

# THE EARLY LITERATURE ON MALLOPHAGA

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PART III. 1776-1786

*Pp. 221-266 ; Pls. 10-12 ; 68 Text-figures.*

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# THE EARLY LITERATURE OF MALLOPHAGA

By THERESA CLAY AND G. H. E. HOPKINS

(PART III, 1776-1786)

## SYNOPSIS

This part, the third of a series of papers in which it is intended to review the species of Mallophaga described between 1758 and 1818, deals with the twelve species described by F. Schrank in 1776 and 1781; the two species by O. F. Müller in 1776; the single species by J. C. Fabricius in 1777; the seven species by De Geer in 1778; the seven species by O. Fabricius in 1780; the three species by A. F. Fourcroy in 1785; the single species described by Mohr in 1786.<sup>1</sup> As in previous instalments, the references following the headings are to the original work.

SCHRANK, 1776

(*Beyträge zur Naturgeschichte, Leipzig* : 113-120.)

With Schrank we reach much firmer ground than we have trodden hitherto, for all his species are quite reasonably well figured and there can be little doubt about the identity of any of them. All have, of course, been renamed (singly or in groups) by Nitzsch. The new species, all of which were published in perfectly valid form, are discussed below.

### *Pediculus curuccae* (p. 113, Pl. 5, fig. 1).

The host is "*Motacilla curucca*" (= *Sylvia curucca*), and the figure shows a Menoponid resembling *Menacanthus* rather than *Myrsidea*. No subsequent author has anything particularly useful to say about it, but Nitzsch (1818 : 300) renamed it *Liotheum (Menopon) minutum*. As no material from the type host is available, neotypes of *Menacanthus curuccae* (Schrank) cannot be erected.

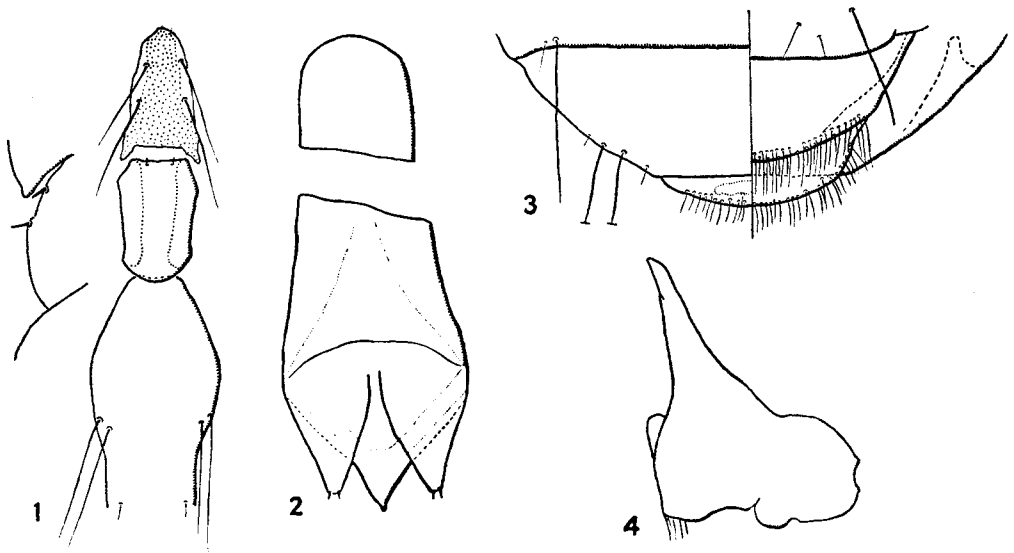
### *Pediculus rubeculae* (p. 115, Pl. 5, fig. 4)

No host is mentioned in the description, but the species is called "Rothkehlchenlaus," which is sufficient indication that the host was *Erithacus rubecula*; in a later work (1781 : 507) Schrank gives the host as *Motacilla rubecula*. The figure is a reasonably good representation of a *Ricinus* and could not be mistaken for anything else.

<sup>1</sup> In the last instalment of this series we remarked (*Bull. Brit. Mus. (Nat. Hist.) Entomology*, 2 : 4) that "Kéler has evidently not studied the early literature at all . . . '*equi* (Lin.),' for instance, does not exist, no species having been described under this name prior to 1842, when Denny described it." This remark is clumsily worded and suggests a reproach to Dr. von Kéler that we certainly did not intend. In ascribing the authorship of *equi* to Linné he was in conformity with nearly all recent writers on Mallophaga, since, with extremely few exceptions all have either ignored or overlooked the fact that *Pediculus equi* Linné is a *nomen nudum*.

The species was again described by Olfers (1816 : 91) as *Nirmus pteroccephalus*, a name which covers several species but which we are restricting to *Ricinus rubeculae*, and by Nitzsch (1866 : 121) as *Physostomum agonum*, both from the same host as Schrank's material. Harrison (1916 : 18, 68) correctly restores Schrank's name for the species, but then (p. 103) wrongly mentions it in *Philopterus* as well, probably through confusion with *Philopterus rubeculae* (Denny), which Harrison omits and which is not congeneric with *rubeculae* Schrank.

This species is at once distinguished from both *dolichocephalus* (Scopoli) (Clay and Hopkins, 1951 : 10) and *fringillae* De Geer (see below) by the form of the mandibles (Text-fig. 4). It is further distinguished from the former species by the shape of the head (Pl. 10, figs. 1, 2), the terminal segments of the female abdomen (Text-fig. 3)



FIGS. 1, 2.—*Ricinus rubeculae* (Schrank). 1. Gular and thoracic plates, female.  
2. Male genitalia.

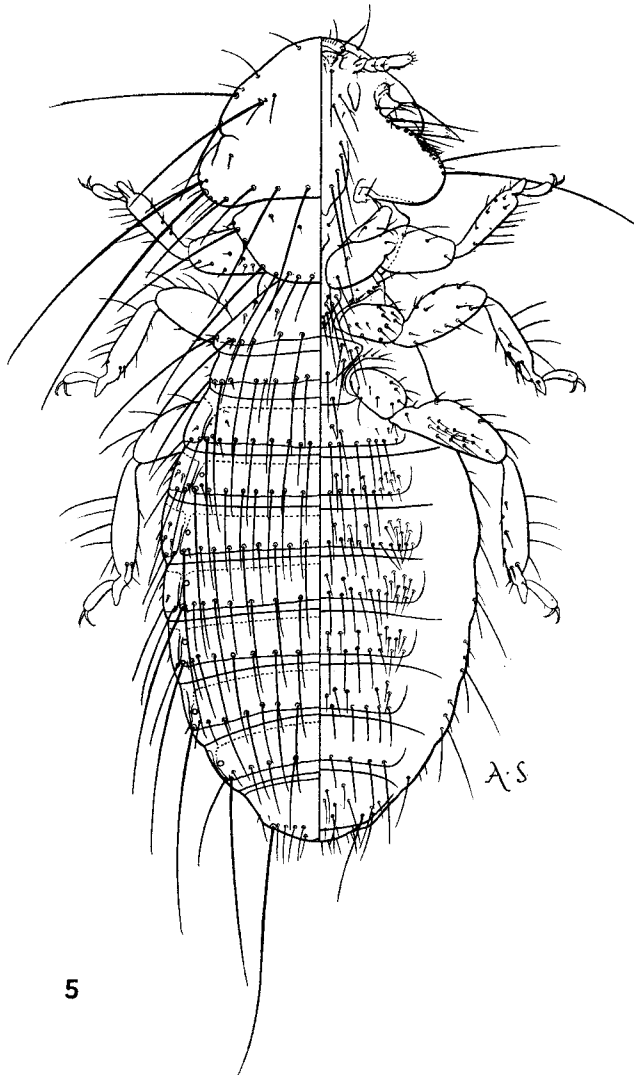
FIGS. 3, 4.—*Ricinus rubeculae* (Schrank). 3. Terminal segments of female abdomen.  
4. Mandible.

and prothorax, the form of the gular and prothoracic plates (Text-fig. 1), the male genitalia (Text-fig. 2), and by the absence of the colour pattern characteristic of *dolichocephalus*. From *fringillae* it is distinguished in the female by the shape of the head and prothorax, by the form of the gular and prothoracic plates, the number of gular setae, and by the chaetotaxy of the terminal segments of the female abdomen. No males of *fringillae* have been seen.

*Neotype* male (Pl. 10, fig. 1; Text-fig. 2) and *neallotype* female (Pl. 1, fig. 2; Text-figs. 1, 3, 4) of *Ricinus rubeculae* (Schrank) in the British Museum (Nat. Hist.) (slide no. 562) from *Erithacus v. rubecula* from Moravia, Czechoslovakia. *Neoparatypes* : 17 males and 50 females from *Erithacus rubecula melophilus* Hart. from the British Isles.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.58	0.55	0.67	0.63
Prothorax . . .	—	0.45	—	0.52
Abdomen . . .	—	0.70	—	0.88
Total . . .	2.34	—	3.02	—
Genitalia . . .	0.38	—	—	—



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FIG. 5.—*Menacanthus alaudae* (Schrank), male.

*Pediculus alaudae* (p. 115, Pl. 5, figs. 5, 6)

Another obvious *Menacanthus*. Although there is no explicit host-record, Schrank calls the species "Feldlerchenlaus" and in 1781 (p. 506) he gives the host as *Alauda arvensis*.

The same species was redescribed, from the same host, by Piaget (1880 : 446) as *Menopon parviceps* (see Clay, 1949 : 904).

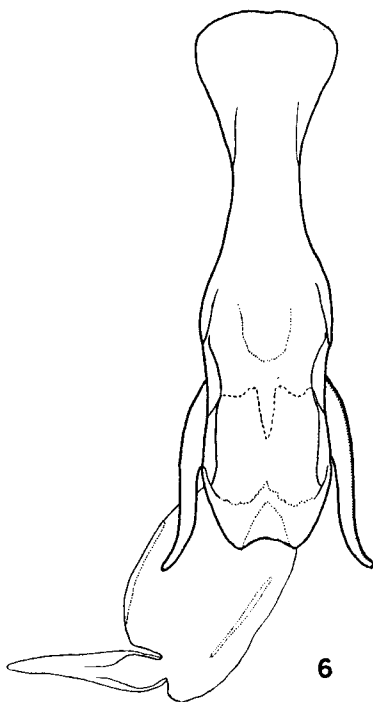


FIG. 6.—*Menacanthus alaudae* (Schrank), male genitalia.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0·25	0·39	0·27	0·43
Prothorax . . .	0·12	0·28	0·15	0·32
Metathorax . . .	—	0·33	—	0·40
Abdomen . . .	0·83	0·55	1·03	0·72
Total . . .	1·22	—	1·55	—
Genitalia . . .	0·37	—	—	—

*Neotype* male (Text-figs. 5, 6) and *neallotype* female (Text-fig. 7 ; Pl. 1, fig. 3) of *Menacanthus alaudae* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.)) (slide no. 3270a) from *Alauda a. arvensis* Linn. from Ushant, France.

*Neoparatypus*: 9 males and 33 females from various subspecies of *Alauda arvensis* from France, British Isles, Sweden and Yugoslavia.

***Pediculus citrinellae*** (p. 116, Pl. 5, fig. 7)

The figure represents a *Philopterus*, apparently a nymph, and the host ("Ammer, Goldammer, Aimerling") is given by Schrank in 1781 (p. 507) as *Emberiza citrinella*.

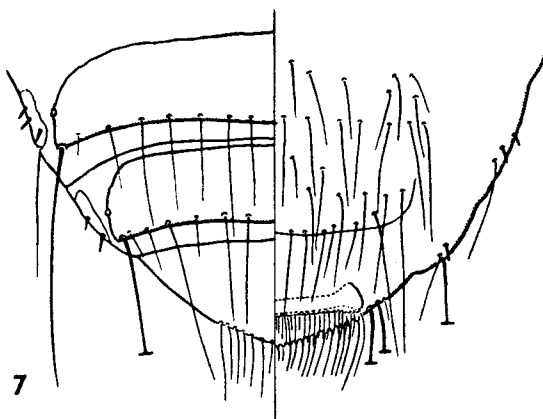
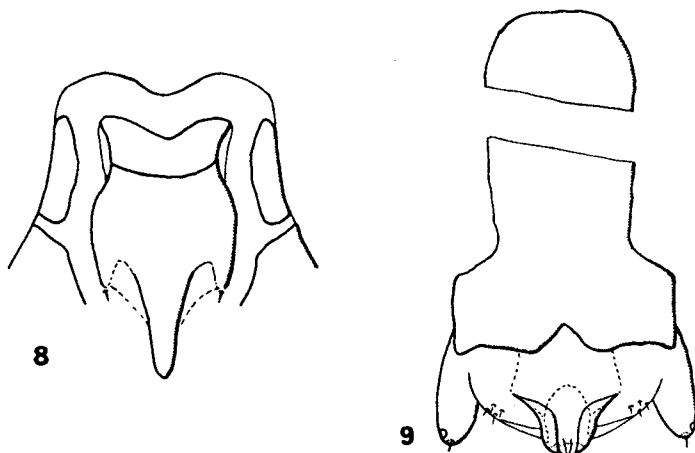


FIG. 7.—*Menacanthus alaudae* (Schrank), terminal segments of female abdomen.



FIGS. 8, 9.—*Philopterus c. citrinellae* (Schrank), male. 8. Anterior region of head. 9. Genitalia.

Nitzsch (1818 : 290) proposed *Philopterus* (*Docophorus*) *communis* as a *nomen novum* for *Ricinus Emberizae* De Geer, *Pediculus curvirostrae* Schrank, *Pediculus Pyrrhulae*, *Citrinellae* and *Chloridis* Schrank, and *Nirmus globifer* Olfers. As all these names are nomenclatorially valid, the only effect of Nitzsch's action was to create confusion in the nomenclature and to compromise hopelessly the name *communis*. *Ricinus*

*emberizae* De Geer is a synonym of *Pediculus citrinellae* Schrank, and *Nirmus globifer*, though composite, is primarily a new name for the same species. As three of the names combined by Nitzsch under *communis* refer to *citrinellae*, we think it only reasonable to restrict *communis* to the *Philoaterus* found on *Emberiza citrinella*; we therefore select as neotype of *Philoaterus communis* Nitzsch, 1818, the neotype

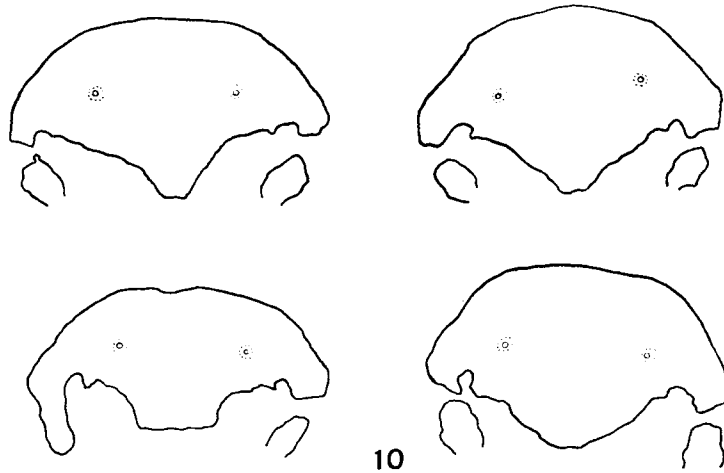


FIG. 10.—*Philoaterus c. citrinellae* (Schrank), genital plates of four females taken from one host individual.

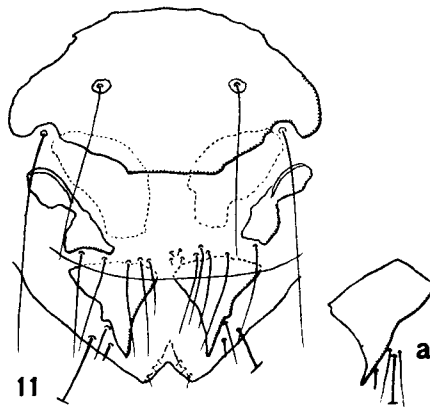


FIG. 11.—*Philoaterus c. citrinellae* (Schrank), female genital region. a. Last sternal plate of *P. citrinellae curvirostrae* (Schrank).

of *Pediculus citrinellae* Schrank, 1776. *Philoaterus communis* Nitzsch thus becomes a synonym of *P. citrinellae* (Schrank), and it will only receive a bare mention under its other original components. *Ricinus emberizae* de Geer and *Nirmus globifer* Olfers, both of which are synonyms of *citrinellae*, will be dealt with in discussing the work of these authors. The identities of the insects described by Schrank as *Pediculus*



*citrinellae*, *P. curvirostrae*, *P. pyrrhulae* and *P. chloridis* will be discussed together after our account of the last-named.

*Neotype* male (Pl. 10, fig. 4; Text-figs. 8, 9) and *neallotype* female (Text-figs. 10, 11) of *Philoaterus citrinellae* (Schrank) in the British Museum (Nat. Hist.) (slides nos. 565-6) from *Emberiza c. citrinella* Linn. from Saxony, Germany. *Neoparatypes*: 28 males and 42 females from various subspecies of *Emberiza citrinella* from Yugoslavia, Estonia, France and the British Isles.

