0.36	0.37
Length of metathorax.	0.13	0.15	0.15
Width of metathorax.	0.37	0.42	0.43

Description of the female:– Ground colour of the body pale brownish yellow, with pitchy brown markings on head and prothorax; brownish transverse bands and brown marginal blotches on abdomen.

Head comparatively short, somewhat lunate in shape; front parabolic, with a minute hair on each side of the middle, then two short hairs which are followed by two long hairs, after which comes the hindermost located in the lateral angle, just in front of the ocular emargination, which is distinct but shallow; a short and a long hair on each side of the dorsum of head; ocular fringe indistinct; eye large and flat, inconspicuously emarginated, with distinct black fleck. Temples narrowly expanded, each with three long and five short hairs on the margin; occipital margin but slightly concave, edged with pitchy brown, bearing eight weak submarginal hairs. On the ventral surface of the head, each side of the quadrate ventral sclerite with four hairs. Spinous processes large, 0.1m.m. long.

Prothorax with lateral angles slightly produced, a short prickle on each angle; posterior lateral margins straight, each with spine and two longer hairs; posterior margin straight, bearing eight hairs. Transverse and longi-

* PIAGET, Les Pediculines, 1880, p. 449, pl. XXXVI, fig. 4; NEUMANN, Arch. Parasitologie 1912, p. 363, fig. 10.

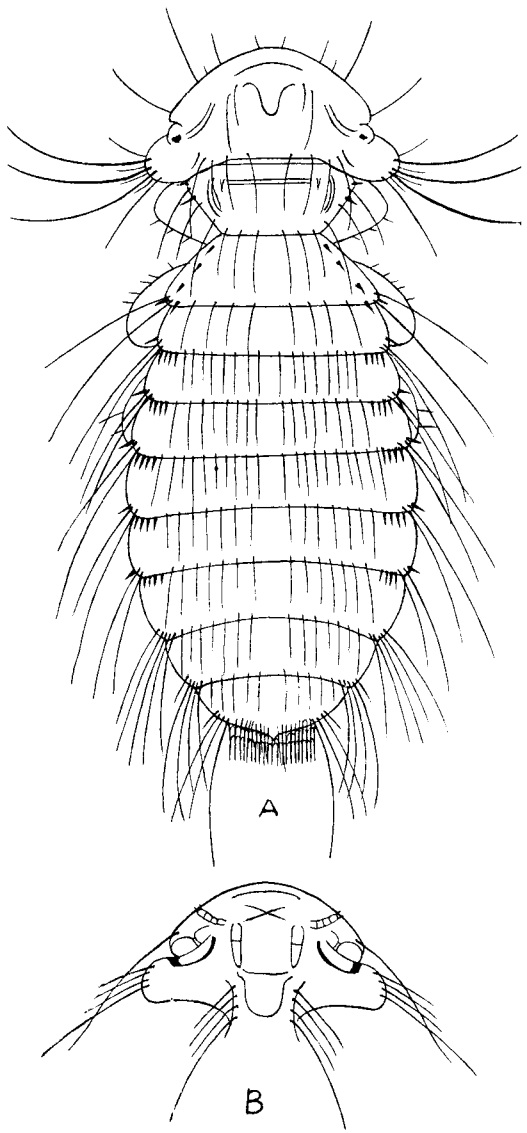

Fig. 7.
A. *Menacanthus subspinosus* n. sp., female. ×60.
B. Ventral aspect of the head ×60.

tudinal chitin bars pale yet distinct; a short prickle on each end of the transverse band. Metathorax short, trapezoidal in outline; lateral margins nearly straight, diverging posteriorly, each with three short spines; posterior angles slightly produced, each bearing a spine and two hairs; posterior margin somewhat convex, with two spines and eight long submarginal hairs; legs slightly paler than the thorax, with roughly scattered, stiff hairs. Ventral surface of the hind femora without distinct patches of hairs.

Abdomen elliptical; widest at third or fourth segment; posterior angles of the segment produced, with two long hairs and several spines; posterior margins of the segments almost straight, each bearing numerous weak, submarginal hairs, of which lateral three or four becoming spinous; posterior margin of the last segment slightly angled, bearing three hairs on each side and a fringe of fine hairs between long hairs; pale brownish transverse bands extending across the segments to shiny brown, narrow, marginal blotches. On the ventral surface, each abdominal sternite bearing a row of weak submarginal hairs and one or two irregular short, weak hairs.

Description of the male : – Similar to the female, but size considerably smaller; abdomen smaller and narrower. Genitalia pale but well chitinized,

reaching from the anterior margin of the sixth segment to the end of the last segment.

Genus **NEUMANNIA** n. gen.

Menoponidae of smallish size. A pair of spinous processes on the ventral surface of the head. Head Colpocephalid type; lateral margins of the head with a distinct notch just before the eye; forehead large, rounded; temples prominent; the last segment of antenna cylindrical. Oesophageal sclerite present. Mesothorax completely fused with metathorax. Ventral surface of posterior femora and certain abdominal sternites with indistinct patches of spines, those upon the sternites shorter, merging more or less with the general chaetotaxy. Gastric teeth present. Genitalia of the male somewhat resembles that of *Colpocephalum*; basal plate is composed of a pair of slender, slightly curved rods, united near its median portion in the form of an inverted Y, each rods of the basalplate furnishing a very long slender paramere and a shorter pointed endomere. The paramere with the distal end slightly curved outward; lamina oblong with flatly rounded posterior margin. At the median portion of the basal plate lies a accessory apparatus which is composed of two well chitinized, short rods.

Species occuring, as far as known, only upon Galliformes.

Type of the genus, *Neumannia okadai* n. sp.

Included species:

Menopon abdominale PIAGET (Host: *Coturnix coturnix*)
Menopon albicans PIAGET (Host: *Euplocamus horsfieldi*)
Menopon numidae GIEBEL (Host: *Numida meleagris*)
Neumannia okadai n. sp. (Host: *Rollulus roulroul*)
Menopon perdicis DENNY (Host: *Perdix cinerea*)
Menacanthus pallidulum NEUMANN (Host: *Gallus domesticus*)
Menopon unicolor PIAGET (Host: *Perdix javanica*)

Neumannia okadai n. sp. (Fig. 8).

Two specimens both female were obtained from a Crested partridge, *Rollulus roulroul* at the aviary of Mr. R, OKADA at Itami-machi near Kōbe and another female specimen from a Green peafowl, *Pavo muticus* at the aviary

of Mr. N. KURODA, Tokyo, Oct. 30, 1919.

A very small, wide bodied form, resembles *Menopon unicolor* PIAGET* from *Perdix sp.*, but is distinguished from it by the shorter but broader abdomen.

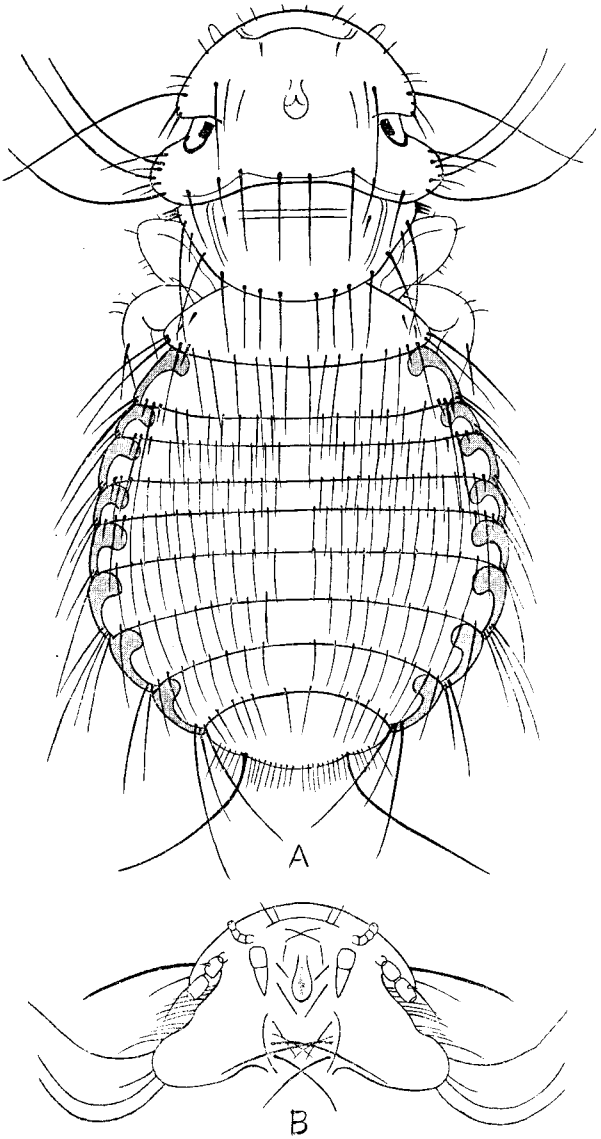

Fig. 8.
A. *Neumannia okadai* n. sp , female. ×75.
B. Ventral aspect of the head. ×75.

Description of the female:- Body small but broad, length 1.27m.m., width 0.72 m.m. ; colour of body pale brownish yellow, with yellowish brown markings on head and yellow lateral bands on abdomen.

Head length 0.28m.m., width 0.52m.m. ; front very broadly rounded, with several short, weak hairs and a long and three shorter hairs on the angle in front of each eye, a long and three short hairs on each side of the dorsum of head. Ocular emargination pronounced, the deepest point beeing acutely angled ; eye very large, prominent with a pitchy quadrangular fleck; ocular fringe composed with six or seven short, stiff hairs. Temples expanded ; margins rounded, each bearing three long and several shorter hairs; occipital margin slightly concave, edged with yellowish brown, bearing eight submarginal hairs. On the ventral aspect of

* PIAGET, Les Pediculines, p. 471, pl. XXXVIII, fig. 5.

head, each side of the quadrate ventral sclerite bears four hairs; antennae prominent, the last segment cylindrical, with two short hairs on end. Spinous process dark brown, 0.05m.m. long.

