

THE EARLY LITERATURE ON MALLOPHAGA
(PART IV, 1787-1818)

BY

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By THERESA CLAY AND G. H. E. HOPKINS

SYNOPSIS

This, the fourth and final part of the series of papers reviewing the species of Mallophaga described between 1758 and 1818, deals with publications by J. C. Fabricius (1787, 1794, 1798, 1805); G. W. F. Panzer (1798); F. v. P. Schrank (1802, 1803); J. Fr. M. von Olfers (1816) and C. L. Nitzsch (1818).

INTRODUCTION

We have been criticized for changing well-established names and we readily admit that in a few instances we made changes which we would not now make. The reason for our action is that at one time the members of the International Commission on Zoological Nomenclature were reluctant to use their plenary powers to preserve a better-known junior synonym from replacement by an older name for the same animal, and in these circumstances it seemed to us to be desirable that all changes which were likely to be considered necessary by future workers on Mallophaga should be made as soon as possible, while the number of people working on the group was still limited and when a comprehensive list (our *Checklist of Mallophaga*) was about to be published, rather than that changes in the older names should be made piecemeal in the future. Even now that the Commission is more sympathetic to applications intended to avoid unnecessary name-changes, it is a major operation to obtain the suppression of a senior synonym in favour of a better-known junior one, and such applications are doubtfully justified unless serious confusion would result from the change which it is desired to avoid. Although we agree that in a few instances we would take a different view about certain names if we were dealing with the matter again, we would feel more sympathy with the criticisms if the critics had ever made an appeal to the Commission to preserve any of the names of which they deplore the disappearance.

We also expect criticism for designating neotypes in instances in which the name involved is not in current use, since the consensus of opinion of the 1958 Colloquium on Zoological Nomenclature was strongly against this practice. But we are convinced that the objection was to the revival of disused names in places of junior names which are in current use, and not the safe disposal of junior names as synonyms of senior ones, which is our intention. We hope that this will be made clear when the new International Rules of Zoological Nomenclature are published, but in any case we think that other workers will eventually come to share our views about the importance of getting rid of such names if they do not do so already. In particular we

have, wherever possible, designated as neotype of a junior subjective synonym the lectotype or neotype of the same species under its valid name.

MEASUREMENTS. All measurements are made from specimens mounted in canada balsam; unless otherwise stated, total length is taken along the mid dorsal line, except for the genitalia where it is the greatest length; breadth is the greatest width.

SETAE. In addition to the number and position of the setae, their length and thickness are often diagnostically important for the species; this last character is difficult to show accurately, especially at the magnification at which it is necessary to draw most of the figures. It has usually been necessary to enlarge the thickness of the setae relative to the rest of the structures in the figures in order to enable the smaller and thinner ones to be reproduced; an attempt has been made in each figure to make the thicknesses of the setae relative to each other correct.

FABRICIUS, 1787

(*Mantissa insectorum*. Hafniae. Vol. 2 : 368-371).

The usual Fabrician list containing infinite repetition and only one name with which we have not already dealt.

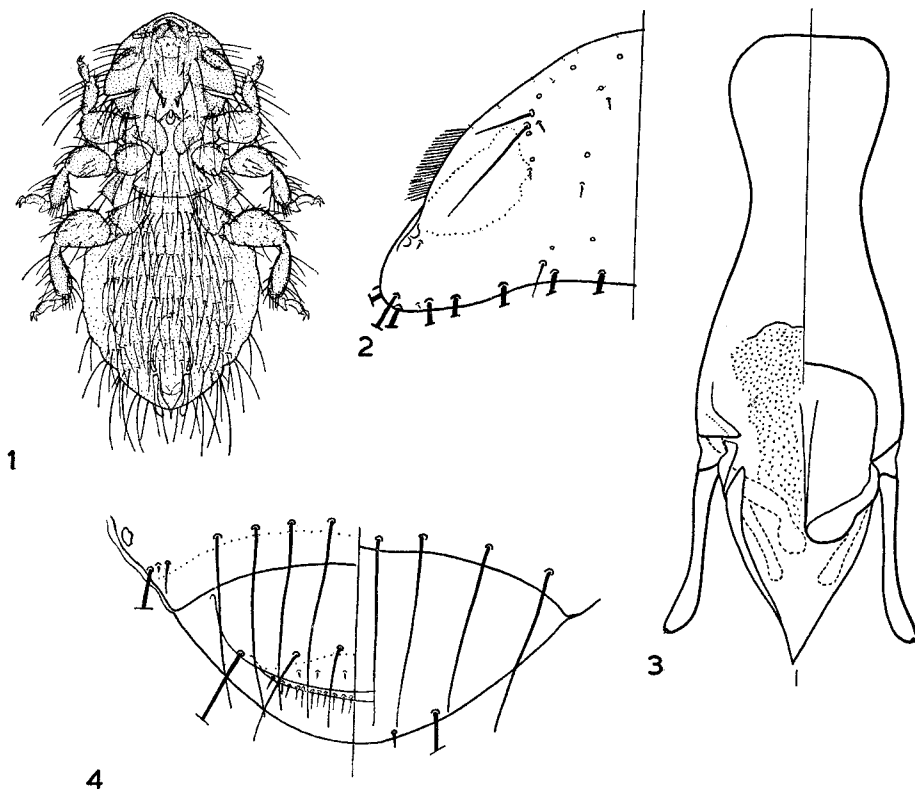
Pediculus vagelli (p. 369)

The very unsatisfactory description states that this species is "*Magnus, ovatus totus pallidus, thorace solo lineis duabus postice coeuntibus nigris*". The host is *Procellaria glacialis* (= *Fulmarus g. glacialis*). Fabricius gives a reference to Mohr and it is possible that he was redescribing *Pediculus procellariae* Mohr, 1786, nec Fabricius, 1775 (see Clay & Hopkins, 1954 : 264). Although the description of *vagelli* is so bad it is diagnostic. The mention of a thorax rules out the Ixodidae and the only louse occurring on *Procellaria* that at all fits the description is *Ancistrona*, as has long been recognized.

The specimens seen from various species of Procellariformes appear to represent only one species, but males have been seen from only *Fulmarus glacialis*, *Puffinus tenuirostris* and *Daption capense*, from the last host a single male in poor condition. It is possible that further study based on more material may reveal subspecific differences.

MALE. There is strong sexual dimorphism in this species, the male being smaller (cf. Text-figs. 1 and 5), less heavily sclerotized and the gular plate much reduced. The anterior margin of the head (in both sexes) may appear more or less pointed probably due to distortion during preparation. The oesophageal and lingual sclerites of the hypopharynx are reduced (in both sexes) and the epipharyngeal "pestle" is not apparent. Dorsal setae and sensilli of the head as shown in Text-fig. 2; these are useful specific characters in the probably related genus *Austromenopon* (see Clay, 1959 : 158). The dorsal chaetotaxy of the prothorax is similar to that of the female but there are fewer (2-3 each side) spine-like marginal setae on the

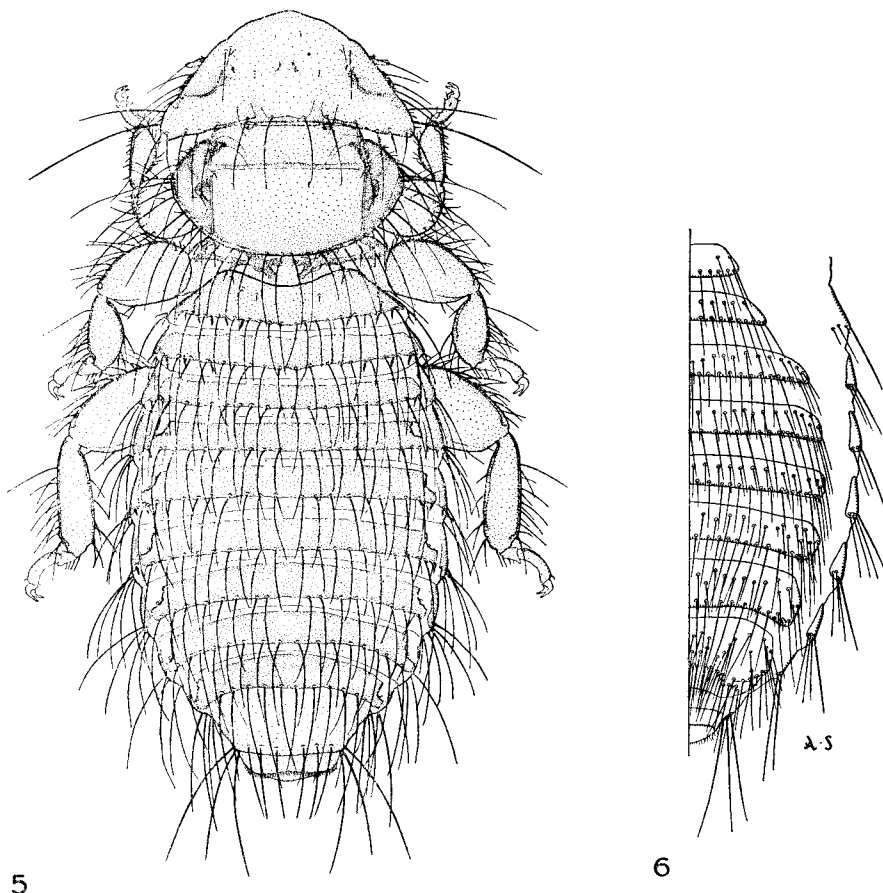
anterior part. Terga with a single row of setae, one specimen showing the following numbers: I, 17; II, 16; III, 18; IV, 15; V, 16; VI, 16; VII, 17; VIII, 14; in all these segments the seta next to the post-spiracular seta (not included in the counts) each side is spine-like and on segments VI–VIII next to the spine-like seta each side is a short fine seta. Ventral abdominal setae as in Text-fig. 1; setae of segments IX–XI dorsal and ventral as in Text-fig. 4. Male genitalia as in Text-fig. 3; the shape and position of the sclerites of the genital sac vary according to the



FIGS. 1–4. *Ancistrona vagelli* (Fabricius), male. 1. Ventral (R. S. Pitcher del.). 2. Head dorsal, thickness of marginal setae somewhat exaggerated. 3. Genitalia. 4. Terminal segments of abdomen.

position in the mounted specimen and with the amount of protrusion of the sac; the shape of the parameres also appears variable owing to distortion during preparation.

FEMALE. As shown in Text-figs. 5–6; dorsal head setae and sensilli as in male, but in addition there are groups of minute setae. Ventral view of head including characteristic gular plate as shown in Kéler, 1952: 206. There is some variation in the number and size of the dorsal abdominal setae.



Figs. 5-6. *Ancistrona vagelli*, female. 5. Dorsal, same scale as Fig. 1 (R. S. Pitcher del.). 6. Abdomen, ventral (Arthur Smith del.).

Measurements in mm.

	Male (neotype)		Female (neallotype)	
	Length	Breadth	Length	Breadth
Head	0.57	1.17	0.87	2.02
Prothorax	—	1.00	—	1.95
Metathorax	—	1.00	—	2.13
Abdomen	1.68	1.25	3.43	3.18
Total	3.20	—	6.15	—
Genitalia*	0.90	—	—	—

* Not neotype.

Neotype male of *Ancistrona vagelli* (Fabricius) slide No. 13728 in British Museum (Natural History) from *Fulmarus g. glacialis* (Linn.) from Shetland, British Isles, August 1939; neallotype female, slide No. 643 from the same subspecies of host

from Hoy, Orkney, British Isles, August 1938. *Neoparatypes*: 12♂, 46 ♀ from the same host form from the British Isles (Shetlands, Orkneys, St. Kilda), and Iceland.

J. C. FABRICIUS, 1794

(*Entomologia systematica. Hafniae*. Vol. 4: 418-424).

Sheer repetition, without anything new.

J. C. FABRICIUS, 1798

(*Supplementum entomologiae systematicae. Hafniae*. Pages 570-571).

Only four species are dealt with in this work, but all are put forward as new and all are accompanied by brief but fairly adequate descriptions.

Pediculus lanii (p. 570)

The description quite clearly refers to a *Philopterus* and the host is *Lanius collurio*. We consider this name to be a synonym of *Philopterus coarctatus* (Scopoli).

Neotype of *Philopterus lanii* (J. C. Fabricius, 1798), the male neotype specimen of *Philopterus coarctatus* (Scopoli, 1763), designated by Clay & Hopkins, 1951: 6.

Pediculus pici (p. 571)

The description certainly applies to a member of the Ischnocera and the host is *Picus viridis*. Of the two genera of the Ischnocera found on this host the description agrees most nearly with *Penenirmus*, which is also the commoner of the two.

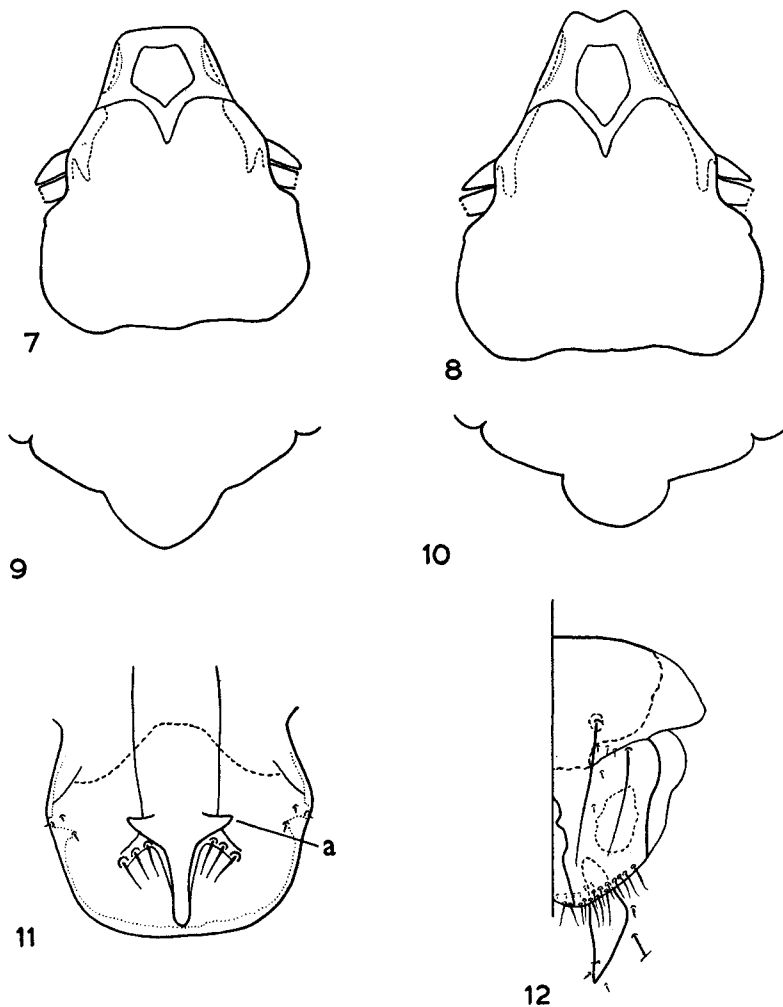
Docophorus scalaris Burmeister, 1838, described from Nitzsch's specimens and later figured in Giebel, 1874 (pl. 10, figs. 1 and 2) is also a *Penenirmus*: the hosts were originally given as *Picus viridis*, *canus*, *medius*. As the types of *scalaris* have been destroyed a neotype specimen from *Picus viridis* will be designated, thus restricting the name and making it a synonym of *P. pici* (Fabricius).

Penenirmus pici is near *auritus* (Scopoli), perhaps not more than subspecifically distinct, but a decision on its status must wait for a revision of the species of *Penenirmus* from the Picidae. The two forms can be distinguished in both sexes by the proportions of the preantennal region of the head, the anterior dorsal plate, and the outline of the hyaline margin (Text-figs. 7-8), by the shape of the last abdominal segment in the male (Text-figs. 9-10) and by the greater number of tergal setae in *pici* (see below).

MALE. General characters as shown in Pl. I, fig. 1; Head as in Text-fig. 8; as in all known species of *Penenirmus* from the Picidae the gular plate is divided horizontally. Mesosternum and metasternum each with 2 central setae; pterothorax with 5 setae and a lateral spine-like seta each side of the posterior margin. Tergal plates II¹-VII and fused IX-X entire, with II-III medially indented. Sternite

¹ II is the first apparent segment.

II small and irregular in shape ; each of sternites III–VI is a horizontally elongated plate. Comparison of the male genitalia of *pici* (Pl. I, fig. 3) and *auritus* is difficult ; a detailed figure of individuals of both species would be misleading owing to individual variation and distortion. Examination of a number of specimens belonging to each



FIGS. 7–12. *Penenirmus*. 7–8. Outline of head, male. 7. *P. auritus* (Scopoli). 8. *P. pici* (Fabricius). 9–10. Outline of last abdominal segment, male. 9. *P. auritus*. 10. *P. pici*. 11–12. *P. pici*. 11. Male genitalia. 12. Genital region of female.

form suggests that the only constant difference is the length of the penis which is somewhat longer in proportion to the endomerale plate in *pici* ; the sclerites (Text-fig. 11, *a*) at the base of the penis may be somewhat larger in *pici*, but the

appearance of these is so dependent on their position after the preparation of the specimen that much of the apparent variation in their size and shape seems to be illusory and due to accidents of mounting.

FEMALE. General characters as shown in Pl. I, fig. 2. Thoracic chaetotaxy and sternites II-VI as in male; tergal plates II-X entire. Genital region (Text-fig. 12) apparently as in *auritus*, but subvulval sclerites somewhat stouter. It should be noted that the outer part of the genital plate is unpigmented and the shape therefore appears different in figures according to whether the outer part is or is not shown.

CHAETOTAXY OF THE ABDOMEN. As in *auritus*, there are in both sexes post-spiracular setae on segments III-VII with contiguous sensilli on III-V. Tergocentral setae in both sexes: II, 4-6 and two long anterior setae (also present in *auritus*); III-VI, 6-10; VII, 4-7; VIII, 2 (in the female, 2-4), X, 3-4; in the male total number of dorsal and ventral setae on the last segment varies from 13-15. In *auritus* the tergo-central setae are 4 in number on II-VII and 2 on VIII, with the occasional segment in the occasional specimen having an extra seta. Sternocentral setae as in *auritus*: II-VII, 2; pleural setae as in *auritus*: II-III, 0; IV-V, 1; VI, 2-3; VII, 2; VIII-IX, 3; in the female, X has 2 each side.

	Male			
	Length		Breadth	
	Range	Mean	Range	Mean
Head (5)	0.59-0.60	0.595	(14)0.47-0.54	0.51
Prothorax (5)	—	—	0.31-0.33	0.32
Pterothorax (5)	—	—	0.50-0.55	0.53
Abdomen (4)	1.07-1.12	1.097	0.70-0.75	0.72
Total (4)	1.97-2.05	2.008	—	—
Genitalia (1)	0.33	—	—	—
C.I. (5)	0.84-0.90	0.88	—	—
<i>Female</i>				
Head (5)	0.65-0.67	0.66	(19)0.52-0.60	0.56
Prothorax (5)	—	—	0.33-0.37	0.35
Pterothorax (5)	—	—	0.58-0.63	0.60
Abdomen (5)	1.32-1.37	1.33	0.80-0.90	0.83
Total (5)	2.28-2.40	2.25	—	—
C.I. (5)	0.87-0.91	0.89	—	—

Neotype male (Pl. I, fig. 1) and *neallotype* female (Pl. I, fig. 2) of *Penenirmus pici* (J. C. Fabricius) from *Picus viridis* Linn from Estonia (Meinertzhagen Collection, British Museum (Natural History), slide No. 1594a). *Neoparatypes*: 16 males and 28 females from *Picus viridis* from Estonia and England.

Neotype of *Docophorus scalaris* Burmeister, 1838 the *neotype* specimen of *Penenirmus pici* (J. C. Fabricius) designated above.

Pediculus anatis (p. 571)

There is an independent description, but the species is the same as that described by Schrank (1781) under the same name and the host ("Anas Boshas") is also the same. Since *P. anatis* J. C. Fabricius is not only a synonym of *Anaticola crassicornis* (Scopoli) but also a homonym of *A. anatis* (Schrank), we would have thought it superfluous to erect a neotype for it but for the fact that Nitzsch (1818, p. 292) renamed it *Philopterus (Lipeurus) squalidus*.

Neotype of *Anaticola anatis* (J. C. Fabricius) the neotype specimen of *Anaticola crassicornis* (Scopoli) designated by Clay & Hopkins, 1951 : 19.

Pediculus tantali (p. 571)

The host is *Tantalus* (= *Ibis*) *leucocephalus* and the syntypes are in the Universitetets Zoologiske Museum in Copenhagen. Through the kindness of Dr. S. L. Tuxen it has been possible to examine these specimens and other Fabrician type material. The syntypes comprise two males and two females (one of the females being headless) and are labelled "Tranquebaria Daldorff". These specimens have been mounted in Canada balsam and the male specimen shown in Pl. VI, fig. 3 is here designated as lectotype and the slide has been so labelled; a female is shown in Pl. VI, fig. 4 This species will be dealt with fully by Dr. B. K. Tandan in his revision of *Ardeicola*.

Lectotype of *Ardeicola tantali* (J. C. Fabricius) male (Pl. VI, fig. 3) in the Universitetets Zoologiske Museum, Copenhagen.

G. W. F. PANZER, 1798

(*Faunae Insectorum Germaniae Initia oder Deutschlands Insekten, Heft 51* : 17-24).

This work consists of coloured drawings accompanied by text confined to host-records and references to descriptions by previous authors. In the titles of the drawings all the Linnean species are ascribed to Fabricius, though references to Linné's descriptions are given in the text. No species are described as new, but several are misidentified. The only importance of the work is that several of the drawings are quoted by Nitzsch in 1818, and these will be dealt with, where necessary, in our discussion of his paper.

SCHRANK, 1802

(*Briefe naturhistorischen, physikalischen und oekonomischen Inhaltes an Herrn Nau. Erlangen.* Page 361).

This work which was brought to our notice by Dr. W. Eichler, contains the description of only one species of Mallophaga, (*Pediculus phaeopodis*), omitted from the recent literature until 1952. This is an *Austromenopon* and a description is given in Clay, 1959 : 165, where a neotype for the species is designated.

SCHRANK, 1803

(Fauna Boica. Landshut. Vol. 3, pt. 1: 186-194).

The descriptions in this publication are much shorter than those in Schrank's earlier works and there are no figures. Most of the names, including a few unnecessary *nomina nova*, have already been dealt with, but a considerable number are new.

Pediculus mustelae (p. 186)

The host is "gemeinen Wiesel" (= *Mustela n. nivalis* Linn., since Schrank's material must be assumed to have been from Bavaria), and the brief description is quite sufficient to indicate a Trichodectid of the type commonly found on this host.

Although there has never been any reasonable cause for doubt as to the identity of Schrank's species, the nomenclature has been thoroughly and unnecessarily thrown into confusion. Nitzsch (1818: 246) started the process by proposing *Trichodectes dubius* as a *nomen novum* for Schrank's species, and Denny confused under Nitzsch's name the two quite separate species found on the weasel and on the stoat. Giebel (1861: 88; 1874: 55) proposed *Trichodectes pusillus* as a *nomen novum* for *T. dubius* Nitzsch, giving as host both weasel and stoat though admitting that he had seen no material from the latter. Piaget (1880: 387, pl. 31, fig. 8) added greatly to the confusion by including three quite distinct species under the name *retusus*; his description and figure seem to be based mainly on *mustelae* but the only specimen in the portion of his collection preserved at the British Museum is a female from a stoat. Harrison (1916) restored Schrank's name, though accepting Piaget's erroneous synonymy. Kéler (1938: 429, figs. 22, 23) redescribed *mustelae* from Nitzsch's material and made it the type species (under the synonym *pusillus*) of his new genus *Stachiella*, which we consider to be at most a subgenus of *Trichodectes*.

Since *Trichodectes dubius* Nitzsch is a *nomen novum* for *Pediculus mustelae* Schrank, and *T. pusillus* Giebel is a *nomen novum* for *T. dubius* Nitzsch, the neotypes we erect for *mustelae* are necessarily also neotypes of *dubius* and *pusillus*.

We designate as neotype of *Trichodectes mustelae* (Schrank) the female¹ and as neallotype the male specimens in the Nitzsch collection in the Zoological Museum of Halle University which Kéler utilized for his figures of the species (Kéler, 1938: 429, figs. 22, 23) and as neoparatypes the other specimens from *Mustela n. nivalis* in the Nitzsch collection.