### ***Pediculus curvirostrae*** (p. 117, Pl. 5, fig. 8)

The description and figure are those of a *Philoaterus* and the host is given as *Loxia curvirostra* Linn. No early author adds anything to our knowledge of the species, but it is one of the components of *Philoaterus communis* Nitzsch, 1818. Piaget in 1880 described *Docophorus compar* from the same host; his syntypes, two males and two females (slides nos. 538-9), agree with our neotypes of *curvirostrae*.

*Neotype* male (as described below) and *neallotype* female (Text-fig. 11a) of *Philoaterus curvirostrae* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.) (slides nos. 4112 and 4111)) from *Loxia c. curvirostra* Linn. from Poland. *Neoparatypes*: 24 males and 36 females from the same host form from Poland, Estonia and England.

### ***Pediculus pyrrhulae*** (p. 117, Pl. 5, fig. 9)

The host is "Blutfink" (= *Pyrrhula pyrrhula*) and the louse is a nymph of a *Philoaterus*. It is one of the components of *Philoaterus communis* Nitzsch. Piaget (1880: 58) described independently a *Docophorus communis* var. *pyrrhulae* from *Pyrrhula vulgaris* (= *Pyrrhula pyrrhula*). Piaget's type material in the British Museum (Nat. Hist.) (one male and two females, slide no. 536) agrees with the neotypes of *Philoaterus pyrrhulae* (Schrank).

*Neotype* male and *neallotype* female (as described below) of *Philoaterus pyrrhulae* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.) (slide no. 1042a)) from *Pyrrhula pyrrhula europaea* Vieillot from France. *Neoparatypes*: 12 males and 36 females from various subspecies of *Pyrrhula pyrrhula* from France, Sweden, Estonia and the British Isles.

### ***Pediculus chloridis*** (p. 118, Pl. 5, fig. 10)

Another *Philoaterus* nymph, from "Grünfink," the host given by Schrank later (1781: 506) as *Loxia chloris*; it is also another of the components of *Philoaterus communis* Nitzsch.

*Neotype* male and *neallotype* female (as described below) of *Philoaterus chloridis* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.)) (slide no. 290) from *Chloris c. chloris* (Linn.) from Norfolk, England. *Neoparatypes*: 32 males and 60 females from the same host form from the British Isles and Estonia.

***Philopterus citrinellae*, *P. curvirostrae*, *P. pyrrhulae* and *P. chloridis***

These names were given to specimens of *Philopterus* taken respectively from *Emberiza citrinella*, *Loxia curvirostra*, *Pyrrhula pyrrhula* and *Chloris chloris* and can be considered together. While discussing their status the names will be used to refer to populations from these hosts even though in the conclusion they may be considered as indistinguishable.

The characters on which the species of *Philopterus* from the small European Passeres can be distinguished have been discussed in Part II of the present work (Clay & Hopkins, 1951). The four forms listed above parasitize the bird family Fringillidae and the possible distinguishing characters between these populations are discussed below.

HEAD. This is of the typical *Philopterus* form similar to that figured in Clay & Hopkins, 1951 : 7 for *P. coarctatus*, from which it differs in the median indentation of the hyaline margin (not always apparent in mounted specimens) and the somewhat deeper indentation of the anterior plate (clypeal signature) (Text-fig. 8). *P. fringillae* from *Passer domesticus* also has both the hyaline margin and anterior plate indented, but the pre-antennal region and the length of the anterior plate are proportionally shorter. Specimens from the four hosts under consideration show no constant differences in shape of the anterior plate nor in the proportions<sup>1</sup> of the head. A comparison of the size of the head (as shown by the absolute breadth at the temples, Tables 1, 2) shows that there is some variation in specimens taken from one host species, but the means fall into a number of groups. Thus, in the males *citrinellae*, *curvirostrae* and *chloridis* fall into one group, with *pyrrhulae* tending to be larger, but the number of specimens of the latter measured is rather small. In the females of *P. citrinellae* and *curvirostrae* the mean tends to be smaller than in those of *chloridis* and *pyrrhulae*. Further material will have to be examined before it can be shown whether or not these differences are significant.

MALE GENITALIA (Text-fig. 9). The characters show individual variation as well as differences in appearance due to the position in which the genitalia are viewed. This individual variation affects the shape of the parameres and endomeres, number and position of the setae on the mesosome and the presence (and size) or absence of the dorsal sclerotized area on the mesosome. If sufficient specimens are examined genitalia of similar appearance will be found irrespective of the host from which the specimens were taken. However, the endomeres are minute structures and their true form can probably only be reconstructed from sections, so it may prove that these structures will show subspecific variation when more thoroughly examined. On the available material there seem to be no characters in the genitalia by which

<sup>1</sup> To find the various proportions of the head (e.g., length of preantennal region to that of the post-antennal region or breadth of various parts of the preantennal region to the length of preantennal region) entails the making of a number of detailed measurements from a large number of specimens, and these measurements tend to be inaccurate owing to the difficulty of delineating the different regions of the head. However, if the image of a typical specimen from one host is projected on to a piece of paper and an outline of the head made, it is possible to project other heads on to this outline, and by adjusting the magnification to get one fixed breadth (say that of the temples) the same; from this it is possible to compare the various proportions of the head and find the variation within a number of specimens from one host and between those from different hosts.

the populations from the four hosts can be separated. The genitalia of *P. coarctatus* (Scopoli) (see Clay and Hopkins, 1951: 6) and *P. fringillae* (Ibid: 32) are readily separable on the characters of the mesosome.

The diagnostic characters and the type of variation found in the female genital region have been discussed under *coarctatus* (see Clay & Hopkins, 1951: 6). Specimens from the four hosts under discussion cannot be separated by the shape of the genital plate, although the mean of the breadth of the plates of *citrinellae* is smaller than in the other three. In general proportions the plate is similar to that of *coarctatus* and differs from that of *fringillae* as discussed under that species (see Clay & Hopkins, 1951: 32). There is some variation in the shape of the genital plate, as shown by the four examples taken from one host individual in Text-fig. 10, and also in the size and shape of the last sternal plate.

CHAETOTAXY. There is some individual variation found throughout the different populations in the number of setae (especially in those on the abdomen), but there are three groups of setae which may show subspecific characters; these are the setae of the metasternum, those of the male genital plate, and the group each side of the last sternal plate of the female abdomen. In *citrinellae* 80.4% of 46 males and females examined had 3 metasternal setae, 17.4% had 4, and 2.2% had 5. In *pyrrhulae* 91.2% of 34 examined had 3 metasternal setae and 8.8% had 4. In *chloridis* 84.6% of 52 specimens had 3 setae and 15.4% had 4. In *curvirostrae* 4.2% of 48 examined had 3 setae, 45.8% had 4, 45.8% had 5 and 4.2% had 6. Thus, while *curvirostrae* has 95.8% of specimens with 4 or more setae, the other three have over 80% of specimens with only three setae.

The male genital plate in *citrinellae* has two anterior and two posterior setae as in *P. coarctatus* (see Clay & Hopkins, 1951, fig. 4); the two anterior setae are found in 100% of specimens of *citrinellae* (29 examined), *pyrrhulae* (13 examined) and *chloridis* (26 examined). In *curvirostrae*, however, 100% of the 21 specimens examined had 3 (or rarely 4) anterior setae on the male genital plate.

Each side of the last sternite of the female abdomen there are in *citrinellae* usually 2 normal setae and one spine-like seta (Text-fig. 11). In *citrinellae* 97.2% of the 36 specimens examined had these 3 setae (rarely reduced to 2) on at least one side of the abdomen, only 2.8% had 4 setae on both sides of the abdomen. In *pyrrhulae* 95.1% of the 41 examined had 3 or less setae on at least one side, and 4.9% had 4 setae on both sides. In *chloridis* 100% of the 64 examined had 3 setae or less on at least one side. In *curvirostrae* 100% of the 32 examined had 4 or more setae on both sides (Text-fig. 11a). Thus, while 100% of specimens of *curvirostrae* had 4 or more setae on both sides of the abdomen, the other three had 95% or more with only 3 on at least one side.

On the evidence discussed above, populations from the four hosts obviously form a single species. The populations from *Loxia curvirostra* can be distinguished in the male in 100% of specimens (on the material examined) on one character and in 80% of specimens on a second character; the females from this host can be distinguished in 95% of cases on one character and in 80% on a second character.

The populations from *Loxia curvirostra* can, therefore, be recognized as a subspecies. If subsequent investigations reveal subspecific differences in the other

populations Schrank's names are available for these, but for the present we are unable to recognize them. The host distribution of the two subspecies we recognize is as follows :

*Philopterus citrinellae citrinellae* (Schrank). Type host : *Emberiza c. citrinella*. Also occurs on *Pyrrhula pyrrhula* and *Chloris chloris*.

*Philopterus citrinellae curvirostrae* (Schrank). Type host : *Loxia c. curvirostra*.

MEASUREMENTS IN MM. of neotypes of *P. c. citrinellae* :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.52	0.47	0.55	0.53
Prothorax . . .	—	0.28	—	0.30
Pterothorax . . .	—	0.43	—	0.47
Abdomen . . .	—	0.62	—	0.75
Total . . .	1.46	—	2.67	—
Genitalia . . .	0.22	—	—	—

### *Pediculus sturni* (p. 118, Pl. 5, figs. 11-14)

A nymph of *Sturnidoecus* from "Staar" (given by Schrank in 1781 as *Sturnus vulgaris*). Schrank considered that his fig. 12 represented a different species, but it is merely a still younger nymph. Nitzsch (1818 : 290) unnecessarily renamed the species *Philopterus (Docophorus) leontodon*, and it was usually known by this name until Harrison (1916 : 104) restored the name given to it by Schrank.

MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.52	0.53	0.55	0.57
Prothorax . . .	—	0.30	—	0.32
Pterothorax . . .	—	0.47	—	0.52
Abdomen . . .	0.71	0.70	0.96	0.83
Total . . .	1.52	—	1.80	—
Genitalia . . .	0.35	—	—	—

*Neotype* male (Text-figs. 12-13; Pl. 10, fig. 5) and *neallotype* female (Text-fig. 14) of *Sturnidoecus sturni* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.)), slide no. 15663, from *Sturnus v. vulgaris* Linn. from Cornwall, England. *Neoparatypes* : 138 males and 175 females from various subspecies of *Sturnus vulgaris* from the British Isles and Estonia.

O. F. MÜLLER, 1776

(*Zoologiae Danicae Prodrromus*. Havniae : pp. 184-186)

This is quite the worst of the early works, but the names contained in it are binomial and must be considered. Fortunately there are only two new names in it,

which both might be thought to apply to Mallophaga and also are accompanied by a description or an indication. Harrison (1916) adds a third, *Pediculus strigis*, which he considers to be a *nomen nudum*, but it is neither a *nomen nudum* nor a new name, but a reference to *strigis* Pontoppidan, *q.v.* (Clay & Hopkins, 1951, p. 29).

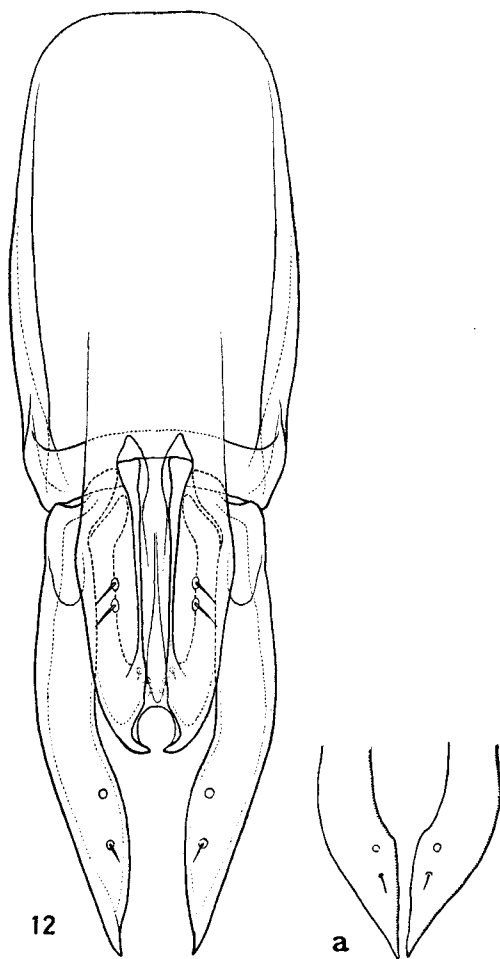


FIG. 12.—*Sturnidoecus sturni* (Schrank), male genitalia. a. Distal ends of parameres in natural position.

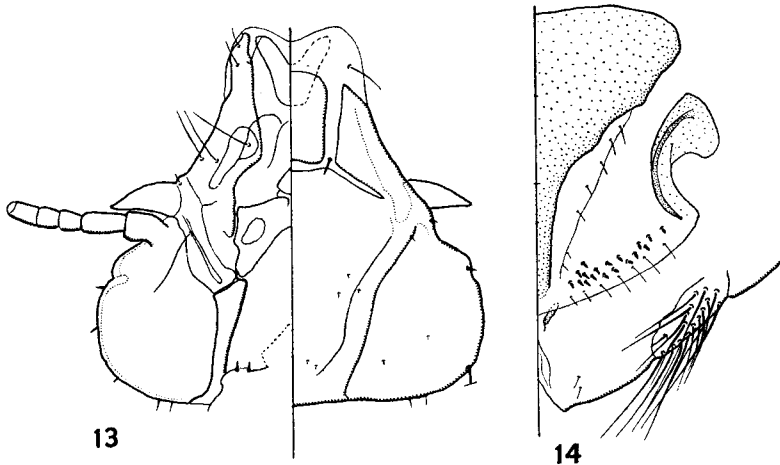
***Pediculus alcae arcticae*** (p. 185)

The entire description is “e cinereo caerulescens,” but in the case of both this and the following species there are references to “Isl.R.” (= Olafsen, 1772). We have not been able to consult the original of Olafsen’s work but have seen a German translation dated 1774, on p. 322 of which there are much fuller descriptions of both

the species in question, under vernacular names. Olafsen's description of his "Lunda-Luus, *Pediculus* (*Alcae arcticae*)" includes a vivid account of its habits which leaves no room for doubt that it is a tick.

***Pediculus colymbi grylle*** (p. 185)

Müller's entire description is "capite fusco, abdomine glauco," but Olafsen's fuller description of his "Hofu-Luus" states, among other points, that it is rather large, flat and oblong like *Hippobosca* (now *Melophagus*) *ovina*. This description could not be applied to any of the Mallophaga found on Alcidae, but would very well fit a tick.



FIGS. 13, 14.—*Sturnidoecus sturni* (Schrank). 13. Male head. 14. Terminal segments of female abdomen, ventral.

J. C. FABRICIUS, 1777\*

(*Genera insectorum eorumque characteres naturales, etc.* Chilonii, pp. 309-310)

Of the new names proposed in this work all, with one exception, are unnecessary renamings of Scopoli's species and have already been dealt with under the latter author. The descriptions are quoted from Scopoli, and the neotypes we have erected for Scopoli's species are also neotypes of Fabricius' *nomina nova*. The single exception is dealt with below.

***Pediculus phasiani*** (p. 310)

The host-record is "Habitat in Phasiano Motmot," and besides the very brief description there is a reference to "Red. Oper. I." Redi's plate 1 shows three species, belonging to as many genera, stated to be "Pollini dell' astore." In spite of Redi's belief that all of these were hawk-parasites, the reference has enabled us to interpret Fabricius' name, for his inadequate description does not fit the upper figure on the

\* According to Engelmann, *Bibl. Hist.-Nat.*, 1846, p. 479.

plate and the right-hand lower figure is a *Craspedorrhynchus*, a genus which does not occur on the Galliformes. But Fabricius' description does fit the left-hand lower figure on the plate, which represents a *Chelopistes*, a genus known to occur on the Ortalidae. As we have no material from *Ortalis motmot* we are unable to erect neotypes for *Chelopistes phasiani* (J. C. Fabricius).

DE GEER, 1778

(*Mémoires pour servir à l'histoire des insectes*. Stockholm. Vol. 7, Des Ricins, pp. 69-82)

The descriptions in this work are good and the figures for the most part excellent, but we were inclined at first to think De Geer's classification not binomial (though certainly binary) and the names invalid in consequence. This is because the generic name in each case is followed by a long descriptive phrase or diagnosis, with or without a comma after the name of the host (which always immediately follows the generic name *Ricinus* and is placed in the genitive case). We have, however, consulted Dr. Jordan on this point, and he kindly informs us that in his opinion the names are valid. He states: "The Latin diagnosis of the various species of *Ricinus* differs from the diagnoses of all other insects in vol. 7 and previous volumes in the trivial names of the species not being put into brackets, and in the case of *Ricinus* the genitive of the host-name is in italics like the Latin text of the diagnosis, not in Roman type. The work was issued after De Geer's death, and the omission of the brackets and the consequent italicizing of the trivial names was probably due to the editor. The diagnosis of species 1 of *Ricinus* should read: "*Ricinus* (Fringillae) *pallide-fuscus*, corpore . . ." We accept Dr. Jordan's opinion on this point with all the more pleasure because De Geer's work is so outstandingly better than that of his contemporaries that it would be very regrettable if technical invalidity of the names he proposed should deprive him of the credit for it.

