

MALLOPHAGA (CHEWING LICE) OCCURRING ON THE DOMESTIC CHICKEN

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INTRODUCTION

More species of Mallophaga (Chewing Lice) may be found on the domestic chicken than any other known fowl. Some of these appear to be normal parasites since they are found on the wild chickens of Southeast Asia. The remainder appear to have been derived from other hosts and are now well established on the chicken.

The large number of species of lice, since some are closely related, has made identification difficult for those not primarily interested in the taxonomy of the group. Although considerable literature has been published on control, most of this literature does not reflect the presently accepted taxonomic status of the species discussed. Distribution and host records given in economic entomological papers are often unreliable, since accuracy of the identifications is seldom verified by taxonomic specialists in the group. Some species, which appear to be common in the United States, have heretofore been unreported.

The purpose of this paper is to summarize the information contained in numerous taxonomic studies, and to furnish a means of ready identification for all the presently known species. Illustrations of the known forms found in the United States and its outlying territories are presented. The male and female figures are drawn to the same scale, the scale being shown on the left side of the plate. The male genitalia illustrations are not drawn to scale. The presently accepted synonymy, with references, has been included for each species. Only the host and distribution records appearing in recognized taxonomic papers have been accepted. These and unpublished data from identifications made by the author comprise the data included in this paper.

In Africa, lice normally found on the wild guineafowl have in some cases adapted themselves to the domestic chicken. Those that have not been reported on the domestic chicken outside of that region have been omitted from this paper.

ACKNOWLEDGMENTS

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KEY TO THE SPECIES OF MALLOPHAGA OCCURRING ON THE DOMESTIC CHICKEN

- | | |
|----------------------------------|---|
| 1. Maxillary palpi present | 2 |
| Maxillary palpi wanting | 5 |

2. Forehead armed ventrally with a pair of prominent spinelike processes3
Forehead without ventral spinelike processes...*Menopon gallinae* (L.)
3. Abdominal tergites III-VII each with two transverse rows of setae4
Abdominal tergites III-VII each with one transverse row of setae*Menacanthus pallidulus* (N.)
4. More than 2 mm in length. Numerous short setae scattered on dorsum of meso-metathorax*Menacanthus stramineus* (N.)
Less than 2 mm in length. Dorsum of meso-metathorax with a few short setae on the lateral margins*Menacanthus cornutus* (S.)
5. Head longer than wide8
Head wider than long6
6. Two long setae on each side of the head in the post antennal region; remainder of the chaetotaxy of the head with only short setae*Goniocotes gallinae* (DeG.)
More than two long setae on each side of the head in the post antennal region; additional long setae on the dorsum of the head7
7. Antennae similar in the two sexes. Three long setae on each temple*Goniodes gigas* (T.)
Antennae sexually dimorphic. Two long setae on each temple*Goniodes dissimilis* D.
8. Terminal abdominal segment of male with a sternal process. Lateral margins of terminal abdominal segment of female each with a longitudinal row of setae*Oxylipeurus dentatus* (S.)
Terminal abdominal segment of male without a sternal process. Lateral margins of terminal abdominal segment of female each without a longitudinal row of setae9
9. 1st antennal segment of male with an appendage. Dorsally, a patch of long setae in each posterior lateral angle of pterothorax; with the intervening margin void of long setae10
1st antennal segment of male without an appendage. Dorsally, four patches of long setae on posterior margin of pterothorax*Cuclotogaster heterographus heterographus* (N.)
10. Posterior margin of vulva, in female, with a row of short setae. In the male, post-antennal constriction; greatest width of head in the preantennal region*Lipeurus caponis* (L.)
Posterior margin of vulva, in female, without a row of short setae. In the male, greatest width of head in the post-antennal region*Lipeurus laurensis tropicalis* P.

Cuclotogaster heterographus heterographus (Nitzsch)

(Plate I, figs. 1-3)

Lipeurus heterographus Nitzsch, 1866. In Giebel, Z. ges. NatWiss., 28: 381.