Prothorax large, expanded; length 0.20m.m., width 0.42m.m.; lateral angles narrowly rounded, each with three spines; posterior lateral margins very slightly concave, each bearing a spine and two long strong hairs; posterior margin convex with eight long hairs; transverse band and longitudinal bars pale but distinct; a spine on both ends of the latter. Metathorax short, broad; length 0.16m.m., width 0.51m.m.; lateral margins nearly straight, widely diverging posteriorly, each bearing two spines; posterior margin slightly convex, set with two spines and fourteen submarginal hairs; angles acute, bearing two longish hairs. Legs short paler than thorax, with a few short scattered hairs; ventral surface of the hind femora, with a group of roughly distributed, stiff hairs.

Abdomen very short and broad; length 0.73m.m., width 0.73m.m.; nearly orbicular in shape; widest at the fifth segment; the length of the second segment shortest; that of the first to fourth segments subequal; that of the seventh to ninth segments longer; posterior angles of segments first to seventh projecting a little laterally, furnishing one or two long hairs; posterior margins of segments first to sixth nearly straight; those of segments seventh and eighth slightly concave, each bearing a submarginal row of numerous long hairs. The last segment large, flatly rounded, with a long and several shorter hairs on each side and a fringe of fine hairs. Ventral surface of each abdominal sternites bearing two or three transverse row of short hairs a patch of numerous short hairs on each side of fourth to sixth sternites, merging more or less with general chaetotaxy. Ground colour of abdomen pale yellowish; transverse band pale, yellowish brown, entirely across each segment; lateral bands clear yellowish, bending inward along the posterior margins of the preceding segment and ending in clear, rounded blotches.

Neumannia perdicis (DENNY).

Menopon perdicis, DENNY, 1842, p. 225, pl. XXI, fig. 9; *Menopon pallescens*, in GIEBEL, 1874, p. 293; UCHIDA, 1917, p. 184; 1920, p. 642.

A male and three female specimens were collected from Formosan tree-partridge, *Arboricola crudigularis* shot on Mt. Suisan, June 20, 1917 and on Mt. Arisan, May 14, 1916.

Neumannia albicans (PIAGET).

Menopon albicans PIAGET, 1880, p. 463, pl. XXXVIII, fig. 3.

A female specimen was obtained from a silver pheasant, *Gennaeus nycthemerus* at the Government Experiment Station for Ornithology and Mammalogy.

Neumannia pallidulum (NEUMANN).

Menacanthus pallidulum NEUMANN, 1912, p. 361, figs. 7, 9.

Five females were obtained from a domestic fowl at the Government Experiment Station for Ornithology and Mammalogy, Oct. 6, 1920 and a male and a female specimen from a Copper pheasant, *Graphophasianus scintillans* at the same locality.

Neumannia numidae (GIEBEL).

Menopon numidae GIEBEL, 1874, p. 292 ; *Menacanthus numidae* NEUMANN, 1912, p. 357, fig. 3.

Only a female was obtained from a Guinea fowl, *Numida mereaglis* at the Government Experiment Station for Ornithology and Mammalogy, Feb. 25, 1922.

Genus **EOMENACANTHUS** n. gen.

A genus of Menoponidae ; body large, hairly ; a pair of small spinous processes under side of the head ; lateral margin of the head, with a shallow notch just before the eye ; forehead parabolical ; temples narrowly expanded ; the last segment of antennae cylindrical ; oesophageal sclerite absent. Mesothorax fused with metathorax. Ventral surface of posterior femora and certain abdominal sternites with distinct patches of numerous short hairs. Gastric teeth present. Genitalia of the male large, broad, peculiar, the basal plate composed of a pair of bi-furcated rods, which is chitinized only at the distal portion ; the parameres are broadly curved near their origin and slightly curved again at the apex, so that they form a lyre-shaped apparatus. Endomeres leaf-like, each with a pointed top; penis distinct, well chitinized lying between bifid ends of parameres ; accessory apparatus present, large, oblong, well chitinized, reaching from anterior margin of the fifth abdominal sternite to the posterior margin of the sixth segment.

Type of genus, *Eomenacanthus biseriatum* (PIAGET), only species, occuring on the domestic fowl.

Eomenacanthus biseriatum (PIAGET).

Menopon biseriatum PIAGET, 1880, p. 469, pl. XXXVII, fig. 2; NEUMANN, 1912, p. 358, fig. 4.

Numerous specimens of both sexes and young individuals of every stage were collected from domestic fowls at Shibuya, suburb of Tokyo, April 19, 1916. This species occuring very common upon the domestic fowl in our country.

Genus **EOMENOPON** HARRISON.

HARRISON, 1915, p. 385.

Eomenopon denticulatus HARRISON.

HARRISON, 1915, p. 385, pl. XXVI, fig. 5, pl. XXVII, figs. 6, 16; UCHIDA, 1918. p. 493.

One male, three female and three young individuals were taken by Mr. N. TERAOKA from *Eos rubiginosa* shot on the Ponape Id. April 20, 1914.

Genus **DENNYUS** NEUMANN.

NEUMANN, 1906, p. 59; FERRIS, 1916, p. 309; *Nitzschia* (nec BAER) DENNY, 1842, p. 230.

Dennyus truncatus (OLFERS).

OLFERS, De vegetativus etc., 1816, p. 91; *Dennyus truncatus* HARRISON, 1916, p. 61; *Nitzschia burmeisteri* DENNY, 1842, p. 230, pl. XXII, fig. 5; *Nitzschia tibialis* PIAGET, 1880, p. 576, pl. XLVIII, fig. 5.

A female and two youngs of this species were taken from White-rumped swift, *Apus pacificus* shot in Pref. Nagano, Sept. 20, 1914 and further a male and six immature specimens were collected from Hodgsons mosque swallow, *Hirundo daurica nipalensis* shot in Pref. Nagano, May 15, 1916. The latter case is the first record of the species taken from swallow. The species formerly taken only from Cypseli (*Apus apus*).

Genus **TAKAMATSUIA** n. gen. (Fig. 9).

A genus of Menoponidae, somewhat resembles genera *Myrsidea* and *Dennyus*. A group of numerous short, stiff hairs on the ventral surface of the posterior femora and a distinct patch of closely set, short hairs upon each side of fifth, sixth and seventh abdominal sternites. Prothorax very long and narrow; mesothorx distinctly separated by a suture from metathorax. Head of the same type as in *Dennyus*, but with rounded front. The last segment of abdomen showing some modifications by sex. Oesophageal gland and gastric teeth absent.

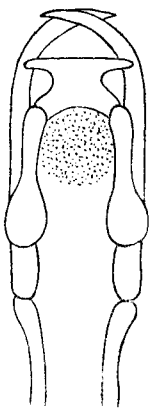

Fig. 9.
Genitalia of *Takamatsuia major* n. sp.

Genitalia of the male quite characteristic, large well chitinized. The basal plate is composed of a pair of moderately long rods, each furnishing a long and stout paramere and a shorter endomere. The paramere with the distal half curved inward. Between the two parameres lies a complicated chitinous work and a vesicula penis, the wall of the latter being studded with very minute spines.

Occuring on Cypseli (Cypselidae).

Type of the genus is *Takamatsuia major* n. sp., forming the only species of the genus.

I have named this genus in honour of the first collector, Mr. R. TAKAMATSU of the Nagano Commercial School.

Takamatsuia major n. sp. (Figs. 10, 11).

The first female specimen of this species was taken by Mr. R. TAKAMATSU from a Needle-tailed swift, *Hirundapus caudacutus caudacutus* shot at Togakushimura in Pref. Nagano, Oct. 17, 1916 and further a female, two male and an immature specimens were collected on the same host species taken in Chikumagun, Pref. Nagano, June 8, 1919.

This new species somewhat resembles the members of the genus *Dennyus* but is easily distinguishable from it by larger size and the peculiarity of the last segment of the male. Ground color of body brownish yellow, with brownish markings on head and thorax; the abbomen with dark lateral bands and brownish, continuous, transverse bands.

Descriptions of the female : – Head short, broad, triangular in outline; front rounded, with a slight emargination just behind the projecting palpi; two marginal hairs and a few prickles on front; two short and three long hairs on each lateral margin; two long and a short hair on each side of the

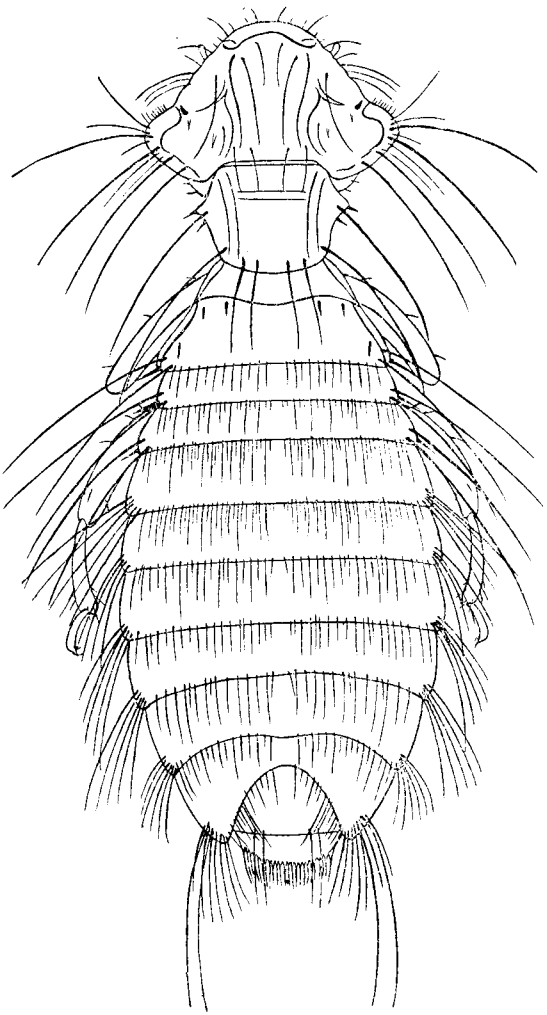

Fig. 10.
Takamatsuia major n. sp. female. ×35.

dorsum of head. Ocular emargination shallow; eye prominent, with distinct, quadrangular black fleck; ocular fringe distinct, composed with stiff hairs; palpus projecting with the whole length of its terminal segment. Temples much expanded; margins angulated in front and behind, each bearing four pustulated hairs and a few shorter hairs and prickles; occipital margin nearly straight, with four submarginal hairs. Ground colour of head pale brownish yellow, darker in the middle; the curved line bounding the antennal region clear reddish yellow; a reddish yellow spot near the margin just in front of each palpus; temporal margin borderd with reddish yellow, broad band. A brownish band running from the base of each antennal fossa to the end of occipital margin which is edged with dark brown.