Pediculus ovis arietis (p. 187)

This is merely a renaming of *Pediculus ovis* Schrank, 1781 and has already been dealt with under *Damalinia ovis* (in Clay & Hopkins, 1954: 255).

Pediculus collurionis (p. 187)

This species has already been dealt with under *Philopterus coarctatus* (Scopoli), of which we consider it to be a synonym (Clay & Hopkins, 1951: 6).

¹ In this genus the female is more diagnostic than the male.

Neotype of *Philoapterus collurionis* (Schrank) the neotype specimen of *Philoapterus coarctatus* (Scopoli) designated by Clay & Hopkins, 1951 : 8.

Pediculus pici (p. 188)

The host is "Schwarzspecht" (*Dryocopus martius*) and the description almost certainly refers to a *Penenirmus*, but as the name is a homonym of *Pediculus pici* J. C. Fabricius, 1798 and probably a synonym of *Penenirmus heteroscelis* (Nitzsch), 1866 the name need not be further discussed.

Pediculus upupae (p. 189)

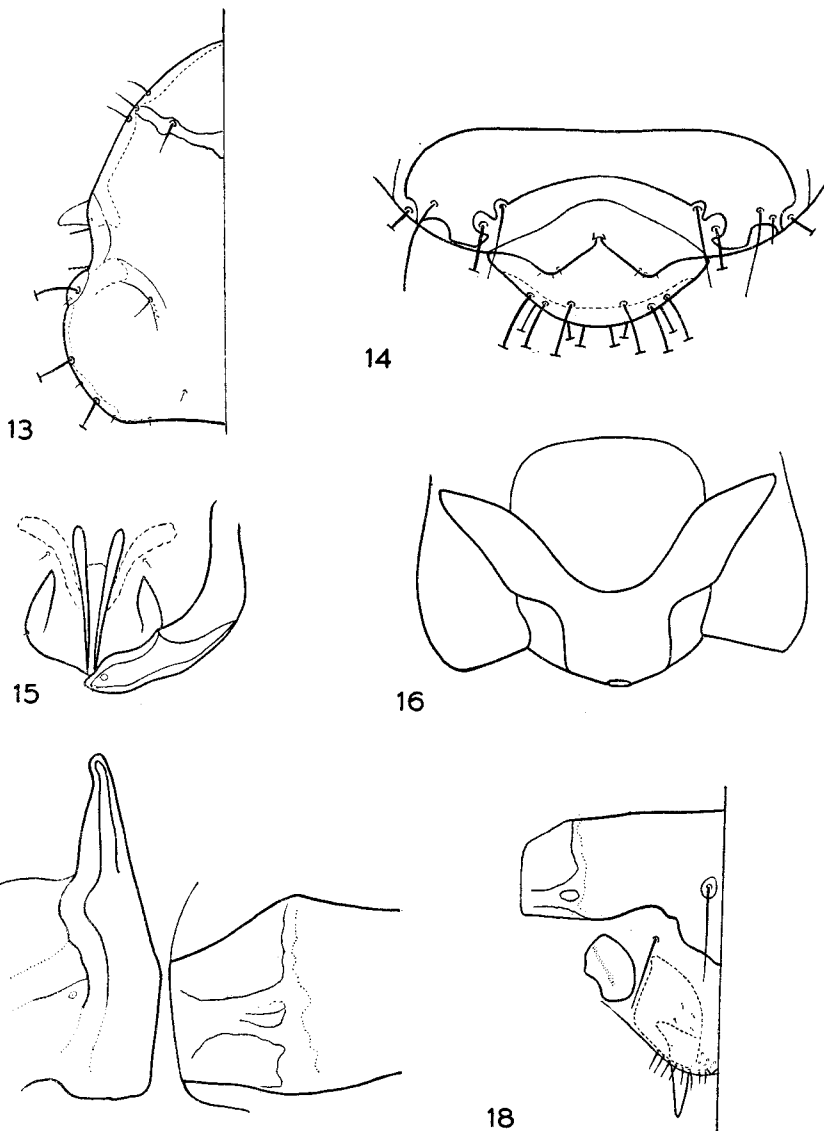
The host is "Wiedehopf" (= *Upupa e. epops* Linn.) and the description fits almost perfectly Piaget's figure (Piaget, 1880, pl. 12, fig. 7) of *Nirmus melanophrys* N., from the same host : Giebel's descriptions (1866 : 369 ; 1874 : 146) leave little room for doubt that Piaget's identification of *melanophrys* was correct, especially as this is the only species of *Ischnocera* which appears to occur normally on this host. Moreover a rough sketch of *melanophrys* in Nitzsch's manuscript seems to represent this species. Denny (1842 : 45, 92, pl. 8, fig. 1) described as new the same species from the same host under the name *Docophorus upupae* ; the syntypes of *upupae* Denny and Piaget's specimens labelled *melanophrys* are in the British Museum (Natural History) and are the same as *upupae* Schrank described below. Harrison (1916) places *upupae* Schrank in *Philoapterus* and *upupae* Denny in *Degeeriella* with *melanophrys* as a synonym ; the species is neither a *Philoapterus* nor a *Degeeriella* and (under the name *melanophrys*) has been made the type species of *Upupicola* (Clay and Meinertzhagen, 1939 : 165).

Upupicola is a monotypic genus belonging to the *Degeeriella* complex (see Clay, 1958) and is distinguished by the presence of a dorsal preantennal suture, the form of the temporal carinae and the lateral thickening of the abdomen ; the male genitalia are of the typical *degeerielline* form.

MALE. General characters as shown in Pl. II, fig. 1 ; dorsal characters of the head as shown in Text-fig. 13 ; dorsal preantennal suture has a posterior central prolongation which varies in depth and width ; temporal carina passes posteriorly from the preocular nodus but does not reach occipital margin ; ocular setae and two of the marginal temporal setae each side elongated. Prothorax with one elongated seta each side of posterodorsal margin ; pterothorax with lateral spine-like seta and elongated seta each side and four setae in two groups of two each side of the dorsal posterior margin. Two meso- and two metasternal setae. Tergum of pterothorax divided medially almost to posterior margin ; meso-metasternal plate flask-shaped. Tergal plates II-X complete across the segments, but II-IV have partial divisions centrally. Terminal segments as in Text-fig. 14. Sternal plate II is a central, nearly rectangular plate, III-VII are complete across segments ; remaining sternites form a narrow central genital plate with a lateral sclerite each side of VIII. Lateral abdominal thickening characteristic (as in Text-fig. 17) and formed partly from internal dorsal thickening (pleural, see Clay, 1958 : 127) and partly

from internal thickening at the lateral edge of the sternites. Male genitalia as in Text-figs. 15-16; dorsal endomeral arms (Clay, 1958: 127) vary in height.

FEMALE. General characters as in Pl. II, fig. 2. Thoracic setae, tergum of pterothorax and meso-metasternal plate, abdominal tergites II-VIII, sternites II-VI and lateral abdominal thickening as in male. Terminal sterna of abdomen as in Text-fig. 18.



FIGS. 13-18. *Upupicola upupae* (Schrank). 13. Head of male, dorsal. 14. Terminal segments of male abdomen, dorsal. 15. Male genitalia, ventral. 16. Endomeral plate, dorsal (enlarged). 17. Inner view of lateral parts of tergum (left) and sternum (right) of segment V, female. 18. Female genital region.

CHAETOTAXY OF ABDOMEN. Post-spiracular setae on segments III–VIII, with sensilli on segments III–V. Tergocentral setae II, 4–6 with two anterior setae; III–VI, 6–7; VII–VIII, 4–7. Pleural setae: II–III, 0; IV–V, one each side; VI–VII, 3 each side; VIII, 3. Sternocentral setae: II–VI, 6–7, rarely 4 or 5 on one or two segments. In the male VII–VIII, 2; last segment, one long and one spine-like seta each side; total number of marginal setae of last segment dorsal and ventral varies from 12–16. Sternal setae of VII–XI in the female as in Text-fig. 18.

Measurements in mm.

	Male			
	Length		Breadth	
	Range	Mean	Range	Mean
Head (20)	0.44–0.53	0.487	0.38–0.44	0.416
Prothorax (1)	—	—	0.25	—
Pterothorax (1)	—	—	0.43	—
Abdomen (1)	1.30	—	0.61	—
Total (1)	2.10	—	—	—
Genitalia (1)	0.38	—	—	—
C.I.	0.80–0.89	0.85	—	—

	Female			
	Length		Breadth	
	Range	Mean	Range	Mean
Head (20)	0.50–0.56	0.53	0.43–0.48	0.454
Prothorax (1)	—	—	0.27	—
Pterothorax (1)	—	—	0.47	—
Abdomen (1)	1.44	—	0.64	—
Total (1)	2.28	—	—	—
Genitalia	—	—	—	—
C.I.	0.82–0.89	0.85	—	—

Neotype male (Pl. II, fig. 1) and *neallotype* female (Pl. II, fig. 2) of *Upupicola upupae* (Schrank) in the British Museum (Natural History), slide No. 650, from *Upupa e. epops* Linn. from Hodonin, Czechoslovakia collected (11.vi.1953) and presented by Dr. František Balát. *Neoparatypes*: 45 ♂, 49 ♀ from the same species of host from France, Italy, Portugal, Czechoslovakia, Asia Minor, Pakistan and India.

Lectotype of *Docophorus upupae* Denny, 1842: male in the Denny Collection British Museum (Natural History), slide No. 225. *Paratypes*: 1 ♂, 5 ♀.

***Pediculus chloropodis* (p. 189)**

The host of this species is given in one place as “Blasshuhn” (*Fulica a. atra* Linn.) and in another as “rothschnabligen Wasserhuhn” (*Gallinula c. chloropus* (Linn.)). However, as the specific name is *chloropodis* it can be assumed that the

host was *Gallinula chloropus*. The statement in the description that the insect is larger than the largest human louse and runs uncommonly fast seems to exclude all parasites of *Gallinula* except *Laemobothrion* and, allowing for certain discrepancies in the description, this describes well nymphs of *Laemobothrion* from *Gallinula chloropus brachyptera*. Although we have specimens of *Laemobothrion* from subspecies of *Gallinula chloropus* from Africa, India and Brazil (see below, p. 55) : we have none from the European form, *Gallinula c. chloropus* ; there is little doubt that this would be the same as that from the African and Indian forms but the neotype must be based on a specimen from this subspecies.

Present status of *Pediculus chloropodis* Schrank : *Laemobothrion chloropodis* (Schrank, 1803).

Pediculus vanelli (p. 190)

This species has already been discussed under *Pediculus junceus* (Scopoli) of which we consider it to be a synonym (Clay & Hopkins, 1951 : 24. It seems relevant to note that *Nirmus vanelli* Denny, the type species of *Quadriceps*, is a totally distinct species and a synonym of *Quadriceps hospes* (Nitzsch).

Neotype of *Quadriceps vanelli* (Schrank) the neotype specimen of *Quadriceps junceus* (Scopoli) designated by Clay & Hopkins, 1951 : 24.

Pediculus tringae (p. 190)

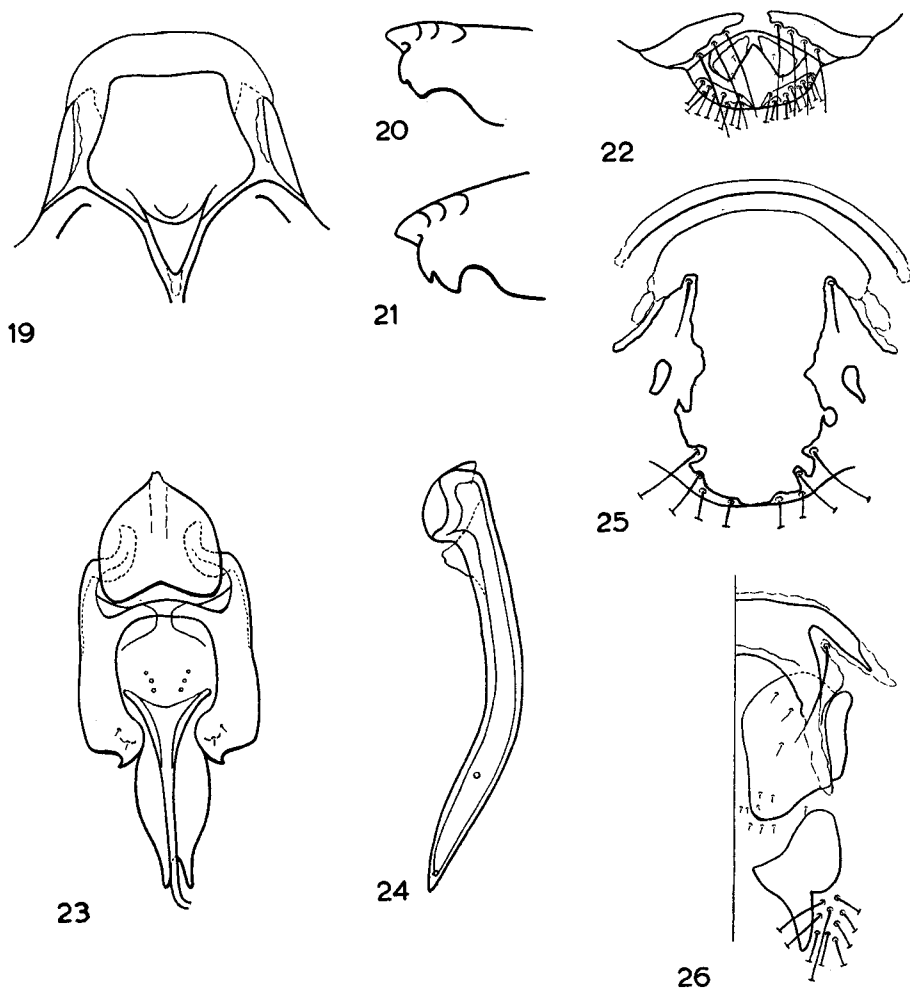
The description is particularly poor and the host is given in one line as " Geissvogel " (= *Capella gallinago*) and in the next line as " Kybiz " (= *Vanellus vanellus*). Harrison (1916, p. 19) places the name as a synonym of *junceus* Scopoli, but as Schrank states that his species is close to the " Truthennenlaus " (= *Chelopistes meleagridis*) this synonymy seems quite impossible.

Fortunately *Pediculus tringae* Schrank 1803 is a homonym of *Pediculus tringae* O. Fabricius 1780, so that further discussion of it would serve no useful purpose.

Pediculus scolopacis phaeopodis (p. 191)

This species is from " Regenvogel " (= *Numenius p. phaeopus*). The description is brief, merely stating that the insect is flattened, oval, the head bluntly heart-shaped with three long setae in the neighbourhood of the eye and one close to the antenna, that the thorax is axe-shaped, and that the insect is of the size of a small human louse but exceptionally flat. This description, however, is much more diagnostic than would appear at first sight. An oval species with a bluntly heart-shaped head found on *Numenius* could only be a *Saemundssonina* or a *Cummingsiella*, the metathorax of either of which could be described as axe-shaped, but the head of the *Saemundssonina* fits the description " bluntly heart-shaped " distinctly better than does that of *Cummingsiella*. Furthermore, although a species of *Cummingsiella* is stated to occur on *Numenius phaeopus* we have failed to find it on any specimens of this host which we have examined, and its rarity renders improbable any suggestion that this was the species which Schrank had. We therefore conclude that Schrank's species must have been the *Saemundssonina* which is common on this host.

Harrison (1916, p. 18) states that the present species is probably the same as *Docophorus* "rotundatus Nitzsch", by which we assume that he meant *D. rotundus* Rudow, for there is no such species as *D. rotundatus* Nitzsch and none of the three forms for which Piaget used the name is from a wader. *Docophorus rotundus* Rudow



FIGS. 19-26. *Saemundssonina scolopacisphaeopodis* (Schrank). 19. Preantennal region of male head, dorsal. 20-21. Right mandible. 20. Male. 21. Female. 22. Terminal segments of male abdomen, dorsal. 23. Mesosome of male genitalia. 24. Paramere. 25. Male genital plate. 26. Female genital region.

is also from *Numenius phaeopus* and although Rudow's description is little better than Schrank's we can find nothing in it which suggests that the two species are not the same.

This is the third earliest species of *Saemundssonina* to be described from the Charadrii

and is distinguished from the other two, *S. haematopi* (Linn.) and *S. tringae* (O. Fabricius) by the shape of the head and male genitalia. The individuals of the population found on *Numenius arquatus* do not seem to be distinguishable except perhaps on size (see below) and if this proves to be the case can be recognized as a subspecies, namely *Saemundssonina scolopacisphaeopodis humeralis* (Denny).

Male of *S. scolopacisphaeopodis*. General characters as shown in Pl. III, fig. 1. The tooth on the right mandible (a diagnostic character for *Saemundssonina*) is small (Text-fig. 20), but as is usual for the genus somewhat better developed in the female (Text-fig. 21). Anterior plate as in Text-fig. 19. Prothorax with one long seta at each latero-posterior corner; pterothorax with 18–24 long setae on the posterior margin and a lateral spine-like seta each side. Two meso- and two metasternal setae on the sternal plate which is of irregular and variable outline. Tergal plate II entire; III–XI divided medially. Sternite II is a small irregular central sternite not always apparent; III in the form of a small irregular shaped lateral sclerite each side; IV–VI each a narrow horizontally elongated sclerite; genital plate variable and irregular in outline (Text-fig. 25). Genitalia as shown in Pl. III, fig. 3; and Text-figs. 23–24; unlike *S. tringae* there are no setae arising from the 6 pustules which lie in the centre of the mesosome.

FEMALE. Similar to male in general characters but somewhat larger. Chaetotaxy of thorax as in male. Tergal plates II and IX–X entire; III–VIII and XI divided medially. Sternites II–VI each as a small irregular shaped lateral sclerite each side of segment. Genital region as in Text-fig. 26.

CHAETOTAXY OF ABDOMEN. Post-spiracular setae of male and female present on segments III–VII with contiguous sensilli on III–V. Tergocentral setae of male neotype; II, 7; III, 14; IV, 21; V, 17; VI, 12; VII, 3; VIII, 2; X, 6. Sternocentral setae: II–V, 2 (II–III not from neotype); VI, 4; VII, 2. Pleural setae: II, 0; III, 1 each side; IV, 2; V, 3; VI, 3 and 5; VII, 3 and 4; VIII, 4; IX, 3. Tergocentral setae of female neallotype: II, 9; III, 16; IV, 15; V, 18; VI, 19; VII, 14; VIII, 6; X, 5. Sternocentral setae as in male. Pleural setae: II, 0; III, 1; IV, 2; V, 2 and 3; VI, 3 and 5; VII, 4; VIII, 3 and 5; IX, 3 and 4.

Measurements in mm.

	Length				Breadth			
	Male		Female		Male		Female	
	Range*	Mean			Range	Mean		
Head . . .	0.67	0.60–0.66	0.63	0.72	0.70	0.66–0.74	0.70	0.81
Prothorax . . .	—	—	—	—	0.38	—	—	0.41
Pterothorax . . .	—	—	—	—	0.54	—	—	0.59
Abdomen . . .	0.96	—	—	1.27	1.02	—	—	1.17
Total . . .	1.90	—	—	2.29	—	—	—	—
Genitalia . . .	—	0.77–0.87	0.82	—	—	—	—	—
C.I.	1.04	1.08–1.16	1.12	—	—	—	—	—

* Length and C.I. in this column does not include hyaline margin.

Ten males from *Numenius arquatus* have the following range of head-measurements: Length (not including hyaline margin), 0.65–0.68 mm.; mean, 0.67. Breadth, 0.75–0.79 mm.; mean, 0.77 mm. Twenty males taken from a single individual host collected in Uganda by G.H.E.H. and identified as *Numenius phaeopus* have a range and mean of head measurements similar to those of the specimens from *Numenius arquatus*, as follows: Length, 0.65–0.68 mm.; mean, 0.67. Breadth, 0.75–0.80; mean, 0.77.

Neotype male (Pl. III, fig. 1) and neallotype female of *Saemundssonina scolopaci-sphaeopodis* (Schrank, 1803) in the British Museum (Nat. Hist.) Collection (slide No. 20223a) from *Numenius p. phaeopus* (Linn.) from S. Uist, Scotland. *Neoparatypes*: 19 ♂ and 18 ♀ from *Numenius phaeopus* from the British Isles, Iceland, France and the Maldiv Islands.

Pediculus fulicae (p. 191)

The host is given as “Rohrhuhn” and as “Blasshuhn”, alternative names for *Fulica a. atra*. We have already discussed the species under *Pediculus fulicae* Linn. (Clay & Hopkins, 1950: 256) and noted that it is the *Incidifrons* to which we have restricted Linné's name. As *Pediculus fulicae* Schrank is a homonym of *P. fulicae* Linn. we think it unnecessary to erect a neotype for it.

Pediculus totani (p. 191)

The host is given as “Strandschnepfen”, a name which applies to either the common or the dusky redshank, but in view of Schrank's choice of specific name we consider it certain that the host must have been *Totanus totanus*.

Harrison (1916, p. 19) rejected this name as unrecognizable, but a species with an anteriorly-rounded head which has a deep lateral inlet in the region of the eye and extends posteriorly into two almost heart-shaped lobes could be nothing but a *Colpocephalum s.l.*, and in view of the host must have been an *Actornithophilus*. Nothing in the rest of the description is at variance with this identification of Schrank's species, though it must be noted that what he took for the antennae were evidently the palpi. No other *Actornithophilus* has been described from *Totanus totanus*.

A neotype will be designated for *Actornithophilus totani* (Schrank) in a publication (Clay, in press) dealing with the species of *Actornithophilus* parasitic on the Charadrii.

Pediculus urogalli (p. 192)

Harrison (1916, p. 19) regarded this as a *nomen nudum*, but it is described (from memory!) as large, elongated and very common. The host is given as “Auerhahn” (= *Tetrao u. urogallus* Linn.).

We have failed to find in the Rules of Nomenclature anything dealing directly with the question of descriptions made from memory, and we suspect that the compilers of the Rules failed to foresee the possibility of descriptions being made so.

But we consider that for a name to be valid it must be the name of an organism and not of an author's memory of that organism and we therefore regard the name *Pediculus urogalli* Schrank as nomenclatorially unavailable.

Pediculus milvi (p. 193)

The naming of this species appears to have been almost accidental, but this does not affect its validity. It is a *nomen novum* for the "Hühnergeyerlaus" depicted by Frisch ("XI Stücke, Tab. 24"). Frisch's figure represents a *Laemobothrion*, and Hühnergeyer = *Circus aeruginosus*, so we consider *Pediculus milvi* to be the common *Laemobothrion* of this host, which we have already identified as *L. circi* (Fourcroy).

Neotype of *Laemobothrion milvi* (Schrank) the neotype specimen of *Laemobothrion circi* (Fourcroy) designated by Clay & Hopkins, 1954 : 263.

Pediculus hirundinis (p. 193)

The description purports to be of *P. hirundinis* "Linn. faun. suec. n. 1963", but the latter (which we have dealt with in Clay & Hopkins, 1950 : 267) is from *Hirundo apus* (= *Apus apus*), whereas Schrank's species is from "Hausschwalbe" (= *Delichon u. urbica*).

Harrison (1916 : 15) takes the view that Schrank's species is "A Menoponid, probably = *Dennyus burmeisteri* Denny, not *Docophorus excisus* as quoted by Nitzsch, 1818, p. 290." We entirely disagree with this view, which is obviously due to confusion between *hirundinis* Linn. and *hirundinis* Schrank. The description of Schrank's species is brief and inadequate, but he mentions that the head is "zweylappig" anteriorly, a character which fits the *Philoaterus* found on *Delichon urbica*, but excludes all other known genera of lice from either swallows or swifts.

Pediculus hirundinis Schrank 1803 is preoccupied by *Pediculus hirundinis* Pontopidan 1763, and the species will be dealt with below as *Philoaterus* (*Docophorus*) *excisus* Nitzsch 1818.

Pediculus chelidonius (p. 194)

The host is "Spurschwalbe" (= *Apus apus*) and the brief description states that the insect has a heart-shaped head, and almost linear body, and the two parts of the dorsum of the thorax are transversely elliptical. In the remarks following the description the species is stated to be very like the "Taubenlaus" as depicted by Redi (*Columbicola columbae*) but distinguished by the different structure of the two parts of the thorax.

Harrison (1916, p. 12) placed the insect in *Degeeriella s.l.*, but was unable to find a meaning for the name of the host.