With regard to the statement of Harrison (1916: 10-20) that *Pediculus* Linn., *Ricinus* De Geer and *Nirmus* Hermann "must be treated as equivalent, inasmuch as each included all Mallophaga," and his action in rejecting (e.g.) *Ricinus fringillae* De Geer as a homonym of *Pediculus fringillae* Scopoli, the revised Rules of Zoological Nomenclature make it clear that Harrison's opinion was incorrect and that both these names may be used.

***Ricinus fringillae*** (p. 71, Pl. 4, figs. 5-8)

The description and figures are good, and undoubtedly represent a species belonging to the genus *Ricinus* s. str. (= *Physostomum* Nitzsch). The question of the host, however, is one of some difficulty. De Geer's description in Latin is preceded by one in French, in which he calls the louse "Ricin du Pinçon" (= *Fringilla coelebs*), but he later states that he found it in March on "l'oiseau nommé Bruant" (= *Emberiza citrinella*), and that it also lives "sur les Pinçons & d'autres petits oiseaux"; the species of *Ricinus* found on *Fringilla coelebs* and on *Emberiza citrinella*, though very closely related, are not the same, and De Geer's figures resemble the latter rather than

the former in the proportions of the head. Nevertheless, if there were no complications we might have taken the view that De Geer's calling the louse "Ricin du Pinçon" compelled us to apply his name to the species found on *Fringilla coelebs*, but there is a very strong reason for reluctance to adopt this attitude: Nitzsch (1818: 302) published the name *Liotheum* (*Physostomum*) *nitidissimum* as a *nomen novum* for *Ricinus fringillae* De Geer, with *Emberiza citrinella* as host, and the name *Liotheum* (*Physostomum*) *irascens* (a *nomen nudum*) with *Fringilla coelebs* as host; *irascens* was published with a description by Burmeister (1838: 442) and all later authors have used *nitidissimus* and *irascens* for the species of *Ricinus* found on *Emberiza citrinella* and *Fringilla coelebs* respectively. To select *Fringilla coelebs* as type-host of *Ricinus fringillae* De Geer would mean that the host of *nitidissimum* Nitzsch, 1818 (whose



FIG. 15.—*Ricinus fringillae* De Geer, Gular and thoracic plates, female.

sole claim to validity is the reference to De Geer), would of necessity be the same bird and the *Ricinus* of *Emberiza citrinella* would be left without a name. We consider that this course would cause so much confusion that we must select the species from *Emberiza citrinella* to bear the name that De Geer gave to the composite of both species. De Geer's species is also a component of *Nirmus pterocephalus* Olfers, 1816, but we consider this latter composite name to refer mainly to *Ricinus rubeculae* (Schrank).

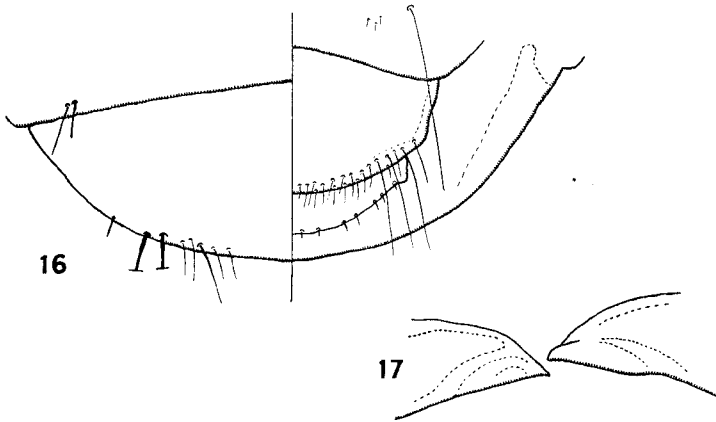
The characters by which *R. fringillae* can be distinguished from *rubeculae* are given above under that species. This species is separated from others occurring on the Fringillidae by the shape of the head and prothorax (Pl. 10, fig. 6) and by the prothoracic plate (fig. 15), and from some species by the characters of the mandibles (fig. 17).



## MEASUREMENTS IN MM. :

	Female	
	Length	Breadth
Head . . . . .	0.70	0.68
Prothorax . . . . .	—	0.52
Abdomen . . . . .	—	1.07
Total . . . . .	3.46	—

*Neotype* female (Text-figs. 15-17; Pl. 10, fig. 6) of *Ricinus fringillae* De Geer in the British Museum (Nat. Hist.) (slide no. 563) from *Emberiza c. citrinella* Linn, from Saxony, Germany. *Neoparatypes*: 4 females from the same host species from England, Estonia and Czechoslovakia.



FIGS. 16, 17.—*Ricinus fringillae* De Geer, female. 16. Terminal segments of abdomen. 17. Tips of mandibles.

***Ricinus emberizae*** (p. 74, pl. 4, figs. 9, 10)

The host is "Bruant," *Emberiza* or "Gröning" (= *Emberiza citrinella*), and the description and figure are those of a *Philopterus*. We consider this to be a synonym of *Philopterus c. citrinellae* (Schrank). Doubtless De Geer was misled into thinking it new by the fact that Schrank's species was described from a nymph.

*Neotype* of *Philopterus emberizae* (De Geer) a male in the British Museum (Nat. Hist.) collection (slide no. 564) from *Emberiza c. citrinella* Linn. from Yugoslavia, which agrees with the neotype of *Philopterus c. citrinellae* (Schrank).

***Ricinus cornicis*** (p. 76, Pl. 4, fig. 11)

De Geer places "*Pediculus Corvi Coracis* Linn." as a synonym, but the species has nothing to do with *Philopterus corvi* (Linn.), both figure and description very clearly referring to a *Myrsidea*. The host-record is "Corneille" (= *Corvus corone cornix*).

Nitzsch (1818 : 300) renamed the species *Liotheum (Menopon) mesoleucum*, quoting

De Geer and giving the host-record "Corvi Cornicis." Harrison (1916: 13) erroneously considered *Ricinus cornicis* De Geer (a *Myrsidea*) to be preoccupied by *Pediculus cornicis* J. C. Fabricius (a *Philopterus*); he also took the erroneous view that *mesoleucum* Nitzsch, 1818, is a *nomen nudum*, and in consequence the species has commonly been known as *Myrsidea subaequalis* (Haan\*). The neotypes we erect for *Myrsidea cornicis* (De Geer) are necessarily also neotypes of *M. mesoleuca* (Nitzsch).

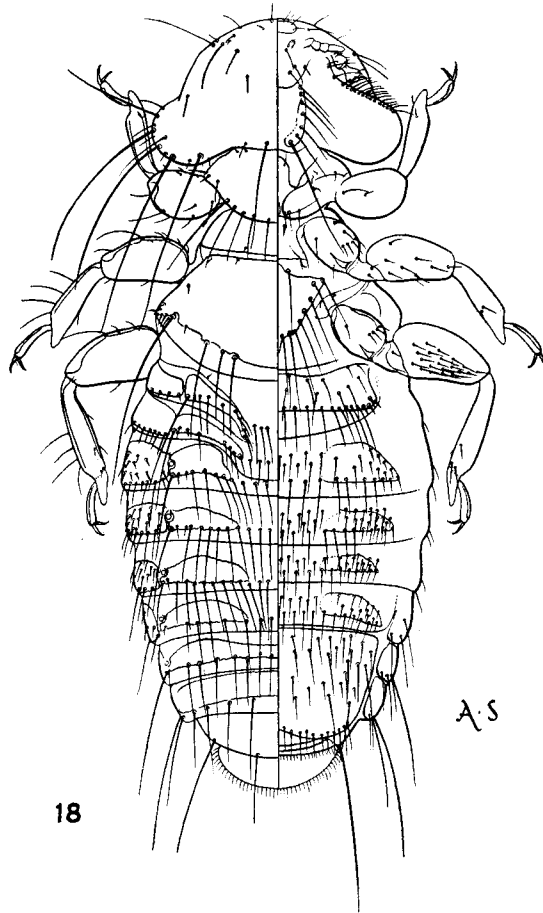


FIG. 18.—*Myrsidea cornicis* (De Geer), female.

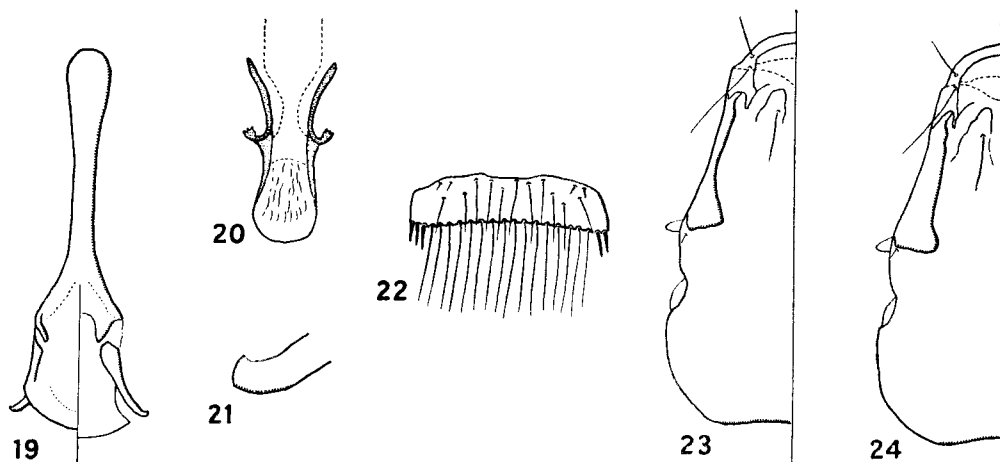
This species can be distinguished from other *Myrsidea* occurring on the European species of *Corvus* by the greater modification of tergites I–II (Text-fig. 18) in the female and by the sclerite of the genital sac in the male (Text-fig. 20). The chaetotaxy of sternite II (Text-fig. 22) in both sexes resembles most closely that of the species on *Corvus monedula*, but *cornicis* can be distinguished by the shape of the head in the male (Pl. II, fig. 1) and by the characters given above.

\* The authorship of the name is often incorrectly ascribed to Nitzsch or to Lyonet.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . . . .	0·33	0·60	0·35	0·65
Prothorax . . . . .	—	0·40	—	0·41
Metathorax . . . . .	—	0·54	—	0·68
Abdomen . . . . .	—	0·67	—	0·87
Total . . . . .	1·89	—	2·14	—
Genitalia . . . . .	0·66	—	—	—

*Neotype* female (Text-fig. 18) and *neallotype* male (Text-figs. 19–22, Pl. 10, fig. 1) of *Myrsidea cornicis* (De Geer) in the Meinertzhagen Collection (British Museum (Nat. Hist.)) (slide no. 16012a) from *Corvus corone cornix* Linn. from Sweden. *Neoparatypes* : 174 males and 143 females from the same host form from Sweden, Estonia, E. Prussia, Hungary, Yugoslavia and the British Isles.



FIGS. 19–22.—*Myrsidea cornicis* (De Geer), male. 19. Male genitalia. 20. Sclerite of genital sac. 21. Tip of paramere enlarged. 22. Second abdominal sternite.

FIGS. 23, 24.—Male heads, dorsal. 23. *Anaticola crassicornis* (Scopoli). 24. *A. mergiserrati* (De Geer).

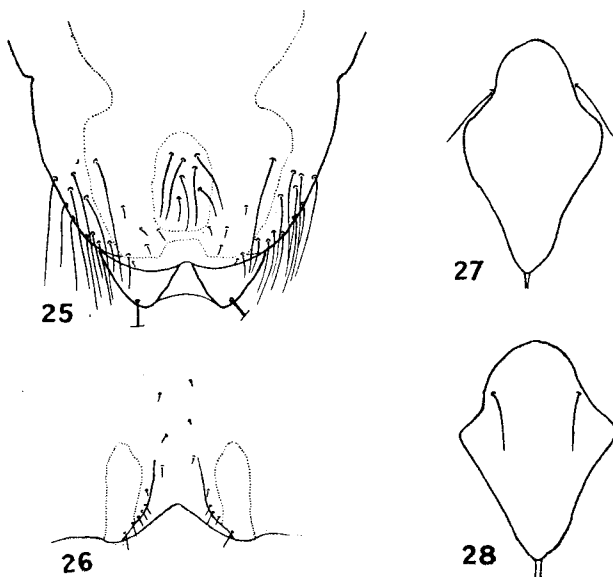
***Ricinus lari*** (p. 77, Pl. 4, fig. 12)

There are references to "*Pediculus Sternae Hirundinis* Linn." and "Redi Experim. Tab. 9," though neither of these species is even congeneric with that described by De Geer, both his figure and his description being quite certainly those of a *Trinoton*. The host-record "sur les Mouettes" (= *Larus* spp.) is definitely erroneous, for neither *Trinoton* nor any genus closely resembling it occurs naturally on the Laridae.<sup>1</sup>

<sup>1</sup> We considered the large type of *Actornithophilus* occurring on the Laridae, but the figure does not agree with this.

J. C. Fabricius (1781: 481) erroneously placed De Geer's name as a synonym of *Pediculus sterna*e Linn., doubtless misled by De Geer's reference to this species. Nitzsch (1818: 300) considered De Geer's species to be probably the same as his *Liotheum (Trinoton) lituratum* (a *nomen nudum* in 1818), from *Mergus albellus*, probably because another of De Geer's species is from *Mergus serratus*.

We see no reason whatever to adopt Nitzsch's belief, De Geer's figure not being sufficiently detailed to refer to one species of *Trinoton* rather than another, and the common-sense procedure with regard to a species described from a straggler is obviously to make it a synonym of some earlier name if possible. Fortunately *Trinoton querquedulae* (Linn.) is a much earlier valid name and there is nothing in De Geer's figure and description to suggest that this was not the species he had.



FIGS. 25-28.—25. *Anaticola c. mergiserrati* (De Geer), terminal segments of male abdomen, ventral. 26. Female vulva. 27. *A. crassicornis* (Scopoli), female meso-metasternal plate. 28. *A. c. mergiserrati*, female meso-metasternal plate.

We accordingly designate as male neotype of *Trinoton lari* (De Geer) a specimen in the Meinertzhagen Collection (British Museum (Nat. Hist.)) (slide no. 8018) from *Anas c. crecca* (Linn.) from Nepal, which agrees with Text-figs. 26-28 and Pl. 2, fig. 2 (in Clay & Hopkins, 1950) of *Trinoton querquedulae* (Linn.).

***Ricinus mergi serrati*** (p. 78, Pl. 4, fig. 13)

The description and figure are unquestionably those of an *Anaticola* and the host is carefully given as "le Plongeon nommé *Mergus serratus* Linn. Faun. Ed. 2 no. 136" (an important point, because "plongeon" normally means a member of the Gaviidae, or divers).

The species was renamed *Pediculus mergi* by J. C. Fabricius (1781: 480) and *Philopterus (Lipeurus) temporalis* by Nitzsch (1818: 292); both names are mere *nomina nova* for De Geer's species and our neotypes of *mergiserrati* must also be neotypes of *mergi* and *temporalis*. De Geer's figure seems to represent a nymph but is not so good as most of his figures. *Ricinus mergiserrati* De Geer passed under Nitzsch's name until 1916, when Harrison (p. 138) mentioned it as *Esthiopterum mergiserrati* De Geer and correctly placed *mergi* Fabricius and *temporalis* Nitzsch as synonyms.

De Geer carefully separates, but does not name, another "Ricin" from the mesa host, drawn as fig. 14 of his plate 4. This is undoubtedly an *Anatoecus*, and will be dealt with under *Philopterus icterodes* Nitzsch, 1818.

All the specimens of *Anaticola* from the Anseriformes examined are very similar, having male genitalia differing only in proportions and the female genital region in the chaetotaxy; all have the bilobed spermatheca in the female. Distinguishing characters are found in the proportions of the head, meso-metasternal plate and male genitalia, and in the chaetotaxy of the prothorax and male and female genital regions. *A. mergiserrati* (which should probably be considered as a subspecies of *A. anseris* (Linn.) or certainly of *A. crassicornis* (Scopoli)) is distinguished from *anseris* by the proportions of the head and male genitalia, by the characters of the pre-antennal region of the head, and by the presence of only one dorsal submarginal prothoracic seta each side. Both *crassicornis* and *mergiserrati* tend to have a greater number of setae on the genital region of the male (Text-fig. 25) and on the vulva of the female (Text-fig. 26) than *anseris*—too few specimens of this latter species are available for a more exact comparison. *A. mergiserrati* is distinguished from *crassicornis* with certainty only by the broader marginal carinae of the head (Text-figs. 23–24) and the longer penis. The meso-metasternal plate (Text-figs. 27, 28) is shorter and broader in *mergiserrati*.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0·67	0·43	0·72	0·47
Prothorax . . .	—	0·32	—	0·35
Pterothorax . . .	—	0·41	—	0·47
Abdomen . . .	1·50	0·49	2·00	0·57
Total . . .	2·70	—	3·20	—
Genitalia . . .	0·65	—	—	—

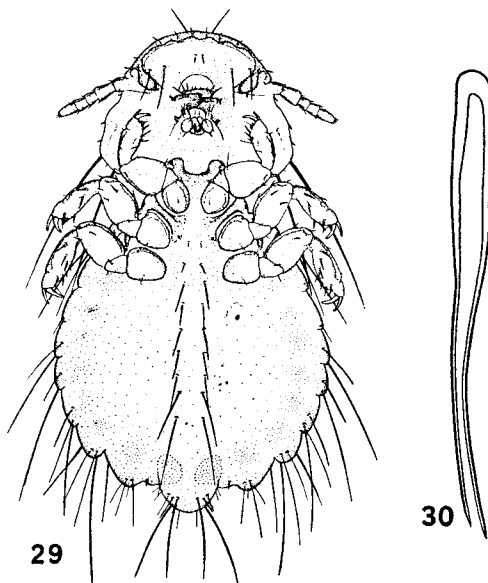
LENGTH OF PENIS IN MM. (number of specimens in brackets): 0·20 (1), 0·22 (6), 0·23 (3).