On the ventral aspect of head, on each side of the quadrate, posterior, ventral sclerite seven hairs of which the hindermost is the longest.

Prothorax hexagonal in outline, with produced, obtuse lateral angles, each bearing two spines and a hair; anterior margin slightly concave; posterior latearal margins nearly straight; posterior margins straight, with six submarginal hairs; posterior lateral angles obtuse each bearing a long hair; colour pale brownish yellow; longitudinal chitin bars distinct, broad, submarginal, connected with a narrow, indistinct transverse bar. Mesothorax distinct separated by a curved suture from metathorax; lateral margins of mesothorax

convex ; those of metathorax straight and diverging posteriorly ; posterior margin of mesothorax convex in the middle and concave near lateral margins ; posterior margins of metathorax slightly convex and bearing a series of marginal hairs of various length; posterior lateral angles with two hairs and spines. Colour of thorax brownish, dusky, broad, lateral marginal bands. Legs stout; hind femora slender with a group of numerous, short, stiff hairs on its ventral surface ; forefemora greatly swollen, somewhat triangular in shape ; colour of legs paler than thorax.

Abdomen broad, elliptical ; widest at the fifth segment ; posterior angles of other abdominal segments projecting, each furnished with two long and several shoter hairs which become longer and more numerous toward the end ; posterior margins of segments first to seventh concave, each bearing fourty to sixty short marginal hairs ; posterior margin of the eighth segment is very deeply emarginate and the posterior angles produced backward. The last segment bearing two long hairs on each side of the dorsal surface and a fringe of fine hairs on the posterior margin. Ground colour of abdomen pale yellowish brown, lateral band of segments dark brown, with rounded anterior and posterior end. Ventral surface of each abdominal segment bearing four or five irregular rows of numerous minute hairs ; a distinct patch of closely set stiff hairs in each posterior lateral angle of fifth, sixth and seventh abdominal sternites.

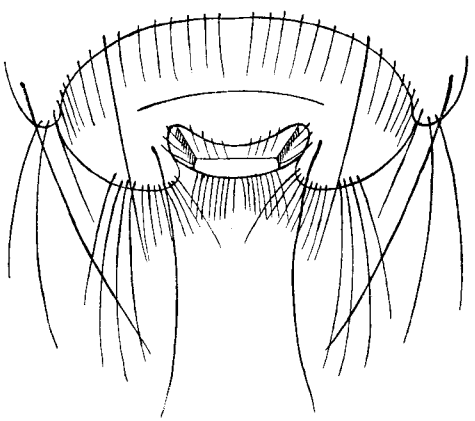

Fig. 11.
Last abdominal segment of male of *Takamatsuia major* n. sp.

Descriptions of the male : – Similar to the female; size smaller, the abdomen shorter but rather broader, the sixth segment widest instead of the fifth. The last segment small, round with a pair of combs composed of dark spines on two sides, the whole being placed in the emargination of the eighth segment ; posterior border rounded with a fringe of weak hairs. Genitalia large, well chitinized, reaching from the posterior margin of the second segment to the end of the last segment; parameres paler, very long and stout, strongly curved inwardly.

The dimensions of the specimens are as follows :

	♂ m.m.	♂ m.m.	♀ m.m.	♀ m.m.
Length of body.	2.70	2.60	3.20	3.30
Width of body.	1.12	1.10	1.30	1.30
Length of head.	0.59	0.56	0.59	0.60
Width of head.	0.91	0.81	9.98	0.90
Length of prothorax.	0.38	0.37	0.43	0.43
Width of prothorax.	0.53	0.53	0.60	0.61
Length of mesothorax.	0.19	0.19	0.20	0.21
Width of mesothorax.	0.63	0.63	0.73	0.73
Length of metathorax.	0.27	0.27	0.29	0.30
Width of metathorax.	0 85	0.83	1.00	0.93

Genus **TRINOTON** NITZSCH.

NITZSCH, 1818, p. 300.

Trinoton quelquedulae (LINNÉ).

Trinoton quelquedulae, LINNÉ, 1758, p. 612; *Trinoton luridum*, NITZSCH, in Burmeister, 1838, p. 441; DENNY, 1840, p. 234, pl. XXII, fig. 2; PIAGET, 1880, p. 591, pl. XLIV, fig. 3.

Numerous specimens of both sexes were collected by Dr. N. KURODA from the following ducks, which were captured at Haneda in the suburb of Tokyo:

Mallard (*Anas platyrhyncha platyrhyncha*)
Falcated teal (*Eunetta falcata*)
Golden-eye (*Bucephala clangula clangula*)
Teal (*Nettion crecca crecca*)
Pintail (*Dafila acuta acuta*)
Widgeon (*Mareca penelope*)
Mandarin duck (*Aix galericulata*)

Further was obtained a male from a Grey-plover, *Squatarola squatarola hypomelaena* shot in the mouth of the River Rokugō, near Tokyo, Oct. 2, 1916.

Genus **PSEUDOMENOPON** MJÖBERG.

MJÖBERG, 1910, p. 50.

Pseudomenopon pacificum (KELLOGG).

Menopon tridens var *pacificum* KELLOGG, 1896, p. 166; *Pseudomenopon*

pacificum HARRISON, 1916, p. 63.

Three female and two young specimens were taken from a Indian water-hen, *Gallinula chloropus parvifrons* shot in Pref. Nagano, May 28, 1918 and a female was taken from the same host shot in Pref. Chiba, May 25, 1923.

On accounts of colour of the lateral abdominal bands and number of hairs on the occipital margin, my specimens agree well with descriptions of the type specimen which was obtained from American coot, *Fulica americana*, but the size of specimens obtained in Pref. Nagano, are somewhat smaller than that of *Pseudomenopon tridens pacificum* which is the smallest variety of the *tridens* group.

Measurements of the specimens on hand are as follows (those in parenthesis are KELLOGG's) :

	♀ m.m.	♀ m.m.	♀ m.m.	♀ m.m.	♀ (Pref. Chiba) m.m.
Length of body.	1.50	1.50	1.40	(1.65)	1.70
Width of body.	0.55	0.55	0.57	(0.62)	0.63
Length of head.	0.26	0.25	0.25	(0.28)	0.29
Width of head.	0.45	0·46	0.46	(0.50)	0.51
Length of prothorax.	0.18	0.18	0.18		0.20
Width of prothorax.	0.35	0.35	3.36		0.40
Length of metathorax.	0.16	0.16	0.16		0.16
Width of metathorax.	0.39	0.40	0.40		0.43

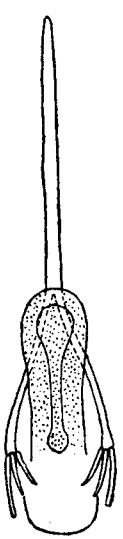

Fig. 12. Genitalia of *Colpocephalum importunum*.

Genus **COLPOCEPHALUM** NITZSCH (PART.).

(Fig. 12).

NITZSCH, 1818, p. 298.

A genus of Colpocephalidae, with three combs of spines upon ventral surface of the posterior femora and two combs upon each side of the third abdominal sternite. Body moderately long and distinctly patched. Mesothorax small, scarcely separated from metathorax by an indistinct sutural line. Head with large, rounded forehead and prominent temples. Lateral margin of head with a deep, distinct notch just before the eye. Oesophageal gland present. Gastric teeth present at the distal end of crop.

Genitalia of the male very slender; basal plate is composed of a pair of exceedingly long and slender rods, united near its posterior portion in the form of an inverted Y and continuous distally with a flatly rounded lamina. At each side of the base of the lamina, a slender paramere and a pair of endomeres are

set. The bifid portion of the basal plate is overlain by the vesicula penis, the wall of which are studded with minute spine.

Colpocephalum decimfasciatum Boisduval et Lacordaire.

Boisduval et Lacordaire, 1835, p. 123; *Colpocephalum importunum* Nitzsch, in Denny, 1842, p. 214, pl. XVIII, fig. 1; Giebel, 1874, p. 272; Piaget, 1880, p. 548, pl. XLV, fig. 8; Uchida, 1918, p. 488.

The following specimens of the species were examined by me: –

Seven males and ten females from *Demiegretta sacra ringeri*
(Ponape Id., April 28, 1914)

One female from *Butorides striatus amurensis*
(Pref. Nagano, Aug. 27, 1917.)

Three females from *Thalasseus bergii cristatus*
(Ponape Id., April 29, 1914.)