As the description seems to be certainly that of a member of the Ischnocera and as no Ischnocera have ever, so far as we are aware, been reported from any of the

swifts, *Pediculus chelidoniumis* is at best a hopelessly unrecognizable straggler, but (for reasons discussed under *prognés*, below) we think it much more probable that it is a chimaera, consisting of the head of one insect and the abdomen of another. We therefore regard the name as unavailable.

Pediculus prognés (p. 194)

This is first called the "Rauchschnalben L[aus]" (= louse of *Hirundo rustica*), and later the host is given as "Hausschnalbe" (= *Delichon urbica*). The description states: "Der Kopf spondonförmig; der Hinterleib eyförmig, schwarz gefleckt, rückwärts allmählig sägezähnig und borstig." It is stated to be the same as *Pediculus hirundinis* Fabricius (1781, p. 483), which Schrank alleges to be different from *P. hirundinis* Linn.

Actually the species described by Linné and by Fabricius are identical, for the latter's description "palescens, abdomine albo nigro maculato" is merely a shortening of Linné's "palescens, abdomine obovato albo nigro contaminato lateribus setis posticis majoribus". Schrank's error is obviously due to his having misidentified as *Pediculus hirundinis* Linn. the *Philopterus* of *Delichon urbica*.

With regard to Schrank's own descriptions, spontoons were of various shapes, but at least one common kind was of a shape very like that of the head of the *Bruëlia* found on the Hirundinidae. On the other hand, species of *Bruëlia* of this type do not have in either sex an abdomen that could possibly be considered egg-shaped. *Philopterus* is excluded by the fact that Schrank has described the *Philopterus* of the "Hausschnalbe" (as *Pediculus hirundinis*) on the previous page; even if an interval elapsed between the writing of the two descriptions, during which he forgot he had described the *Philopterus*, we think he could not have failed to note the "zweylappig" head. The Amblycera are ruled out by the fact that none of them has a head remotely like any form of spontoon of which we have been able to find a drawing.

We can make nothing of this description, which does not fit any known parasite of either the Hirundinidae or Apodidae. The most likely possibility appears to us to be that by some error of transcription the description of the head given for *P. chelidoniumis* became attached to that of the abdomen of *P. prognés* and vice versa, because the combination head-of-*chelidoniumis* plus body-of-*prognés* would fit perfectly the *Dennyus* from *Apus apus*, while the reverse combination would agree excellently with a *Bruëlia* from *Delichon urbica*. Moreover, we find confirmation in evidence that suggests that the host-records got switched at the same time, for Schrank's usual practice was to name his lice after their hosts, and he is much more likely to have intended to use the name *chelidoniumis* for a louse of *Delichon* (at one time called *Chelidon urbica*) than for one from *Apus apus*.

We believe that our suggestion of a transposition of parts of these descriptions is extremely probable, and that the description of the head of one insect and the abdomen of another has no more validity than the description of any other chimaera. We therefore consider the name *Pediculus prognés* Schrank to be nomenclatorially unavailable.

J. C. FABRICIUS, 1805

(Systema antliatorum. Brunsvigae, pp. 340-349).

This is the usual Fabrician list of descriptions (mostly quoted from other authors) and references, but there are two new species.

Pediculus melis (p. 341)

The description is brief, but is sufficiently clear that there has never been any doubt as to the species intended, moreover the type material, one male and one nymph, is still in existence in the Universitetets Zoologiske Museum in Copenhagen. The male lectotype (by present selection) is the species re-described and figured by Kéler (1938 : 424-425, figs. 17, 18). Nitzsch (1818 : 295) proposed the entirely unnecessary *nomen novum* *Trichodectes crassus* for this species, otherwise it has remained without synonyms.

Lectotype of *Trichodectes melis* (J. C. Fabricius) male (Pl. IV, fig. 2) in the Universitetets Zoologiske Museum, Copenhagen.

Pediculus anserinus (p. 345)

As we have already pointed out (1950 : 239), *Pediculus anseris* Linn. (1758 : 612) was a composite of an *Anaticola* and a *Trinoton* and was restricted by J. C. Fabricius (1775 : 807) to the former. Almost simultaneously Sulzer (1776 : 241, pl. 29, fig. 4) also re-described *Pediculus anseris* Linn; but his species is the *Trinoton*; his action would have been a valid restriction of the name but that Fabricius' restriction is earlier. The host of Sulzer's species is "Gans", which must be assumed to be *Anser anser domestica*.

Pediculus anserinus is in part a *nomen novum* for *anseris* Sulzer, but there is also a long description which is obviously that of the *Trinoton*. The host is *Anas anser* (= *Anser anser*, probably a wild bird).

Nitzsch (1818 : 300) renamed Sulzer's species *Liotheum (Trinoton) conspurcatum* and the synonymy will be discussed when we come to deal with Nitzsch's name. Harrison (1916 : 11) restored the name given to the species by Fabricius.

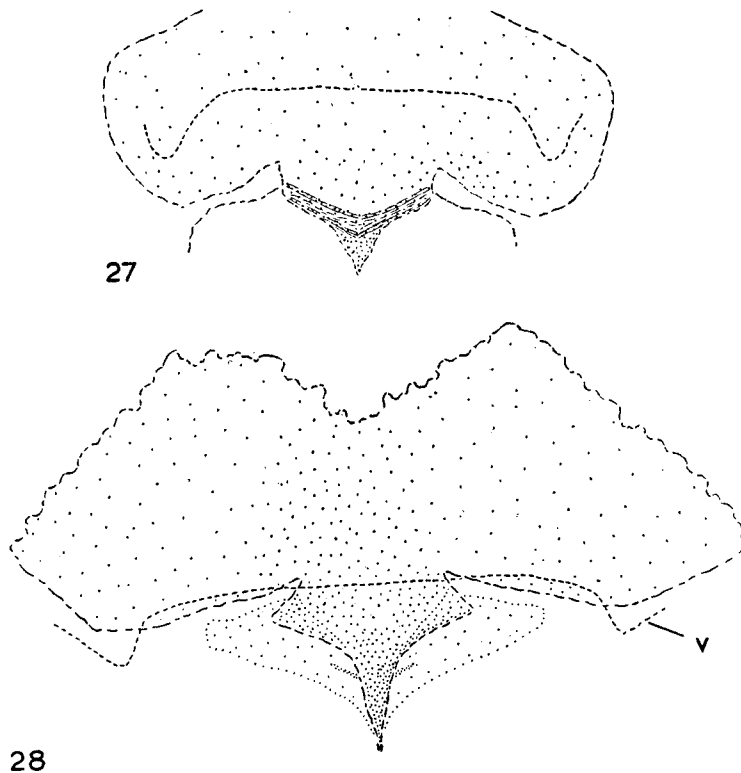
The type material in Copenhagen comprises two dried specimens of *Trinoton*, one of which (a male) has been mounted and is designated below as lectotype.

The species of *Trinoton* can be divided into four main groups as follows :

- | | | | |
|----|--|-----------------------|---------------------|
| 1. | Dorsal surface of hind head and prothorax without stout spine-like setae | | |
| - | Dorsal surface of hind head and prothorax with stout spine-like setae | <i>femoratum</i> | Piaget |
| 2. | Dorsal prothoracic spine-like setae less than 8 in number | . | 2 |
| - | Dorsal prothoracic spine-like setae more than 20 | . | 3 |
| 3. | Gular area without short stout spine-like setae | <i>gambense</i> group | (of Tendeiro, 1958) |
| - | Gular area with short stout spine-like setae | <i>querquedulae</i> | group |

The *querquedulae* group can be separated by the character of the chaetotaxy into two, one (*querquedulae*) being found on *Anas* and related genera and one (*anserinum*) on *Anser* and related genera.

Trinoton anserinum from *Anser anser*, is distinguished from *T. querquedulae*, from *Anas crecca*, by size, by the chaetotaxy of the gular plate and ventral surface of the thorax (*anserinum* having more numerous setae of which proportionally fewer are spine-like) and by the small setae comprising the brushes of the 3rd femora and sternites IV and V being noticeably more numerous (Pl. IV, figs. 3-4). In the females there is a thickening in the dorsal wall of the genital chamber which projects below the vulva and which appears to be of diagnostic value in the separation of species. This thickening is indistinct in outline and not easily seen in specimens



FIGS. 27-28. Sclerotization of lower part of dorsal wall of genital chamber, drawn to same scale. v.—vulva. 27. *Trinoton querquedulae* (Linn.). 28. *T. anserinum* (Fabricius) from *Anser anser*, Manipur, India.

treated with caustic potash and was not shown in the figure of *querquedulae* in Clay & Hopkins (1950 : 244), however with the help of phase contrast it has now been possible to show the outline of the posterior part of this thickening (Text-fig. 27) for comparison with that of *anserinum* (Text-fig. 28).

Whether or not it will be possible to recognize subspecific differences between the populations of *anserinum* from different species of hosts will have to wait for further material and a study of the variation in size and chaetotaxy within the populations.

Lectotype of *Trinoton anserinum* (J. C. Fabricius) male (Pl. IV, fig. 1) mounted in canada balsam in the Universitetets Zoologiske Museum, Copenhagen.

Measurements of Lectotype in mm.

	Length	Breadth
Head	1.02	1.56
Prothorax	—	1.18
Metathorax	—	1.62
Total	6.10	—
Genitalia (in situ)	2.72	—

OLFERS, J. FR. M. VON, 1816

De vegetativis et animatis corporibus in corporibus animatus reperiundis commentarius. Berlin. Part 1, pp. 80-97).

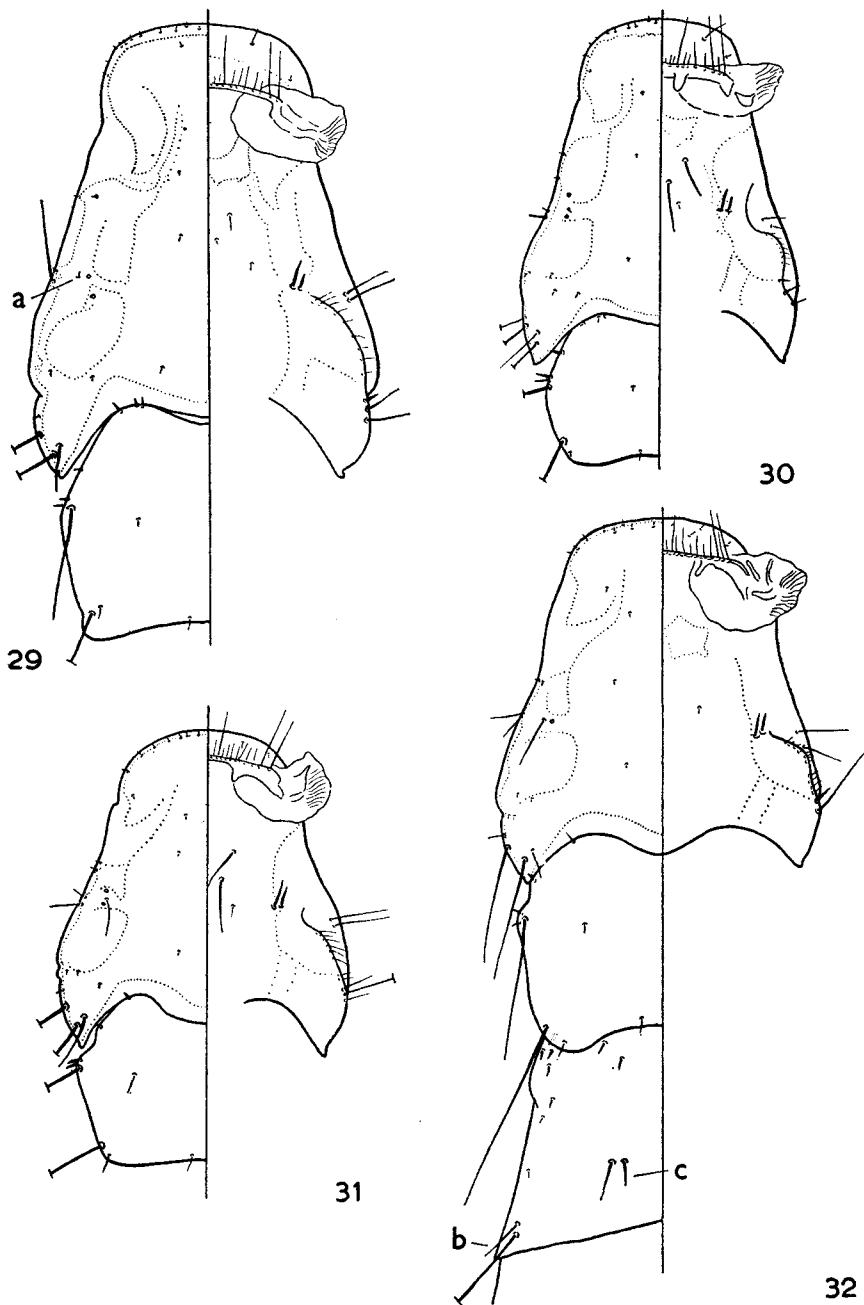
For the most part this work is a list of names and references, but there are brief descriptions of a number of species. In many cases it is difficult to decide whether the descriptions are independent, because a number of them appear to have been made from published drawings rather than from the insects themselves.

The work is in two distinct parts: on pages 86-91 Olfers describes a number of species (renaming most of them regardless of their already having valid names) and in this section he never derives the name of the parasite from that of the host. But on pages 92-97 he lists, with references, a number of "species inquirendae" under headings (such as "*Nirmus pavonis cristati* (Var. *albi*)") many of which at first sight look like names. The headings are invariably derived from the name of the host and the example we have given is particularly enlightening because it corresponds perfectly with Redi's "Pollino del pavone bianco" and Albin's "Louse of the white peacock". We were convinced that these headings were never intended as names and that they are in Latin merely because the whole work is in that language, but for greater certainty we referred the question to the late Dr. K. Jordan, who was in agreement with our opinion. We have, accordingly omitted all mention of these headings, whose case is very similar to that of the "Pediculi Rhedi et Linnaei" listed by Fourcroy on pages 520-522 of his work.

It is of interest to note that there had been absolutely no advance in the generic classification of the Mallophaga between 1668 and 1816. Redi distinguished roughly between "Pollini" (Mallophaga) and "Pidocchi" (Anoplura), though he included the Mallophaga of mammals in the latter. De Geer made a slight advance when he included the Trichodectid of the dog in *Ricinus* among the Mallophaga, but Olfers goes back to Redi's arrangement placing the bird-Mallophaga in *Nirmus* but all the mammal-infesting species of both groups in *Pediculus*.

Pediculus bifurcatus (p. 83)

This appears to be an unnecessary *nomen novum* for *Pediculus porcelli* Schrank and *P. saviae* Schrank. As, however, the description is perhaps independent we think it necessary to erect a neotype, but in view of the fact that the name is in part



FIGS. 29-32. Head and prothorax of male *Ricinus*, drawn to same scale; maxilla, labium and details of gular region omitted; outline of internal thickening only approximate, varies in mounted specimens. 29. *R. dolichocephalus*. 30. *R. rubeculae*. 31. *R. fringillae*. 32. *R. elongatus*, dorsal view of pterothorax and abdominal segment I included. a, b, c setae referred to in text and Table I; seta b in Fig. 32 is short on one side of neotype.

a *nomen novum* of *P. porcelli* Schrank we have selected the neotype of the latter as neotype of *P. bifurcatum*.

Neotype of *Gliricola bifurcatus* (Olfers) the male specimen selected as neotype of *Gliricola porcelli* (Schrank) by Clay & Hopkins, 1954 : 254 (see entry no. 458, Official List of Specific Names in Zoology).

Pediculus setosus (p. 84)

The description seems to be independent and clearly refers to a sucking-louse, but it is small wonder that Giebel and others placed *setosus* as a synonym of the Trichodectid of the dog, because Olfers gives a reference to " *Ricinus Canis Degeer* ins. VII. tab. 4 f. 16."

The name, therefore, refers to a mixture of a sucking-louse which Olfers had before him and a chewing-louse which he had apparently not seen. It has long been correctly restricted to the former.

Pediculus sphaerocephalus (p. 85)

The description again seems to be independent, though there are references to *Pediculus ovis* of earlier authors. The author gives as host-record " *capris, ovis* ", so it is exceedingly probable that his material included at least two species. The name (usually attributed to Nitzsch) was long applied to the species with which we have dealt as *Damalinia ovis* (Schrank).

Neotype of *Damalinia sphaerocephalus* (Olfers) the neotype specimen of *Damalinia ovis* (Schrank) designated by Clay & Hopkins, 1954 : 255.

Pediculus tauri (p. 85)

Although there is no description this name is not a *nomen nudum* as stated by Harrison (1916 : 19) but merely a reference to *P. tauri* Linn., 1761.

Genus *Nirmus* (p. 86)

This genus was erected by Hermann (1804 : 12) as a *nomen novum* for *Ricinus* De Geer, which Hermann considered to be preoccupied because of the use of the same name in botany. Neumann (1906 : 56), therefore, in designating *Ricinus fringillae* de Geer as type species of *Ricinus*, automatically made the same species the type of *Nirmus* Hermann.

Nirmus hasticeps (p. 87)

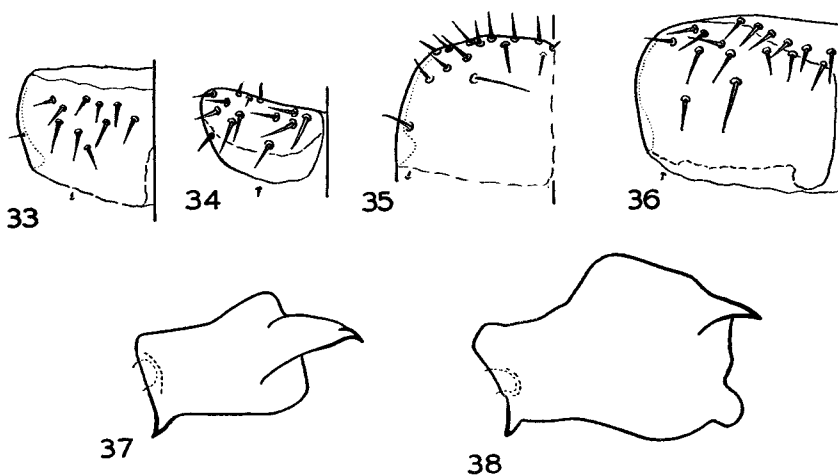
A *nomen novum* for *Pediculus tinnunculi* Linn. but with a description which may perhaps be independent and which forces us to erect a neotype.

Neotype of *Laemobothrion hasticeps* (Olfers) the neotype specimen of *Laemobothrion tinnunculi* (Linn.) designated by Clay & Hopkins, 1950 : 230.

Nirmus adustus (p. 87)

A blanket-name to cover *Pediculus corvi* Linn., *Ricinus cornicis* de Geer, and (judging solely from the list of hosts) *Pediculus haematopus* Scopoli. The description seems to apply chiefly to *Philopterus corvi* (Linn.), so we restrict it in that sense.

Neotype of *Philopterus adustus* (Olfers) the neotype specimen of *Philopterus corvi* (Linn.) designated by Clay & Hopkins, 1950 : 231.



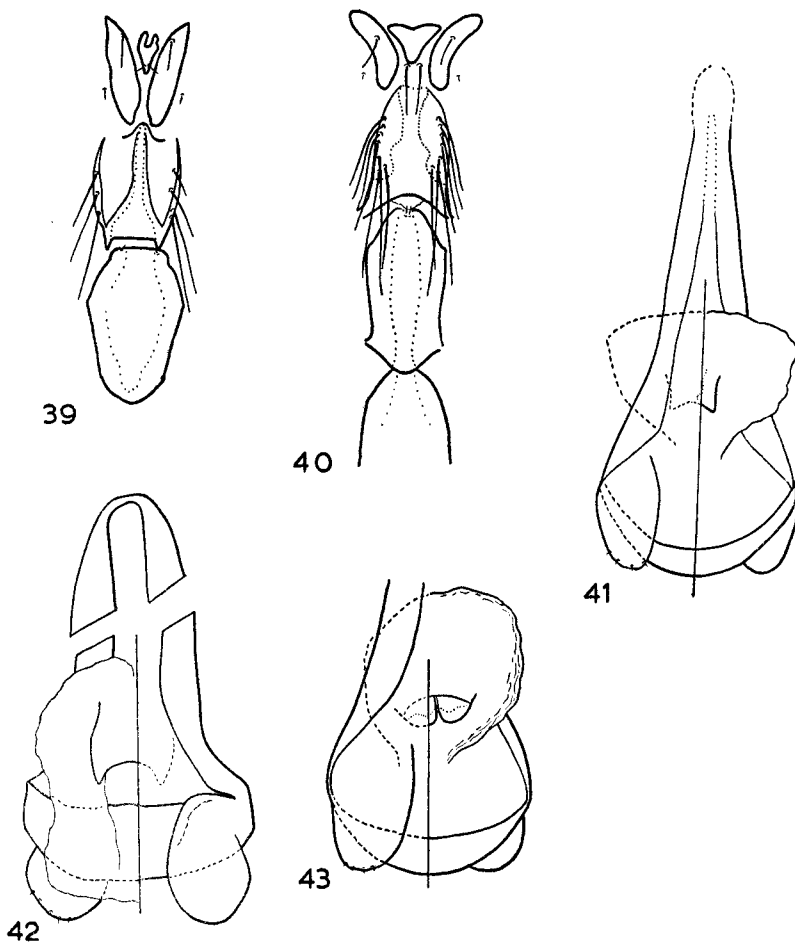
FIGS. 33-38. *Ricinus*. 33-36. Right half of male labium, drawn to same scale. 33. *R. dolichocephalus*. 34. *R. rubeculae*. 35. *R. fringillae*. 36. *R. elongatus*. 37-38. Mandible, female. 37. *R. fringillae*. 38. *R. elongatus*.

Nirmus elongatus (p. 88)

This is the first really new description we find in Olfers' work. The host is *Turdus viscivorus* and the description (particularly the apparent absence of antennae and the presence of a lateral fissure placed posteriorly on the head) leaves no doubt that the insect was a *Ricinus* s. st. This appears to be a rare species on the type host, the only specimens we have seen are those collected by Dr. F. Balát to whom we are much indebted for the presentation of the neotype. Only female specimens of *Ricinus* from *Turdus pilaris*, the type host of *R. mystax* (Burmeister), have been seen; these are not separable from *R. elongatus* and it is probable that *mystax* will prove to be a synonym of the former name. *R. ernstlangi* Eichler, 1941 was published as an uncritical *nomen novum* for a specimen from *Turdus merula* inadequately described by Piaget; this specimen is no longer in either the British Museum or Leyden parts of the Piaget Collection. However, males and females from *Turdus merula* do not appear to be separable from *elongatus*: and *ernstlangi* can be considered as a synonym of this latter name.