Goniocotes burnetti Packard, 1870. Amer. Nat., 4: 94, fig. 26.

Lipeurus pallidus Giebel, 1874. Insecta Epizoa: 219.

Lipeurus heterographus var. *major* Piaget, 1880. Les Pédiculines: 362 (nec 346).

Goniodes eynsfordii Theobald, 1896. Parasitic Diseases Poultry: 26, fig. 8.

Cuclotogaster laticorpus Carriker, 1936. Proc. Acad. Nat. Sci. Philad., 88: 67, pl. 1, fig. 2.
Gallipeurus heterographus heterographus (Giebel), Clay, 1938. Proc. Zool. Soc. London, Ser. B, 108: 136, figs. 15-18a.
Cuclotogaster heterographus (Nitzsch), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 95.

This species is common on the domestic chicken and is world-wide in distribution. It has also been found on hatchery-reared ring-necked pheas-

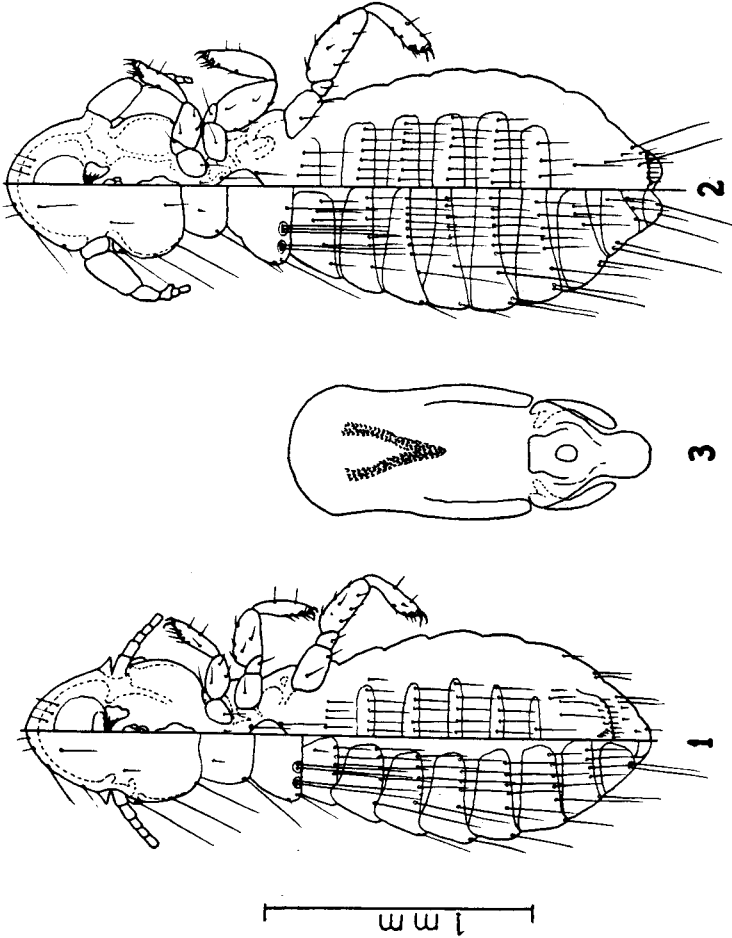


PLATE I

Cuclotogaster heterographus heterographus (Nitzsch).

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

ants in New York, California and Canada. The three other subspecies of this complex are found on certain partridges found in Asia Minor and the Mediterranean Area. Since the species has not been found on any of the wild chickens, it probably was derived from one of the partridges of the genus *Alectoris* in Asia Minor or the Mediterranean Area. This parasite is presently known as the "chicken head louse."