One male and three females from *Gygisterna sumatrana sumatrana*
(Ponape Id., April 29, 1914.)

Specimens from two species of terns may be attributed to straggling from the Reef-heron which often occurs on the same rocks in the Ponape Island.

Colpocephalum nyctardae Denny.

Denny, 1842, p. 215, fig. 9; Uchida, 1918, p. 488.

A male specimen from a Japanese reef-heron, *Demiegretta sacra ringeri* (the date and exact locality unknown) and a female and three youngs from a Chinese little bittern, *Ixobrychus sinensis sinensis* in captivity at the Government Experiment Station for Ornithology and Mammalogy, Feb. 24, 1922.

Colpocephalum maculatum Piaget.

Piaget, 1880, p. 516, pl. CLIII, fig. 1.

Numerous specimens of both sexes were collected from a species of Falconidae shot in the Island of Amami-ōshima, Jan. 7, 1919 and another female specimen was taken from a Japanese buzzard, *Buteo buteo japonicus* shot at Togakushimura, Pref. Nagano, Oct. 7, 1918.

Colpocephalum tamamurensis n. sp. (Fig. 13).

Two female specimens were collected at the Government Experiment

Station for Ornithology and Mammalogy, Tamamura, near Tokyo, Feb. 11, 1922, from a Night-heron, *Nycticorax nycticorax nycticorax* and from a domestic pigeon. The specimen from the latter host is almost certainly a straggler.

The dimensions of the specimens are as follows : –

	♀ m.m.	♀ m.m.
Length of body.	1.45	Abdomen broken.
Width of body.	0.12	Abdomen broken.
Length of head.	0.29	0.29
Width of head.	0.46	0.46
Length of prothorax.	0.14	0.14
Width of prothorax.	0.34	0.33
Length of metathorax.	0.14	0.14
Width of metathorax.	0.48	0.46

Description of the female : – Body broad ; ground colour pale brownish yellow, with a few brownish markings.

Head with truncated front ; side slightly convex, diverging posteriorly and interrupted by the ocular emargination which is deep, distinct but not acute inwardly ; frontal margin with several minute hairs and a weak and a strong marginal hair, at the angle in front of each ocular emargination. Dorsal surface of the forehead bearing a short and a long hair on each side of the front end of smoky ocular blotch. Eye large, prominent, slightly emarginate, with a short hair and a black fleck ; ocular fringe comb like, triangular in shape. Temples very expanded, margins angulated in front and behind, each furnishing three long and several short marginal hairs ; occipital margin slightly concave, narrowly edged with brownish, bearing four long hairs.

Prothorax short, broad; the anterior portion of the segment deeply inserted under the occipital margin of the head. Lateral angles obtuse, each with a spine and a long hair ; the whole margin back of each lateral angles nearly evenly rounded, furnishing two spines and six hairs. There are four dorsal spines, one near each lateral angle, another at each end of the transverse chitin bar. Metathorax short, broad, with slightly convex, widely diverging sides which bear several spines ; posterior lateral angles acute, each bearing two spines and a hair ; posterior margin flatly rounded, with ten submarginal hairs ; suture between meso- and metathoracic segment distinct, somewhat convex posteriorly. Colour of thorax pale brownish yellow, with no distinct markings. Legs short and stout; almost concolourous with thorax, with narrow clear yellowish dorsal markings on femora and tibiae. On the ventral surface of the hind femora three rows of combs, each composed of twelve to fifteen brownish yellow spines.

Abdomen broadly oval ; widening gradually towards the fourth segment,

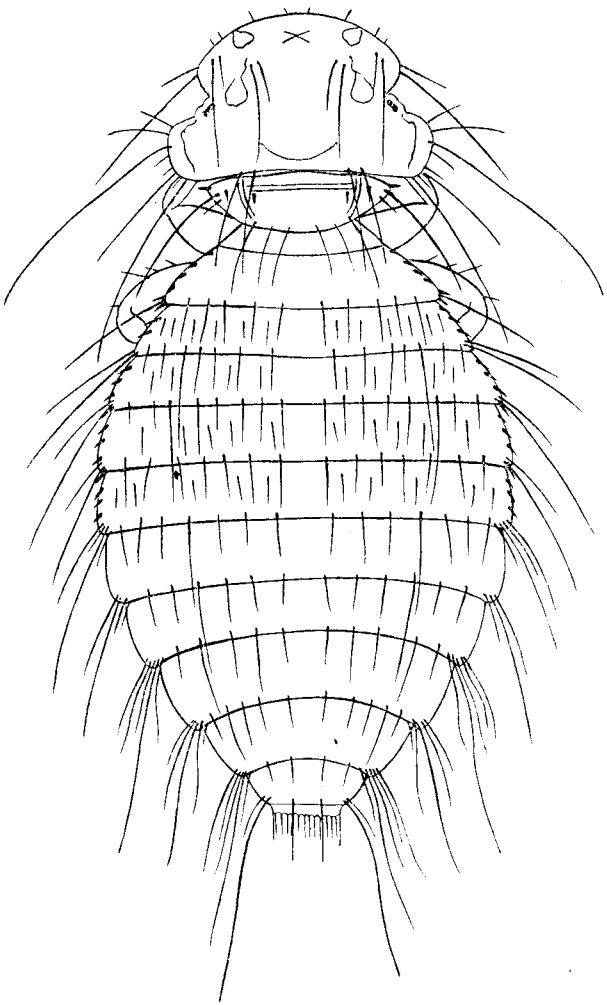

Fig. 13.
Colpocephalum tamamurensis n. sp., female. ×70.

then narrowing rapidly to the last segment; length of segments nearly equal; lateral margins of segments nearly straight, with two or three spines on first to fourth segments; posterior angles slightly projecting, furnished on segments first to eighth with two long and two or three short hairs; the last segment rather narrow, rounded, with a short and a long marginal hair on each side; a short dorsal hair on each side and a fringe of weak hairs along the posterior margin. Posterior margin of the segments almost truncate, each with a submarginal row of fourteen hairs of different length; a row of short hairs on the dorsal surface of each segment. Ventral surface of each abdominal segment with three rows of twenty to thirty short hairs; a pair of combs on each side of the third abdominal sternite, pale coloured, composed of seventeen to twenty spines. Ground colour of abdomen very pale yellowish; lateral band narrow, transparent yellow; pale brownish transverse band across each segment.

Colpocephalum gallinulae n. sp. (Fig. 14).

A single male was taken from a Water-hen, *Gallinula chloropus parvifrons* in captivity at the Government Experiment Station for Ornithology and Mam-

malogy, Feb. 22, 1922.

Description of the male : – Body length 1.17m.m., width 0.52m.m. ; Ground colour brownish, with well defined pitchy markings on the head, and dark brown markings on the abdomen.

Head length 0.28m.m., width 0.45m.m. ; somewhat resembling the foregoing species ; the frontal margin not so truncate, but slightly rounded, with two fine marginal hairs on each side ; a short and a long hair at each expanded, lateral angle, in front of a wide, distinct ocular emargination. Dorsal surface of the forehead bearing two short and a long hair at before each ocular blotch and two short hairs near lateral margin in front of each lateral angles. Eye flat, large, emarginated, with a short hair and a black, quadragular fleck ; ocular fringe distinct, composed of several straight spines. Temples very expanded, margins rounded, each bearing three long, pustulated hairs and several shorter hairs, different in length ; a long pustulated hair on dorsum of each temple. Occipital margin concave, with two spines and four hairs. Ground colour of head pale yellowish brown ; a triangular spot near the margin in front of each palpus reddish brown ; mandibles showing through the head as a black spot; ocular blotches large, rounded, pitchy brown ; occipital blotches black, distinct, being connected by a narrow pitchy band. On the ventral aspect of the head, on each side of the median line, between mouth parts and the occipital margin are five hairs which gradually become longer posteriorly. Prothorax short, length 0.13m.m., width 0.31m.m. ; lateral angles produced, each with a long hair and a spine; posterior margin roundly convex

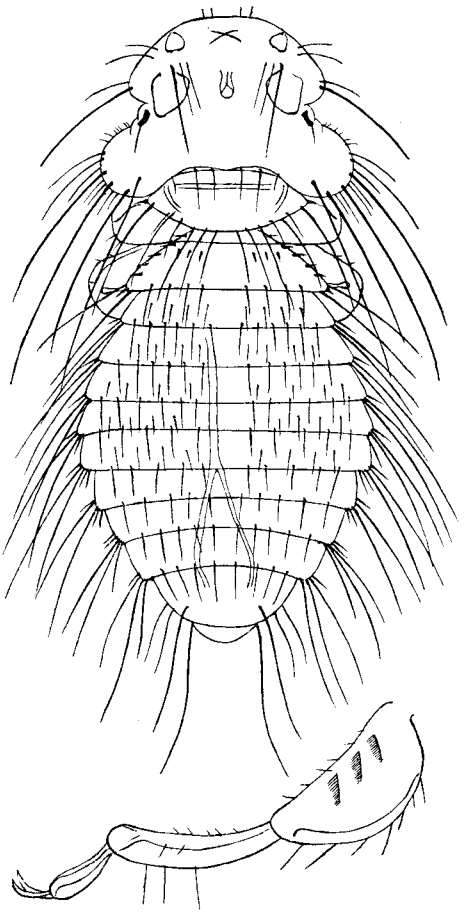

Fig. 14.

A *Colpocephalum galinulae* n. sp., male. ×70.