As already shown in previous papers in this series (Clay & Hopkins, 1951, 1954) the species of *Ricinus* are most easily separated by the characters of the mandibles,

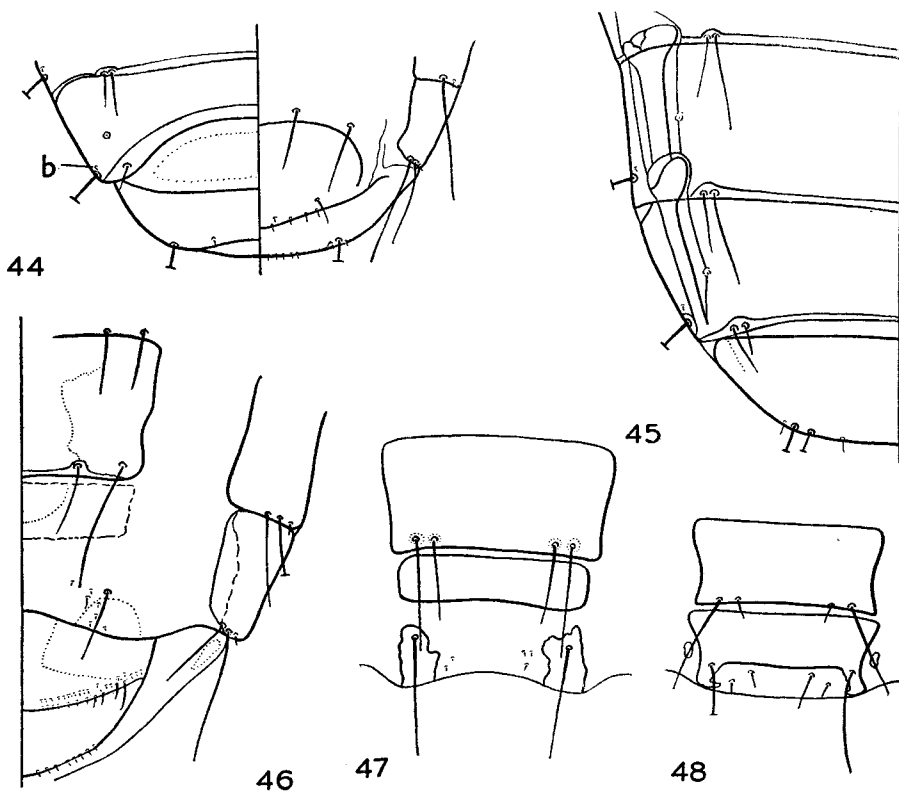
not only by the tips, but by the outline of the whole structure and for this reason a figure is included here of the whole mandible of *R. fringillae* (Text-fig. 37) as this was not shown in Clay & Hopkins, 1954. At that time we had no male of this latter species, but through the kindness of Dr. Balát a male has been seen and a figure of the genitalia can now be given (Text-fig. 41). Additional figures of the previously



FIGS. 39-43. *Ricinus*. 39-40. Gular and thoracic plates and setae, female. 39. *R. dolichocephalus*. 40. *R. elongatus*. 41-43. Male genitalia. 41. *R. fringillae*. 42. *R. elongatus*. 43. *R. dolichocephalus*.

described species are given for comparison with *elongatus*, including one of the bar joining the ends of the basal apodeme in *R. dolichocephalus* (Text-fig. 43) as the pigmentation of the neotype specimen from which this was drawn gives the appearance of the bar being more pointed centrally than it should be. Tables I and II show the characters which are of diagnostic value in separating the four species of *Ricinus* under discussion.

MALE OF *R. elongatus*. General characters as shown in Pl. I, fig. 5; chaetotaxy of head and thorax, mandible, labium and gular and thoracic plates as in Text-figs. 32, 38, 36, 40. Owing to varying amounts of distortion during the preparation of specimens the shape of the labium is variable, but the chaetotaxy appears to be constant for each of the four species. As in all species of *Ricinus* examined the pterothorax is fused with the 1st abdominal segment; the four dorsal setae (Text-fig. 32, c.) on this segment are assumed to be pterothoracic and are not included



FIGS. 44-48. *Ricinus*. 44-46. *R. elongatus*. Terminal segments of abdomen. 44 Male. 45. Female, dorsal. 46. Female, ventral. 47-48. Sclerites of female genital region. 47. *R. fringillae*. 48. *R. rubeculae*.

in the account of the chaetotaxy of the abdomen (see below). Terminal segments of the abdomen and genitalia as in Text-figs. 44 and 42.

FEMALE. General characters as shown in Pl. I, fig. 4; characters of the mandible, labium and gular and thoracic plates as in male; terminal segments of abdomen as in Text-figs. 45 and 46.

CHAETOTAXY OF THE ABDOMEN. Post-spiracular setae present on segments I-VIII, those on II-VIII with the usual two small posterior setae (see Clay, 1954: 717, fig. 1); anterior to each post-spiracular seta is another seta which on segment I is of medium length (Text-fig. 32, b), but may rarely be shorter and thinner on

one side or duplicated on one side; these anterior setae on segments II-VIII are usually short (Text-fig. 44 b), but rarely may be long on one side of a segment. Tergocentral setae: I, 0; II-VIII, 2 + 2, rarely one or both may be missing on one side. Pleural setae as in Table II. Sternocentral setae¹ in the male: I, 1 + 1; II-VII, 2 + 2; VIII, 2 + 2 or 1 + 1; in the female: I, 1 + 1; II-VI, 2 + 2. Chaetotaxy of terminal segments of male and female abdomens shown in Text-figs. 44-46.

Measurements in mm.

	Male (2)		Female			
	Length	Breadth	Length		Breadth	
			Range	Mean	Range	Mean
Head	0.68-0.71	0.70-0.72	0.79-0.84(5)	0.80	0.77-0.81(5)	0.79
Prothorax	—	0.61-0.65	—	—	0.75-0.79(4)	0.77
Abdomen	—	1.08	—	—	1.39-1.44(4)	1.41
Total	3.41-3.52	—	4.58-4.69(4)	4.62	—	—
Genitalia	0.50-0.51	—	—	—	—	—

Neotype male (Pl. I, fig. 5) and *neallotype* female (Pl. I, fig. 4), of *Ricinus elongatus* (Olfers) in the British Museum (Natural History), slide No. 649, from *Turdus viscivorus* Linn. from Hodonin, Czechoslovakia, collected (16.iv.1953) and presented by Dr. František Balát. *Neoparatypes*: 1 ♂ and 5 ♀ from *Turdus viscivorus* Czechoslovakia and Hungary.

TABLE I.—Diagnostic Characters of Species of *Ricinus*

	<i>dolichocephalus</i>	<i>rubeculae</i>	<i>fringillae</i>	<i>elongatus</i>
Head shape and setae	Fig. 29	Fig. 30	Fig. 31	Fig. 32
Length of seta a. and usual no. of associated sensilli	Short 2 Fig. 29 a	Short 2	Long 2	Long 1
Mandibles	Pt. 2, Fig. 13	Pt. 3, Fig. 4	Fig. 37	Fig. 38
Labium	Fig. 33	Fig. 34	Fig. 35	Fig. 36
Gular and thoracic plates and setae	Fig. 39	Pt. 3, Fig. 1	Pt. 3, Fig. 15	Fig. 40
Shape of prothorax	Fig. 29	Fig. 30	Fig. 31	Fig. 32
Length of seta b.* anterior to 1st postspiracular seta	Short	Short	Medium	Medium Fig. 32b
Pleural setae	<i>See Table II</i>			
Setae round anal opening, ♀	Pt. 2, Fig. 15	Pt. 3, Fig. 3	Pt. 3, Fig. 16	Fig. 46
Sclerites of ♀ genital region	Not apparent	Fig. 48	Fig. 47	Fig. 46
♂ genitalia	Pt. 2, Fig. 14 and Fig. 43	Pt. 3, Fig. 2	Fig. 41	Fig. 42

* Length occasionally different on one side of segment.

¹ It is possible that these setae are not assigned to the correct segments.

TABLE II.—*Pleural Setae in Males of Species of Ricinus**

	<i>dolichocephalus</i>	<i>rubeculae</i>	<i>fringillae</i>	<i>elongatus</i>
I†	2 sp.	0	0	1 sp.
II.	3 sp.	2-3 sp.	3 sp.	2 sp.
III	3 sp.	2-3 sp.	3 sp.	2-3 sp.
IV-VI	1 sp.,	1-2 sp.,	1 sp.,	1 sp.
	1 medium, 1 long	1 long	2 long	1-2 long,
VII	1 short,	2 short,	1 short,	As IV
	1 medium, 1 long	1 long	2 long	
VIII	As VII	As VII	As VII	As IV

* Setae of one side only given ; there is some individual variation, usually on one side of the segment only.

† Posterior to 1st post-spiracular seta.

sp. = spine-like seta.

Nirmus crassicornis (p. 89)

This only needs mention because Harrison (1916: 13) attributes the name to Olfers and considers the species different from *crassicornis* Scopoli. It is only different inasmuch as it is a mixture of *Anaticola crassicornis* (Scopoli) and *A. anseris* (Linn.), and Olfers himself correctly credits the name to Scopoli.

Nirmus fornicatus (p. 89)

Another blanket-name, covering *Pediculus sterna* Linn., the left-hand figure of Redi's plate 9, and *Ricinus lari* de Geer excluding the figure. The species is stated to occur on "laris et sternis" and the description is unmistakably that of a *Saemundsonia*. The name has already been restricted (Clay, 1949: 10) by the selection of a neotype specimen from *Sterna h. hirundo* agreeing with the neotype of *Saemundsonia sterna* (Linn.).

Nirmus tetragonocephalus (p. 90)

A new name for *Pediculus pavonis* Linn., but with an independent description which clearly refers to the same insect. The host is *Pavo cristatus*.

Neotype of *Goniodes tetragonocephalus* (Olfers) the male neotype specimen of *Goniodes pavonis* (Linn.) designated by Clay (1940, *Proc. zool. Soc. Lond.* B, 110: 7).

Nirmus trigonocephalus (p. 90)

A new name for *Pediculus gallinae* Linn., but with an apparently independent description ; the host is *Phasianus gallus*. The references include de Geer, pl. 4, fig. 15, of which Olfers remarks that it is a very bad figure. This is hardly surprising because de Geer's figure represents a *Goniocotes* whereas Olfers' description is that of a *Menopon*.

Neotype of *Menopon trigonocephalus* (Olfers), the male neotype specimen of *Menopon gallinae* (Linn.) designated by Clay & Hopkins, 1950: 262.

Nirmus filiformis (p. 90)

Eichler (1942 : 279) has erected a neotype for *Columbicola filiformis* (Olfers) from *Columba o. oenas*.

Nirmus globifer (p. 91)

This is primarily a *nomen novum* for *Pediculus citrinellae* Schrank and *Pediculus emberizae* Fabricius but also includes *Pediculus passeris* Fourcroy because Geoffroy's figure of the latter is quoted in the references. The host-list includes *Emberiza citrinella*, *Parus major*, *Fringilla linaria* and *F. domestica*. In order to prevent any future confusion we restrict the name in such a way as to make it a synonym of *citrinellae* Schrank.

Neotype of *Philopterus globifer* (Olfers) the male neotype specimen of *Philopterus citrinellae* (Schrank) designated by Clay & Hopkins, 1954 : 229.

Nirmus pterocephalus (p. 91)

Another blanket-name, covering *Pediculus fringillae* de Geer, *Pediculus fringillae* Scopoli and *P. rubeculae* Schrank. The first and third of these species belong to *Ricinus s. str.*, as also does Olfers' description, but the species described by de Geer and by Schrank are not the same and there is nothing in Olfers' description to suggest which he had before him. Nor does his host-record help, for it is "Hab. in motacilla rubecula ; fringillis ; Emberizis."

Nirmus pterocephalus has usually been held to apply chiefly to *Ricinus rubeculae* (Schrank) and we establish this assumption on a firm basis by our selection of the neotype.

Neotype of *Ricinus pterocephalus* (Olfers) the male neotype specimen of *Ricinus rubeculae* (Schrank) designated by Clay & Hopkins, 1954 : 224.

Nirmus truncatus (p. 91)

This is an independent description and the host is *Hirundo* (= *Apus*) *apus*. Harrison (1916 : 19) refers the species to *Dennyus* and we are in full agreement with this attribution. Olfers suggests that *Pediculus chelidoneus* Schrank may be the male of *truncatus*, but this is definitely not the case.

As the details of the prothoracic plate are not clear in the figure of *hirundinis* given in Hopkins & Clay, 1950, fig. 60, an enlarged figure is included here. The number of long setae on this plate is not diagnostic as in both sexes variation in number from 3-7 has been found (Text-figs. 53-54).

Neotype of *Dennyus truncatus* (Olfers) the male neotype specimen of *Dennyus hirundinis* (Linn.) designated by Clay & Hopkins, 1950 : 268.

NITZSCH, 1818

(Die Familien und Gattungen der Thierinsekten. *Germar's Mag. Ent.* 3, pp. 261-318).

It has usually been assumed that all the specific names in this work (the only paper on Mallophaga published by Nitzsch himself) are *nomina nuda*, but this is incorrect ;

none of them is accompanied by a description, but many are *nomina nova*, mostly totally unnecessary, for previously-described species. The bearing of this point on the selection by various authors of type species for Nitzsch's genera has been discussed by one of us (Hopkins, 1946) and his application to the International Commission on Zoological Nomenclature to validate certain invalid but universally accepted selections was finally approved in Opinion 342 (1955, *Opin. Decl. int. Comm. zool. Nomencl.* 10, pp. 271-298). In these circumstances we can omit discussion of the genera. Most of the species have already been dealt with, but on account of the importance of this work, which has often been treated as if it were the first contribution to our knowledge of the Mallophaga, we list all specific names which are contained in the paper and are not *nomina nuda*.

Phlopterus (Docophorus) ocellatus (p. 290)

This name is often attributed to Nitzsch, but Nitzsch himself credits it to Scopoli, whose species has already been dealt with by us (Clay & Hopkins, 1951 : 8).

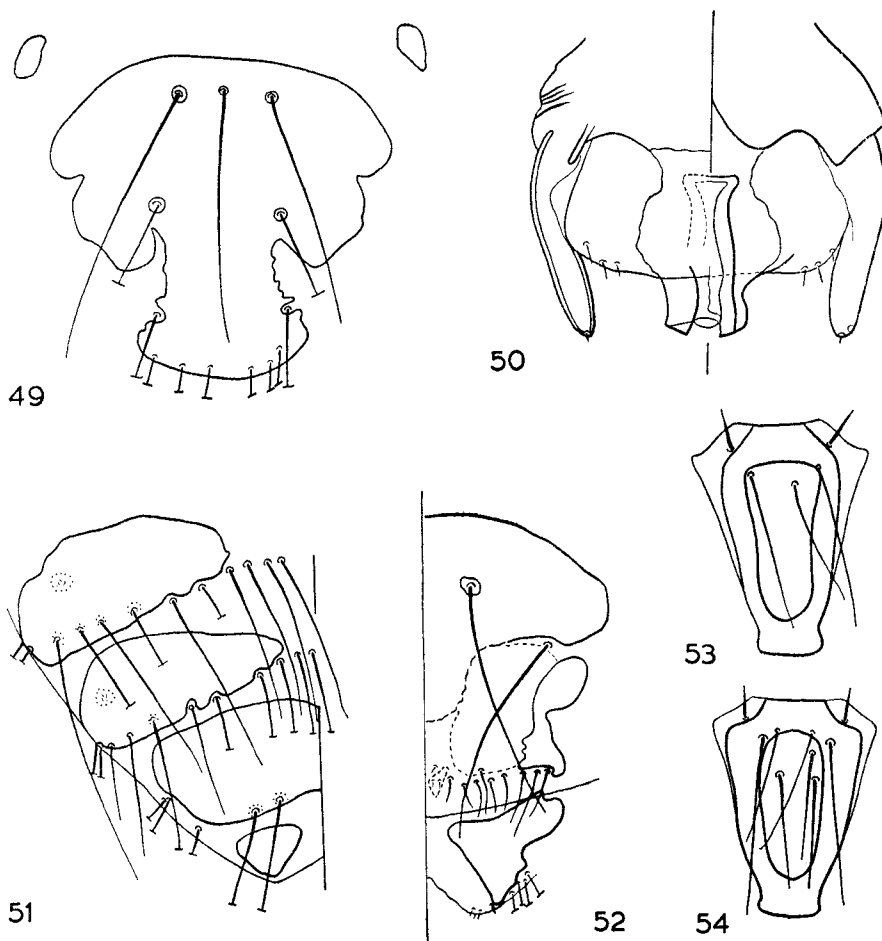
Phlopterus (Docophorus) atratus (p. 290)

Besides a reference to Scopoli similar to that under *ocellatus* there is one to "Pulex Corvi, Redi Experim. t. xvi"; the host is given as *Corvus frugilegus*. We have already dealt (Clay & Hopkins, 1950 : 231) with Linné's erroneous reference to the same plate and the confusion it has caused. Nitzsch's *atratus* is a perfectly valid renaming of Redi's species which previously had no valid name. The type of *atratus* was one of Redi's lost specimens so that we here erect a neotype.

Redi's figure is more like the species from *Corvus frugilegus* than those from other species of *Corvus*. *P. atratus* is distinguished by the anterior plate being elongated with a strongly pigmented posterior point and central unpigmented area, by the abdomen not having relatively large unpigmented areas round the spiracles, by the fused tergal plate of IX-X of the female being uniformly pigmented, by the form of the sternal plates of the male and the sclerites of the female genital region, and by the male genitalia.

MALE AND FEMALE. General characters as shown in Pl. V, figs. 3 and 5. Prothorax with one long seta at each dorsal postero-lateral corner. Pterothorax with small sternal plate and two groups of ventral setae varying in number, the anterior one from 2-3 and the posterior from 3-5; one long and one spine-like seta on each postero-lateral margin and a number of long setae along the postero-dorsal margin varying from 22-31. In both sexes the tergal plates of II-VIII and XI are separated medially; in the male the fused plate of IX-X may be either separated or joined, in the female it is always joined (Text-fig. 51). Sterna of II-VI with small discrete plates each side; sternites of VII and posterior segments form the genital plate in both sexes (Text-figs. 49 and 52). In one male the tergal plate of II is deformed on one side and fused to the pterothorax. Genitalia of male as in Pl. V, fig. 4, and Text-fig. 50.

CHAETOTAXY OF THE ABDOMEN. The tergal setae form a continuous line across the segment, but the outer one on each side can be considered as the post-spiracular seta as on segments II-V it is associated with a sensillus (Clay, 1954); in the counts given below the post-spiracular setae are included with the rest of the tergal setae. The pleural setae as given here include all the lateral setae and those on the ventral



FIGS. 49-54. 49-52. *Philopterus atratus* Nitzsch. 49. Male genital plate. 50. Distal part of male genitalia, mesosome has 6 lateral setae each side, 3 ventral and 3 dorsal. 51-52. Terminal segments of female abdomen. 51. Dorsal. 52. Ventral. 53-54. Prosternal plate and chaetotaxy of two males of *Dennyus hirundinis* (Linn.).

surface lateral to the sternal plates. The first apparent segment (referred to as II) has two long dorsal setae anterior to the row of marginal setae. The following variation was found in the setae of five males and five females: Males, tergal setae: II, 18-26; III, 18-27; IV, 25-32; V, 24-30; VI, 22-28; VII, 17-24; VIII, 13-16; X, 2 + 2 (one specimen with 2 + 1); terminal margin of last segment,

9-14. Sternal setae: II, 12-14; III, 12-15; IV, 11-14; V, 11-14; VI, 9-12; VII, 3; VIII, 1 + 1; XI, 1 + 1. Pleural setae (one side only given): II, 0; III, 1; IV-VI, 5-8; VII, 3-5; VIII, 3-4; IX, 1-2. Females, tergal setae: II, 21-24; III, 25-31; IV, 24-30; V, 25-32; VI, 24-28; VII, 20-24 (1 specimen with 16 due to a natural gap in the line of setae on one side); VIII, 14-18; X, 2 + 2. Sternal setae: II, 11-14; III, 12-14; IV, 10-16; V, 10-13; VI, 9-12. Pleural setae: II, 0; III, 1 (1 specimen with 2 on one side); IV-V, 6-8; VI, 5-7; VII, 3-4; VIII, 4; IX, 2; X, 1; XI, 3-6 long setae and 1 spine-like seta.

Measurements (of 10 males and 10 females) in mm.

	Male			
	Length		Breadth	
	Range	Mean	Range	Mean
Head	0.68-0.76	0.73	0.63-0.70	0.66
Prothorax	—	—	0.37-0.41	0.39
Pterothorax	—	—	0.54-0.58	0.55
Abdomen	0.90-1.16	0.99	0.85-1.00	0.91
Total	1.98-2.32	2.09	—	—
Genitalia	0.48(1)	—	—	—
	Females			
Head	0.75-0.84	0.79	0.68-0.75	0.71
Prothorax	—	—	0.38-0.44	0.41
Pterothorax	—	—	0.55-0.62	0.59
Abdomen	0.97-1.29	1.18	0.88-1.06	0.96
Total	2.08-2.56	2.34	—	—
Genitalia	—	—	—	—

Neotype male (Pl. V, fig. 3) and *neallotype* female (Pl. V, fig. 5) of *Philopterus atratus* Nitzsch, 1818 in the British Museum (Natural History) Collection (slide No. 652, Brit. Mus. 1958-149) from *Corvus f. frugilegus* Linn. from Badgeworth, Gloucestershire, 23.vi.1957. *Neoparatyp*es: 97 ♂, 113 ♀ from the same host form from various localities in the British Isles, Italy and Hungary.

***Philopterus (Docophorus) communis* (p. 290)**

A *nomen novum* for half a dozen names, most of them valid, including *Pediculus citrinellae* Schrank, to which we have already restricted *communis* Nitzsch by selecting as neotype of this nominal species the neotype of *Philopterus citrinellae* (Schrank) (see Clay & Hopkins, 1954: 228).

The host-record is "passerum Linn. fere omnium", and it is specially to be noted that Giebel's apparent restriction of *communis* to the form found on *Fringilla linaria* (Giebel, 1874: 85, pl. 11, fig. 13) cannot be accepted because this bird is not among the hosts of the previously-described species mentioned under *communis* Nitzsch 1818 and to which it owes all its validity.

Philopterus (Docophorus) leontodon (p. 290)

An entirely unnecessary *nomen novum* for "Schrank Beitr. tab. V. f. 11", i.e. *Sturnidoecus sturni* (Schrank). The neotypes for Schrank's species (Clay & Hopkins, 1954 : 232) are automatically neotypes for *Sturnidoecus leontodon* (Nitzsch).

Philopterus (Docophorus) platyrhynchus (p. 290)

An unwanted *nomen novum* for *Pediculus haematopus* Scopoli. The host is *Falco palumbarius*, the same host to which Scopoli himself restricted the name, and our neotype (Clay & Hopkins, 1951 : 5) of Scopoli's species is also the neotype of *Craspedorrhynchus platyrhynchus* (Nitzsch).

Philopterus (Docophorus) excisus (p. 290)

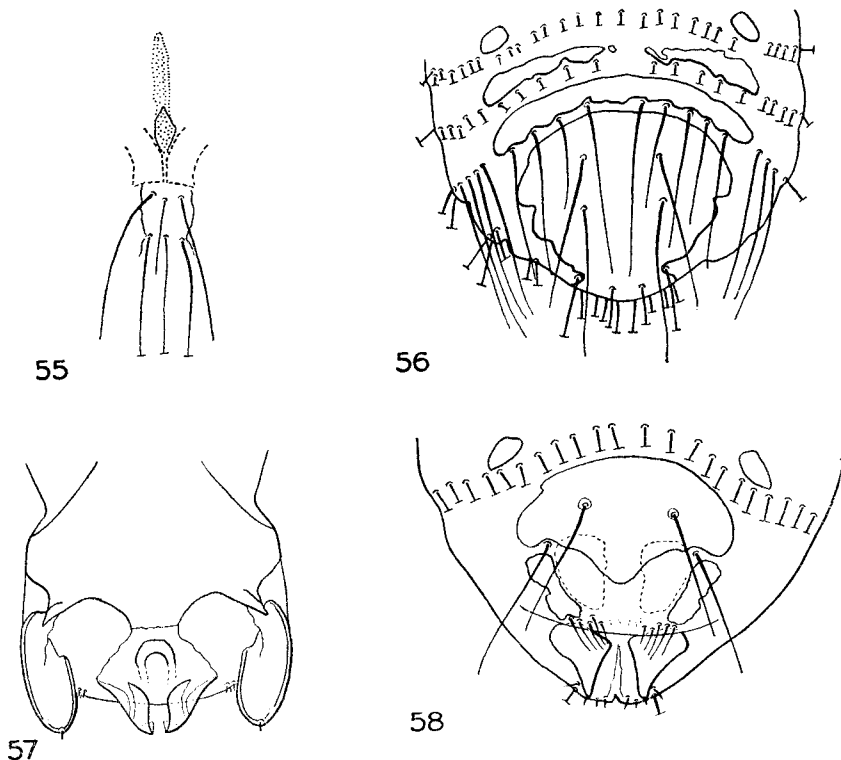
A *nomen novum* for *Pediculus hirundinis* Schrank, 1803, and valid, *hirundinis* Schrank being preoccupied by *Pediculus hirundinis* Linn., 1763. But Nitzsch's host-record "Hirundinis rip. et urbic." cannot be accepted because the host is of necessity that of Schrank's material, which is "Rauchschnalbe" (= *Delichon urbica*). We have already stated (p. 19) that Schrank's description indicates beyond doubt a *Philopterus* of the type which occurs on swallows.

Tandan (1955 : 421-425) has shown how the form from *Delichon urbica* differs from that (*P. excisus microsomaticus* Tandan) from *Hirundo rustica* and given figures of the head and anterior dorsal plate and measurements for the breadth of head which will not be repeated here.