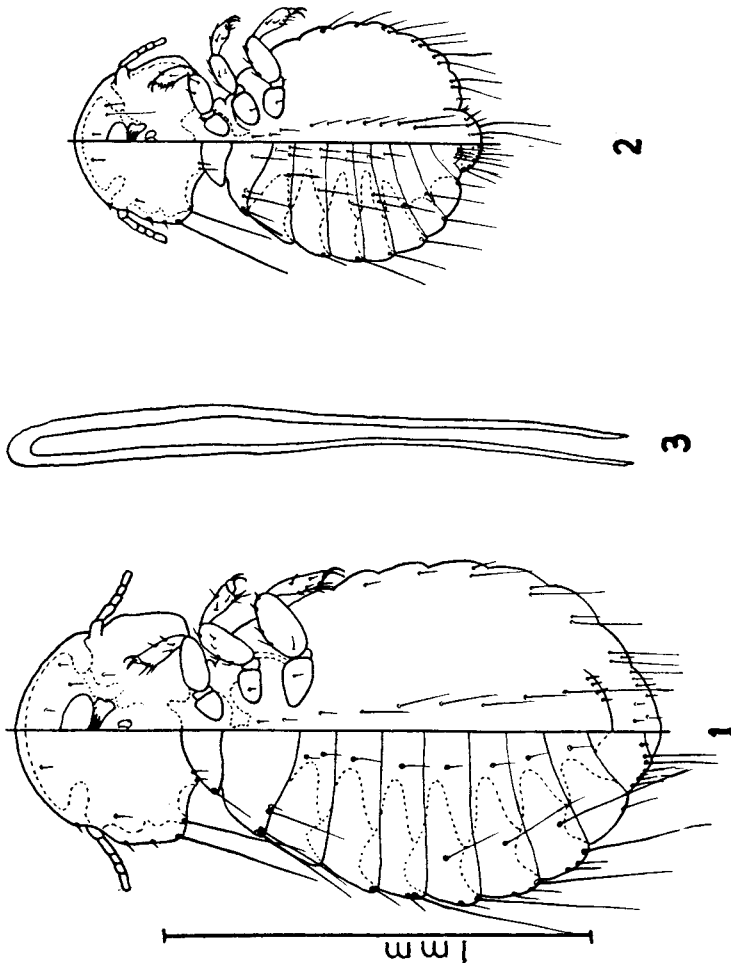


PLATE II

Goniocotes gallinae (DeGeer).

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

Goniocotes gallinae (DeGeer)

(Plate II, figs. 1-3)

Ricinus gallinae DeGeer, 1778. Mém. Hist. Ins., 7: 79, pl. 4, fig. 15.

Philopterus (*Goniodes*) *hologaster* Nitzsch, 1818. Germar's Mag. Ent., 3: 294 (Nomen novum for *Ricinus gallinae* DeGeer).

Goniocotes gallinae (DeGeer), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 147.