B. Ventral aspect of hind leg.

bearing eight long, marginal hairs and four short submarginal hairs; a prickle at each end of brownish, trasverse chitin bar. Metathorax short, trapezoidal; length 0.14m.m., width 0.37m.m.; anterior lateral margins straight, diverging posteriorly, each with five prickles; lateral angles acute, each with a spine and two long hairs; posterior margin almost straight, bearing eight long, submarginal hairs. Dorsal surface of metathorax bearing six small spines. Ground colour pale brownish, entirely covered with brown, except a broad suture between meso- and metathorax. Legs pale brownish with yellowish brown dorsal markings on femora and tibiae; on the ventral surface of hind femora three rows of combs, each composed of about fifteen short spines.

Abdomen broadly elliptical; length 0.63m.m., width 0.52m.m.; widest at fourth or fifth segment; length of segments approximately equal; lateral angles protruding, each bearing two long and two or three short hairs; posterior margins of segments first to fifth truncate; those of segments sixth to eighth slightly concave posteriorly and each bearing ten to twelve submarginal hairs; the last segment longer than the preceding segments and with broadly rounded posterior margin which is furnished with two long and several short hairs on each side. Dorsal surface of first to fourth abdominal segments bearing a row of eight weak hairs. Ventral surface of each abdominal segment bears numerous short hairs and twelve to sixteen short posterior marginal hairs. Colour of abdomen pale brownish; transverse bands dark brown, paler in middle and entirely across each segment.

Genitalia slender, well chitinized, reaching from anterior margin of the first segment to the end of the last segment; basal plate bifurcated in the middle of their length; palamere slender, slightly curved inwardly.

Colpocephalum semicinctum Rudow.

Rudow, 1866, p. 475; Piaget, 1880, p. 528, pl. XLIV, fig. 1.

Three males and twelve females were collected by Dr. N. Kuroda from a Japanese jungle-crow, *Corvus coronoides japonensis*.

Colpocephalum flavescens Nitzsch.

Nitzsch, 1829, p. 262, pl. XII, fig. 1; Denny, 1842, p. 206, pl. XVIII, fig. 2; Giebel, 1874, p. 262, Taf. XIII, Fig. 10; Taf. XIX, Fig. 3, 4, 7; Piaget, 1880, p. 515, pl. LXXI, fig. 4, male.

A male and five female specimens of this species were obtained from a skin of Steller's sea-eagle, *Thallasaetus pelagicus pelagicus* taken in Pref. Nagano, Feb. 25, 1917.

Colpocephalum horii n. sp.

Three males and six females of this new species were collected from a Snipe, *Gallinago sp.*, shot in Pref. Kagoshima, Oct, 24, 1918.

I am naming this species in honour of the late Mr. E. HORII, the game warden of the Pref. Nagasaki, by whom the specimens were collected.

Measurments of the specimens on hand are as follows:

	♀ mm.	♀ mm.	♀ mm.	♀ mm.	♀ mm.	♂ mm.	♂ mm.	♂ mm.
Length of body.	1.56	1.64	1.47	1.55	1.56	1.42	1.23	1.20
Width of body.	0.63	0.64	0.62	0.64	0.63	0.51	0.55	0.50
Length of head.	0.28	0.29	0.27	0.28	0.23	0.26	0.27	0.26
Width of head.	0.52	0.52	0.52	0.52	0.51	0.46	0.48	0.46
Length of prothorax.	0.15	0.16	0.15	0.15	0.15	0.14	0.14	0.14
Width of prothorax.	0.33	0.32	0.32	0.33	0.32	0.31	0.32	0.30
Length of metathorax.	0.15	0.16	0.15	0.16	0.15	0.14	0.14	0.14
Width of metathorax.	0.39	0.40	0.39	0.39	0.39	0.35	0.38	0.34

Description of the female : – Body broad, pale coloured ; markings not so distinct as other members of the genus.

Head broad ; front very broadly rounded, with three very fine prickles and two long hairs on each side ; a long and a short hair on the lateral angle, in front of each ocular emargination which is shallow, distinct but not acute inwardly ; the eye is large, with a distinct, quadrangular, black fleck ; a long and a short hair in front of each ocular blotch ; ocular fringe short, entirely covered by the eye; palpi long projecting. Antennae prominent; the first segment short ; the second large, broadened toward the apical side, bearing several short hairs ; the third the smallest, cup–shaped ; the fourth the largest, globular, with numerous sensory hairs on top. Temples projecting, rounded, rather narrow, with two long, dorsal hairs and numerous marginal hairs of different length, of which three are remarkably long; occipital margin concave bearing four long hairs and two fine prickles. Ground colour of head pale brownish yellow ; ocular blotches and a spot near the margin in front of each palpus reddish brown ; mandibles and adjacent regions dark coloured ; occipital margin narrowly edged with reddish brown. On the ventral aspect of head, on each side of the median line, between mouth parts and the occipital margin are seven hairs which become gradually longer posteriorly.

Prothorax short, with produced lateral angles, each bearing two spines and a hair ; anterior lateral angles convex, each with a spine ; posterior margin convex, bearing eight long hairs. A short dorsal hair at each end of brownish, transverse chitin bar. Metathorax small trapezoidal, as long as the prothorax; anterior lateral margin straight, with very slight elevation at each end of the indistinct sutural line between meso– and metathoracic segments.

Lateral angles obtuse each with a long hair and a spine; posterior margin almost straight, bearing twelve marginal hairs; dorsal surface of metathorax furnishing several short, scattered hairs. Ground colour of metathorax pale yellowish brown blotch across posterior half of segment. Legs rather slender, concolourous with thorax; on the ventral surface of hind femora three rows of small combs, each composed of eight to ten short spines.

Abdomen elongate, elliptical; widest at the fourth or fifth segment; length of segments second to seventh nearly equal, those of segments first and eighth slightly shorter; lateral margins of segments convex; the last segment rounded posteriorly, bearing several long hairs and a fringe of weak hairs; posterior margins of segments truncate, each bearing a submarginal row of a dozen hairs. A row of shorter hairs on the dorsal surface of each segment. Ventral surface of abdominal segments with two or three irregular rows of short, weak hairs; a pair of dark-coloured combs on each side of the third abdominal sternite, one of which composed of seven to eight spines, another composed of fifteen to eighteen spines. Colour of abdomen pale brownish yellow, with pale brownish lateral bands; pale brownish transverse band present, across the anterior two thirds of each abdominal segment.

Description of the male:– Similar to the female, but body remarkably smaller, abdomen somewhat shorter and ovate in shape. Genitalia elongate, well chitinized, reaching from the posterior margin of the first segment to the end of the last segment; parameres pale, very slender and slightly curved inwardly.

Genus **COMATOMENOPON** Uchida.

Uchida, 1920, p. 649.

Comatomenopon elongatum Uchida.

Uchida, 1920, p. 649, figs. 1, 2 and 3.

Two male and four female specimens were obtained from an Asiatic little tern, *Sternula albifrons sinensis* shot at Tōkō, Nanheishō, Formosa, April 3, 1916.

Genus **FERRISIA** n. gen.

A genus of Colpocephalidae, *Ferrisia* resembles *Colpocephalum* (in its restricted sense), but the sexes are dimorphic. Three combs of spines upon

ventral surface of the posterior femora and two combs upon each side of the third abdominal sternite. Mesothorax small, separated from metathorax by an indistinct suture. Head of the same type as in *Colpocephalum*. Gastric teeth present.

Female : Posterior portion of the abdomen elongate, tapering posteriorly and segments being in this region bent downwards so as to form a furrow along the median portion of the abdomen. Eighth abdominal sternite furnishing two or three fringes of stout, marginal hairs, curving upward around the side of the segment along each posterior portion.

Male : Genitalia of the same type as in *Colpocephalum*.

Species occuring for the most part upon Falconiiformes, but also occuring upon Charadriiformes (Columbidae) and Procellariiformes (Diomedeidae).

Type of the genus, *Colpocephalum turbinatum* DENNY.

Included species

Colpocephalum abruptfasciatum MJÖBERG (Host : *Milvus aegyptycus*)
Colpocephalum caudatum PIAGET (Host : *Vultur indicus*)
Colpocephalum dissimile PIAGET (Host : *Milvus aegypticus*)
Colpocephalum gypagi CARRIKER (Host : *Gypagus papa*)
Colpocephalum kelloggi OSBORN (Host : *Cathartes aura*)
Colpocephalum osborni KELLOGG (Host : *Elanus glaucus*)
Colpocephalum setosum PIAGET (Host : *Cathartes gryphus*)
Colpocephalum tricinctum NITZSCH (Host : *Milvus ater*)
Colpocephalum turbinatum DENNY Host : *Columba livia domestica*)
Ferrisia minor n. sp. (Host : *Diomedea albatrus*)

I am naming this genus in honour of Mr. F. FERRIS of the Stanford University, California.

Ferrisia turbinata (DENNY).

Colpocephalum turbinatum DENNY, 1842, p. 209, pl. XXI, fig. 1; *Colpocephalum longicaudum* NITZSCH, in GIEBEL, 1867, p. 394 ; PIAGET, 1880, p. 534, pl. XLIV, fig. 6.

Numerous specimen of both sexes were collected by Dr. N. KURODA from a Domestic pigeon at Akasaka, Tokyo, Sept. 20, 1917.

Ferrisia minor n. sp. (Fig. 15).

A single female specimen was taken from a skin of Steller's albatross, *Diomedea albatrus*, obtained in Pref. Chiba, Feb. 19, 1880.

Description of the female : – Body small ; length 1.27m.m., width 0.55 m.m. ; with rather large head. Colour of body pale brownish yellow, with distinct markings of pitchy brown on head and brownish lateral bands on abdomen.