*Neotype* male (Text-figs. 24, 25; Pl. 11, fig. 2) and *neallotype* female (Text-figs. 26, 28; Pl. 11, fig. 3) of *Anaticola crassicornis mergiserrati* (De Geer) in the Meinertzhagen collection (British Museum (Nat. Hist.)) (slide no. 19298a) from *Mergus serrator* Linn. from North Uist, Scotland. *Neoparatypes*: 46 males and 28 females from the same host species from the British Isles.

*Ricinus gallinae* (p. 79, Pl. 4, fig. 15)

The host is " Poule " (= *Gallus domesticus*) and the description and figure represent a *Goniocotes*. The name is not preoccupied by *Pediculus gallinae* Linn., which is a *Menopon*.

Nitzsch (1818 : 294) renamed the species *Philopterus (Goniodes) hologaster*. Burmeister (1828 : 431) placed it in his new subgenus *Goniocotes*, of which it was subsequently selected as type species.



FIGS. 29, 30.—*Goniocotes gallinae* (De Geer). 29. Male. 30. Male genitalia.

## MEASUREMENTS IN MM. :

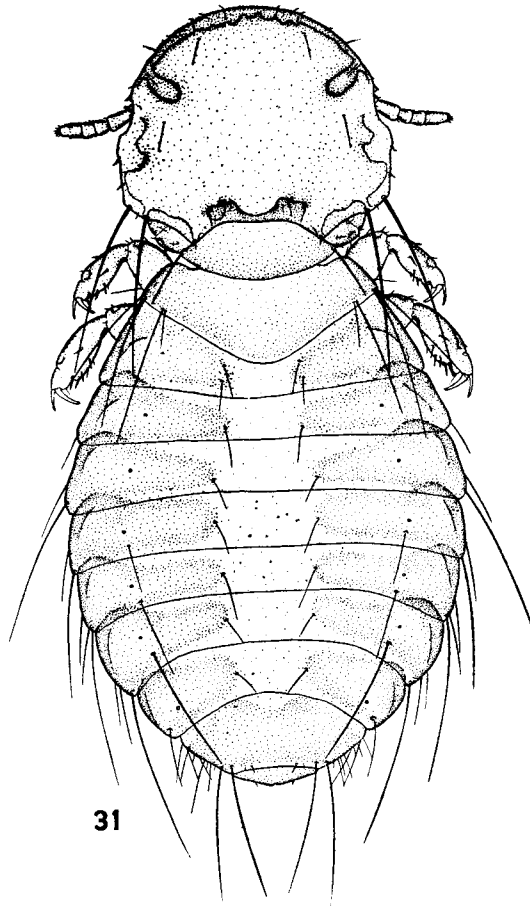
	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.28	0.37	0.40	0.51
Prothorax . . .	—	0.22	—	0.31
Pterothorax . . .	—	0.34	—	0.46
Abdomen . . .	0.50	0.51	0.90	0.80
Total . . .	0.90	—	1.44	—
Genitalia . . .	0.42	—	—	—

*Neotype* male (Text-figs. 29, 30) and *neallotype* female (Text-figs. 31, 32) of *Goniocotes gallinae* (De Geer) in the British Museum (Nat. Hist.) Collection (slides nos. 567–8) from *Gallus domesticus* from Scotland. *Neoparatypes* : 4 males and 25 females from the same host species from the British Isles.

*Ricinus canis* (p. 81, Pl. 4, fig. 16)

The host is "chien" (= *Canis familiaris*), and the description and not very good figure unquestionably represent the species of *Trichodectes* commonly found on this host.

O. Fabricius (1780 : 215) gives a completely independent description of a *Pediculus canis*, from *Canis familiaris*, which has given much trouble because the description



FIGS. 31.—*Goniocotes gallinae* (De Geer), female.

is so bad. Nitzsch (1818 : 296) gave a doubtful reference to *canis* Fabricius under his *Trichodectes subrostratus* (a *nomen nudum* in 1818), Harrison ignored it, and other authors who mention it mostly accept Nitzsch's suggestion that it was *subrostratus*. It must receive serious consideration because, as it is not a primary homonym of *Ricinus canis* De Geer, it could be the earliest valid name for *Felicola subrostratus* (Burmeister).

Turning to the original description of Fabricius, we find that numerous structural characters exclude any dog-parasites except Mallophaga and it is stated to occur in large numbers, excluding any likelihood that it was not a true dog-parasite. We fully agree with Kéler (1938 : 422) that with one exception (the mention of a "rostrum subcylindricum") the characters agree excellently with the *Trichodectes* of the dog, this former character being certainly what led Nitzsch to suggest that it might be *subrostratus* (found on the domestic cat). But we again find ourselves in full agreement with Kéler that the other characters exclude the cat-louse, and that the "rostrum subcylindricum" must have been a portion of a hair gripped between the mandibles. Accordingly we shall select a neotype for *Trichodectes canis* (O. Fabricius) in such a way as to make it a synonym of *T. canis* (De Geer), of which it is also a secondary homonym. *Trichodectes latus* Nitzsch (1818 : 296) is a *nomen novum* for De Geer's species and therefore an absolute synonym, based on the same types.

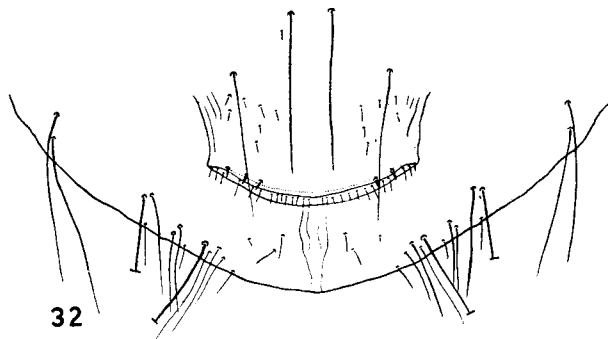


FIG. 32.—*Goniocotes gallinae* (De Geer), terminal segments of female abdomen, ventral.

*Neotype* male and *neallotype* female of *Trichodectes canis* (De Geer), which agree with the description and figures published by Werneck under the same name (Werneck, 1936 : 502-6, figs. 130-135), in the British Museum (Nat. Hist.) (slide nos. 581-2) from *Canis familiaris* from São Paulo, Brazil. *Neoparatypes* : 32 males and 31 females from the same host species from Brazil, British Isles and Germany.

O. FABRICIUS, 1780

(*Fauna Groenlandica*, Hafniae & Lipsiae, pp. 215-220)

Most of the descriptions in this work are new and independent, but there are a few redescriptions. The descriptions are poor and there are no figures, but the names are in unquestionably valid form.

There is some confusion regarding the correct interpretation of the hosts from which Fabricius collected his specimens, and we are greatly indebted to Dr. Finn Salomonsen for assistance in identifying these correctly.

#### ***Pediculus canis*** (p. 215)

This species has been fully discussed under *Ricinus canis* De Geer, of which it is a synonym.



*Neotype* male of *Trichodectes canis* (Fabricius) in the British Museum (Nat. Hist.) (slide no. 583) from *Canis familiaris* from São Paulo, Brazil. This specimen agrees with the neotype of *Trichodectes canis* (De Geer).

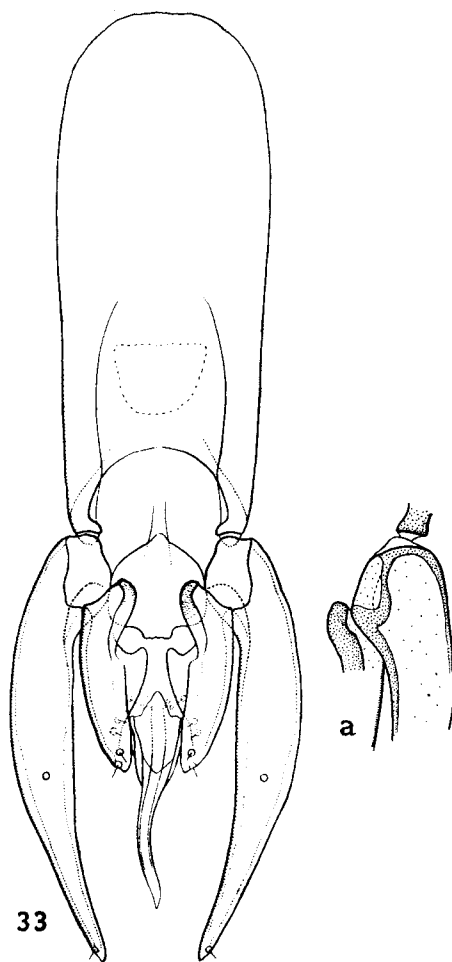


FIG. 33.—*Saemundssonina grylle* (O. Fabricius), male genitalia. *a*. Head of paramere.

***Pediculus strigis*** (p. 216)

Fabricius thought his species, taken from *Strix nyctea* (= *Nyctea scandiaca*), was the same as *P. strigis* Müller, which we have already discussed as *P. strigis* Pontopidan. It is unlikely that this is the case, but as the name is a primary homonym we do not propose to discuss it further.

*Pediculus corvi* (p. 217)

This name is attributed to *Syst.Nat.* (i.e., Linné), and there is no need to discuss it except to note that as the description is that of a *Philopterus* and the host is *Corvus corax* it could be regarded as a restriction of Linné's name to the species found on the raven. We have already restricted *Philopterus corvi* (Linn.) in the same sense.

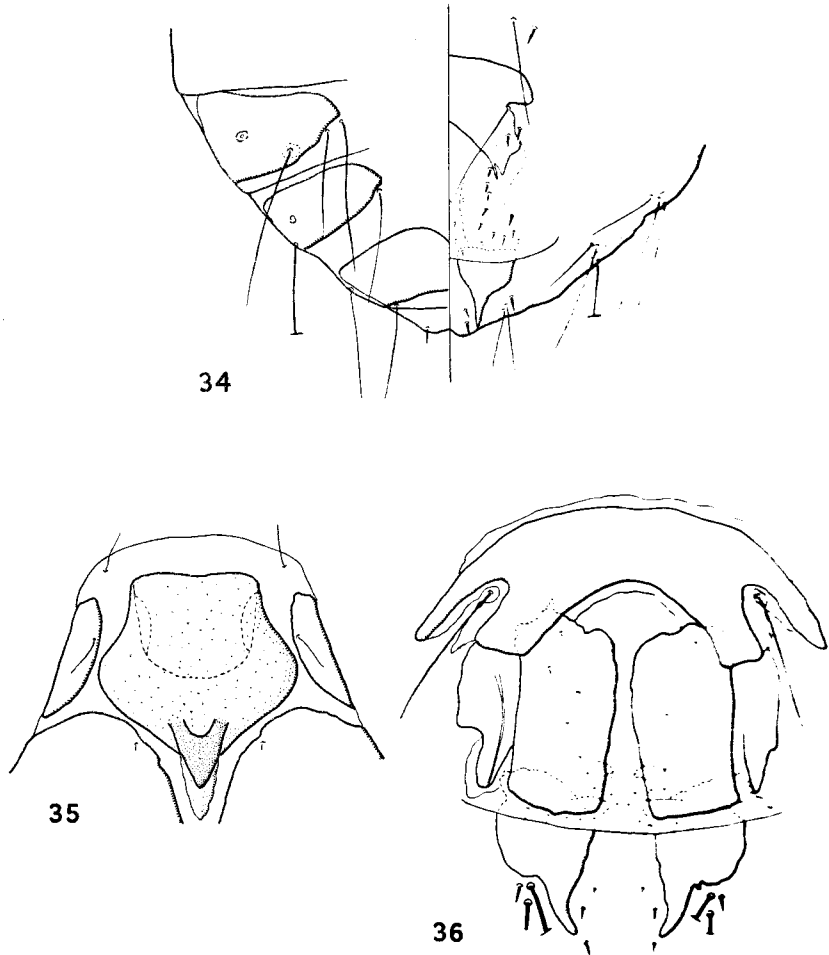


FIG. 34.—*Saemundssonina grylle* (O. Fabricius), terminal segments of female abdomen.  
 FIGS. 35, 36.—*Saemundssonina lavi* (O. Fabricius). 35. Anterior region of male head, dorsal.  
 36. Genital region of female.

*Pediculus clangulae* (p. 217)

Fabricius gave the host of this species as *Anas clangula*, but (as confirmed by Dr. Salomonsen) the species which Fabricius had must have been *Bucephala islandica* (Gmelin). In addition to the description there is a queried reference to *Pediculus querquedulae* Linn. It was doubtless this reference which led Harrison (1916 : 12)

to refer *clangulae* to *Trinoton*, but the description cannot possibly apply to *Trinoton* or to any other duck-parasite except an *Anaticola*, which it fits very well. The species appears never to have been renamed or redescribed.

As we have no specimens of *Anaticola* from *Bucephala islandica* (Gmelin) we are unable to erect neotypes for *Anaticola clangulae* (O. Fabricius).

*Pediculus grylle* (p. 218)

Although this purports to be a renaming of *P. colymbi grylle* Müller (a tick), the brief independent description " *Pediculus niger, fasciis albis, abdomine ovato* " cannot apply to a tick, none of which are banded, but does apply fairly well to the *Saemundssonina*, which occurs on *Cepphus grylle*, and not at all to any other known parasite of this bird.

Denny (1842 : 44, 86, Pl. 5, fig. 6) redescribed the species as *Docophorus megacephalus* from a teneral specimen obtained from the same host,<sup>1</sup> and the species was known under this name until Harrison (1916 : 12, 14) restored the name given to it by Fabricius.

Specimens examined : 28 males and 38 females from *Cepphus g. grylle* (Linn.) from the British Isles. As we have no material of *Saemundssonina* from *Cepphus g. arctica* (Brehm.), the subspecies from which Fabricius took his specimens, we are unable to erect neotypes of *Saemundssonina grylle* (O. Fabricius). We have, however, included figures (Text-figs. 33, 34 ; Pl. 11, fig. 4) of what is almost certainly this form drawn from specimens taken from *Cepphus g. grylle* (Linn.). It should be noted that there is individual variation in the shape of the female genital plate and chaetotaxy of the genital region.

MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.52	0.45	0.55	0.52
Prothorax . . .	—	0.28	—	0.32
Pterothorax . . .	—	0.36	—	0.40
Abdomen . . .	0.62	0.59	0.67	0.65
Total . . .	1.28	—	1.42	—
Genitalia . . .	0.46	—	—	—

Neotype of *Docophorus megacephalus* Denny, a male (Text-figs. 33, 34 ; Pl. 11, fig. 4), in the Meinertzhagen Collection (British Museum (Nat. Hist.)), (slide no. 16698), from *Cephus g. grylle* (Linn.) from N. Uist, Outer Hebrides.

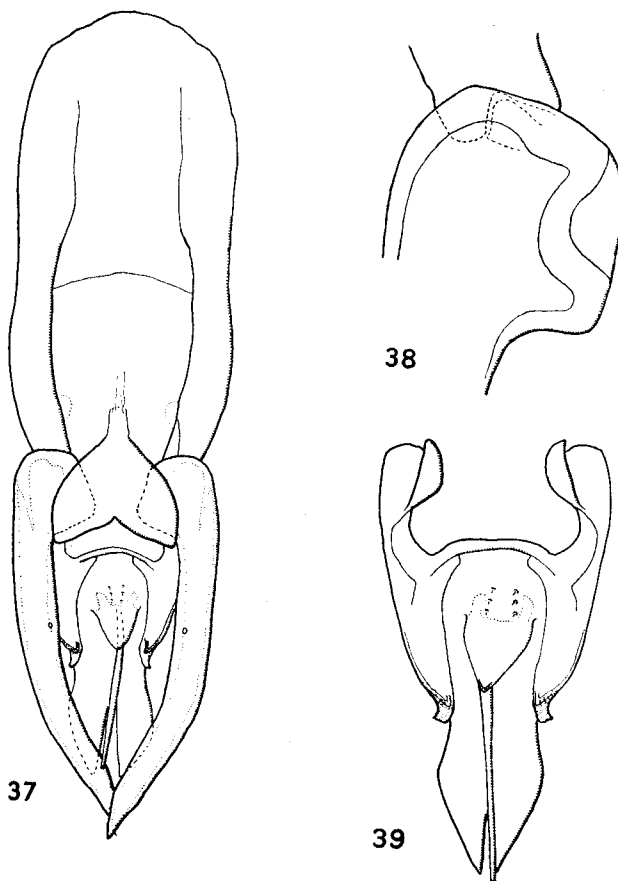
*Pediculus bassani* (p. 218)

Thompson (1940 : 372-381) has dealt fully with the identity and synonymy of *Pectinopygus bassani* (O. Fabricius) and has erected neotypes for it (p. 380).