MALE. General characters as shown in Pl. III, fig. 2 and with characters of head and anterior plate as shown in Tandan, 1955, figs. 8*b* and 9*b*. Postantennal area of the head with minute setae, irregular in number and position. Prothorax with pronotum divided in the mid-line; one elongated seta each side of posterior margin; prosternal plate as shown in Text-fig. 55. Pterothorax with pteronotum partially divided into two; sternal plate not heavily sclerotized and usually with 2 meso- and 3 metasternal setae, but there may be 3 meso- and 4 metasternal; posterolateral corner with one medium and one spine-like seta each side and a row of long setae of varying length and thickness along the posterior dorsal margin varying in number from 16-20. Abdomen with tergal plates II-VIII and XI divided medially; the fused plate of IX-X may or may not be divided. Sterna of II-IV with small discrete plates each side, V with a complete or nearly complete transverse sclerite, VI with a complete transverse sclerite and sternites of VII to the end of the abdomen forming the genital plate (Text-fig. 56). Male genitalia as shown in Text-fig. 57.

FEMALE. Head as shown in Tandan, 1955, fig. 11*b*. Thorax as in male with number of setae on posterior margin varying from 17-22. Abdomen with tergal plates II-VIII and XI divided medially, the fused plate on IX-X continuous across the segment. Sterna of II-VI with small discrete plates each side, sternites of the remaining segments as shown in Text-fig. 58.

CHAETOTAXY OF ABDOMEN. In both sexes the tergal setae of II-VIII form a continuous row of long setae across the segment, the outer ones of which are the post-spiracular setae as on segments II-V; these have a contiguous sensillus; in the counts given below the post-spiracular setae are included in the counts of the rest of the tergal setae. Segment II has two long anterior setae in addition to the row of submarginal setae. There is individual variation of both the tergal and sternal setae; tergal setae: II, 16; III, 17; IV, 20; V, 18; VI, 16; VII, 14; VIII, 10;



FIGS. 55-58. *Philopterus excisus* Nitzsch. 55. Prosteral plate and meso-metasternal setae of male. 56. Posterior segments of male abdomen, ventral. 57. Distal part of male genitalia, mesosome has 3 lateral setae each side, 2 ventral and 1 dorsal. 58. Genital region of female.

IX, 1 + 1. On some segments the sternal setae are continuous with the pleural setae and the counts of the latter include all those lateral to the sternites. Sternal setae: II, 12; III, 14; IV, 16; V-VI, 10. In the females examined the range is rather greater: II, 10-15; III, 13-20; IV, 14-19; V-VI, 10-16. Pleural setae (one side only): II, 0; III, 1; IV-V, 6-8; VI, 5-7; VII, 3-4; VIII, 2; IX, 1. Setae of last segments as in Text-figs. 56 and 58.

Measurements (of 10 males and 10 females) in mm.

	Male			
	Length		Breadth	
	Range	Mean	Range	Mean
Head	0·45-0·49*	0·47	0·40-0·43	0·42
Prothorax	—	—	0·25-0·28	0·26
Pterothorax	—	—	0·36-0·40	0·38
Abdomen	0·57-0·68	0·61	0·57-0·61	0·60
Total	1·22-1·44	1·35	—	—
Genitalia	0·25(1)	—	—	—
	Female			
Head	0·49-0·55*	0·51	0·43-0·48	0·45
Prothorax	—	—	0·26-0·29	0·28
Pterothorax	—	—	0·39-0·47	0·42
Abdomen	0·74-0·90	0·81	0·67-0·74	0·69
Total	1·57-1·70	1·63	—	—
Genitalia	—	—	—	—

* Taken from the highest part of hyaline margin to middle of occipital margin.

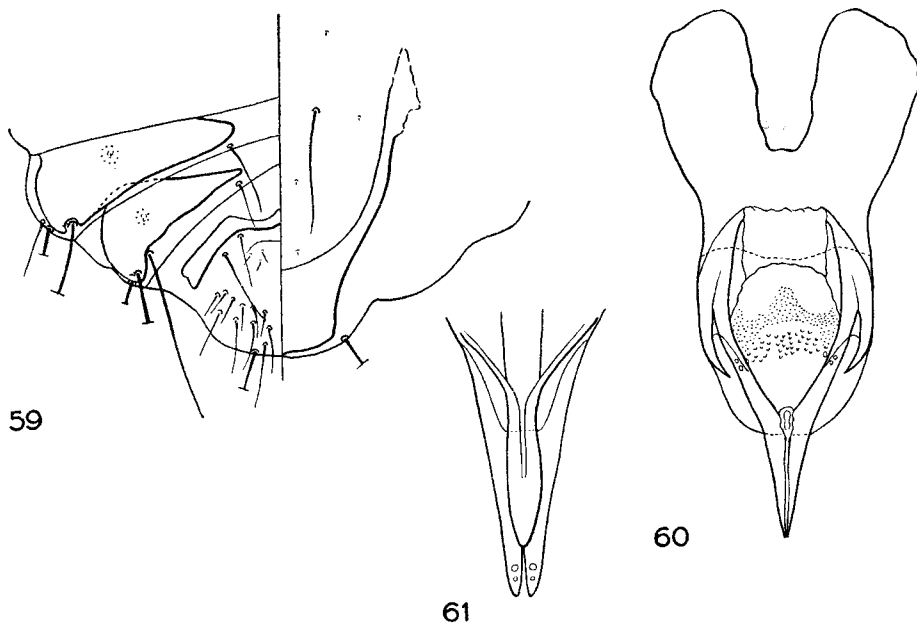
Neotype male (Pl. III, fig. 2) of *Philoaterus excisus* Nitzsch, 1818 in the British Museum (Natural History) Collection (slide No. 651) from *Delichon urbica* (Linn.) from Glen Clova, Scotland, collected by G. B. Corbet, 13.vi.1956. Neoparatypes : 27 ♂, 33 ♀ from the same host form from the British Isles, France, Sweden and Morocco.

Philoaterus (Docophorus) icterodes (p. 290)

A valid *nomen novum* for "Degeer vii. t. 4. f. 14", since de Geer's name *Ricinus mergi-serrati* has been restricted (Clay & Hopkins, 1954 : 240) to the *Anaticola* shown on fig. 13 of the same plate. De Geer's fig. 14 represents an *Anatoecus*. Nitzsch's host-record is "Mergorum et Anat.", for which must be substituted *Mergus serrator*, since the host is of necessity that from which de Geer's material came. The fact that Nitzsch apparently had no material from this host (see Giebel, 1874 : 115) is completely irrelevant.

As previously shown under *Anatoecus dentatus* (in Clay & Hopkins, 1951 : 16) all the European ducks examined have two species (if this does not prove to be a case of dimorphism) of *Anatoecus*, one with the "effractor" in the male genitalia, the other without. As it is impossible to tell from the earlier descriptions to which group a name refers, it is necessary to fix the names arbitrarily for the two types. This has been done by designating as neotype for *A. dentatus* (Scopoli) a specimen with the "effractor" (see Clay & Hopkins, 1951 : 17 and 1958 : 268), and here a male without the "effractor" will be designated as neotype of *icterodes*; each neotype is from the type host of the nominal species. As in the case of *dentatus* no female neallotype nor female neoparatypes will be designated as a revision of *Anatoecus* is required for the certain assignment of the females to the different species of males.

MALE. General characters as shown in Pl. II, fig. 3. General characters and dorsal chaetotaxy of head as in Cummings' figure of *icterodes* (not from type host) (1916: 654, fig. 7B). Prothorax with 1 spine-like and 1 long seta at each postero-lateral corner. Pterothorax with one lateral spine-like seta each side and 6 + 6 long setae along the dorso-posterior margin; and 2 pairs of central ventral setae. Tergum of pterothorax divided longitudinally into two. Abdominal tergites of II–VIII divided medially; fused tergite of IX–X greatly narrowed and continuous across the segment. Except for the genital plate (Text-fig. 59) the sternum has no apparent plates but has horizontal lines of sculpture; anteriorly the genital plate shows



FIGS. 59–61. *Anatoecus icterodes* (Nitzsch), male. 59. Terminal segments of abdomen. 60. Genitalia. 61. Distal part of genitalia, enlarged.

some variation. Pleurites II–VII each with a backwardly directed ventral point, some of which overlap the next segment. Genitalia as shown in Text-figs. 60–61.

CHAETOTAXY OF THE ABDOMEN. Tergal setae: II, 1 long and 1 medium central setae each side; III–V, 1 lateral spine-like seta each side (probably the post-spiracular setae but no sensilli can be seen in the available material) and 1 + 1 long central setae; VI–VII, 1 long lateral seta each side with adjacent spine-like seta, 1 + 1 long central setae; VIII, 1 long lateral seta with adjacent spine-like seta and 1 long seta each side, 1 + 1 medium central setae; X, 2 + 2 or 1 + 2. Pleural setae (only one side given): II–III, 0; IV–V, 2 spine-like setae; VI–VIII, 1 long, 1 medium. Sternal setae: II–V, 1 + 1 minute spine-like setae. For chaetotaxy

of terminal segments see Text-fig. 59. Most of the above characters are also found in the *dentatus* group and cannot be used to distinguish the two species; these are apparently separable only on the characters of the male genitalia.

Measurements in mm.

Male

	Length	Breadth
Head . . .	0.43	0.40
Prothorax . . .	—	0.27
Pterothorax . . .	—	0.35
Abdomen . . .	0.59	0.61
Total . . .	1.29	—
Genitalia . . .	0.40	—

Measurements in mm. of heads of 10 specimens

Individual No.	1	2	3	4	5	6	7	8	9
Total length in midline	0.43	0.41	0.44	0.43	0.43	0.43	0.45	0.43	0.46
Length of hyaline margin	0.13	0.12	0.14	0.13	0.13	0.12	0.15	0.13	0.16
Breadth at temples	0.40	0.39	0.41	0.41	0.40	0.40	0.41	0.40	0.41
Breadth at base of hyaline margin	0.22	0.21	0.23	0.23	0.23	0.22	0.23	0.23	0.23

Neotype male (Pl. II, fig. 3) of *Anatoecus icterodes* (Nitzsch, 1818) in the British Museum (Natural History) Collection (slide No. 20221a, Meinertzhagen Collection) from *Mergus serrator* Linn., from South Uist, British Isles. *Neoparatypes*: 9 ♂ from the same host species from S. Uist and Hampshire, British Isles.

Philopterus (Nirmus) attenuatus (p. 291)

There is a reference to "Ped. Ortygometae? Schrank Ins. Austr.", but the presence of the query renders *attenuatus* still a *nomen nudum*. The name was first published with a description by Burmeister, 1838 but is a synonym of *Rallicola ortygometae* (Schrank) (see Clay & Hopkins, 1954 : 257).

Philopterus (Nirmus) minutus (p. 291)

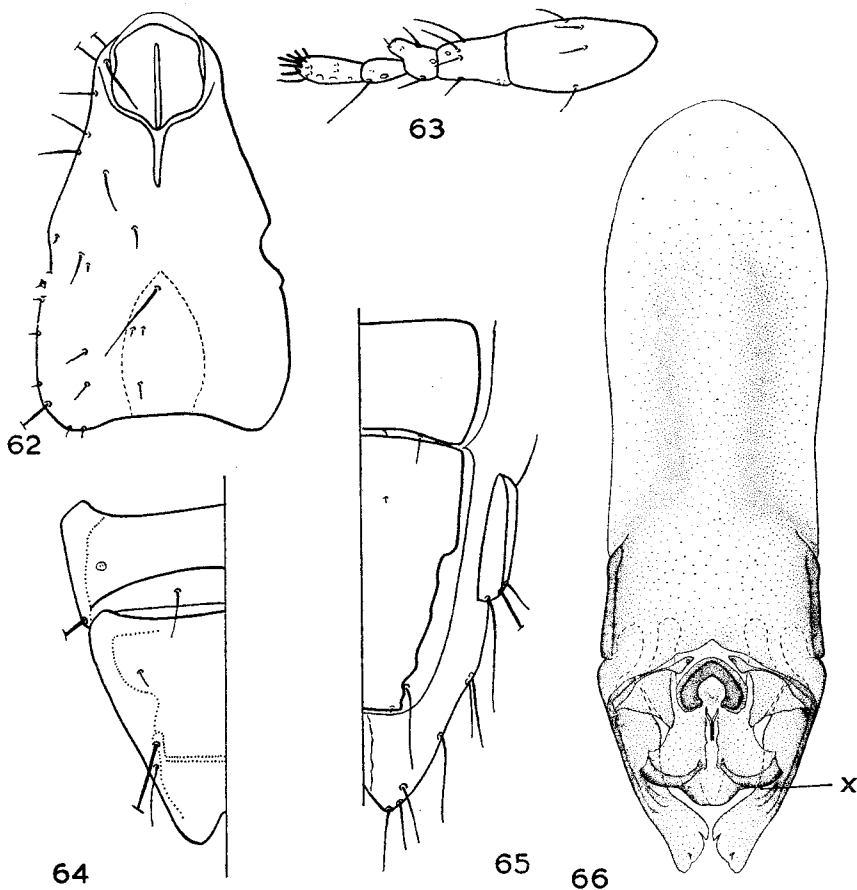
The case of this name has already been dealt with by one of us (Hopkins, 1940 : 423) who regards it as a *nomen nudum*. The name is valid from 1866, when Giebel published Nitzsch's description of *Rallicola minutus* (Nitzsch).

Philopterus (Lipeurus) versicolor (p. 292)

An unwanted *nomen novum* for *Pediculus ciconiae* Linn., so our neotype (1950 : 253) for the latter is also the neotype of *Ardeicola versicolor* (Nitzsch).

Philopterus (Lipeurus) luridus (p. 292)

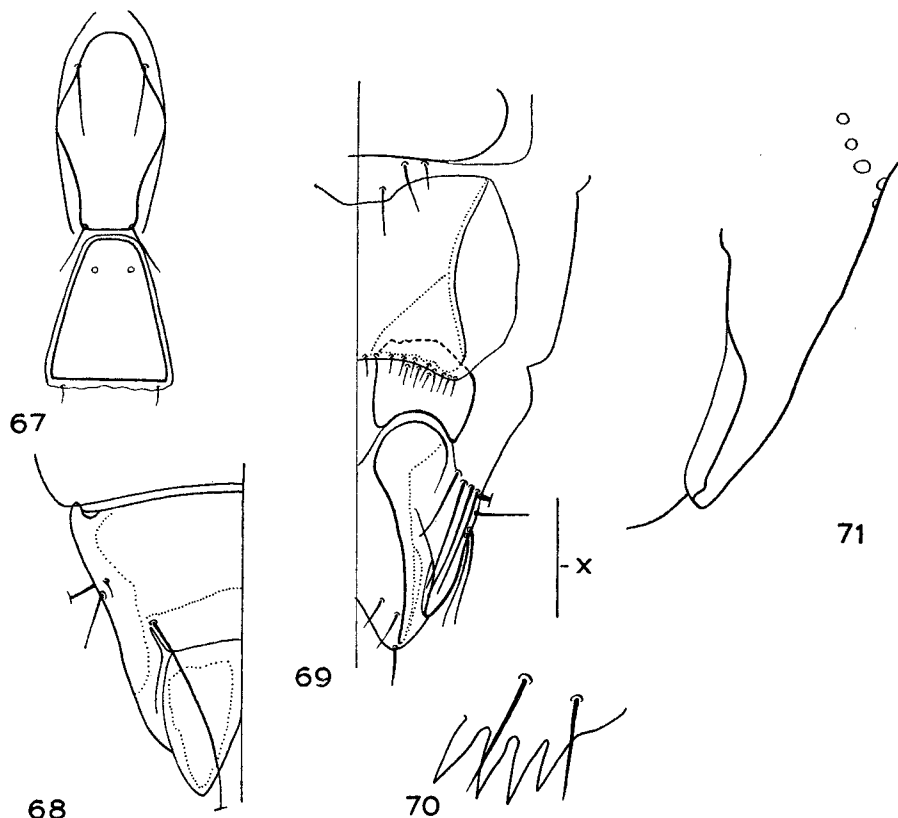
A *nomen novum* for "Redi Experiment. tab. IV. Fig. 2", and valid because the insect depicted (a *Fulicoffula*) had not previously been named. Nitzsch's host-record is "Fulicae chloropod.", but the host must be that of Redi's material, which is *Fulica a. atra*.



FIGS. 62-66. *Fulicoffula lurida* (Nitzsch), male. 62. Outline of head and dorsal chaetotaxy (one side only). 63. Antenna. 64-65. Terminal segments of abdomen. 64. Dorsal. 65. Ventral. 66. Genitalia (R. S. Pitcher del.).

MALE. General characters as shown in Pl. VI, fig. 1. Antenna as shown in Text-fig. 63, and anterior dorsal plate and dorsal chaetotaxy as in Text-fig. 62; there are usually two long setae set close together in the centre of the post-antennal region, but in the neotype there is only one. Prothorax dorsally with one short seta on each postero-lateral corner and two longer ones on the posterior margin; 2 minute setae on the dorsal surface just anterior to the mid line. Pterothorax with

2 minute setae on the anterior dorsal surface; posteriorly there is a lateral seta of medium length each side, a spine-like seta on each postero-lateral corner and sub-marginally on the lateral end of the posterior margin each side a seta of medium length followed by a group of 3 long stout setae. Tergum of pterothorax posteriorly partly divided along the middle line; meso-metasternal plate and chaetotaxy as shown in Text-fig. 67. Abdomen with tergal plate of II (fused I and II) produced anteriorly into the pterothorax as a rounded projection; tergal plates II-X entire across the segments. Segments IX-XI fused, but there is a sign of a division between



FIGS. 67-71. *Fulicoffula lurida*. 67. Meso-metasternal plate and first apparent abdominal sternum, male. 68-69. Terminal segment of female abdomen. 68. Dorsal. 69. Ventral. 70. Edge of vulva enlarged. 71. Region x of Fig. 69 enlarged.

the tergites of X and XI (Text-fig. 64). Pleurites narrow with well developed re-entrant heads on segments III-V. Sternite II as in Text-fig. 67; II-VII median quadrilateral plates, those of VIII and posteriorly to the genital opening form the genital plate (Text-fig. 65). Genitalia as shown in Text-fig. 66, structure X has a toothed edge not apparent in the figure.

FEMALE. General characters as shown in Pl. VI, fig. 2. Antennae simple. Dorsal

anterior plate as in male; the two long setae found on the dorsal surface of the centre of the post-antennal area of the male are absent and all the dorsal setae (omitting the marginal and sub-marginal) with the exception of the one opposite the base of the antenna are minute or shorter than in the male. Thorax and tergite of II as in male but the two setae on the dorsal posterior margin of the prothorax are shorter. Tergal plates II-X entire across the segment but those on III-V have a thinner area centrally giving the impression in some specimens that the plates are divided. The postero-lateral corners of segment X are prolonged posteriorly and the distally free ends partly enclose segment XI (Text-fig. 69); part of this projection is hyaline (Text-fig. 71) and may be bent back or non-apparent giving it a pointed appearance. Pleurites and sternites II-VII as in male. Genital region as in Text-figs. 69-71.

CHAETOTAXY OF THE ABDOMEN. Male. There are no post-spiracular setae but on segments II-V there is what appears to be the lateral sensillus each side. Tergo-central setae: II, 2 anterior setae of medium length and 2 anterior sensilli¹ and 2 central submarginal setae of medium length; III-VIII, 2 central submarginal setae of medium length, not placed so closely to each other as those on segment II; IX-XI as in Text fig. 64. Pleural setae (one side only): II, 1 (short); III-IV, 2 (short on III, of medium length on IV); V, 1 long and 1 of medium length; VI-VII, 1 (long) and 2 (medium); VIII, 1 (long), 2 (medium), 1 short; IX, 2 medium, 1

Measurements in mm.

	Male					
	Length			Breadth		
		Range*	Mean	Range*	Mean	
Head . . .	0.60	0.55-0.59†	0.57†	0.35-0.40	0.37	
Prothorax . . .	—	—	—	0.28	—	
Pterothorax . . .	—	—	—	0.33	—	
Abdomen . . .	1.47	—	—	0.41	—	
Total . . .	2.64	—	—	—	—	
Genitalia . . .	—	0.36-0.38	—	—	—	
Female						
Head . . .	0.61	0.59-0.64†	0.61†	0.38-0.41	0.39	
Prothorax . . .	—	—	—	0.29	—	
Pterothorax . . .	—	—	—	0.34	—	
Abdomen . . .	1.87	—	—	0.55	—	
Total . . .	3.03	—	—	—	—	
Genitalia . . .	—	—	—	—	—	

* Range and mean for length and breadth of head of 10 specimens, of length of genitalia of 2 specimens; remaining measurements of one specimen.

† As hyaline margin may be distorted, length of head in range taken from anterior margin of anterior plate.

¹ The circular clear areas in the tergites and sternites are here referred to as sensilli, although their true function is unknown.

short, this short seta may be found submarginally on the dorsal surface as in Text-fig. 64; X, 2 medium. Sternal setae II, 2 short submarginal and 2 sensilli near anterior margin of sternite (Text-fig. 67); III–VI, 2 short submarginal and two sensilli (which may be absent on VI) a short way anterior to the setae; VII–XI as in Text-fig. 65. In the female the tergal setae of II–X are as in the male except that the anterior setae of II are minute and the posterior setae are not placed so near each other. Pleural setae II–VIII and sternal setae II–VI as in male except the sternal setae of II–III are longer than in the male. Chaetotaxy of terminal segments as in Text-figs. 68–69.

Neotype male (Pl. VI, fig. 1) and *neallotype* female (Pl. VI, fig. 2) of *Fulicoffula lurida* (Nitzsch, 1818) in the Meinertzhagen Collection, British Museum (Natural History), slide No. 4939a from *Fulica a. atra* Linn. from Suffolk, England, August 1936. *Neoparatypes*: 62 ♂, 61 ♀ from the same host form from various localities in the British Isles, Morocco, Israel and Manipur (India).

***Philopterus (Lipeurus) squalidus* (p. 292)**

A *nomen novum* for *Pediculus anatis* J. C. Fabricius. We have already (1954 : 255) erected a neotype for Fabricius' species (which is a synonym of *A. crassicornis* (Scopoli)) and therefore for *Anaticola squalidus* (Nitzsch).

***Philopterus (Lipeurus) temporalis* (p. 292)**

A *nomen novum* for "Ricinus Mergi, Degeer VII. tab. IV, Fig. 13" and therefore an objective synonym of *Anaticola mergiserrati* (de Geer). Nitzsch's host-record is "Mergorum", but the host is *Mergus serrator* and the neotype (see Clay & Hopkins, 1954 : 240) of *Anaticola mergiserrati* (de Geer) is also the neotype of *Anaticola temporalis* (Nitzsch).

***Philopterus (Lipeurus) jejunus* (p. 292)**

An unwanted *nomen novum* for *Pediculus anseris* Linn. as restricted by Fabricius, so our neotype (1950 : 239) of Linné's species is also the neotype of *Anaticola jejunus* (Nitzsch).

***Philopterus (Lipeurus) ebraeus* (p. 293)**

A *nomen novum* for the insect depicted on Redi's plate 3 and therefore an objective synonym of *Esthiopterum gruis* (Linn.), which is based on the same figure. Our neotype (1950 : 250) of *E. gruis* (Linn.) is necessarily also the neotype of *Esthiopterum ebraeus* (Nitzsch).

***Philopterus (Lipeurus) baculus* (p. 293)**

A *nomen novum* for "Redi Experim. t. II, Fig. super" (the figure on which *Columbicola columbae* (Linn.) is also based) and for "Ped. Columbae Panz. Faun. Ins. Germ. 51. 22". Lest Panzer's species (stated to be from *Columba oenas*, but this is only a quotation from Linné) should be different from that of Linné, we find

it necessary to erect a neotype restricting the name to the species found on *Columba livia domestica*. Nitzsch's host-record is "Columbarum plur", and it is to be particularly noted that *Columbicola baculus* (Burmeister, 1838) is from a different host (*Columba* (now *Streptopelia*) *turtur*) and is probably distinct, though the name is of course preoccupied.

Neotype of *Columbicola baculus* (Nitzsch) the male neotype specimen of *Columbicola columbae* (Linn.) designated by Clay & Hopkins, 1950. *Bull. Brit. Mus. (Nat. Hist.) Entom.*, 1 : 265.

***Philopterus (Goniodes) falcicornis* (p. 293)**

A *nomen novum* for "Pedic. Pavonis, Linn. Fabr.", for "Redi Exper. tab. XIV. (mas)", and for "Panzer Faun. Ins. Germ. 51.t.19 (fem)". Although these are all one species, we think it desirable to designate as neotype of *Goniodes falcicornis* (Nitzsch) the neotype erected for *G. pavonis* (Linn.) by Clay (1940 : 7).