Head length 0.28m.m., width 0.47m.m. ; front broadly rounded, furnishing six short hairs on each side of the margin, three of which are grouped together in front of the ocular emargination ; two hairs and a spine on each side of the dorsum of front ; The ocular emargination distinct, the deepest point being acutely angled ; the eye large, flat, emarginated, with a quadrangular, black fleck ; ocular fringe triangular in shape. Temples broad, rounded, each bearing three long and several short hairs ; occipital margin concave, with four short hairs. The markings of head being the same as those of *Colpocephalum osborni* KELLOGG.

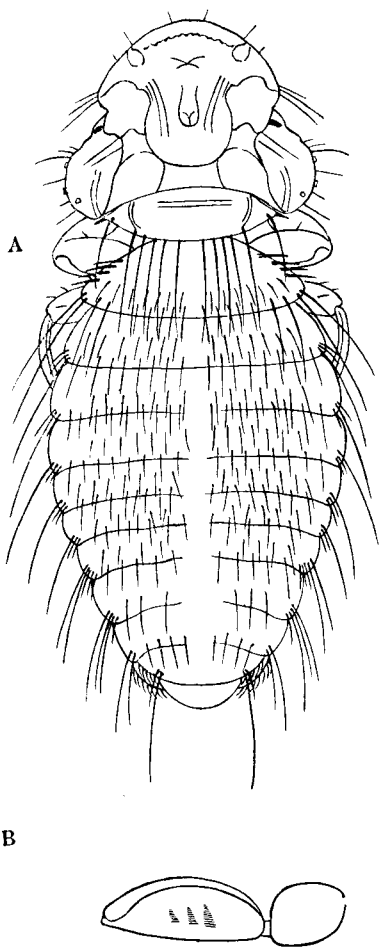

Fig. 15.
A. *Ferrisia minor* n. sp., female. ×70.
B. Ventral aspect of hind femora ×120.

Prothorax very short, length 0.11m.m., width 0.30m.m., with produced lateral angles, each bearing a hair and a spine ; Posterior margin flatly convex, with ten hairs. Ground colour pale brownish and longitudinal and transverse chitin bars pale and transparent. Metathorax short, length 0.16 m.m., width 0.8m.m. ; anterior lateral margin convex, each with several short hairs ; posterior lateral angles produced, each with two long hairs ; posterior margin flatly convex, bearing fourteen hairs ; on the dorsal surface of metathorax, numerous weak hairs arranged in a row. A transverse smoky brown blotch across posterior half of the segment. Legs concolourous with thorax, with brownish yellow marginal markings and roughly scattered short hairs. On the ventral surface of the hind femora, three rows of combs, each composed of eight to twelve spines.

Abdomen obovate, length 0.75m.m., width 0.55m.m. ; widening posteriorly to the third segment, then tapering gradually to

the end; posterior portion of the abdomen, from segments fifth to nineth, being bent downwards, so as to form shallow furrow on the middle of abdomen. Length of abdominal segments nearly equal; posterior angles projecting, bearing a long hair and two or three spines on segments first to sixth; two long hairs and three spines on the segment seventh; three long hairs and a spine on the segment eighth; the last segment elongate, tapering, with narrow convex posterior margin, bearing a long and a weak hair on each side. Posterior margins of segments first to third almost truncate and of remaining segments concave, each bearing a submarginal row of numerous, weak hairs. A row of numerous short, weak hairs on the dorsal surface of each abdominal segment. On the ventral surface of abdomen, first to third segments longer than others, with three irregular rows of weak hairs; the remaining segments, with two irregular rows of weak hairs; a pair of combs, each composed of twelve to fifteen spines on each side of the third segment; two fringes of five to seven stout, marginal hairs along each posterior portion of the eighth segment. Last segment small, with a fringe of short, weak hairs on the posterior margin. Colour of abdomen pale brownish yellow with smoky brown abdominal blotches which is paler in the middle; lateral bands pitchy brown.

Ferrisia osborni var. ***costariense*** (CARRIKER).

Colpocephalum osborni var. *costariense* CARRIKER, 1903, p. 50; *Colpocephalum osborni* KELLOGG, UCHIDA, 1917, p. 182.

The following numerous specimens were collected on two subspecies of Kite, *Milvus lineatus lineatus* (from the Main Island) and *Milvus lineatus formosanus* (from Formosa).

	Locality.	Date.	Collector.
7 females, 11 males.	Pref. Fukuoka.	VIII, 16, 1917.	N. Kuroda.
12 females, 3 males,	Pref. Kagoshima.	X, 6, 1918.	E. Horii.
1 female,	Pref. Nagano.	unknown.	T. Takayama.
1 female, 2 juv.	Formosa.	V, 9, 1916.	Y. Kikuchi.
1 female.	Formosa.	VI, 4, 1917.	Y. Kikuchi.

All the specimens agree well with the descriptions and measurments given by CARRIKER and KELLOGG,* except the specimens from Pref. Kagoshima, have remarkably shorter body. The latter specimens, however, judging from their appearance, must have shrinked after death.

The specimens measured as follows :

	♂	♀	♀	♀	♂ (Kagoshima)	♀ (Kagoshima)
	m.m.	m.m.	m.m.	m.m.	m.m.	m.m.
Length of body.	1.40	1.70	1.75	1.70	1.00	1.23

* KELLOGG, New Mallophaga II, p. 521, pl. LXXI, figs. 2 & 3.

Width of body.	0.49	0.59	0.58	0.59	0.50	0.60
Length of head.	0.30	0.30	0.29	0.31	0.27	0.29
Width of head.	0.44	0.50	0.49	0.47	0.45	0.49
Length of prothorax.	0.14	0.16	0.16	0.15	0.10	0.11
Width of prothorax.	0.28	0.23	0.32	0.32	0.30	0.32
Length of metathorax.	0.10	0.17	0.16	0.18	0.12	0.14
Width of metathorax.	0.39	0.46	0.45	0.47	0.40	0.46

Genus **CUCULIPHILUS** n. gen. (Fig. 16).

A genus of Colpocephalidae, superficially resembling the member of Menoponidae. Three to four combs of spines upon ventral surface of the posterior femora and one to three combs upon each side of certain abdominal sternites; the abdominal combs showing modifications by sexes. Mesothorax distinctly separated by a suture from metathorax. Head rather of menoponid type; the forehead large, rounded; the temples prominent. Lateral margin of head continuous, but with a slit before the eye. Oesophageal gland present. Gastric teeth absent. Genitalia of male characteristic; the basal plate is composed of a pair of moderately, long, slender rods, furnishing a short process, arising from near each expanded, posterior end; and continuous distally with a broad, rounded lamina, at each side of the base of which the apically recurved paramere and a broad endomere are set.

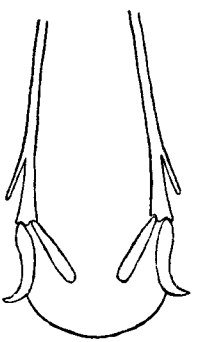

Fig. 16.
Gentalia of *Cuculiphilus fasciatus* var. *hototogisu* n. sp.

Species occuring upon Cuculiformes, Coraciiformes and Strigiformes.

Type of the genus, *Pediculus fasciatus* SCOPOLI.

Colpocephalum painei MC GREGOR,* from the Screech owl, *Otus asio maccallicephalum* which has been described as a curious *Colpocephalum* by the author, seems to be a member of this new genus. Though the combs of abdominal sternites, the essential character of the genus, was overlooked by MC GREGOR, the descriptions and figure agree well to the above mentioned characters of the present new genus.

Cuculiphilus fasciatus (SCOPOLI).

Pediculus fasciatus SCOPOLI, 1763, p. 383; *Menopon phanerostigma* NITZSCH, in GIEBEL, 1867, p. 290, Taf. XIV, fig. 8.

* MC GREGOR, 1912, Ent. News XXIII, p. 305, fig. 1.

A male and a female of this species were collected upon a Common cuckoo, *Cuculus canorus telephonus* shot at Higashichikuma-gun, Pref. Nagano, May 25, 1917.

Arrangements of combs of spines upon the ventral surface of hind femora and abdominal segments of the species are as follows:

The ventral surface of the hind femora with three combs of which the proximal one is very small.

Male: Each side of the third abdominal sternite, with a comb and those of the fourth and the fifth sterintes each with two combs.

Female: Each side of the third abdominal sternite with two combs and that of the fourth sternite with three combs, of which the proximal one is small.

Measurements of the specimens on hand:

	♂ m.m.	♀ m.m.
Length of body.	1.50	2.00
Width of body.	0.67	0.80
Length of head.	0.27	0.30
Width of head.	0.58	0.64
Length of prothorax.	0.18	0.20
Width of prothorax.	0.34	0.39
Length of mesothorax.	0.06	0.06
Width of mesothorax.	0.22	0.27
Length of metathorax.	0.10	0.12
Width of metathorax.	0.40	0.47

Cuculiphilus fasciatus var. ***hototogisu**** n. var.

A male and three females were obtained from a Little cuckoo, *Cuculus intermedius intermedius* shot at Higashichikuma-gun, Pref. Nagano, April 1, 1917.

While it closely agrees in size and in main characters with typical *Cuculiphilus fasciatus*, there seem to exist sufficient differences in the chaetotaxy of abdominal sternites to entitle it to a varietal rank.

The abdominal sternites of male bearing two combs on the third segment and three combs on the fourth segment and those of female bearing two combs on the third, three combs on the fourth and two combs on the fifth sternites. Combs on the ventral faces of hind femora are the same as those of the typical species.

Measurements of the specimens on hand:

(The male specimen mounted on BERLESE'S solution)

* "Hototogisu" in Japanese means "little cuckoo".