Denny's type material of this species is not in the Brit. Mus. (N.H.) collection.

*Pediculus lari* (p. 219)

Harrison (1916: 16) considered this name to be preoccupied by *lari* De Geer, but the latter was published in *Ricinus* and is now in *Trinoton*, so *lari* O. Fabricius, which is a *Saemundssonina*, is valid. The description is much better than the rest and mentions a triangular head, acuminate in front and with a bifid rostrum, that the insect is wholly black except for white blotches above and below, besides other



FIGS. 37-39.—*Saemundssonina lari* (O. Fabricius). 37. Male genitalia. 38. Head of paramere enlarged. 39. Mesosome enlarged (from another specimen).

details which make it perfectly clear that Fabricius had before him a female *Saemundssonina*. The original host-record is "Habitat in laro glauco et quidem macro"; *Larus glaucus* is a synonym of *L. hyperboreus* Gunnerus. The species was re-described as *S. lariphaga* by Timmermann (1949: 8). *Docophorus lari* Denny, 1842; *D. lari* Grube, 1851; *D. lari* T. Müller, 1927 and *Pediculus lari* Larrañaga, 1928, are all referable to *Saemundssonina* and are, therefore, homonyms of *S. lari* (Fabricius).

*S. lari* (O. Fabricius) is the earliest name for any species of *Saemundssonina* from

the genus *Larus*, and, as shown by Timmermann (1951), the *Saemundssonina* from nearly all the species of this genus must be considered as subspecies of *lari*.

In *S. l. lari* the tergal plates of abdominal segment II are joined medianly in both sexes and the dorsal abdominal setae of the female do not form a continuous line across the segment, occurring only along the posterior margins of the tergal plates. In the male genitalia there is no sclerotized cross-bar at the distal end of the basal plate (Text-fig. 37) and the endomeral projections are fused medianly.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.60	0.62	0.62	0.68
Prothorax . . .	—	0.34	—	0.37
Pterothorax . . .	—	0.48	—	0.53
Abdomen . . .	0.90	0.85	1.16	0.98
Total . . .	1.76	—	2.06	—
Genitalia . . .	0.68	—	—	—

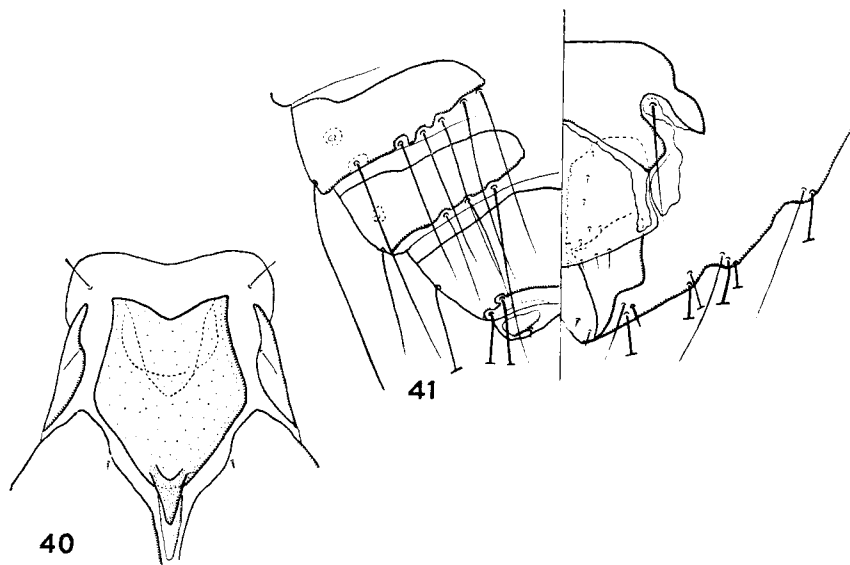
*Neotype* male (Text-figs. 35, 37-39, Pl. 11, fig. 5) and *neallotype* female (Text-fig. 36) of *Saemundssonina lari lari* (O. Fabricius) in the British Museum (Nat. Hist.) Collection (slide no. 569) from *Larus hyperboreus* Gunnerus from Iceland. *Neoparatypes* : 51 males and 48 females from the same host species from Iceland, Jan Mayen Is. and the British Isles.

***Pediculus tringae*** (p. 219)

This species is stated to occur on *Tringa striata*, which at once presents us with a difficulty, because this name has been applied to the redshank and also (incorrectly) to the purple sandpiper ; but the former does not occur in Greenland, so the host of *P. tringae* must have been *Erolia maritima*. The insect is described as white with a red dot on the abdomen (obviously ingested blood) and a suborbicular body, the size is that of the head of a pin, the antennae are like very minute hairs, the thorax is oval and the abdomen almost circular. Obviously the specimen was a very young nymph. Harrison regards the species as unrecognizable and we have much sympathy with this view, but it is one only to be adopted in the last resort. The mention of an almost orbicular abdomen at once rules out any genera found regularly on the Charadriiformes except *Saemundssonina*, *Austromenopon* and perhaps *Actornithophilus*, but not only are nymphs of the two latter genera brownish-yellow rather than white, but also their antennae are concealed and the palps (sometimes mistaken for antennae) far from conspicuous, so that Fabricius' insect must have been a *Saemundssonina* ; only one *Saemundssonina* appears to occur normally on *Erolia maritima*.

Through the kindness of Dr. René Malaise it has been possible to remount and examine the syntypes of *Docophorus arcticus* Mjöberg (1910 : 122) said to have been taken from "*Tringa* sp. (*maritima* ?)." The syntypes, which comprise one male and two females, are conspecific with the neotypes of *S. tringa* from *Erolia maritima* ; *S. arctica* can, therefore, be considered as a synonym of *tringae* (Fabricius).

This species is distinguished from other *Saemundssonina* on the Charadrii by the size and shape of the head (Pl. 11, fig. 6) and anterior plate (clypeal signature) (Text-fig. 40) and by the male genitalia (Text-figs. 42-44). The tergal plates of abdominal segment II are joined medianly in both sexes and the dorsal abdominal setae do not form a continuous line across each segment, occurring only along the posterior margins of the tergal plates. In the male genitalia there is a sclerotized cross-bar at the distal end of the basal plate and the endomeral projections are fused medianly (Text-fig. 42).



FIGS. 40, 41.—*Saemundssonina tringae* (O. Fabricius). 40. Anterior region of male head, dorsal. 41. Terminal segments of female abdomen.

MEASUREMENTS IN MM. :

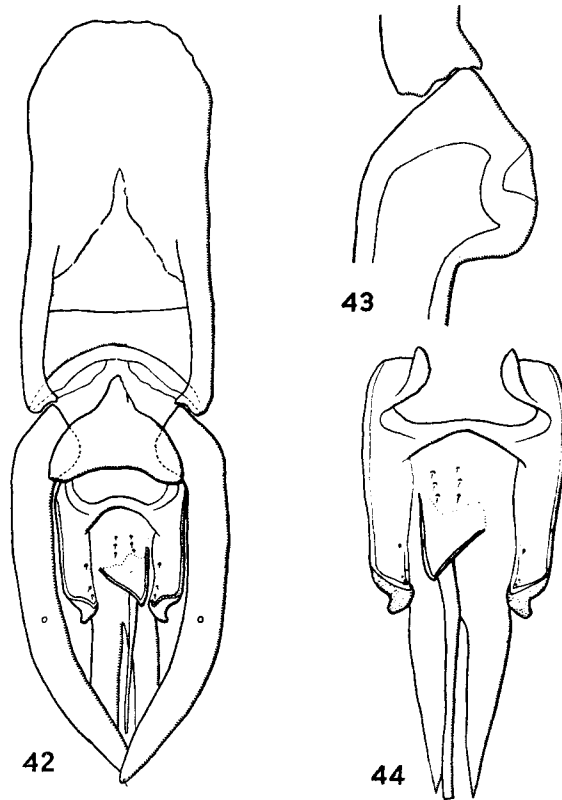
	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.55	0.51	0.62	0.59
Prothorax . . .	—	0.28	—	0.33
Pterothorax . . .	—	0.38	—	0.47
Abdomen . . .	0.75	0.65	0.97	0.83
Total . . .	1.47	—	1.67	—
Genitalia . . .	0.43	—	—	—

*Neotype* male (Text-figs. 40, 42-44, Pl. 11, fig. 6) and *neallotype* female (Text-fig. 41) of *Saemundssonina tringae* (O. Fabricius) in the Meinertzhagen Collection (British Museum (Nat. Hist.)), slide no. 2346, from *Erolia maritima* (Brünnich) from Scotland. *Neoparatypes* : 16 males and 16 females from the same host species from the British Isles, Spitzbergen and Finland.

Lectotype of *Saemundssonina arctica* (Mjöberg): ♂ in the Naturhistoriska Riksmuseum, Stockholm, from "*Tringa* sp. (*maritima*?) from Lilla Pendulum-Ön" (6.vii.1899).

*Pediculus hiaticulae* (p. 220)

The host is *Charadrius hiaticula*, and the only points of much value in the description are that the head is triangular, the oblong body sublinear and the whole insect mouse-coloured, but this description is sufficient to give us the genus at once, for the



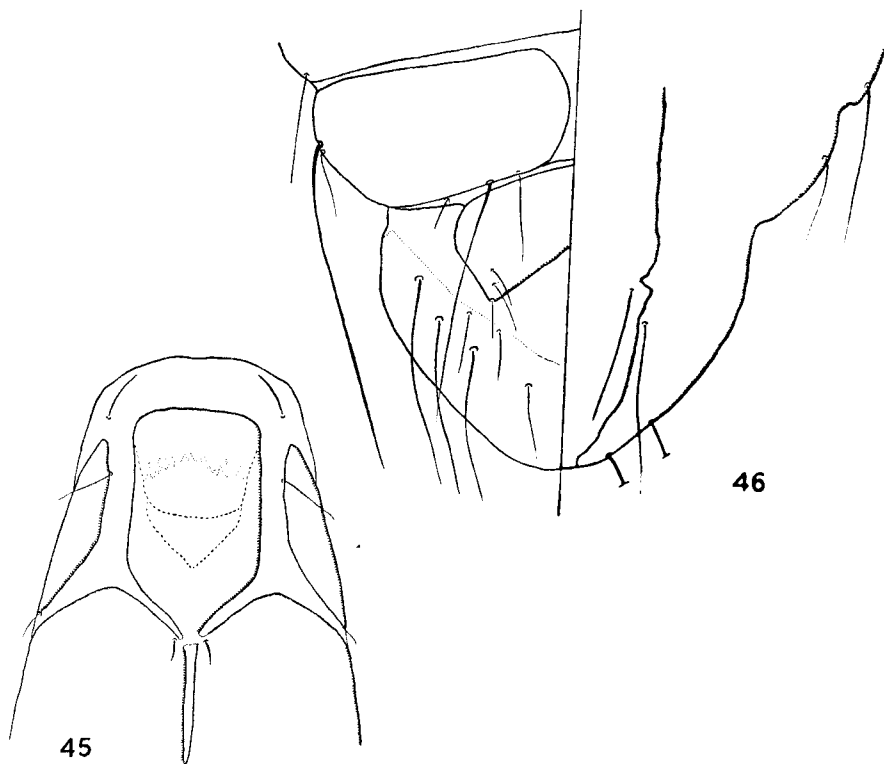
FIGS. 42-44.—*Saemundssonina tringae* (O. Fabricius). 42. Male genitalia. 43. Head of paramere. 44. Mesosome enlarged (from another specimen).

only genus occurring on the genus *Charadrius* in which the body could possibly be described as sublinear is *Quadriceps*. Two species of this genus occur on *Charadrius hiaticula*, and both are fairly common; *Quadriceps fissus* (Burmeister) is a relatively stout species, while the other is very slender. This latter species was discussed at some length by Waterston (1915: 35) without his being able to find a satisfactory name for it, but Hopkins (1942: 115) expressed the opinion that the slender species is *Quadriceps hiaticulae* (O. Fabricius). As Fabricius describes his species as sublinear we think there can be no question that this is the species he had before him,

and we reject Harrison's placing of *fissus* Burmeister as a synonym (Harrison : 1916 : 15, 113). Harrison ascribes the authorship to Müller, but the latter only mentioned *Pediculus hiaticulae* as a *nomen nudum*, so the author is Fabricius.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . . . .	0·42	0·23	0·42	0·23
Prothorax . . . . .	—	0·17	—	0·18
Pterothorax . . . . .	—	0·25	—	0·24
Abdomen . . . . .	1·16	0·31	1·26	0·30
Total . . . . .	1·83	—	1·90	—
Genitalia . . . . .	0·36	—	—	—



FIGS. 45, 46.—*Quadraceps hiaticulae* (O. Fabricius). male. 45. Anterior region of head, dorsal. 46. Terminal segments of abdomen.

*Neotype* male (Text-figs. 45-50; Pl. 12, fig. 1) and *neallotype* female (Text-fig. 51, Pl. 12 fig. 2) of *Quadraceps hiaticulae* (O. Fabricius) in the Meinertzhagen Collection (British Museum (Nat. Hist.)), slide no. 10514, from *Charadrius h. hiaticula* Linn. from Ireland. *Neoparatypes* : 116 males and 159 females from the same host form from the British Isles and 17 males and 9 females from *Charadrius h. tundrae* (Lowe) from the Sudan.



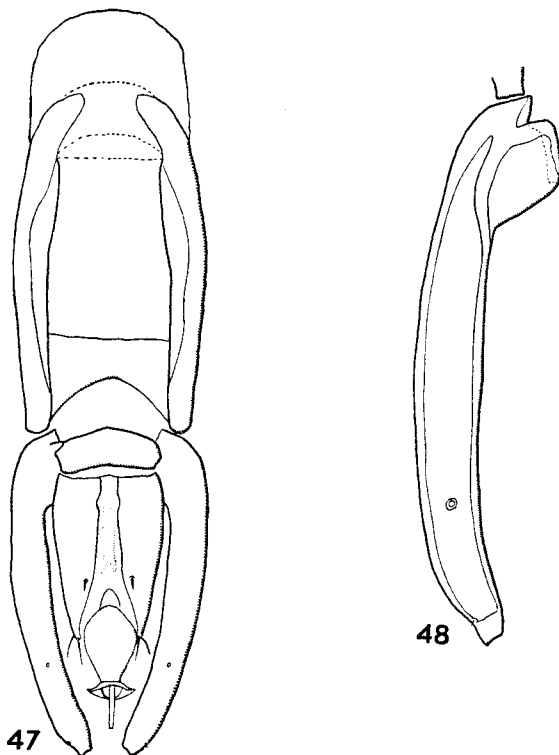
***Pediculus lagopi*** (p. 220)

This appears to be a redescription of Linné's species of the same name and the host (*Tetrao lagopus*) is also the same.

J. C. FABRICIUS, 1781

(*Species Insectorum* . . . Hamburgi & Kilonii, Vol. 2, pp. 478-484)

This is little more than a list of names, and all the new names proposed in it have already been discussed. It need not detain us.



FIGS. 47, 48.—*Quadriceps hiaticulae* (O. Fabricius). 47 Male genitalia. 48. Paramere.

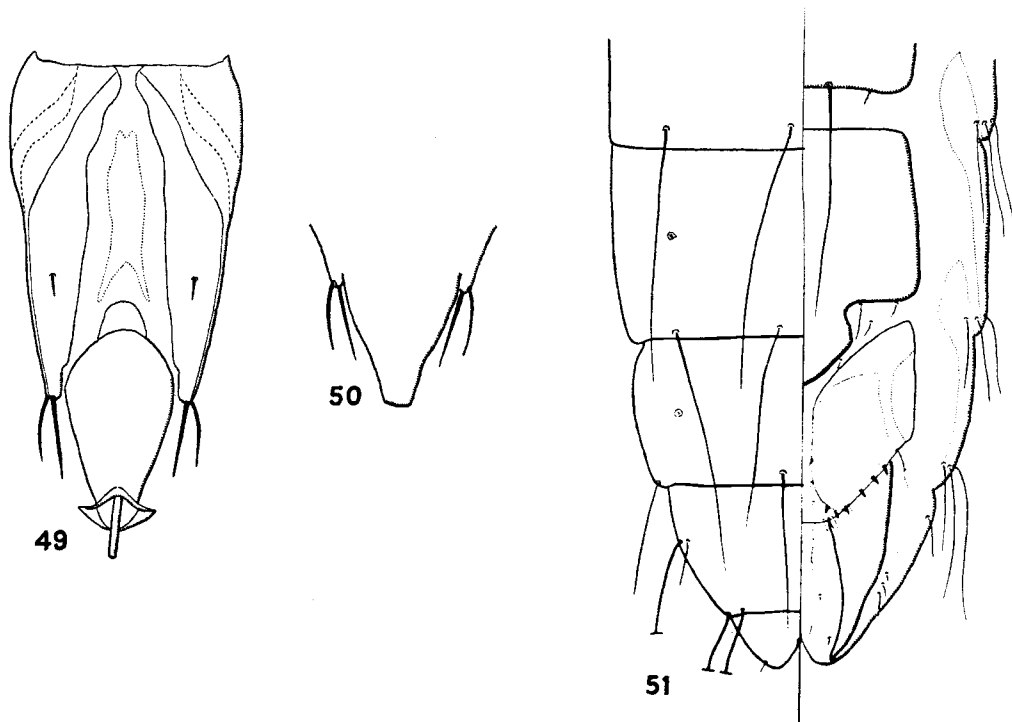
SCHRANK, 1781

(*Enumeratio insectorum Austriae indigenorum. Augustae Vindelicorum,*  
pp. 499-507, pl. I.)