***Philopterus (Goniodes) stylifer* (p. 294)**

A *nomen novum* for *Pediculus meleagridis* Schrank 1781. The latter author (1781, p. 504, pl. 1, fig. 4) doubted if his species was the same as that of Linné, and although his doubts were quite groundless we feel compelled by them to erect a neotype.

Neotype of *Pediculus meleagridis* Schrank, 1781 and therefore of *Chelopistes stylifer* (Nitzsch, 1818) the male neotype specimen designated by Clay, 1941 : 124 for *Chelopistes meleagridis* (Linn., 1758).

***Philopterus (Goniodes) hologaster* (p. 294)**

A *nomen novum* for *Ricinus gallinae* de Geer. The neotype we erected for the latter (1954 : 242) is automatically the neotype for *Goniocotes hologaster* (Nitzsch).

***Trichodectes crassus* (p. 295)**

A *nomen novum* for *Pediculus melis* J. C. Fabricius, so the lectotype of the latter (p. 21) is also the lectotype of *T. crassus* Nitzsch.

***Trichodectes latus* (p. 296)**

A *nomen novum* for *Ricinus canis* de Geer. Our neotype of the latter (1954 : 245) is automatically the neotype of *T. latus* also.

***Trichodectes subrostratus* (p. 296)**

The only remarks under this species are the host-reference and "An huc Ped. canis, Oth. Fabric. Faun. Grönl. p. 215?" The name is a *nomen nudum* and Nitzsch's doubts were fully justified, for the subsequent description of Nitzsch's material showed that *Felicola subrostratus* (Burmeister, 1838) is not the same as Fabricius' species.

Trichodectes dubius (p. 296)

The neotype of *Pediculus mustelae* Schrank (p. 11) is automatically the neotype of *Trichodectes dubius* Nitzsch, which is a *nomen novum* for Schrank's species.

Trichodectes sphaerocephalus (p. 296)

A *nomen novum* for "Ped. Ovis, Linn. Fabric.", "Schrank Ins. Austr. p. 502, tab. I, Fig. 8-9." and "Redi exp. t. XXII. Fig. sinistra." *Pediculus ovis* Linn. is a *nomen nudum*, *P. ovis* Fabricius does not exist, and the species depicted by Schrank and Redi are the same. We have already shown (Clay & Hopkins, 1954 : 255) that our neotype of *Damalinia ovis* (Schrank) is automatically neotype of *Damalinia sphaerocephalus* (Nitzsch, 1818). Incidentally the name (if referring to a species distinct from *ovis*) would in any case be invalid as it had already been used by von Olfers.

Trichodectes scalaris (p. 296)

A *nomen novum* for *Pediculus bovis* Linn. Our neotype of the latter is automatically neotype of *Damalinia scalaris* (Nitzsch).

Trichodectes longicornis (p. 296)

A valid *nomen novum* for the species depicted by Redi on plate 23, lower figure, since *Pediculus cervi* Linn., which was partly based on the same plate, has long been restricted to a Hippoboscid (see Clay & Hopkins, 1950 : 227). Nitzsch's host-record is "Cervi Elaphi", which can be accepted as a restriction of Redi's less-definite "Cervo". The types, however, are not in Nitzsch's collection because they are Redi's lost specimens, but as Kéler's excellent figures (1958, fig. 39) of this species were drawn from a specimen in the Nitzsch collection it seems more satisfactory to designate this specimen as neotype than one not seen by Dr. von Kéler.

Neotype female of *Damalinia longicornis* (Nitzsch) the specimen on slide No. 41 marked "type" by Dr. von Kéler, in the Zoologisches Institut, Halle.

Liotheum (Colpocephalum) ochraceum (p. 299)

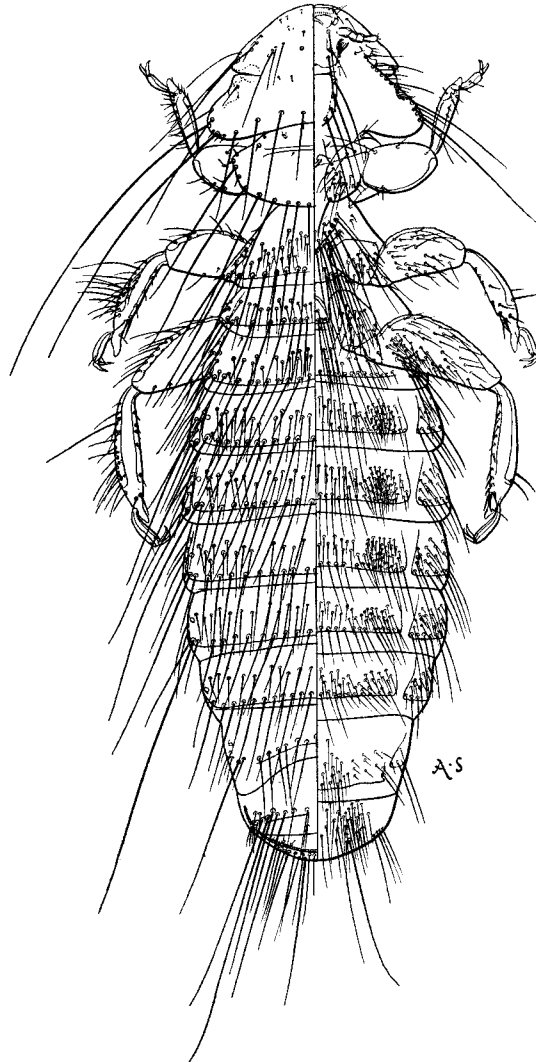
A *nomen novum* for "Pulex avis pluvialis Redi exp. fig. sup.", and valid because we have restricted (1950 : 254) *Pediculus charadrii* Linn. to another of the species shown on Redi's plate 11. The species drawn by Redi fits Nitzsch's definition of *Colpocephalum*, but his host-record "Charadrii Vanelli *et al.*" cannot be accepted because the host is of necessity that of Redi's material, which we have defined (1950 : 255) as *Charadrius apricarius oreophilus*. Redi's figure can be assumed to represent the *Actornithophilus* parasitic on this host.

A neotype will be designated for this species in the publication mentioned under *Actornithophilus totani* (p. 18 above).

Liotheum (Menopon) pallidum (p. 299)

A *nomen novum* for “Pulex Capi Red. exp. XVII” (sic, actually XVI) and “Ped. gallinae Panz. Faun. Ins. Germ. 51.f.21”. The host-record is “Galli gallinaei et aliar. gallin.”, for which must be read *Gallus domesticus*, since this is the host of the species of Redi and Panzer.

Although the species of these two authors are the same and are also the same as *Pediculus gallinae* Linn., the fact that Nitzsch does not mention Linné's species forces us to erect a neotype.



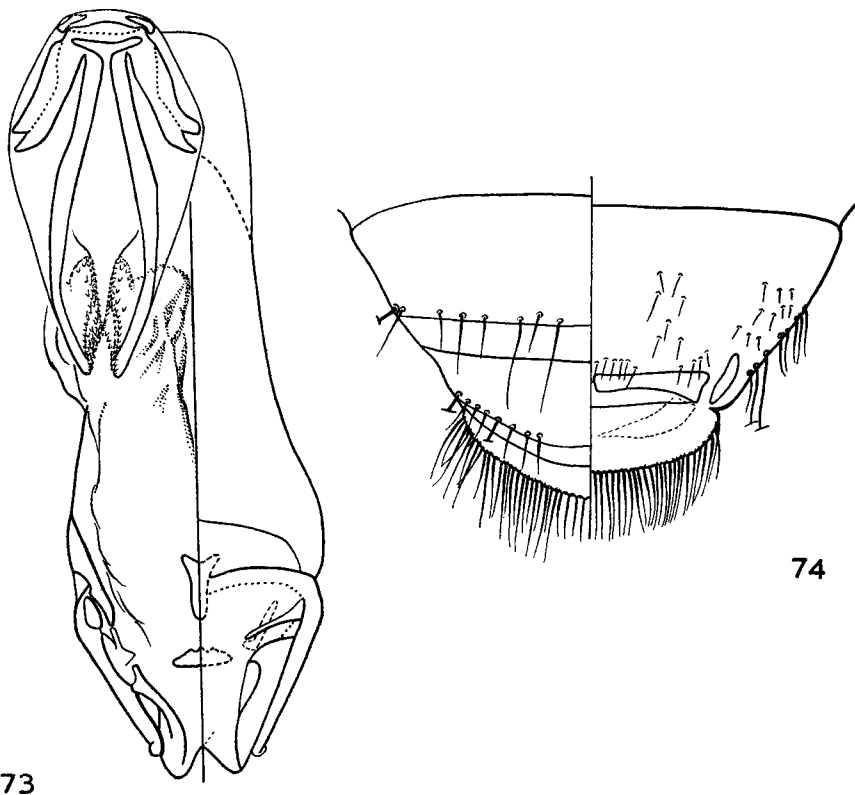
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FIG. 72. *Menacanthus stramineus* (Nitzsch), male (Arthur Smith del.)

Neotype of *Menopon pallidum* (Nitzsch, 1818) the male neotype specimen of *Menopon gallinae* (Linn.) designated by Clay & Hopkins, 1950 : 262.

Liotheum (Menopon) stramineum (p. 300)

A *nomen novum* for "Ped. Meleagridis Panz. Faun. Ins. Germ. 51.f.20". Since Panzer's species is not *Pediculus meleagridis* Linn., Nitzsch's name is valid and necessary. The host of Panzer's material is *Meleagris gallopavo* (domestic) and his figure



FIGS. 73-74. *Menacanthus stramineus*. 73. Male genitalia. 74. Terminal segments of female abdomen.

is fairly good. This species (Text-figs. 72-74) which presumably originated from the turkey as it is found on wild turkeys, is now widespread on the domestic chicken. It is a distinctive species due to its size and the characters of the male genitalia and has been made the type of the monotypic genus *Eomenacanthus*; however as shown by Hopkins & Clay (1955 : 180) the *Menacanthus-Amyrsidea* group of species found on the Galliformes is not easily divisible into natural groups and it seems, until a full revision of these species has been undertaken, that it is more satisfactory to leave them in their original larger groupings although these may prove to be polyphyletic.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0·39	0·73	0·43	0·72
Prothorax . . .	—	0·57	—	0·56
Pterothorax . . .	—	0·63	—	0·70
Abdomen . . .	2·01	0·93	2·07	1·08
Total . . .	2·97	—	3·10	—
Genitalia . . .	0·84	—	—	—

Neotype male of *Menacanthus stramineus* (Nitzsch, 1818) in the British Museum (Natural History) collection (slide No. 646) from *Meleagris gallopavo* (domestic) from Windermere, England. Neoparatypes: 9 ♂, 11 ♀ from wild *Meleagris gallopavo* from various localities; 63 ♂, 88 ♀ from *Gallus domesticus* from various localities in the British Isles, Africa and Australia.

Liotheum (Menopon) cucullare (p. 300)

A *nomen novum* for "Pulex Sturni candidi Red. exp. t. XVII. (mas)". The name is valid, since Redi's species had not previously been validly named. Redi's plate depicts a *Myrsidea* and subsequent description of Nitzsch's specimens shows that they, also, belonged to this genus. The host of Redi's specimen was presumably an albino *Sturnus vulgaris* and Nitzsch's use of this species as the host can be accepted. A quick survey of *Myrsidea* species from some of the Passeres shows that the most obvious characters of the species, that is the modifications of the metathorax and anterior terga of the abdomen in the females, are variable within groups of species from related hosts and probably of little phylogenetic importance and not, therefore, good characters on which to subdivide the genus *Myrsidea*. In the species of *Myrsidea* from the Sturnidae, for instance, the metathorax may be unmodified (*cucullaris*) or greatly produced posteriorly (*pungens* and *buxtoni*); the first abdominal notum may be unmodified (*invadens*¹) or enlarged and pointed posteriorly (*cucullaris*), reduced in size (*teraokai*), or apparently absent (*buxtoni*); the notum of segment II may be unmodified (undescribed species) or modified in various ways (usually being narrowed centrally) or it may be reduced to a small triangular sclerite each side of the prolongation of the metathorax (*buxtoni*). No characters have yet been found which are common to all the species of groups found on related hosts, such as the Sturnidae, Corvidae and others, but the number of setae on the posterior margin of the prothorax, number of setae on the metasternal plate, and the relative length and thickness of the post-spiracular setae of the males are useful characters. For instance, in the species from the Sturnidae there are 6 setae on the posterior margin of the prothorax, 6 (rarely 7-9) setae on the metasternal plate and the post-

¹ It has been assumed that specimens from *Acridotheres tristis* are *Myrsidea invadens* (Kellogg & Chapman, 1902) although the original figure does not show the backward prolongation of terga II and III. These terga are difficult to see in mounted specimens and it is possible that the segmental lines shown in the figure are those of the sternites, which are darker in colour and show through the specimen. The only clue indicating that this figure represents the usual species from *Acridotheres tristis* is that a few setae are shown in the middle of what appears to be segment III and these probably represent the marginal setae of the backwardly produced tergum of III.

spiracular setae of segments III, V and VI in the male are shorter and finer than those on the remaining segments with the exception of I in some species. While the majority of species from the Corvidae have more than 6 marginal prothoracic setae, 8 or more metasternal setae and the post-spiracular setae on III are as long as those on II, there are exceptions to this. Within the group of described



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FIG. 75. *Myrsidea cucullaris* (Nitzsch), female (Arthur Smith del.).

species from the Sturnidae, *cucullaris* is distinguished in both sexes by the reduction of the hypopharyngeal sclerites, that is of the lingual and sitaphore sclerites, and of the epipharyngeal crest or "pestle" (see Clay, 1959), by the lengths of some of the head setae and by the long dorsal seta each side of the prothorax; in the female by the characters of the metathorax and terga of segments I-IV of the abdomen; in the male by the dorsal chaetotaxy of the abdomen and the sclerite of the genital sac. This last structure shows the most useful characters for the separation of males

in *Myrsidea*, but is unfortunately rarely included in figures of the genitalia, which without it show little or no specific difference; it is quite useless to base descriptions of new species of *Myrsidea* on males only, if this character is not shown.

FEMALE. As shown in Text-fig. 75. There is some variation (4-5, rarely 3, each side) in the number of shorter setae on the gular plate; the metasternal plate has 6, rarely 7, setae; there are 3-4 stout spine-like setae at each postero-lateral corner of the metathorax, and on the posterior margin of the metatergum there are a long stout seta at each corner and 12-20 shorter marginal setae; the longer setae in the middle of the second abdominal sternum vary from 7-13 and the marginal setae of this sternum from 16-21, there are 4 stout spine-like setae at each corner, rarely 5 on one side (in related species rarely 3 on one side), in one specimen one of the spines is bifid; the rest of the abdominal chaetotaxy shows a certain amount of variation in numbers except for the number of dorsal setae (in some cases a diagnostic specific character) of tergum VIII which comprise a post-spiracular seta and spine-like seta each side and 4 longer setae in the centre of the posterior margin.

MALE. General characters as shown in Pl. V, fig. 1. The shorter setae of the gular plate are usually 4 each side, rarely 3 or 5; metasternal plate has 6 setae rarely 5; the stout spine-like setae at the lateral corners of the metathorax number 2-3, rarely 4, and the posterior setae of the metatergum comprise one long stout seta at each postero-lateral corner and 5-10 shorter marginal setae. Post-spiracular setae of II, IV, VII and VIII long and stout, those of III, V, VI shorter and finer, those of I intermediate in length and stoutness. In addition to the post-spiracular setae tergum I has from 8-10 marginal setae; terga II-VIII have a lateral spine-like seta near the post-spiracular seta each side and in addition to these the following marginal setae: II-V, 8-12; VI, 6-10; VII, 4-6; on segments V-VII one or more of the outer setae each side may be spine-like. The chaetotaxy of VIII is characteristic (Text-fig. 76) and can be used to separate *cucullaris* from some other species. The longer setae in the middle of the second abdominal sternum vary from 4-11 and the marginal setae of this tergum from 12-17: chaetotaxy of sterna III-VI with some variation but lateral setae of III-IV fewer than in female and segments IV-VI with 0-3 central submarginal setae; setae of posterior segments as in Text-fig. 76. Pleurites with marginal row of spine-like setae as in female. Genitalia with general characters as typical for *Myrsidea*; sclerite of genital sac diagnostic (Pl. V, fig. 2).

Measurements of neotypes in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.30	0.46	0.31	0.49
Prothorax . . .	—	0.30	—	0.33
Metathorax . . .	—	0.42	—	0.57
Abdomen . . .	0.84	0.54	1.11	0.76
Total . . .	1.49	—	1.87	—
Genitalia* . . .	0.47	—	—	—

* Not neallotype.

Neotype female (Text-fig. 75), slide No. 647, and *neallotype* male (Pl. V, fig. 1), slide No. 648, of *Myrsidea cucullaris* (Nitzsch, 1818) in the British Museum (Natural History) from *Sturnus vulgaris vulgaris* Linn. from Romford, Essex. *Neoparatypes* : 54 ♂, 58 ♀ from *Sturnus vulgaris* from various localities in the British Isles, Italy, Switzerland, Estonia and Sweden.

***Liotheum (Menopon) mesoleucum* (p. 300)**

A *nomen novum* for "Ricinus Cornicis Deg. VII.t.IV.f.11 (pupa)." *Ricinus cornicis* de Geer 1778, which is a *Myrsidea*, is not preoccupied by *Pediculus cornicis* J. C. Fabricius 1775, which is a *Philopterus*, so Nitzsch's name falls into synonymy. The neotype we erected (1954 : 239) for *Myrsidea cornicis* (de Geer) is necessarily the neotype of *Myrsidea mesoleuca* (Nitzsch).

***Liotheum (Menopon) minutum* (p. 300)**

An unnecessary *nomen novum* for *Pediculus curuccae* Schrank. Nitzsch's host-record is "passerum Linn. plur.", for which must be substituted *Sylvia curucca*, the host of Schrank's material. This is important, because Giebel (1874 : 286, pl. 15, f. 2) attempted to restrict the name to the form found on *Parus major*; the latter form, if distinct, will require renaming. No specimens of *Menacanthus* have been seen from *Sylvia curucca* so that it has not been possible to erect a neotype for *Menacanthus curuccae* (Schrank).

***Liotheum (Menopon) phanerostigmaton* (p. 300)**

An unnecessary *nomen novum* for *Pediculus fasciatus* Scopoli. Nitzsch's material, like Scopoli's, was from *Cuculus c. canorus*, and our neotype (1951 : 13) of *Cuculiphilus fasciatus* (Scopoli) is also the neotype of *C. phanerostigmaton* (Nitzsch).

***Liotheum (Trinoton) conspurcatum* (p. 300)**

A *nomen novum* for *Pediculus anseris* Sulzer, 1776 (*Abgekürzten Geschichte der Insekten*, pl. 29, fig. 4) *nec* *Pediculus anseris* Linn., 1758. Nitzsch gives the host-record "Anseris cinerei et Cygni olor", but the host must of necessity be that of Sulzer's material, which is "Gans"¹, by which *Anser anser domestica* is doubtless meant. Sulzer's figure certainly represents a *Trinoton*.

This name furnishes an unusually good example of the reason why we would have found it necessary to designate neotypes for the species of which the names published in Nitzsch's 1818 paper are not *nomina nuda* even if his collection had not been almost completely destroyed. As originally published, *Trinoton conspurcatum* (Nitzsch) was a mixture of a new name for the species depicted by Sulzer and a *nomen nudum* representing Nitzsch's undescribed material from *Cygnus olor*, and

¹ All the names of insects in the text of this work are vernacular but both Latin and vernacular names are used in the legends of the plates. The description (p. 241) is practically valueless and Nitzsch did not refer to it, but the vernacular name "Ganslaus" used both here and in the plate-legend furnishes the only host-record.

the name must necessarily be restricted to the former as the only described element. But Piaget (1880, p. 588, pl. 44, fig. 2) used the name *conspurcatum* for the form found on swans and renamed the form from the domestic goose as *Trinoton continuum* (*l.c.*, p. 591); some authors might erroneously regard Piaget's action as a valid restriction of Nitzsch's name.

Since *Trinoton anserinum* (J. C. Fabricius) is a senior synonym of *T. conspurcatum* (Nitzsch, 1818), we designate as neotype of the latter nominal species the lectotype of *Trinoton anserinum* (J. C. Fabricius, 1805).

Trinoton lituratum (p. 300)

“Huc forte Ric. Lari Deg. VII, t. IV, f. 12.” A doubtful reference like this does not redeem *lituratum* from being a *nomen nudum*.

Liotheum (Laemobothrion) giganteum (p. 301)

A *nomen novum* for *Pediculus maximus* Scopoli, *P. buteonis* “Linn. Fabric.,” and *Pediculus circi* Geoffroy. There is no such name as *Pediculus buteonis* Linn., and *P. buteonis* Fabricius is an unwanted *nomen novum* for *P. maximus* Scopoli; Geoffroy's nomenclature is not binominal, but his descriptive phrase was shortened to available form by Fourcroy in 1785 (see part 3 : 258) and the correct name of the species Geoffroy described is *Laemobothrion circi* (Fourcroy). *Laemobothrion giganteum* (Nitzsch) as described in 1818, therefore, is a composite of *L. maximum* (Scopoli) and *L. circi* (Fourcroy) and we hereby restrict the name to the latter of these two elements.

Giebel's redescription of *giganteum* is from material, obtained from a “Steinadler” (*Aquila chrysaetos*), which was probably not conspecific either with *L. circi* or *L. maximum*, while it is obvious that this is so in the case of specimens subsequently wrongly regarded as type-material of *giganteum* by von Kéler (1937 : 322) as he considered these to be *L. tinnunculi*. In any case it cannot be too strongly emphasized that the types of the *nomina nova* proposed by Nitzsch in 1818 are not any specimens in Nitzsch's collection (now almost wholly destroyed), but the lost types of the earlier authors, and therefore the neotypes which we have erected to replace them.

Our restriction of the originally composite *Laemobothrion giganteum* (Nitzsch) to the element the correct name of which is *L. circi* (Fourcroy) automatically makes the neotype we erected for the latter into the neotype of *L. giganteum* (Nitzsch) also.

Liotheum (Laemobothrion) hasticeps (p. 302)

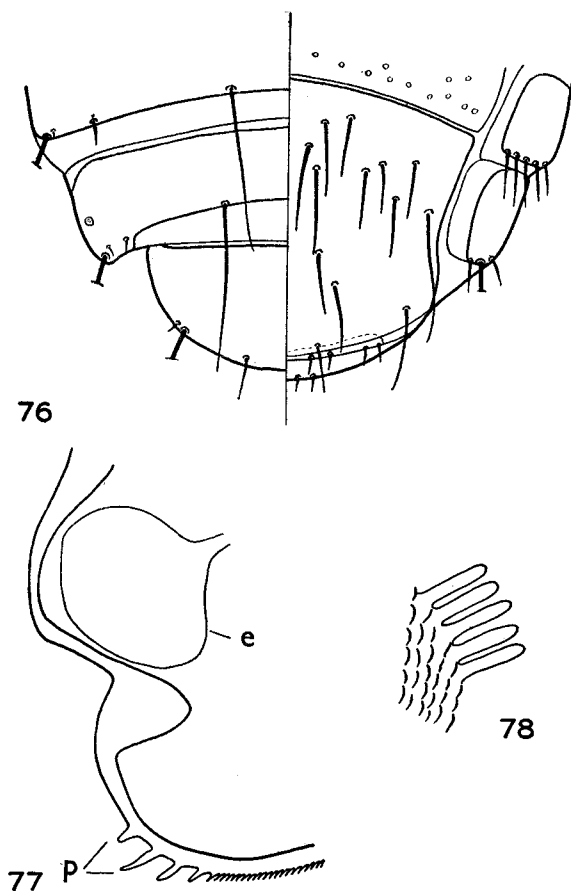
A *nomen novum* for “Pedic. Tinnunculi Linn., Fabric.,” “Redi expt. t. XIII” and “Panz. 51, 17.”

Redi's figure is that on which Linné's name was partly based and Panzer's, though independent, depicts the same species. We hereby restrict Nitzsch's name to *Laemobothrion tinnunculi* (Linné, 1758) and thus make the neotype we erected for the latter (Clay & Hopkins, 1950 : 230) also the neotype of *L. hasticeps* (Nitzsch, 1818).