	♀ m.m	♀ m.m.	♀ m.m.	♂ m.m.
Length of body.	1.90	1.80	1.72	1.37
Width of body.	0.78	0.71	0.70	0.68
Length of head.	0.29	0.28	0.29	0.28
Width of head.	0.61	0.59	0.59	0.59
Length of prothorax.	0.20	0.18	0.18	0.16
Width of prothorax.	0.38	0.36	0.36	0.37
Length of mesothorax.	0.06	0.06	0.06	0.06
Width of mesothorax.	0.24	0.23	0.23	0.23
Length of metathorax.	0.11	0.10	0.10	0.08
Width of metathorax.	0.46	0.45	0.45	0.45

Cuculiphilus coromandus n. sp. (Fig. 17).

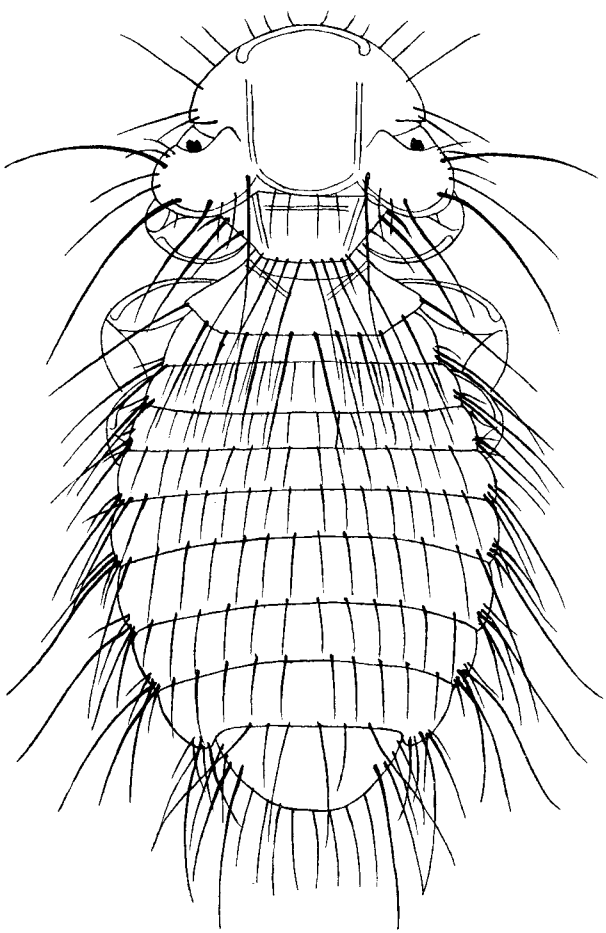

Fig. 17.
Cuculiphilus coromandus n. sp., female. ×70.

One female specimen of this new species was obtained from a Japanese ruddy kingfisher, *Entomothera coromanda major*, shot at Higashichikuma-gun, Pref. Nagano, May 25, 1915.

This new species resembles the preceding species in main characters, but is distinguished from it by the smaller size, by number of combs on the hind femora and remarkably shorter length of spines which compose the combs.

Description of the female: Body short, broad; length 1.5m.m., width 0.75 m.m.; ground colour of body yellowish brown, with blackish brown markings.

Head somewhat lunate; length 0.30m.m., width 0·56m.m.; front very broad-

ly rounded, with several fine hairs and two long hairs on each side and with a deep slit in front of each eye. The eye prominent, provided with a weak spine ; temples narrow, expanded, each bearing four long pustulated hairs and several short hairs ; occipital margin concave, with four short hairs and two long submarginal hairs. On the ventral aspect of the head, the wall of antennal fossa is strongly chitinized with two rather long hairs ; a row of three hairs on each side of the median line between mouth parts and the occipital margin ; the maxillary palpi are rather short.

Prothorax very short, length 0.13m.m., width 0.37m.m. ; with produced lateral angles, each bearing a short and a long hair; posterior lateral margin slightly concave, with a hair; posterior margin concave, with eight long hairs; pale transverse chitin bar distinct, with brownish longitudinal bars on its ends. Mesothorax very short, length 0.36m.m., width 0.27m.m.; distinctly separated from metathorax. Metathorax length 0.10m.m., width 0.49m.m. ; anterior lateral margin straight, diverging posteriorly, each with two short spines ; posterior lateral angle bearing one long hair ; posterior margin slightly convex, with ten long submarginal hairs. The sternites of meso- and metathoracic segment distinctly separated by a suture. Ground colour of thorax pale yellowish brown with blackish brown markings. Legs paler than thorax, rather short, furnishing roughly scattered, short hairs ; on the ventral surface of hind femora, four combs of numerous minute spines.

Abdomen broad, oval-shaped; length 0.91m.m., width 0.75m.m.; widening toward the fifth segment, then gradually narrowing to the last segment ; segment almost equal in length; lateral margins of segments slightly convex; posterior angles of segments first to eighth projecting a little laterally, bearing several short and two to four long hairs ; the last segment broad, flatly rounded posteriorly, with two long hairs on each side and several shorter hairs between them. Posterior margins of segments first to fourth truncate ; those of segments fifth to eighth slightly concave, each bearing a row of short, submarginal hairs. Ventral surface of each abdominal segment, furnishing three irregular rows of weak hairs of various length; pleural plate darker, well developed on the second to eighth segments, each with several hairs. A narrow and a broad combs of spines on each side of the ventral surface of the third segment and a narrow and two broad combs on the fourth segment. Ground colour of abdomen pale buff, with a brownish transverse band, across each segment darker towards the lateral ends.

Genus **KURODAIA** n. gen.

A genus of Colpocephalidae, somewhat resembles genus *Cuculiphilus*.

Three combs of short spines upon ventral surface of the posterior femora and two or three combs of short spines upon each side of the third abdominal sternites. Mesothorax very small, but distinctly separated from metathorax by a suture. Head broad, the forehead large, rounded; ocular emargination very narrow, forming a kind of slit in the lateral margin just in front of the eye. Oesophageal gland present but very indistinct. Gastric teeth absent. Genitalia of the male characteristic stout, moderately long. The basal plate is composed of a rod, bifurcated near its median portion, in the form of an inverted Y. Basal plate contiguous distally with a broad lamina, each side comes in contact with stout, slightly curved paramere.

Occuring on Falconiformes (Pandionidae).

Type of the genus *Colpocephalum haliaeeti* DENNY, this is the only species of the genus.

I am naming this genus in honour of Dr. NAGAMICHI KURODA who has shown me the many acts of sympathies in the course of my investigations.

Kurodaia haliaeeti (DENNY).

Colpocephalum haliaeeti DENNY, 1842, p. 216, pl. XIX, fig. 1; *Colpocephalum pachygaster* GIEBEL, 1874, p. 264.

Two males and four females were collected from an Ospley, *Pandion haliaëtus haliaëtus* shot at Tamsui, Distr. Tainan, Formosa, May 22, 1916.

Family **LAEMOBOTHRIIDAE** MJÖBERG.

Genus **Laemobothrion** NITZSCH.

NITZSCH, 1818, p. 301.

Laemobothrion nigrum BURMEISTER.

BURMEISTER, 1838, p. 442; *Laemobothrium atrum* DENNY, 1842, p. 240; GIEBEL, 1874, p. 253, pl. XVIII, fig. 5; KELLOGG, 1899, p. 155, pl. XIV, fig. 3.

The following specimens of this species were collected from Indian waterhens, *Gallinula chlorops parvifrons* captured in the Government Bird Refuge in Pref. Chiba.

2 males, 1 female, 4 youngs, May 15, 1922, coll. by Mr. K. OIWA.

1 male, 1 female, 1 young, May 25, 1923, coll. by Mr. S. KUZU.
1 male, 1 young, June 26, 1924, coll. by. T. ISHIZAWA.

Laemobothrion titan PIAGET.

PIAGET, 1880, p. 578, pl. XLIV, fig. 1.

A female and two youngs were taken from a Formosan black-eared kite, *Milvus lineatus formosanus* captured at Nanheishō, Formosa, June 4, 1917 and three male, six female and seven young individuals were collected from a Black-eared kite, *Milvus lineatus lineatus* shot by the late Mr. E. HORII in Pref. Kagoshima, Nov. 6, 1918.

Laemobothrion tinnunculi LINNÉ.

LINNÉ, 1758, p. 612; *Laemobothrium laticolle* NITZSCH, in DENNY, 1842, p. 239, pl. XXIII, fig. 4.

A male and a female from a Japanese kestrel, *Cerchneis tinnuncula japonica* shot at Togakushimura, Pref. Nagano, Oct. 15, 1916; and a female from the same host species taken in Higashichikumagun, Pref. Nagano.

Family **RICINIDAE** NEUMANN.

Genus **Ricinus** DEGEER.

DEGEER, 1778, p. 69; HARRISON, 1916, p. 66; *Physostomum*, NITZSCH, 1818, p. 302; KELLOGG, 1908, p. 71; MJÖBERG, 1910, p. 58.

Ricinus serratus var. *Magnus* n. var.

A female specimen of this new variety was obtained by Dr. N. KURODA from an intermediate japanese skylark, *Alauda arvensis intermedia* shot in the River Didō, Corea, April 29, 1917. Further was obtained a female from a small japanese skylark, *Alauda arvensis japonica* taken in Pref. Nagano, March 20, 1917.

This new variety agrees very closely with *Ricinus serratus* (DURRANT)*

* DURRANT, Ohio Naturalist, vol. VI, 1906, p. 528, fig. 1. B.
Physostomum clypeatum MJÖBERG (Arkiv f. Zoologi, 1910, vol. VI, p. 60, Taf. 2, fig. 1) from *Otocoris alpestris*, so far as can be judged from the published descriptions and figures, appears to me to be identical with *Ricinus serratus* DURRANT.

from *Otocorys sp.* but much smaller.