We must confess to a great feeling of relief in getting away from the work of J. C. and O. Fabricius to that of Schrank, for (as before) his descriptions are for the most part accurate and are nearly all accompanied by figures which enable his species to be easily recognized.

***Pediculus porcelli*** (p. 500, Pl. I, fig. 1)

After being mentioned by Linné without indication, definition or description, this name was copied by almost every author with whom we have dealt, still as a *nomen nudum*, until Schrank finally described the species. The host is *Mus Porcellus*, the description is good and the figure excellent, considering the date. Schrank himself (1803 : 186) renamed the species *Pediculus saviae*, Olfers (1816 : 83) redescribed it as *Pediculus bifurcatus*, and Nitzsch (1818 : 304) proposed *Gyropus gracilis* as a *nomen novum* for it. Later authors have either used Nitzsch's name or referred the name *porcelli* to Linné, but the authorship of this name must be ascribed to Schrank.



FIGS. 49, 50.—*Quadriceps hiaticulae* (O. Fabricius). 49. Mesosome, ventral. 50. Distal end of mesosome, dorsal.

FIG. 51.—*Quadriceps hiaticulae* (O. Fabricius), terminal segments of the female abdomen.

The species has been excellently described and figured by Werneck (1936 : 398-402, figs. 1-9), and our neotypes agree with his description and figures.

*Neotype* male and *neallotype* female of *Gliricola porcelli* (Schrank) in the British Museum (Nat. Hist.) Collection (slides nos. 584-5) from tame guinea-pig, *Cavia porcellus* (Linn.), from Rio de Janeiro, Brazil. *Neoparatypes* : 14 males and 30 females from the same host species from Brazil, British Isles and S. Africa.

***Pediculus ovis*** (p. 502, Pl. I, figs. 8, 9)

This is a somewhat similar case to that of *porcelli*, since Linné mentioned the name without description and with only a queried reference to Redi, which does not save

the name from being a *nomen nudum*. In passing it seems worth mentioning that the presence of the query suggests very strongly that what Linné had before him was not Redi's insect, for the latter's figure is not at all bad; we suspect that Linné may have had a sucking louse. In any case the authorship of *ovis* must be assigned to Schrank.

The host is *Ovis aries* (domestic sheep) and the species is well known. Schrank (1803: 187) renamed it *Pediculus ovisarietis*, Olfers (1816: 85) described it as *Pediculus sphaerocephalus*, and Nitzsch (1818: 296) proposed the new name *Trichodectes sphaerocephalus* for "Ped. Ovis Linn. Fabric." (*nomina nuda*), Schrank's species and the left-hand figure on Redi's pl. 22. Our neotypes of *ovis* Schrank are also automatically neotypes of the *nomina nova* proposed by Schrank (1803) and Nitzsch (1818), but are not neotypes of *sphaerocephalus* Olfers because this has an independent description.

The species has been excellently described and figured by Werneck (1936: 537-540, figs. 169-174), and the neotypes agree with his figures and description.

*Neotype* male and *neallotype* female of *Damalinia ovis* (Schrank) in the British Museum (Nat. Hist.) Collection (slides nos. 586-7) from domestic sheep, *Ovis aries* Linn. from Rio de Janeiro, Brazil. *Neoparatypes*: 29 males and 37 females from the same host species from Brazil, E. Africa and New South Wales, Australia.

#### *Pediculus anatis* (p. 503, Pl. 1, figs. 2, 3)

The excellent description and the figures represent an *Anaticola*, and there is a reference to the upper figure of Redi's plate 10, which is *Anaticola anseris* (Linn.). The host is given as *Anas boschas varietas fera* (= *Anas p. platyrhynchos*), but fig. 2 of the plate is labelled *P. anseris*, which perhaps means that this specimen was taken from a goose. There can be little doubt that *anatis* Schrank is a mixture of *Anaticola anseris* (Linn.) and *A. crassicornis* (Scopoli), and it is probably the basis for Olfers' record of both *Anas* and *Anser* as hosts of the latter species and the subsequent appearance in the literature of a non-existent "*crassicornis* Olfers." In view of Schrank's host-record and choice of specific name, *anatis* must be held to apply primarily to *Anaticola crassicornis* (Scopoli), of which it is a synonym.

*Neotype* male of *Anaticola anatis* (Schrank) in the Meinertzhagen Collection (British Museum (Nat. Hist.)), slide no. 4242, from *Anas p. platyrhynchos* Linn. from N.E. Poland. This specimen agrees with the description and figures (Clay & Hopkins, 1951: 17) of *A. crassicornis* (Scopoli).

#### *Pediculus ortyometrae* (p. 503)

This species, from *Rallus Crex* = *Crex crex* (Linn.), is not figured and the description is most unsatisfactory. The species was identified by Burmeister (1838: 428) and by Denny with Nitzsch's manuscript name *Nirmus attenuatus*, and there are important reasons why this identification should be accepted if at all possible. The position is that *attenuatus* first appeared in print (Nitzsch, 1818: 291) as a *nomen nudum*, a reference to *Pediculus ortyometrae* Schrank being queried. Burmeister gave no description of the insect but included the same reference without the query,

thus making *Nirmus attenuatus* Burmeister a *nomen novum* for *P. ortygometae* Schrank. Denny (1842: 52, 134, Pl. 10, fig. 2) described material from *Crex pratensis* (= *Crex crex* (Linn.)) as *Nirmus attenuatus* "Nitzsch," and "*N. attenuatus* Nitzsch" as subsequently described by Giebel from Nitzsch's manuscript (1874: 170, Pl. 6, fig. 1) appears to be congeneric with Denny's species. To interpret *P. ortygometae* otherwise than was done by Burmeister and by Denny would raise serious difficulties with regard to the type species of *Rallicola*.

Schrank's description of *ortygometae* is as follows: "Insectum oblongum. Caput cordatum, parte acuminata ab abdomine aversa; antennae breves moniliformes. Thorax angustus, longus apice latior, apicis medio productiore. Abdominis segmenta, demta thorace octo setosa, utrinque spiraculis magnis maculatis instructa. Pedes thoraci affici, articulis tribus elliptoidibus constant, articulo tertio acuto, breviori. In capite varia transparent intestina; ejusque apices utrinque setam longiusculam emittunt."

We considered the possibility that the various internal structures appearing in the head might be the conspicuous gular plate of *Pseudomenopon*, but this genus is excluded by the cordate head and the fact that the "apex" of the thorax is stated to be produced in the middle. We think *Fulicoffula* to be excluded by the statement that the insect is oblong and by the cordate head. *Incidifrons* is not known from *Crex crex*, but we have examined *I. fulicae* (Linn.) and this, in common with *Pseudomenopon*, has two long setae arising from the temporal angles (Schrank's "apices" of the head), whereas *Rallicola* has only one. Summing up, the whole of the very vague description could apply to *Rallicola* and the presence of only one long temporal seta is peculiar to this genus. It is legitimate to use as confirmation the fact that *Rallicola* is common on *Crex crex* and the other genera rare or unknown.

This species is distinguished from *R. cuspidatus* (Scopoli) (see Clay & Hopkins, 1951: 25) by the shape of the head in both sexes, the absence of marked sexual dimorphism of the antennae, the male genitalia and the female genital region.

#### MEASUREMENTS IN MM.:

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.44	0.33	0.45	0.33
Prothorax . .	—	0.22	—	0.22
Pterothorax .	—	0.29	—	0.28
Abdomen . . .	0.86	0.42	0.92	0.42
Total . . . .	1.53	—	1.66	—
Genitalia . .	0.28	—	—	—

*Neotype* male (Text-figs. 52, 53) and *neallotype* female (Text-figs. 54, 55) of *Rallicola ortygometae* (Schrank) in the British Museum (Nat. Hist.) Collection (slide nos. 570-1) from *Crex crex* (Linn.) from Scotland. *Neoparatypes*: 5 males and 3 females from the same host species from Scotland and France.

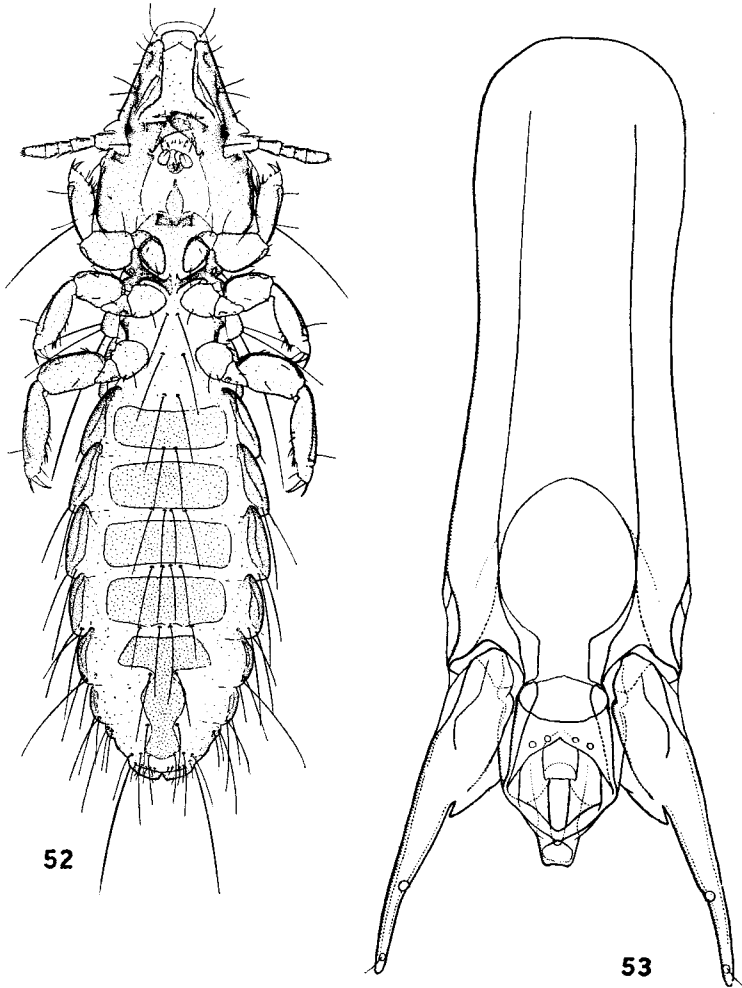
The material described by Denny as *Nirmus attenuatus* "Nitzsch" (one male in the British Museum (Nat. Hist.) Denny Collection) agrees with the neotype of *Ralli-*

*cola ortygometae* (Schrank). There are no specimens of "*Oncophorus attenuatus* N.," as described by Piaget (1880: 214, Pl. 18, fig. 1) in the Piaget Collection in the British Museum (Nat. Hist.).

FOURCROY, 1785

(*Entomologia Parisiensis*, Paris. Part 2, pp. 517-522)

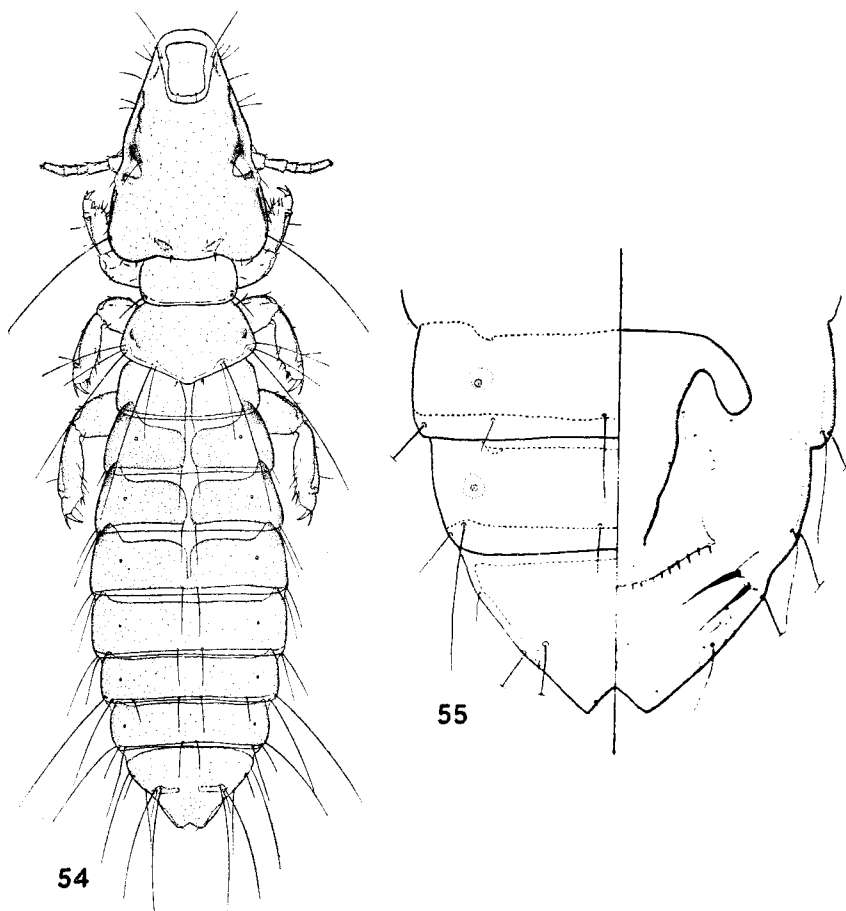
The section of this work which deals with Anoplura and Mallophaga is in two different parts; pages 517-519 contain a list of species of *Pediculus*, sometimes with



FIGS. 52, 53.—*Rallicola ortygometae* (Schrank). 52. Male. 53. Male genitalia.

brief descriptions or quotations of the descriptions of other authors (whose names are not mentioned), and all the names are in valid binomial form. But on pages 520-522, under a separate heading "pediculi Rhedi & Linnaei" there is a list in which every name which is not a *nomen nudum* is a descriptive phrase and has a partial

duplicate: "*Pediculus accipitris, abdomine oblongo*" and "*Pediculus accipitris, abdomine ovato,*" for instance. We conclude that these phrases on pp. 520-522 are not to be taken as names and are only in Latin because the whole work is in that language. On the other hand, the names on pp. 517-519 are undoubtedly valid and must be dealt with, because in three instances Geoffroy's descriptive phrases are first shortened to valid form in this work.



FIGS. 54, 55.—*Rallicola ortygometrae* (Schrank). 54. Female. 55. Terminal segments of female abdomen.

### *Pediculus circi* (p. 518)

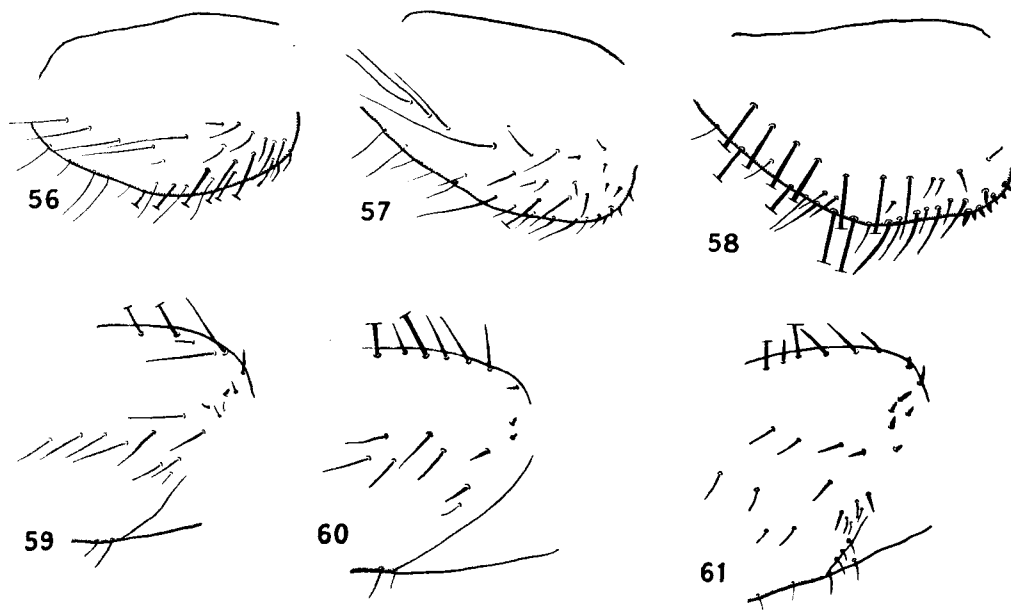
Proposed for Geoffroy's *Pediculus circi, fuscus oblongus* . . . , the identity of which has already been briefly discussed (Clay & Hopkins, 1950 : 270). Geoffroy's host-record is "Busard des marais, *circus* Bellon" (= *Circus aeruginosus* (Linn.)).