Liotheum (Laemobothrion) atrum (p. 302)

A valid *nomen novum* for the species depicted on Redi's pl. 4, fig. 1, which is the *Laemobothrion* of the "folaga" (= *Fulica a. atra*) and which previously had no valid name.

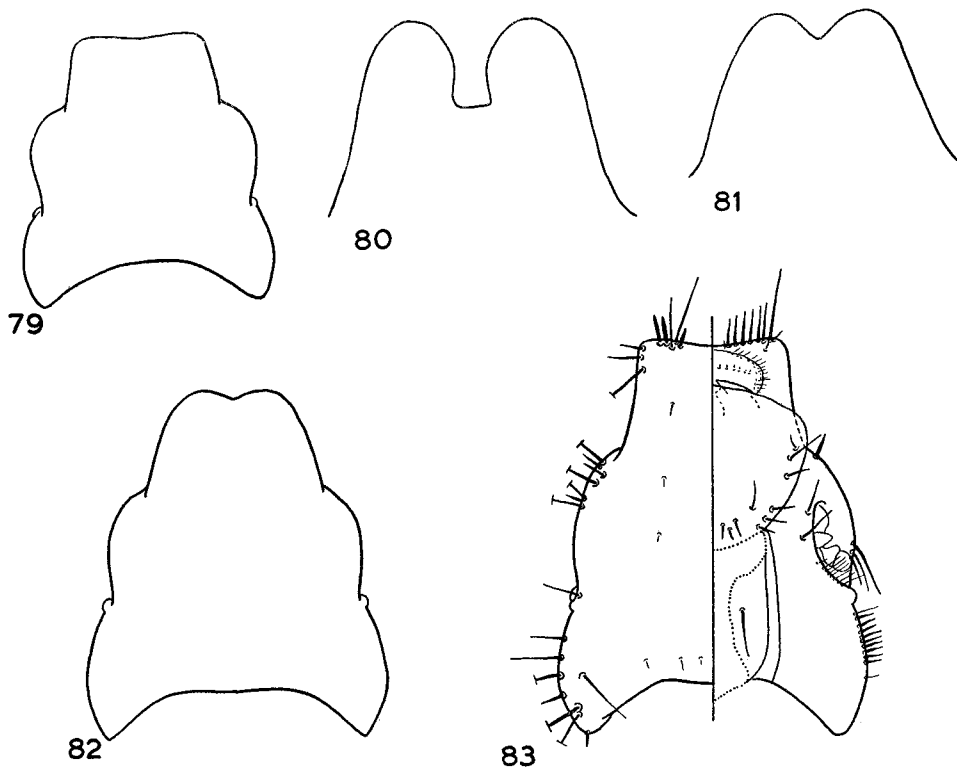
The species of *Laemobothrion* as listed in Hopkins & Clay, 1952 : 182-186 resemble each other in the formation of the head, in the presence of a row or rows of hyaline



FIGS. 76-78. 76. *Myrsidea cucullaris* (Nitzsch), terminal segments of male abdomen. 77. *Laemobothrion (Laemobothrion) percnopteri* (Gervais), nymph. Part of transverse section of head to show four rows of projections (p.) cut in various ways and passing into sculpturing of ventral surface of head. e.—eye. 78. *Laemobothrion (Eulaemobothrion) atrum* (Nitzsch). Hyaline projections from latero-ventral margin of head.

projections on the ventro-lateral margin of the temples (Text-figs. 77-78) and in the general characters of the thorax and abdomen including the genital regions of the abdomen in both sexes. All the species have a minute seta each side of the anterior margin of at least two tergites (Text-figs. 84, s) and a patch of minute

comb-like structures, rather similar to those found in *Microctenia*, each side of sternite V and sometimes on VI and on the venter of the 3rd femora. These species are found on the bird orders Falconiformes, Ciconiiformes and Gruiformes (Rallidae, Aramidae, Psophiidae) and fall into two groups: one on the Falconiformes (*Laemobothrion*) and the other (*Eulaemobothrion*) on the rest of the bird groups. *Eulaemobothrion*, which can usefully be recognized as a subgenus, is distinguished by the presence of stout spine-like setae on the anterior margin of the head, the more elongated points of the mandibles (sexually dimorphic in *opisthocomi*) and by the



FIGS. 79-83. 79-82. Outline of heads of *Laemobothrion* (*Eulaemobothrion*), drawn to same scale. 79. *L. gracile* Giebel, Male. 80-81. *L. opisthocomi* Cummings, outline of preantennal region. 80. Male. 81. Female. 82. *L. cubense* Kellogg & Ferris, male. 83. *L. atrum* Nitzsch. Male head, to show dorsal and ventral chaetotaxy; setae of antenna not shown.

presence of a semi-circular hyaline area (Text-fig. 85) which lies between two of the abdominal sternites (probably II and III, unless it represents sternum II). This last structure is not always easily seen in specimens mounted in canada balsam, although the upper margin can usually be made out. There seems little advantage in recognizing the four genera into which *Eulaemobothrion* has been divided by Eichler (see Hopkins & Clay, 1952 : 182). A key to the species of *Eulaemobothrion* given below

excludes three: *L. pallescens* Kellogg, 1908 (*nom. nov.* for *pallidum* Piaget) and *L. emarginatum* Piaget, both represented in the Piaget collection by nymphs, and *L. plegadilymanticum* (Eichler, 1943) of which no specimens have been seen.

KEY TO THE SPECIES OF EULAEMOBOTHRION

- | | | |
|----|---|--|
| 1. | Anterior margin of head with stout spine-like setae (Text-fig. 83); semi-circular hyaline area between sternites II and III (Text-fig. 85) | <i>Eulaemobothrion</i> 2 |
| - | Without above characters | <i>Laemobothrion</i> |
| 2. | Abdominal segments I-VII or II-VII with minute anterior tergal setae (Text-fig. 84, s) | 3 |
| - | Abdominal segments I-II with anterior tergal setae | 4 |
| 3. | Anterior tergal setae on II-VII; 4-6 setae each side of gular plate | <i>setigerum</i> Piaget |
| - | Anterior tergal setae on I-VII; 1 seta each side of gular plate | <i>kelloggi</i> Bedford |
| 4. | Anterior margin of head narrowly emarginate (Text-figs. 80-81); lateral margins of thorax with stout spine-like setae; anterior margin of head and mandibles sexually dimorphic | <i>opisthocomi</i> Cummings |
| - | Without above combination of characters | 5 |
| 5. | Sitaphore sclerite and epipharyngeal "pestle" normal | 6 |
| - | Sitaphore sclerite greatly reduced; epipharyngeal "pestle" not apparent | <i>chloropodis</i> (Schrank) & <i>atrum</i> Nitzsch. |
| 6. | Forepart of head narrow and elongate (Text-fig. 82) | <i>cubense</i> Kellogg & Ferris |
| - | Forepart of head shorter and broader (Text-fig. 79) | <i>gracile</i> Giebel |

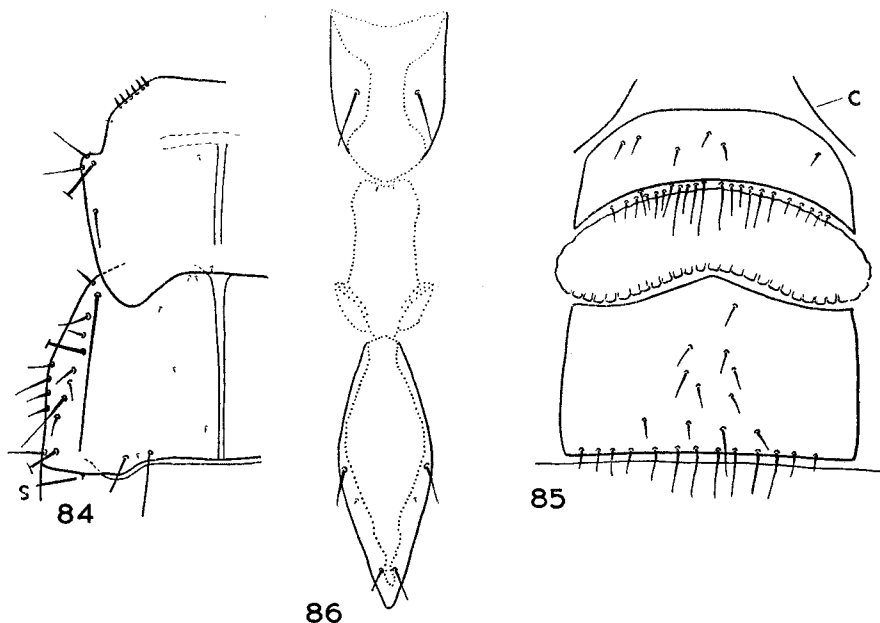
The population from *Fulica atra* appears to be near that from *Gallinula chloropus* spp., but the available material (? = *chloropodis* Schrank, 1803) from the latter host is scanty and in poor condition. Further specimens are required for a detailed examination of the two populations, but if they do prove to be distinct it will not be more than subspecifically.

MALE OF *atrum*. General characters as shown in Pl. VI, fig. 5. Chaetotaxy of head as shown in Text-fig. 83; there are usually 3 + 3 of the stout spine-like setae on the anterior margin, but occasionally there are two or four on one side; there is usually one seta each side of the gular plate, but one specimen has two on one side; there are other slight variations in length, number and position of some of the head setae. Dorsal view of thorax as shown in Text-fig. 84; the number of setae on the lateral projection of the prothorax varies from three to four. Sternal plates of thorax as in Text-fig. 86; the long setae each side of the meso-metasternal plate may be 1 + 1 or 1 + 2, and the setae at the posterior end of this plate two or three, one sometimes being longer than the others. Abdomen with tergal plates I-VIII undivided, with lateral internal thickening and separated from the pleurites on the lateral margin by a narrow suture; tergal plate IX may be continuous across the segment or divided medially. Sternal plates III-VI in the form of rectangular sclerites separated from the pleurites; the semicircular hyaline area mentioned above is shown in Text-fig. 85; sternite V with lateral area of comb-like structures each side, a smaller area is found each side of VI and also one on the venter of the third femur. Terminal segments as shown in Text-fig. 87. Genitalia as shown in Text-figs. 89-91.

FEMALE. General characters as shown in Pl. VI, fig. 6. Chaetotaxy of head as in male with some individual variation. Thorax as in male. Abdomen with tergal

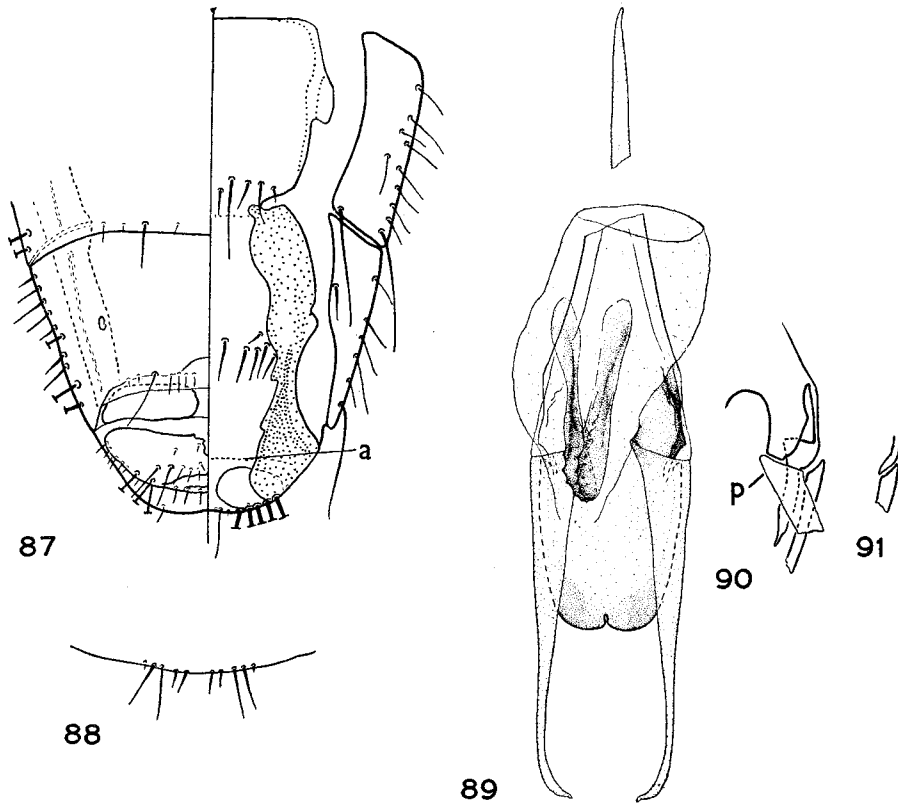
plates I-VIII undivided; sterna I-VI as in male, but there are no minute comb-like structures on sternum VI. Terminal segments as shown in Text-figs. 92-94

CHAETOTAXY OF ABDOMEN. Tergites I-II have a minute seta each side of the anterior margin (Text-fig. 84, s). Tergocentral setae on segments I-VI, 3 + 3; laterally tergites I-VIII with stout post-spiracular setae, those on II-VIII with the two small adjacent setae characteristic of the Amblycera; posterior and lateral to the post-spiracular seta is another (occasionally two on one side) which on segments I-V is short and on VI-VIII is long and stout; apart from these two setae there are other lateral tergal setae and pleural setae, the latter being probably naturally ventral but not always distinguishable from the tergal setae in mounted specimens.



FIGS. 84-86. *Laemobothrion (E.) atrum* Nitzsch. 84. Dorsal view of thorax, male. s.—anterior seta of tergum I. 85. Semicircular hyaline area at base of abdomen, drawn from various specimens in spirit and canada balsam. c.—posterior edge of 3rd coxa. 86. Gular and sternal plates, male.

There is some variation in the number, length and position of these setae but the following numbers are taken from a male specimen which is mounted in such a way that the tergal setae are easily distinguishable from the pleural: lateral tergal setae (given for one side only and omitting the post-spiracular setae and the associated postero-lateral setae mentioned above): I, 4; II, 6; III, 9; IV-VI, 8. Pleural setae: I, 3; II, 19; III, 17; IV, 18; V, 14; VI, 18; terminal segments as shown in Text-figs. 87 and 92. The females tend to have rather more setae, but the individual variation is such that the number of setae cannot be used as a specific character unless differing markedly. Sternal setae of I-III and VII to end as in Text-figs. 85, 87,



FIGS. 87-91. *Laemobothrion (E.) atrum*, male. 87. Terminal segments of abdomen. a.—internal. 88. a. enlarged. 89. Genitalia (R. S. Pitcher del.). 90. Details of sclerites at base of paramere (dorsal). p.—paramere. 91. Part of 90 ventral.

92; IV, 14-18; V, 21-35; VI, 11-18. The stout setae at the end of the male abdomen vary in number from 3-6, one or more sometimes being replaced by a thinner one.

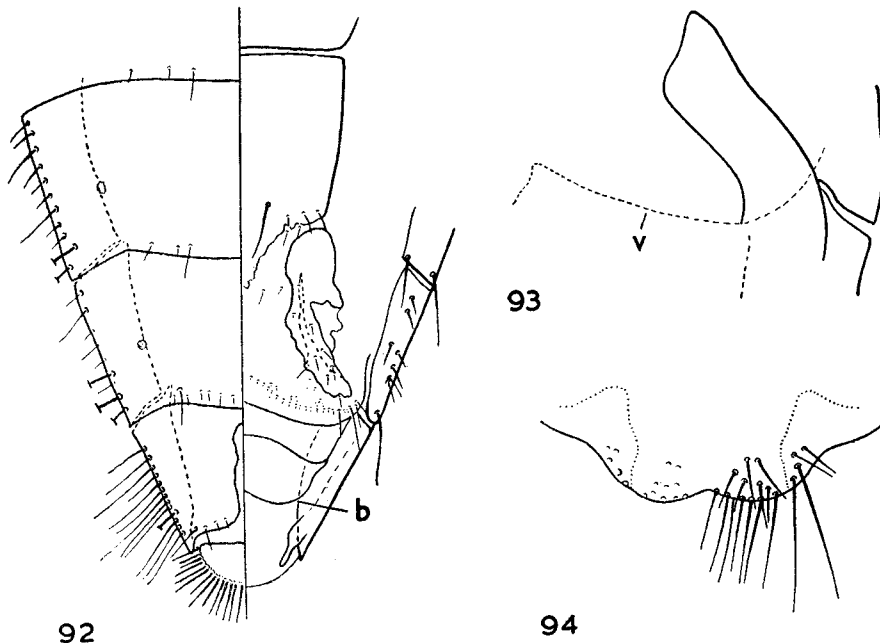
Measurements in mm.

	Length		Breadth	
	Male	Female	Male	Female
Head . . .	1.12*	1.26*	1.03	1.17
Prothorax . . .	—	—	0.88	1.07
Pterothorax . . .	—	—	1.20	1.47
Abdomen. . .	—	—	1.37	1.95
Total . . .	6.20	8.00	—	—
Genitalia . . .	2.34	—	—	—
(to end of parameres)				

* Taken from highest part of anterior margin to middle of occipital margin.

Neotype of *Laemobothrion* (*Eulaemobothrion*) *atrum* (Nitzsch, 1818) male in the Meinertzhagen Collection, British Museum (Natural History), slide No. 11983a from *Fulica a. atra* Linn. from Morocco, October 1938. *Neoparatypes*: 10 ♂, 5 ♀ from the same host form from Morocco, Israel and Rajputana.

The opportunity is also taken to select a lectotype of *Laemobothrion* (*Eulaemobothrion*) *setigerum* Piaget, 1889 as follows: Male in the Piaget Collection, British Museum (Natural History), slide No. 1438a from *Ibis cayennensis*. *Paratypes*: 2 ♂, 1 ♀.



FIGS. 92-94. *Laemobothrion* (*E.*) *atrum*, female. 92. Terminal segments of abdomen. 93. Sclerite of dorsal wall of genital chamber. v.—vulva. 94. b. of Fig. 92 enlarged.

Liotheum* (*Physostomum*) *nitidissimum (p. 302)

This is a *nomen novum* for *Ricinus fringillae* de Geer and the neotype we erected (1954 : 237) for the latter is therefore also the neotype of *R. nitidissimus* (Nitzsch).

Liotheum* (*Physostomum*) *sulphureum (p. 302)

A *nomen novum* for *Pediculus dolichocephalus* Scopoli. The neotype which we erected (1951 : 12) for *Ricinus dolichocephalus* (Scopoli) is automatically the neotype of *Ricinus sulphureus* (Nitzsch).

Gyropus gracilis (p. 304)

As this is a *nomen novum* for *Pediculus porcelli* Schrank, the neotype we erected (1954 : 254) for *Gliricola porcelli* (Schrank) is necessarily also the neotype of *Gliricola gracilis* (Nitzsch).

LIST OF SPECIES

The synonymy of the following names has been established :

Specific name	Present status	Page
<i>adustus</i> Olfers	<i>Philoapterus corvi</i> (Linn., 1758)	26
<i>anatis</i> Fabricius	<i>Anaticola crassicornis</i> (Scopoli, 1763)	10
<i>anserinus</i> Fabricius	<i>Trinoton anserinum</i> (Fabricius, 1805)	21
<i>atratus</i> Nitzsch	<i>Philoapterus atratus</i> Nitzsch, 1818	32
<i>atrum</i> Nitzsch	<i>Laemobothrion (Eulaemobothrion) atrum</i> (Nitzsch, 1818)	53
<i>attenuatus</i> Nitzsch	<i>Nomen nudum</i>	39
<i>baculus</i> Nitzsch	<i>Columbicola columbae</i> (Linn., 1758)	43
<i>bifurcatus</i> Olfers	<i>Gliricola porcelli</i> (Schrank, 1781)	23
<i>chelidonius</i> Schrank	Name rejected as that of a chimaera	19
<i>chloropodis</i> Schrank	<i>Laemobothrion (Eulaemobothrion) chloro-</i> <i>podis</i> (Schrank, 1803)	14
<i>collurionis</i> Schrank	<i>Philoapterus coarctatus</i> (Scopoli, 1763)	11
<i>communis</i> Nitzsch	<i>Philoapterus citrinellae</i> (Schrank, 1776)	34
<i>conspurcatum</i> Nitzsch	<i>Trinoton anserinum</i> (J. C. Fabricius, 1805)	51
<i>crassus</i> Nitzsch	<i>Trichodectes melis</i> (Fabricius, 1805)	44
<i>cucullare</i> Nitzsch	<i>Myrsidea cucullaris</i> (Nitzsch, 1818)	48
<i>dubius</i> Nitzsch	<i>Trichodectes mustelae</i> (Schrank, 1803)	45
<i>ebraeus</i> Nitzsch	<i>Esthiopterum gruis</i> (Linn., 1758)	43
<i>elongatus</i> Olfers	<i>Ricinus elongatus</i> (Olfers, 1816)	26
<i>excisus</i> Nitzsch	<i>Philoapterus excisus</i> Nitzsch, 1818	35
<i>falcicornis</i> Nitzsch	<i>Goniodes pavonis</i> (Linn., 1758)	44
<i>filiformis</i> Olfers	<i>Columbicola filiformis</i> (Olfers, 1816)	31
<i>fornicatus</i> Olfers	<i>Saemundssonina sterna</i> (Linn., 1758)	30
<i>fulicae</i> Schrank	<i>Incidifrons fulicae</i> (Linn., 1758)	18
<i>giganteum</i> Nitzsch	<i>Laemobothrion circi</i> (Fourcroy, 1785)	52
<i>globifer</i> Olfers	<i>Philoapterus citrinellae</i> (Schrank, 1776)	31
<i>gracilis</i> Nitzsch	<i>Gliricola porcelli</i> (Schrank, 1781)	58
<i>hasticeps</i> Olfers	<i>Laemobothrion tinnunculi</i> (Linn., 1758)	25
<i>hasticeps</i> Nitzsch	<i>Laemobothrion tinnunculi</i> (Linn., 1758)	52
<i>hirundinis</i> Schrank	<i>Philoapterus excisus</i> Nitzsch, 1818	19
<i>hologaster</i> Nitzsch	<i>Goniocotes gallinae</i> (De Geer, 1778)	44
<i>icterodes</i> Nitzsch	<i>Anatoecus icterodes</i> (Nitzsch, 1818)	37
<i>jejunus</i> Nitzsch	<i>Anaticola anseris</i> (Linn., 1758)	43
<i>lanii</i> Fabricius	<i>Philoapterus coarctatus</i> (Scopoli, 1763)	7
<i>latus</i> Nitzsch	<i>Trichodectes canis</i> (De Geer, 1778)	44
<i>leontodon</i> Nitzsch	<i>Sturnidoecus sturni</i> (Schrank, 1776)	35
<i>lituratum</i> Nitzsch	<i>Nomen nudum</i>	52
<i>longicornis</i> Nitzsch	<i>Damalinia longicornis</i> (Nitzsch, 1818)	45
<i>luridus</i> Nitzsch	<i>Fulicoffula lurida</i> (Nitzsch, 1818)	40
<i>melis</i> Fabricius	<i>Trichodectes melis</i> (Fabricius, 1805)	21
<i>mesoleucum</i> Nitzsch	<i>Myrsidea cornicis</i> (De Geer, 1778)	51
<i>milvi</i> Schrank	<i>Laemobothrion circi</i> (Fourcroy, 1785)	19
<i>minutus</i> Nitzsch	<i>Nomen nudum</i>	39
<i>minutum</i> Nitzsch	<i>Menacanthus curuccae</i> (Schrank, 1776)	51
<i>mustelae</i> Schrank	<i>Trichodectes mustelae</i> (Schrank, 1803)	11
<i>nitidissimum</i> Nitzsch	<i>Ricinus fringillae</i> (De Geer, 1778)	58
<i>ochraceum</i> Nitzsch	<i>Actornithophilus ochraceus</i> (Nitzsch, 1818)	45
<i>ovisarietis</i> Schrank	<i>Damalinia ovis</i> (Schrank, 1781)	11