Measurements of female specimens on hand are as follows (those in parenthesis are DURRANT'S) :

Length of body.	3.95m m.	3.85m.m.	(4.70m.m.)
Width of body.	1.17 〃	1.15 〃	(1.30 〃)
Length of head.	0.72 〃	0.72 〃	(0.88 〃)
Width of head.	0.76 〃	0.76 〃	(0.36 〃)
Length of prothorax.	0.50 〃	0.51 〃	
Width of prothorax.	0.74 〃	0.74 〃	
Length of metathorax.	0.60 〃	0.60 〃	
Width of metathorax.	1.00 〃	1.00 〃	

Ricinus japonicus (UCHIDA).

Physostomum japonicum UCHIDA, 1915, p. 70.

Four females and a young taken from a Japanese water pipit, *Anthus spinoletta japonicus* collected in Pref. Nagano, Oct. 31, 1914.

Ricinus mugimaki (UCHIDA).

Physostomum mugimaki UCHIDA, 1915, p. 70, fig. 2.

Four females and two youngs taken from a Mugimaki flycatcher, *Poliomyias mugimaki* collected in Pref. Nagano, Oct. 12, 1914 and further a female was taken by Mr. T. MOMIYAMA from a Seven Island ouzel, *Merula caelenops caelenops* killed in the Hachijo Id.

Ricinus elongatus OLFERS.

OLFERS, 1816, p. 88; *Physostomum mystax* Nitzsch, 1838, p. 442; UCHIDA, 1915, p. 67.

A single female collected by Dr. N. KURODA from a Dusky ouzel, *Merula eunomus* in Tokyo.

Ricinus frenatus NITZSCH.

In BURMEISTER, 1838, p. 442; UCHIDA, 1915, p. 67.

Two females and two youngs collected from an Eastern goldcrest, *Regulus regulus japonicus* captured in Pref. Nagano, April 7, 1914.

Ricinus medius nom. nov.

Physostomum intermedium UCHIDA, 1915, p. 68, fig. 1 ; HARRISON, 1916, p. 67.

Five females two males and three youngs were collected from a Japanese coal tit, *Periparus ater insularis* (Pref. Nagano, Feb. 27, 1914) and from a Japanese marsh tit, *Poecile atricapilla restrictus* (Pref. Nagano, May 10, 1914).

Ricinus bombycillae (DENNY).

Physostomum bombycillae DENNY, 1842, p. 242, pl. XXIII, fig. 5; *Physostomum intermedium* PIAGET, 1880, p. 605, pl. L, fig. 4.

Three females were collected from a Japanese waxwing, *Bombycilla japonica* shot in Pref. Nagano, March 18, 1816 ; a male and a female from an Eastern waxwing, *Bombycilla garrula centralasiae* killed in Pref. Nagano, March 18, 1918 and further a female was taken by Dr. N. KURODA from an Azure-winged magpie, *Cyanopica cyanus japonica* shot at Goi, Pref. Chiba, June 14 1915.

LIST OF REFERENCES.

In this bibliography are enumerated only those papers which are referred to in the text. Publications marked with * were not accessible to the writer.

BOISDUVAL et LACORDAIRE: * 1835. Faune entomologique des environs de Paris, pp. 117—125.

BURMEISTER: 1838. Handbuch der Entomologie, Bd. II, pp. 418—438.

CARRIKER and SHULL: 1910. Some new species of Mallophaga from Michigan. (Entomological News, Vol. XXI, pp. 51—57, pl. V)

CARRIKER JR. M. A.: 1903. Mallophaga from birds of Costa Rica. (Univ. Stud. Nebr., III, pp. 1—75, pl. 1—9)

DENNY, H.: 1842. Monographia Anoplurorum Britanicae.

DURRANT, E. P.: 1906. Descriptions of new Mallophaga. (Ohio Naturalist, vol. VI, pp. 528—530.)

ENDERLEIN: 1909. Anopluren und Mallophagen. (Schultze, Forschungsreise in Südafricas II, Jenais. Denksch. XIV, pp. 79—82)

FERRIS, G. F.: 1916. Some generic groups in the Mallophagan family Menoponidae. (Canad. Ent. pp. 301—312)

GERVAIS, M. P.: 1844. Histoire naturelle des Insectes, Paris. vol. III, Apteres.

GIEBEL, C. G,: * 1867. Die in Zoologischen Museum der Universität Halle aufgestellten Epizoen, nebst Beobachtungen über dieselben. (Zeit. f. d. ges. Nat. XXVIII, pp. 353—397)

— : 1874. Insecta Epizoa, Die auf Säugetieren und Vögeln Schmarotzenden Insecten, nach CHR. L. NITZSCH'S Nachschluss.

HARRISON, L.: 1915. On a new family and five new genera of Mallophaga. (Parasitology. vol. VII, pp 383—407, pl. XXVI, XXVII)

— : 1916. The genera and species of Mallophaga. (Parasitology. vol. IX, pp. 1—156)

HARRISON L. and JOHNSTON T. H.: 1916. Mallophaga from Marspials I. (Parasitology, vol. VIII, pp. 338—359)

KELLOGG, V. L.: 1896 a. New Mallophaga I, with special reference to a collection made from maritime birds of the Bay of Monterey, Cal. (Proc. Cal. Acad. Sci., Ser. 2, vol. VI, pp. 31—168, pl. II—XV)

— : 1896 b. New Mallophaga II, from land birds, together with accouut of the Mallophagous mouthparts. (Proc. Cal. Acad. Sci., Ser. 2, vol. VI, pp. 451—548, pl. LX—LXXIII)

— : 1899. New Mallophaga III, Comprising Mallophaga from birds of Panama, Baja Cal. and Alaska. By V. L. KELLOGG; Mallophaga from birds of California. By V. L. KELLOGG and B. L. CHAPMAN, The anatomy of the Mallophaga, By R. F. SNODGRASS. (Occasional Parers of the Cal. Acad. Sci., vol. VI, pp. 1—224, pl. I—XVII)

— : 1910. Mallophaga, Genera Insectorum, Fasc. 66.

KELLOGG, V. L. and CHAPMAN, B. L.: 1920, a. Mallophaga from birds of the Hawaiian Islands. (Journ. N. Y. Ent. Soc., X, pp. 155—170)

— : 1920, b. Mallophaga from birds of the pacific coast of N. A. (Journ. N. Y. Ent. Soc.. X, pp. 20—28)

KELLOGG. V. L. and KUWANA, S. I.: 1902. Mallophaga from birds. (Papers from the Hopkins Stanford Galapagos Expedition X) (Proc. Wash. Acad. Sci., IV, pp. 457—491).

KELLOGG, V. L. and CHAPMAN, B. L.: 1904. Mallophaga from birds of the Hawaiian Islands. (Fauna Hawaiensis, III, pp. 305—321)

LINNAEUS: 1758. Systema Naturae, Ioth. Edition.

Mc GREGOR, E. A.: 1912. A new Mallophaga. (Entomological News, vol. XXIII, pp 305 and 306)

MJÖBERG, E.: 1910. Studien über Mallophagen und Anopluren. (Arkiv foer Zoologi Bd. 6, No. 13, pp. 1—266, Taf. 1—5)

NEUMANN, L, G.: 1906. Notes sur les Mallophages I. (Bull. Soc. Zool. France, vol. XX. pp. 54—60).

— : 1912. Notes sur les Mallophages II. (Archives de Parasitologie, tome XV, pp. 353—384)

NITZSCH, C. L.: * 1818. Die Familien und Gattungen der Tierinsecten. (Germars Magazin d. Entom., III)

— : * 1829. in Lvonea, Mem. Mus. XVIII, p. 263.

— : * 1866. Die Federlinge der Sing-, Schrei-, Kletter-, und Taubenvogel. (Zeit. f. ges. Nat. XXVII, pp. 115—122)

OSBORN, H,: 1902. Mallophagan records and descriptions. (Ohio Naturalist, vol. II, pp. 175—178, pl. II)

OLFERS: * 1816. De vegetativis et animatis corporibus in corporibus animatis referiundus commentarius. pp. 80—97.

PAINE, J. H.: 1812 a. New Mallophaga genus *Heterodoxus* Le SOUËF & BULLEN. (Entomologic. News, vol. XXIII, pp. 359—362)

— : 1912 d. Notes on a miscellaneous collection of Mallophaga from mammals. (Ent. News, vol. XXIII, pp. 437—442, pl. XXIII).

PIAGET, E.: 1880. Les Pediculines, Essai monographique.

— : 1885. Les Pediculines, Supplement.

RUDOW : * 1866. Characteristik neue Fedelinge. (Zeitschr. f. ges. Nat., XXVII).

SCOPOLI : * 1713. Entomologia carniolica. Vindobonae, pp. 381—385.

Le SOUËF and BULLEN : 1902, a. Descriptions of some Mallophaga from Australian birds. (Victorian Naturalist, vol. XVIII, pp. 155—158)

— : 1902, b. Descriptions of a Mallophagous parasites from the kangaroo. (Vict. Nat., vol. XVIII, p. 59).

UCHIDA, S.: 1915. Bird infesting Mallophaga of Japan I. Genus *Physostomum*. (Annotationes Zoologicae Japonenses vol. IX, pp. 67—72).

— : 1917. Mallophaga from birds of Formosa. (Journ. Coll. Agric., Imper. Univ. Tokyo, vol. III, pp. 171—188. pl. X).

— : 1918. Mallophaga from birds of the Ponape I. and the Palau Is. (Annot. Zool. Jap. vol. IX, pp. 481—493).

— : 1920. On a second collection of Mallophaga from Formosan birds. (Annot. Zool. Jap. vol. IX. pp. 635—652).

VATERSTON, J.: 1915. On two new species of Mallophaga. Menoponidae. (Entom. Monthly Mag. 3rd. Ser. vol. I. pp. 12—16, pl. I).

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