The same species was named *Pediculus milvi* by Schrank (1803 : 193); *Liotheum* (*Laemobothrion*) *giganteum* Nitzsch (1818 : 301) is composite and we shall restrict

the name to the present species. *L. nigrolimbatum* Giebel was described from specimens taken from *Circus cineraceus* (= *C. pyargus* (Linn.)) and *Circus aeruginosus*, and in view of the loss of the types is best assumed to be the same as *circi* (Fourcroy).

The species of *Laemobothrion* from the Falconiformes can be divided into three main groups as follows (see also Kéler, 1937, and Eichler, 1943) :

1. Gular setae and lateral setae on prosternal plate absent . . . . . *tinnunculi* group.
- Gular setae and lateral setae on prosternal plate present . . . . . 2.
2. Majority of abdominal tergites with central uncoloured area (Text-fig. 68)  
(*vulturis* group) 3.
- Abdominal tergites without such areas . . . . . *maximum* group.
3. Lateral margins of anterior abdominal segments with dark, stout spine-like setae . . . . . *glutinans* N.
- Lateral margins of anterior abdominal segments without such setae  
rest of *vulturis* group.



FIGS. 56-58.—Posterior setae of 1st femur. 56. *Laemobothrion tinnunculi* (Linn.)  
57. *L. circi* (Fourcroy), 58. *L. vulturis* (J. C. Fabricius).

FIGS. 59-61.—Proximal part of 2nd femur. 59. *L. tinnunculi*. 60. *L. circi*. 61. *L. vulturis*.

In addition the members of the *tinnunculi* group have the shape of the head distinctive, have only a few setae on the anterior margin of the prothorax, and never have a complete vertical line of setae along the outer edges of the patches of minute comb-like structures on abdominal sternites IV-V.<sup>1</sup> The *vulturis* group is further characterized by the presence in the female of a lateral pigmented spot each side posterior to the vulva (Text-fig. 67, x), and by the presence in both sexes of dark, stout spine-like setae on the margin of the first femur and on the margin and dorsal

<sup>1</sup> These are similar to those found in *Microtenia*.

surface of the proximal part of the second femur (Text-figs. 58, 61); the third femur may or may not have these setae. In general, members of the *vulturis* group tend to be larger and to have a greater number of stouter setae. In the *maximum* group some forms have (Text-figs. 57, 60) a few of these spine-like setae on the femora, smaller than those of the *vulturis* group; in the *tinnunculi* group the second femur

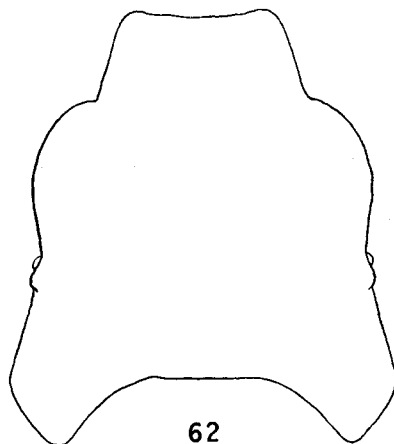
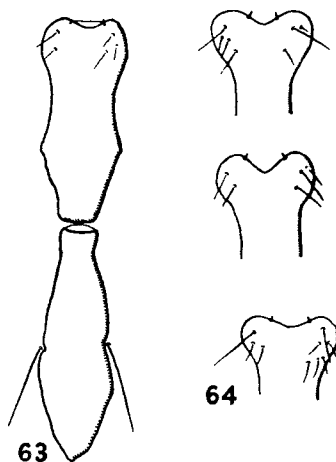


FIG. 62.—*Laemobothrion cirsi* (Fourcroy), male head, dorsal.



FIGS. 63, 64.—*Laemobothrion cirsi* (Fourcroy). 63. Female prosternal and meso-metasternal plates (unmounted specimen). 64. Proximal part of prosternal plates of three individuals to show variation in shape and number of setae (mounted canada balsam).

(only) may have one or two small spine-like setae (Text-figs. 56, 59). Each of these groups will probably prove to be a polytypic species, the subspecies of which seem to be distinguished by the colour pattern (apparently correlated to a certain extent with the plumage colour of the host), the shape of the gular plate, the number and



size of the setae, and the total length in the females. There is some individual variation in the numbers of gular and lateral setae of the prosternal plate which makes these characters unreliable for the separation of related forms; similarly the shape of the prosternal plate tends to vary (Text-figs. 63, 64). The position of the setae on the meso-metasternal plate (see Eichler, 1943 : 210) is also variable, due to variation in the posterior prolongation of this plate. The shape and size of the head, even where the total length is a distinguishing character, tend to be similar in related forms. It seems doubtful whether the male genitalia show any differences throughout the members of one group, but a greater amount of material is necessary in order to judge the amount of variation in the shape of the sclerites within populations from one host species.

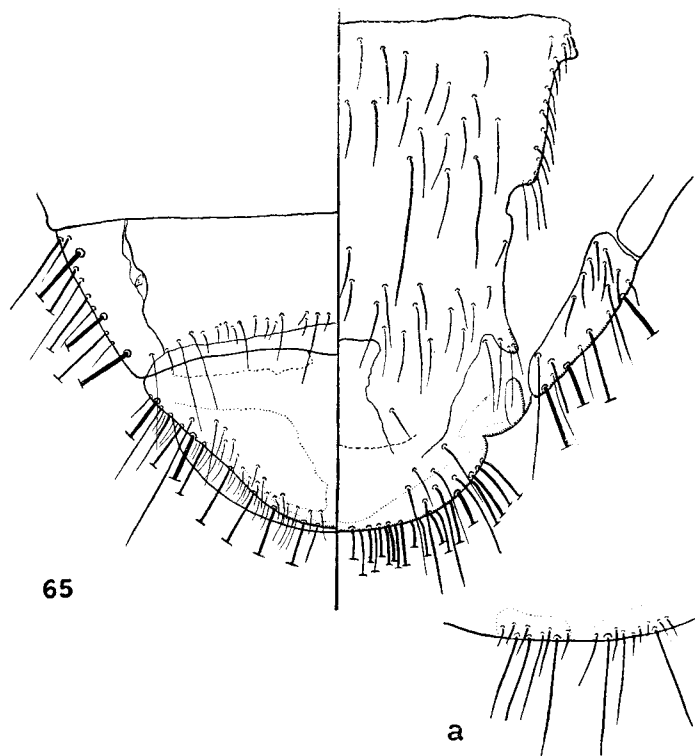


FIG. 65.—*Laemobothrion circi* (Fourcroy) male, terminal segments of abdomen.  
a. Anus (internal).

Of the four species described up to this date—1785—*L. tinnunculi* (Linn.) is quite distinctive (see Clay & Hopkins, 1950 : 228). *L. vulturis* (J. C. Fabricius) was re-described (Clay & Hopkins, 1951 : 33) from a small amount of mounted material, but now through the kindness of Mr. B. K. Tandan (University of Lucknow) it has been possible to examine fresh material of this species and thus to amplify the descriptions and figures. It differs from other forms parasitizing the Aegyptiinae mainly in size and possibly in colour pattern, but the available specimens of *Laemobothrion*

from this subfamily are not in a condition to show this last character fully. The number and size of the setae tend to be greater in both sexes than in *circi* (cf. Text-figs. 66 and 67), but there is considerable individual variation in this character. In our first description (1951 : 34) it was suggested that the number of lateral prosternal setae was a diagnostic character, but the number of these in *L. vulturis* may vary, as shown for the following 4 males and 4 females (setae on left and right side of each prosternal plate) :

Male . . . . .	4 + 5 ; 4 + 3 ; 5 + 3 ; 7 + 6
Female . . . . .	3 + 4 ; 4 + 6 ; 6 + 7 ; 7 + 6

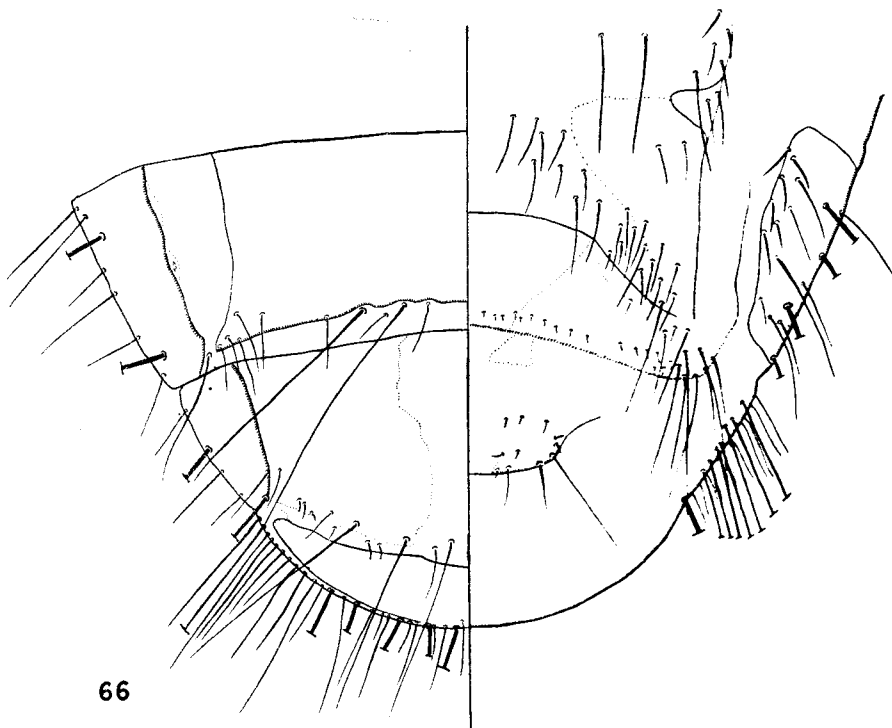


FIG. 66.—*Laemobothrion circi* (Fourcroy) female, terminal segments of abdomen.

This species has the form of the tergal plates (Text-figs. 68) and femoral setae (Text-figs. 58, 61) characteristic of the *vulturis* group. *L. maximum* (Scopoli) (see Clay & Hopkins, 1951 : 34) and *L. circi* (Fourcroy) belong to the *maximum* group, but owing to lack of material of *maximum* the differences (if any exist) between these two forms cannot be given. *L. circi* differs from *L. titan* Piaget (host: *Milvus m. migrans*) in the lesser degree of pigmentation and in the female by the shorter abdomen. In both sexes of *circi* abdominal tergites I–IV show signs of a median division.

## MEASUREMENTS IN MM. :

	Male		Female	
	Length	Breadth	Length	Breadth
Head (midline)	1.44	—	1.52	—
(laterally)	1.70	1.54	1.78	1.65
Prothorax	—	1.20	—	1.37
Pterothorax	—	1.63	—	1.87
Abdomen	4.95	2.20	6.00	2.80
Total	8.15	—	9.40	—
Genitalia	2.20	—	—	—

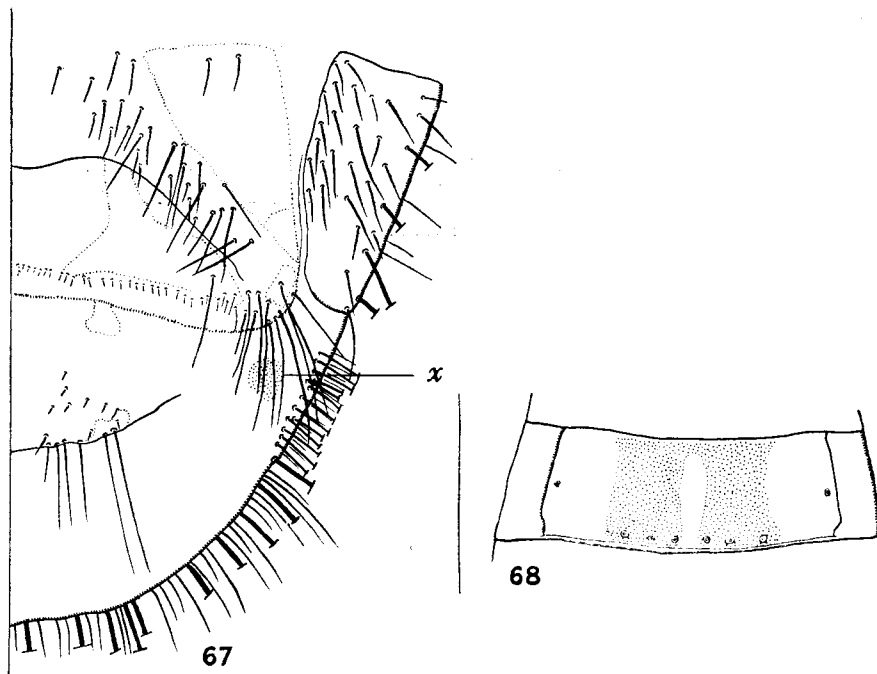


FIG. 67.—*Laemobothrion vulturis* (J. C. Fabricius), Terminal segments of female abdomen, ventral. *x*. Post-vulval pigmented area.

FIG. 68.—*Laemobothrion vulturis* (J. C. Fabricius), third abdominal tergite, female.

*Neotype* male (Text-figs. 62, 65; Pl. 12, figs. 3, 4) and *neallotype* female (Text-figs. 57, 60, 63, 64, 66; Pl. 12, fig. 5) of *Laemobothrion circi* (Fourcroy) in the British Museum (Nat. Hist.) Collection (slide no. 609) from *Circus a. aeruginosus* (Linn.) from Kenya. *Neoparatypes*: 26 males and 20 females from the same host form from Kenya, Yugoslavia and India.

***Pediculus passeris*** (p. 519)

A binomial name for Geoffroy's descriptive phrase "*Pediculus subflavescens* : *abdomine ovato* . . ." (see Clay & Hopkins, 1950 : 270), but with a brief description which may perhaps be independent. The point is not of much importance, as

both descriptions clearly indicate a *Philopterus* and the host is the same: "moineau franc" (= *Passer domesticus*).

The earliest name for the *Philopterus* from *Passer domesticus* is *P. fringillae* (Scopoli) (see Clay & Hopkins, 1951: 32) and *passeris*, therefore, becomes a synonym of this latter name.

*Neotype* male of *Philopterus passeris* (Fourcroy) in the Meinertzhagen Collection (British Museum (Nat. Hist.)), slide no. 15778 from *Passer d. domesticus* (Linn.) from Cornwall, England. This specimen agrees with the figures and description (Clay & Hopkins, 1951: 32; fig. 43; Pl. 3, fig. 3) of *P. fringillae* (Scopoli).

### *Pediculus corvi* (p. 519)

Proposed for Geoffroy's "*Pediculus albo nigroque varius* . . ." The host is "corbeau," which may mean crow or raven, though usually the latter. Geoffroy's species is certainly a *Philopterus*.

*Philopterus corvi* (Fourcroy) is preoccupied both in *Pediculus* and in *Philopterus*, for if not the same as *Philopterus corvi* (Linn.) it is a homonym of the latter. It is therefore unnecessary to try to fix it more closely.

MOHR (N.), 1786

(*Forsøg til en Islandsk Naturhistorie*. Kiøbenhavn)

### *Pediculus procellariae* (p. 103)

There is a short Latin description but no host-record other than that provided by the name, which is preoccupied by *Pediculus procellariae* J. C. Fabricius, 1775.

We consider *Pediculus procellariae* Mohr, 1786, *nec* J. C. Fabricius, to be completely unrecognizable.

### ACKNOWLEDGMENTS

We are indebted to the Trustees of the British Museum for permission to publish Text-figs. 12, 33, 53, drawn by Mr. A. J. E. Terzi, to the Zoological Society of London for permission to publish figures 52-55, and to Colonel Meinertzhagen for permission to publish Text-figs. 29 and 31, drawn by Mr. R. S. Pitcher. Text-figs. 5 and 18 were drawn by Mr. A. Smith, and the remaining figures by Miss T. Clay.