<i>pallidum</i> Nitzsch	<i>Menopon gallinae</i> (Linn., 1758)	46
<i>phaeopodis</i> Schrank	<i>Austromenopon phaeopodis</i> (Schrank, 1802)	10
<i>phanerostigmaton</i> Nitzsch	<i>Cuculiphilus fasciatus</i> (Scopoli, 1763)	51
<i>pici</i> Fabricius	<i>Penenirmus pici</i> (J. C. Fabricius, 1798)	7
<i>pici</i> Schrank	Rejected as a junior homonym	12
<i>platyrhynchus</i> Nitzsch	<i>Craspedorrhynchus haematopus</i> (Scopoli, 1763)	35
<i>prognos</i> Schrank	Name rejected as that of a chimaera	20
<i>pterocephalus</i> Olfers	<i>Ricinus rubeculae</i> (Schrank, 1776)	31
<i>rotundus</i> Rudow	<i>Saemundssonina scolopacisphaeopodis</i> (Schrank, 1803)	16
<i>scalaris</i> Burmeister	<i>Penenirmus pici</i> (J. C. Fabricius, 1798)	7
<i>scalaris</i> Nitzsch	<i>Damalinia bovis</i> (Linn., 1758)	45
<i>scolopacisphaeopodis</i> Schrank	<i>Saemundssonina scolopacisphaeopodis</i> (Schrank, 1803)	15
<i>setosus</i> Olfers	A member of the Anoplura	25
<i>sphaerocephalus</i> Olfers	<i>Damalinia ovis</i> (Schrank, 1781)	25
<i>sphaerocephalus</i> Nitzsch	<i>Damalinia ovis</i> (Schrank, 1781)	45
<i>squalidus</i> Nitzsch	<i>Anaticola crassicornis</i> (Scopoli, 1763)	43
<i>stramineum</i> Nitzsch	<i>Menacanthus stramineus</i> (Nitzsch, 1818)	47
<i>stylifer</i> Nitzsch	<i>Chelopistes meleagridis</i> (Linn., 1758)	44
<i>subrostratus</i> Nitzsch	<i>Nomen nudum</i>	44
<i>sulphureum</i> Nitzsch	<i>Ricinus dolichocephalus</i> (Scopoli, 1763)	58
<i>tantali</i> Fabricius	<i>Ardeicola tantali</i> (Fabricius, 1798)	10
<i>temporalis</i> Nitzsch	<i>Anaticola mergiserrati</i> (De Geer, 1778)	43
<i>tetragonocephalus</i> Olfers	<i>Goniodes pavonis</i> (Linn., 1758)	30
<i>totani</i> Schrank	<i>Actornithophilus totani</i> (Schrank, 1803)	18
<i>trigonocephalus</i> Olfers	<i>Menopon gallinae</i> (Linn., 1758)	30
<i>tringae</i> Schrank	Rejected as an unidentifiable junior homonym	15
<i>truncatus</i> Olfers	<i>Dennyus hirundinis</i> (Linn., 1758)	31
<i>upupae</i> Schrank	<i>Upupicola upupae</i> (Schrank, 1803)	12
<i>urogalli</i> Schrank	Name rejected as that of a memory	18
<i>vagelli</i> Fabricius	<i>Ancistrona vagelli</i> (J. C. Fabricius, 1787)	4
<i>wanelli</i> Schrank	<i>Quadriceps junceus</i> (Scopoli, 1763)	15
<i>versicolor</i> Nitzsch	<i>Ardeicola ciconiae</i> (Linn., 1758)	39

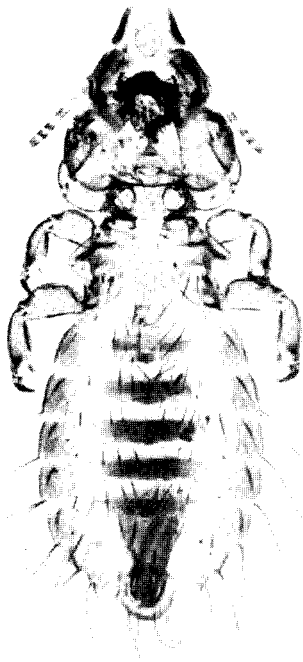
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PLATE I

- FIG. 1. *Penenirmus pici* (Fabricius), male neotype.
FIG. 2. *Penenirmus pici* (Fabricius), female neallotype.
FIG. 3. *Penenirmus pici* (Fabricius), male genitalia.
FIG. 4. *Ricinus elongatus* (Olfers), female neallotype.
FIG. 5. *Ricinus elongatus* (Olfers), male neotype.



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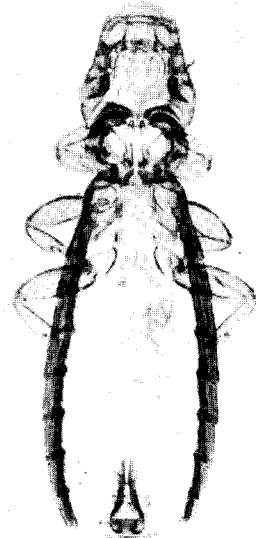
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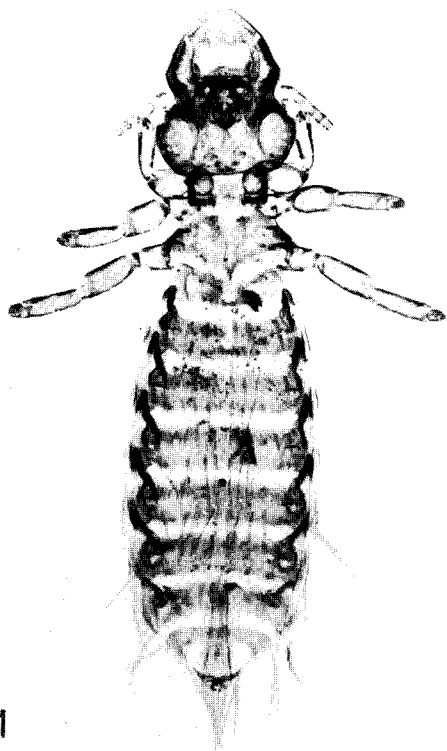
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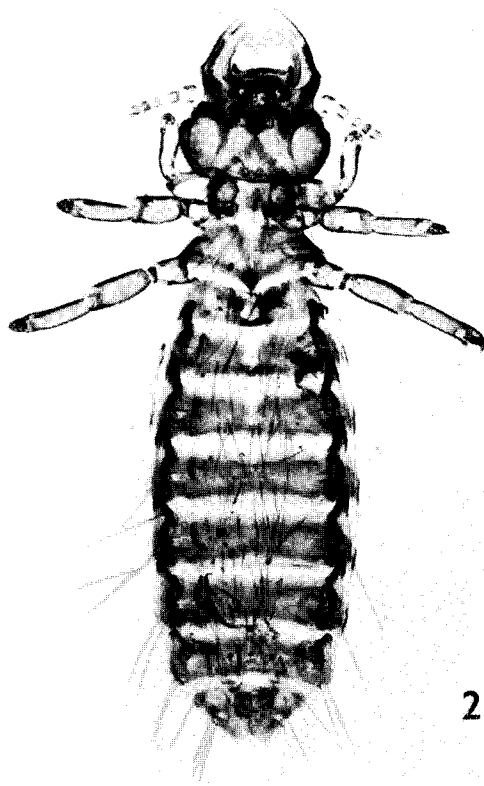
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PLATE 2

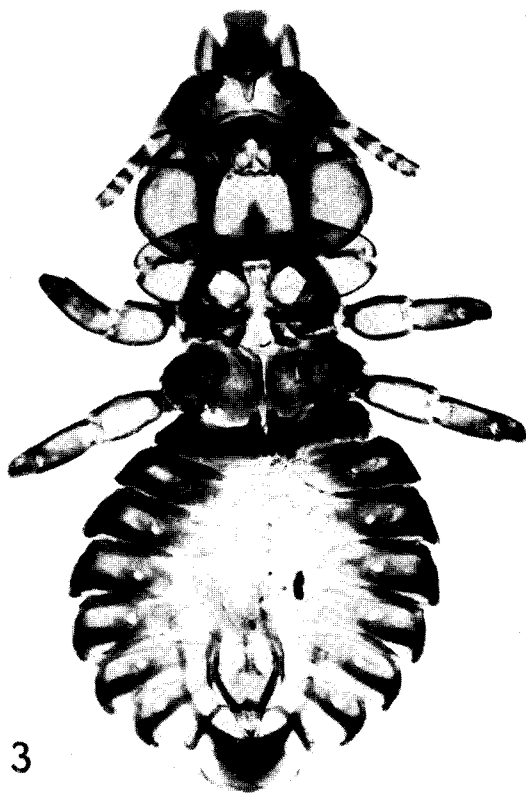
- FIG. 1. *Upupicola upupae* (Schrank), male neotype.
FIG. 2. *Upupicola upupae* (Schrank), female neallotype.
FIG. 3. *Anatoecus icterodes* (Nitzsch), male neotype.



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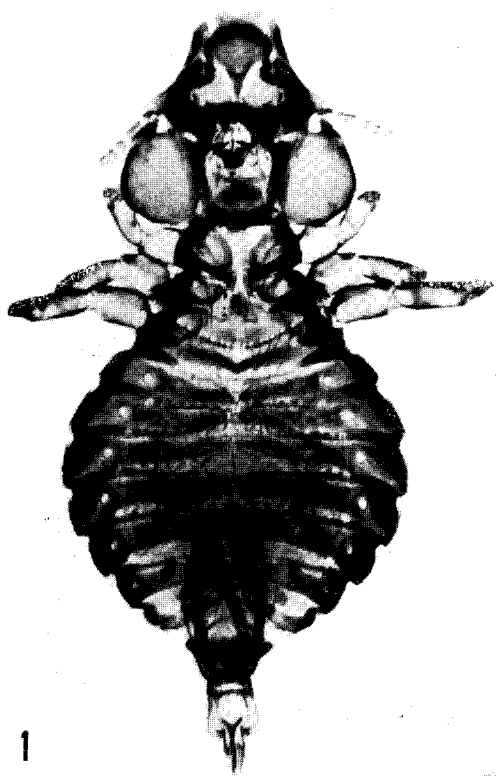
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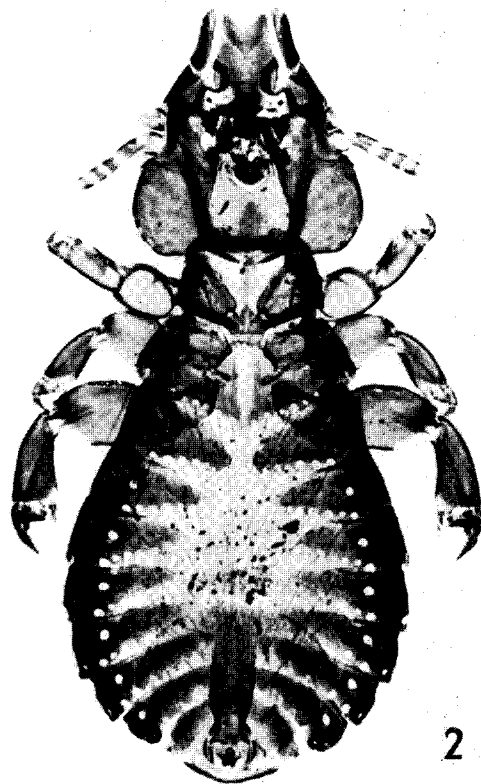
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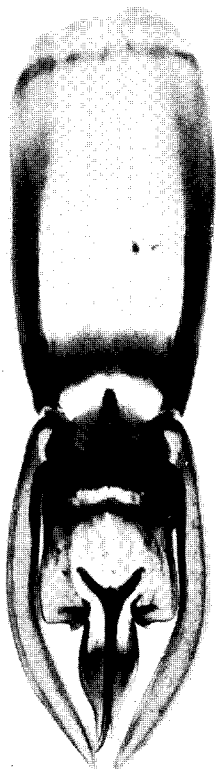
- FIG. 1. *Saemundssonia scolopacisphaeopodis* (Schrank), male neotype.
FIG. 2. *Philopterus excisus* Nitzsch, male neotype.
FIG. 3. *Saemundssonia scolopacisphaeopodis* (Schrank), male genitalia.



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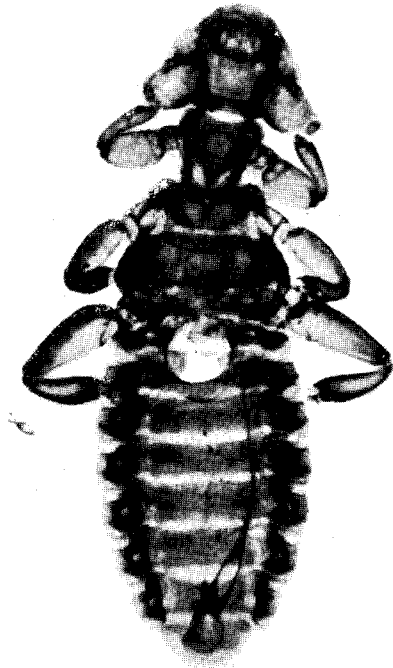
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PLATE 4

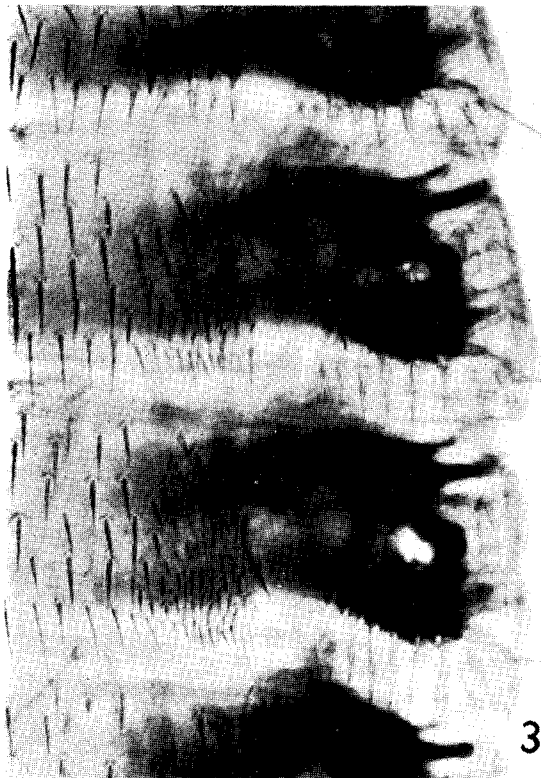
- FIG. 1. *Trinoton anserinum* (Fabricius), male lectotype.
FIG. 2. *Trichodectes melis* (Fabricius), male lectotype.
FIG. 3. *Trinoton querquedulae* (Linn.), sternites IV and V.
FIG. 4. *Trinoton anserinum* (Fabricius), sternites IV and V.



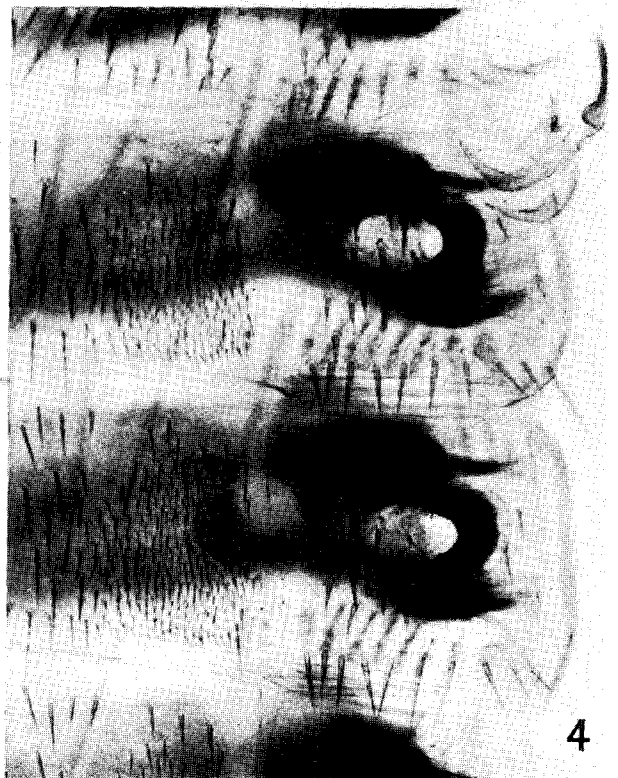
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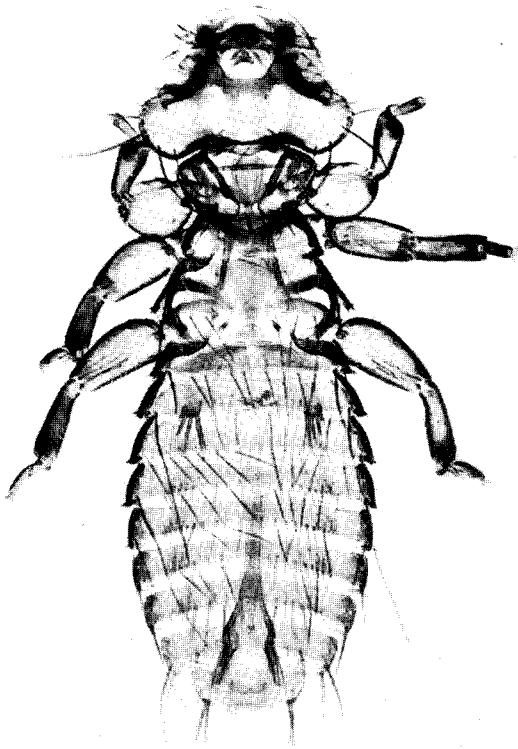
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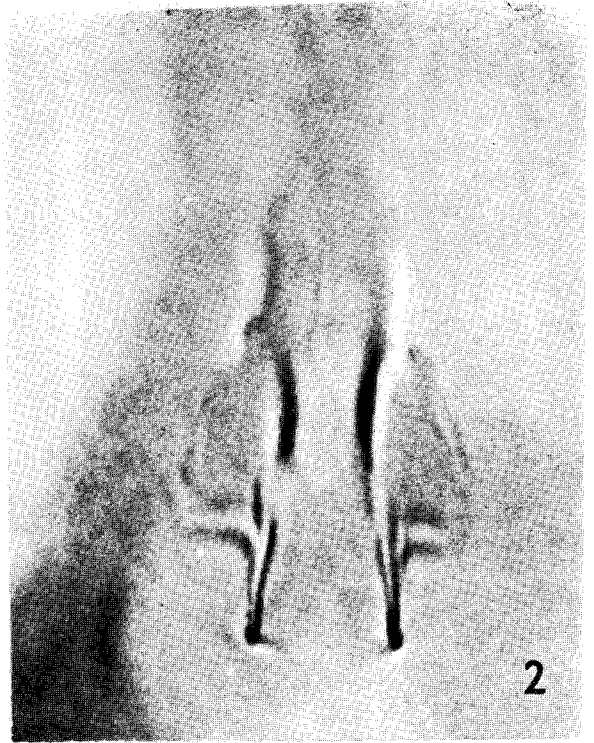
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PLATE 5

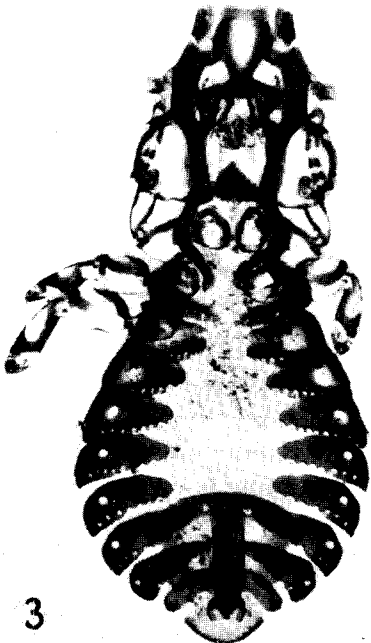
- FIG. 1. *Myrsidea cucullaris* (Nitzsch), male neallotype.
FIG. 2. *Myrsidea cucullaris* (Nitzsch), sclerite of genital sac.
FIG. 3. *Philopterus atratus* (Nitzsch), male neotype.
FIG. 4. *Philopterus atratus* (Nitzsch), male genitalia.
FIG. 5. *Philopterus atratus* (Nitzsch), female neallotype.



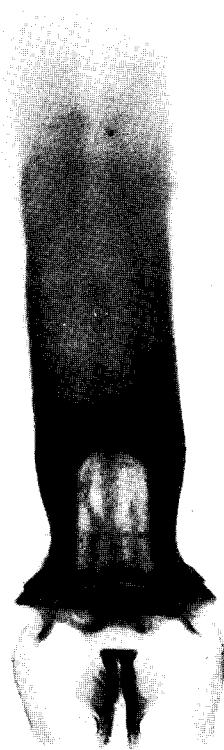
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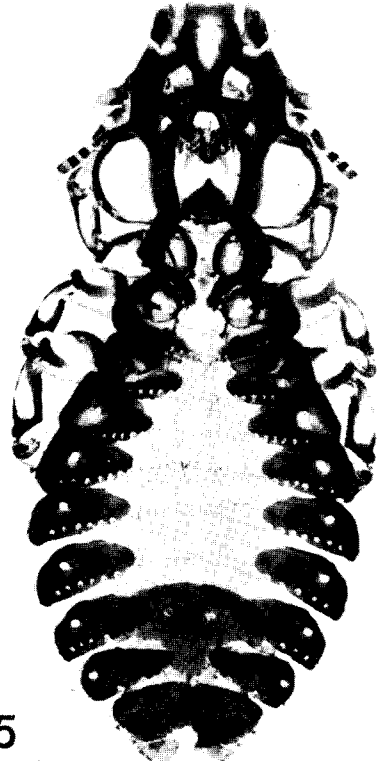
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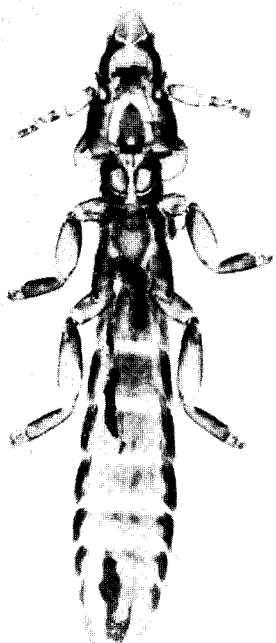
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PLATE 6

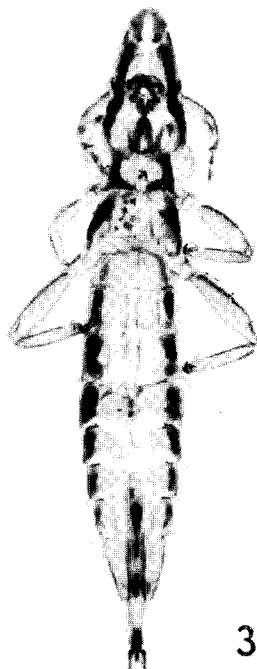
- FIG. 1. *Fulicoffula lurida* (Nitzsch), male neotype.
FIG. 2. *Fulicoffula lurida* (Nitzsch), female neallotype.
FIG. 3. *Ardeicola tantali* (Fabricius), male lectotype.
FIG. 4. *Ardeicola tantali* (Fabricius), female paratype.
FIG. 5. *Laemobothrion* (E.) *atrum* Nitzsch, male neotype.
FIG. 6. *Laemobothrion* (E.) *atrum* Nitzsch, female.



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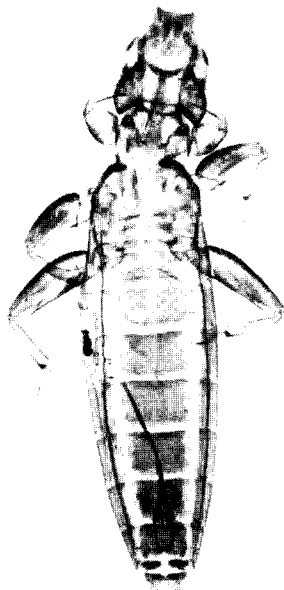
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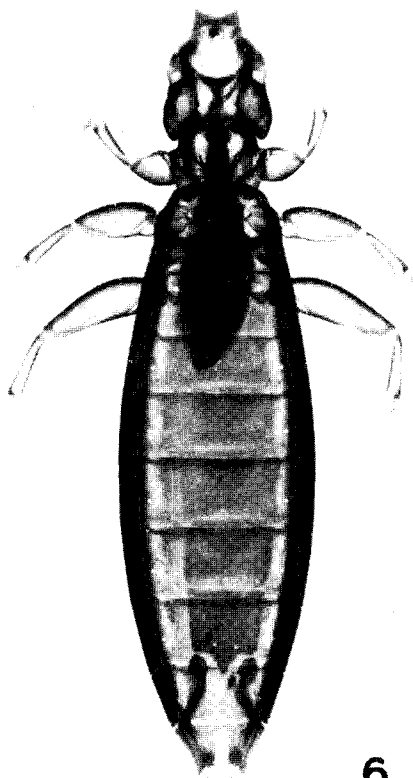
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