TABLE I.—*Breadth (in mm.) of Head at Temples of Male Philopterus populations with Number of Specimens.*

	0.45-0.46	0.47-0.48	0.49-0.50	0.51-0.52
<i>citrinellae</i> . . .	3	22	2	—
<i>curvirostrae</i> . . .	1	16	4	—
<i>pyrrhulae</i> . . .	—	2	4	6
<i>chloridis</i> . . .	—	18	6	2

TABLE II.—*Breadth (in mm.) of Head of Female Philopterus populations with Number of Specimens*

	0.47-0.48	0.49-0.50	0.51-0.52	0.53-0.54	0.55-0.56	0.57-0.58	0.59-0.60
<i>citrinellae</i>	I	3	6	16	4	—	—
<i>curvirostrae</i>	—	I	II	12	4	I	—
<i>pyrrhulae</i>	—	2	3	2	5	19	I
<i>chloridis</i>	—	2	I	7	8	12	—

## LIST OF SPECIES

The synonymy of the following names has been established :

Specific name	Present status	Page.
<i>agonum</i> Nitzsch	<i>Ricinus rubeculae</i> (Schrank)	224
<i>alaudae</i> Schrank	<i>Menacanthus alaudae</i> (Schrank)	224
<i>anatis</i> Schrank	<i>Anaticola crassicornis</i> (Scopoli)	225
<i>arcticus</i> Mjöberg	<i>Saemundssonina tringae</i> (O. Fabricius)	249
<i>attenuatus</i> Burmeister	<i>Rallicola ortyometrae</i> (Schrank)	255
<i>bassani</i> O. Fabricius	<i>Pectinopygus bassani</i> (O. Fabricius)	247
<i>bifurcatus</i> Olfers	<i>Gliricola porcelli</i> (Schrank)	254
<i>canis</i> De Geer	<i>Trichodectes canis</i> (De Geer)	243
<i>canis</i> O. Fabricius	<i>Trichodectes canis</i> (De Geer)	244
<i>chloridis</i> Schrank	<i>Philopterus citrinellae</i> (Schrank)	229, 232
<i>circi</i> Fourcroy	<i>Laemobothrion circi</i> (Fourcroy)	258
<i>citrinellae</i> Schrank	<i>Philopterus citrinellae</i> (Schrank)	227, 232
<i>clangulae</i> O. Fabricius	<i>Anaticola clangulae</i> (O. Fabricius)	246
<i>communis</i> Nitzsch	<i>Philopterus citrinellae</i> (Schrank)	228
<i>compar</i> Piaget	<i>Philopterus curvirostrae</i> (Schrank)	229
<i>cornicis</i> De Geer	<i>Myrsidea cornicis</i> (De Geer)	237
<i>curuccae</i> Schrank	<i>Menacanthus curuccae</i> (Schrank)	223
<i>curvirostrae</i> Schrank	<i>Philopterus curvirostrae</i> (Schrank)	229, 232
<i>emberizae</i> De Geer	<i>Philopterus citrinellae</i> (Schrank)	237
<i>fringillae</i> De Geer	<i>Ricinus fringillae</i> De Geer	235
<i>gallinae</i> De Geer	<i>Goniocotes gallinae</i> (De Geer)	242
<i>giganteum</i> Nitzsch	<i>Laemobothrion circi</i> (Fourcroy)	258
<i>globifer</i> Olfers	<i>Philopterus citrinellae</i> (Schrank)	228
<i>gracilis</i> Nitzsch	<i>Gliricola porcelli</i> (Schrank)	254
<i>grylle</i> O. Fabricius	<i>Saemundssonina grylle</i> (O. Fabricius)	247
<i>hiaticulae</i> O. Fabricius	<i>Quadriceps hiaticulae</i> (O. Fabricius)	251
<i>hologaster</i> Nitzsch	<i>Goniocotes gallinae</i> (De Geer)	242
<i>lari</i> De Geer	<i>Trinoton quercedulae</i> (Linn.)	239
<i>lari</i> O. Fabricius	<i>Saemundssonina lari</i> (O. Fabricius)	248
<i>lariphaga</i> Timmermann	<i>Saemundssonina lari</i> (O. Fabricius)	248
<i>latus</i> Nitzsch	<i>Trichodectes canis</i> (De Geer)	244
<i>leontodon</i> Nitzsch	<i>Sturmidoecus sturni</i> (Schrank)	232
<i>megacephalus</i> Denny	<i>Saemundssonina grylle</i> (O. Fabricius)	247
<i>mergi</i> J. C. Fabricius	<i>Anaticola c. mergiserrati</i> (De Geer)	241
<i>mergiserrati</i> De Geer	<i>Anaticola c. mergiserrati</i> (De Geer)	240
<i>mesoleucum</i> Nitzsch	<i>Myrsidea cornicis</i> (De Geer)	237
<i>milvi</i> Schrank	<i>Laemobothrion circi</i> (Fourcroy)	258

Specific name	Present status	Page
<i>minutum</i> Nitzsch . . . . .	<i>Menacanthus curuccae</i> (Schrank) . . . . .	223
<i>nigrolimbatum</i> Giebel . . . . .	<i>Laemobothrion circi</i> (Fourcroy) . . . . .	259
<i>nitidissimus</i> Nitzsch . . . . .	<i>Ricinus fringillae</i> De Geer . . . . .	236
<i>ortyometrae</i> Schrank . . . . .	<i>Rallicola ortyometrae</i> (Schrank) . . . . .	255
<i>ovis</i> Schrank . . . . .	<i>Damalimia ovis</i> (Schrank) . . . . .	254
<i>ovisarietis</i> Schrank . . . . .	<i>Damalimia ovis</i> (Schrank) . . . . .	255
<i>parviceps</i> Piaget . . . . .	<i>Menacanthus alaudae</i> (Schrank) . . . . .	226
<i>passeris</i> Fourcroy . . . . .	<i>Philopterus fringillae</i> (Scopoli) . . . . .	263
<i>phasiani</i> J. C. Fabricius . . . . .	<i>Chelopistes phasiani</i> (J. C. Fabricius) . . . . .	234
<i>porcelli</i> Schrank . . . . .	<i>Gliricola porcelli</i> (Schrank) . . . . .	254
<i>procellariae</i> Mohr . . . . .	Unrecognisable . . . . .	264
<i>perocephalus</i> Olfers . . . . .	<i>Ricinus rubeculae</i> (Schrank) . . . . .	224
<i>pyrrhulae</i> Schrank . . . . .	<i>Philopterus citrinellae</i> (Schrank) . . . . .	229, 232
<i>pyrrhulae</i> Piaget . . . . .	<i>Philopterus citrinellae</i> (Schrank) . . . . .	229
<i>rubeculae</i> Schrank . . . . .	<i>Ricinus rubeculae</i> (Schrank) . . . . .	223
<i>saviae</i> Schrank . . . . .	<i>Gliricola porcelli</i> (Schrank) . . . . .	254
<i>sphaerocephalus</i> Olfers . . . . .	<i>Damalimia ovis</i> (Schrank) . . . . .	255
<i>sphaerocephalus</i> Nitzsch . . . . .	<i>Damalimia ovis</i> (Schrank) . . . . .	255
<i>sturni</i> Schrank . . . . .	<i>Sturnidoecus sturni</i> (Schrank) . . . . .	232
<i>subaequalis</i> Haan . . . . .	<i>Myrsidea cornicis</i> (De Geer) . . . . .	238
<i>temporalis</i> Nitzsch . . . . .	<i>Anaticola c. mergiserrati</i> (De Geer) . . . . .	241
<i>tringae</i> Fabricius . . . . .	<i>Saemundssonina tringae</i> (O. Fabricius) . . . . .	249

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EXPLANATION OF PLATES

PLATE 10

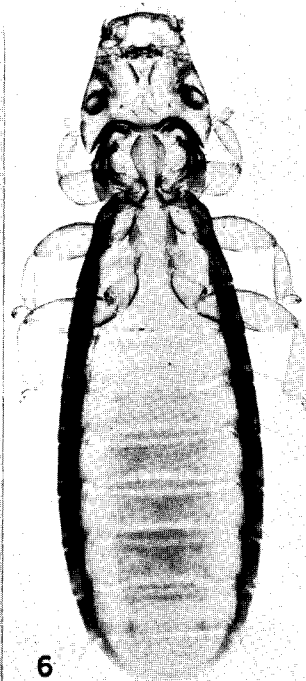
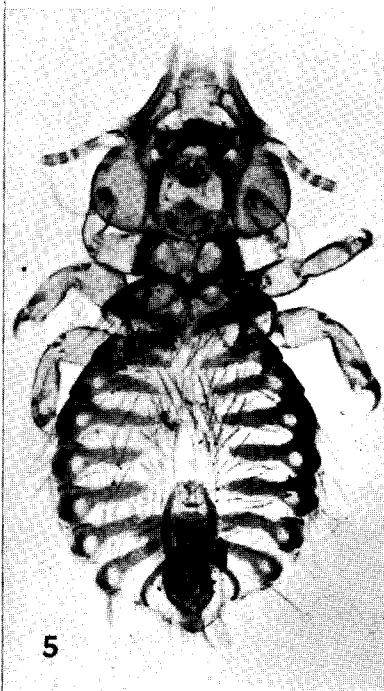
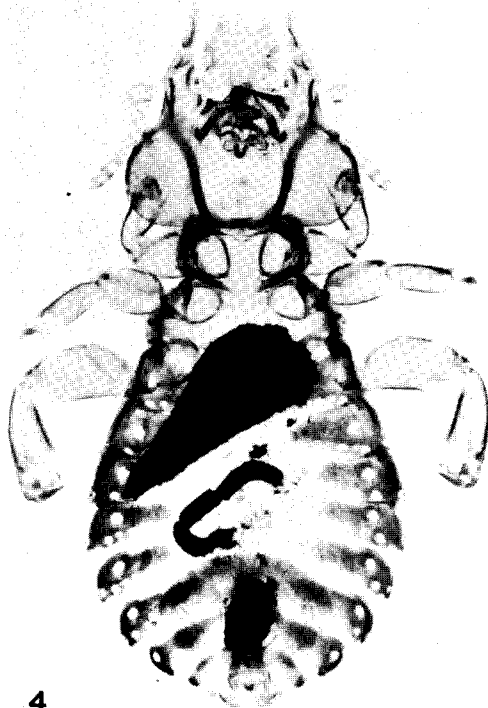
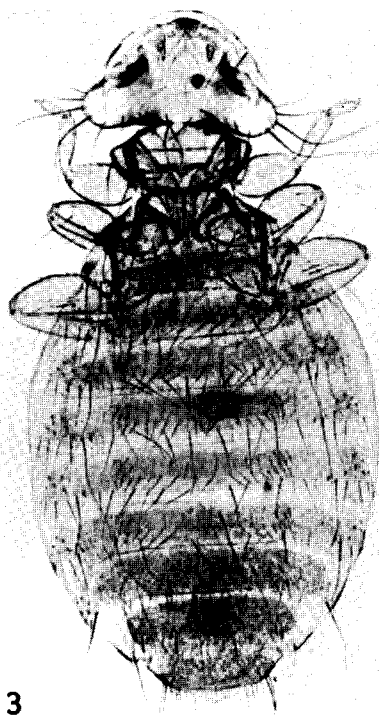
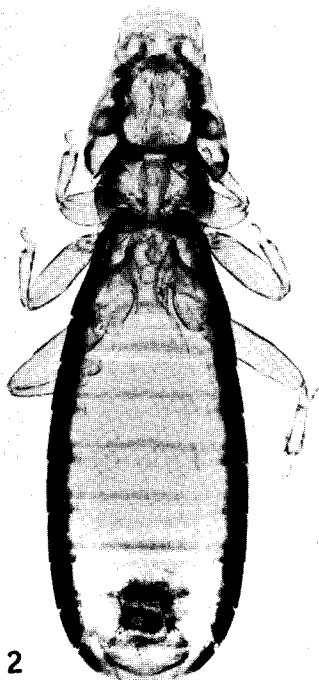
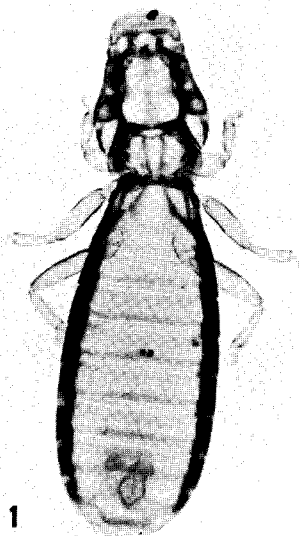
- FIG. 1. *Ricinus rubeculae* (Schrank), ♂. × 28.  
FIG. 2. *Ricinus rubeculae* (Schrank), ♀. × 28.  
FIG. 3. *Menacanthus alaudae* (Schrank), ♀. × 55.  
FIG. 4. *Philopterus citrinellae citrinellae* (Schrank). ♂. × 62  
FIG. 5. *Sturnidoecus sturni* (Schrank), ♂. × 51.  
FIG. 6. *Ricinus fringillae* De Geer, ♀. × 25.

PLATE 11

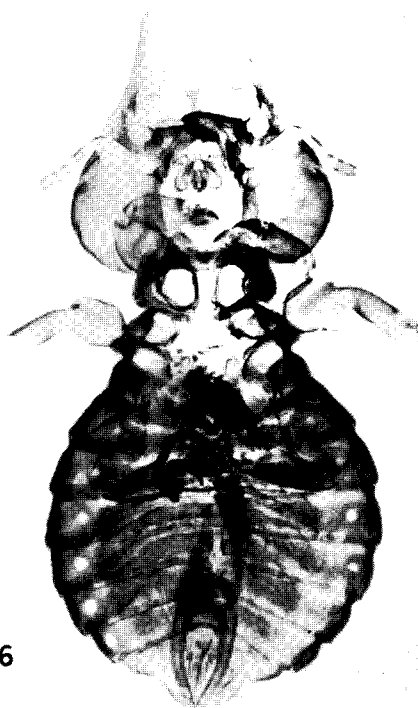
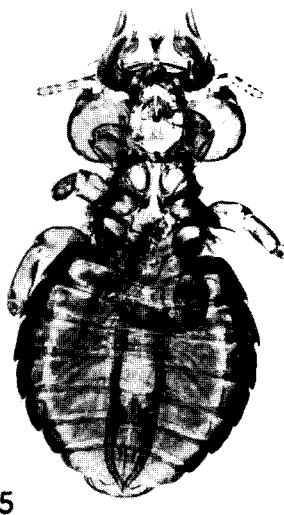
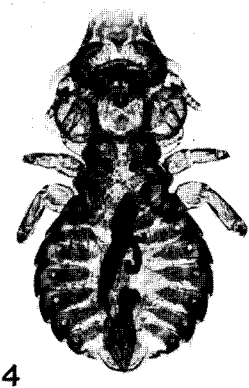
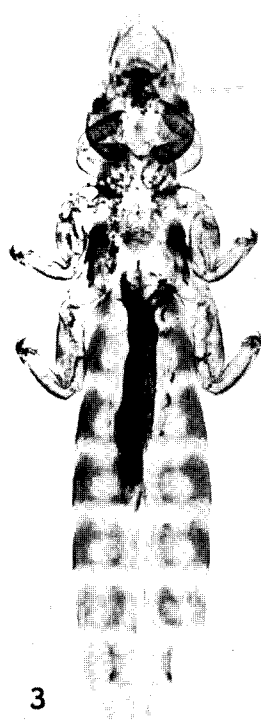
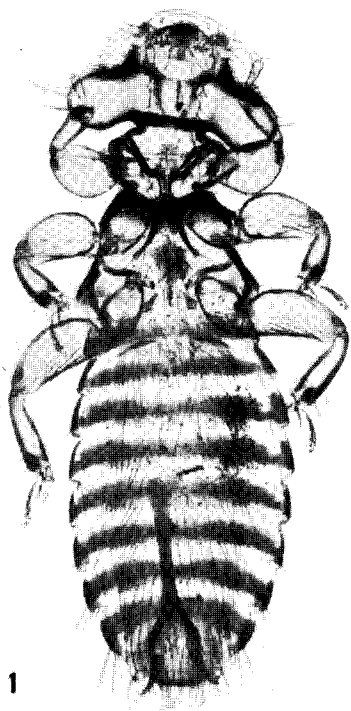
- FIG. 1. *Myrsidea cornicis* (De Geer), ♂. × 45.  
FIG. 2. *Anaticola mergiserrati* (De Geer), ♂. × 37.  
FIG. 3. *Anaticola mergiserrati* (De Geer), ♀. × 29.  
FIG. 4. *Saemundssonina grylle* (O. Fabricius), ♂. × 38.  
FIG. 5. *Saemundssonina lavi* (O. Fabricius), ♂. × 38.  
FIG. 6. *Saemundssonina tringae* (O. Fabricius), ♂. × 66.

PLATE 12

- FIG. 1. *Quadriceps hiaticulae* (O. Fabricius), ♂. × 47.  
FIG. 2. *Quadriceps hiaticulae* (O. Fabricius), ♀. × 47.  
FIG. 3. *Laemobothrion circi* (Fourcroy), ♂. × 11.  
FIG. 4. *Laemobothrion circi* (Fourcroy), ♂ genitalia. × 42.  
FIG. 5. *Laemobothrion circi* (Fourcroy), ♀. × 11.







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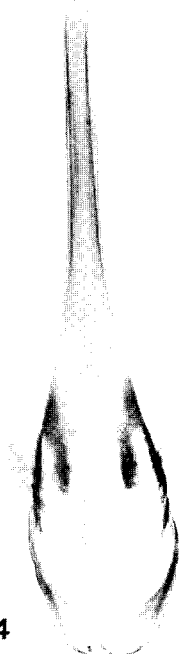
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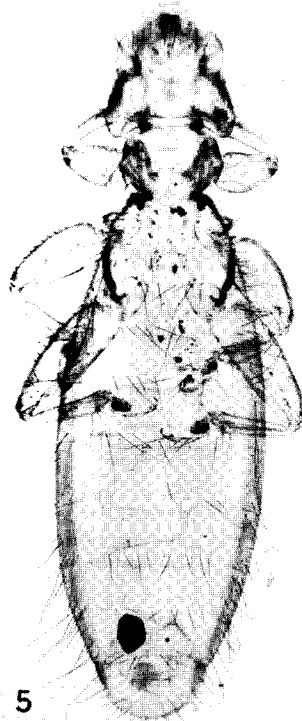
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