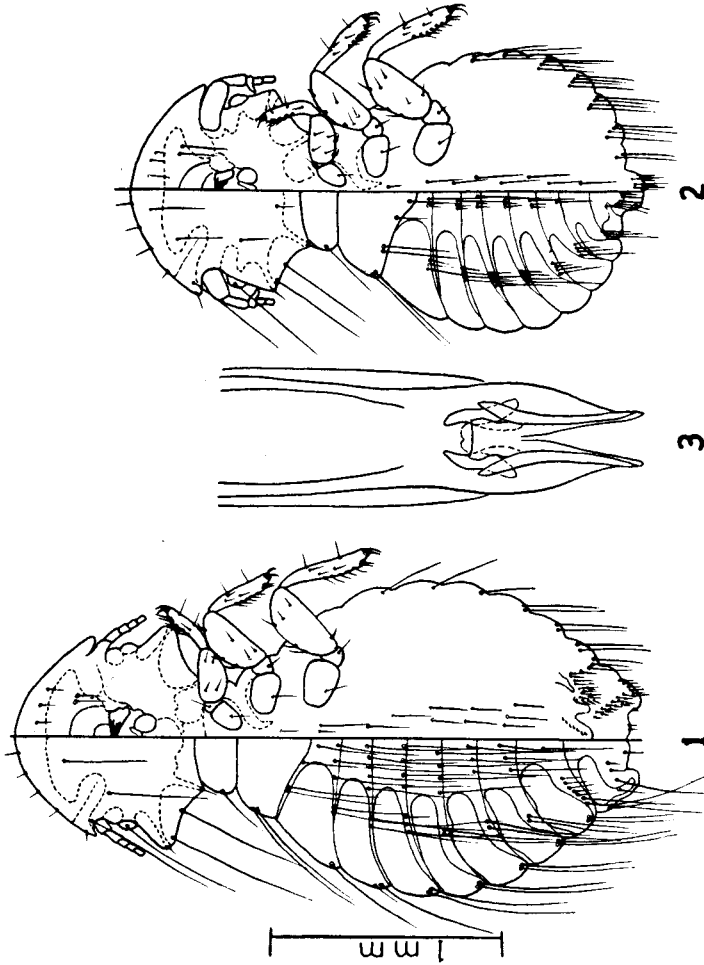


PLATE III

Goniodes dissimilis Denny

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

This species is common on the domestic chicken and is world-wide in distribution. It is found on the wild chickens of Southeast Asia, thus indicating that the wild chicken is probably the original host. Specimens have been examined which were collected from various gallinaceous birds maintained in zoological gardens. These records have not been authenti-

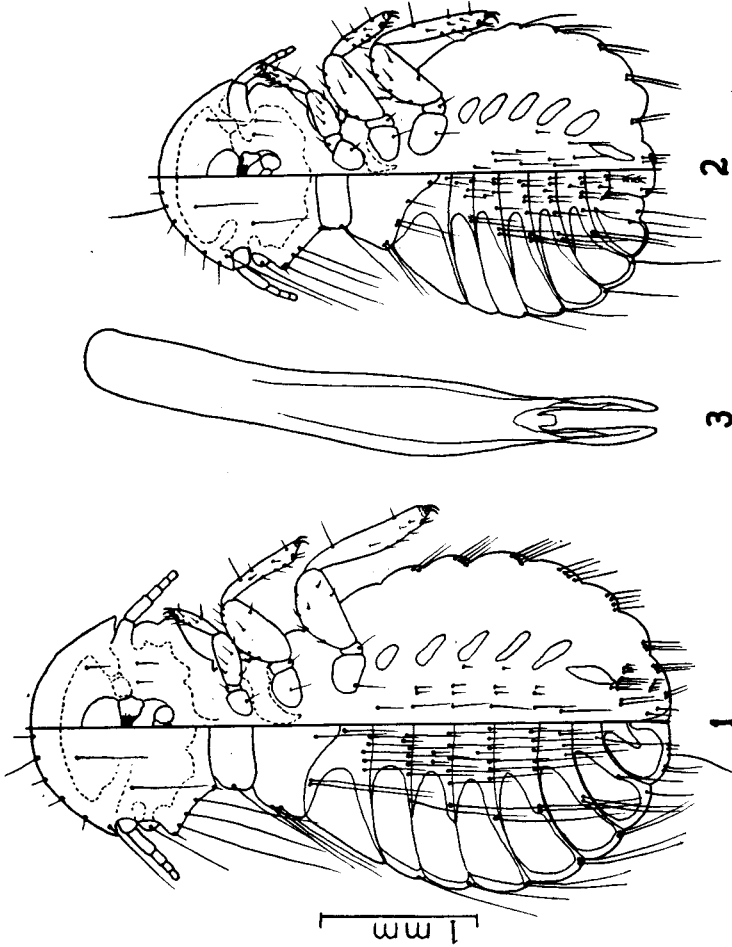


PLATE IV

Gonides gigas (Taschenberg)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

cated by collections from wild hosts, other than the chickens. This parasite is presently known as the "fluff louse."

Goniodes dissimilis Denny

(Plate III, figs. 1-3)

Goniodes dissimilis Denny, 1842. Mon. Anopl. Brit.: 57 and 162, pl. 12, fig. 6.

Goniodes dissimilis var. *bankiva* Piaget, 1880. Les Pédiculines: 269, pl. 22, fig. 3a.

Goniodes dissimilis Denny, Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 153.

This species is common on the domestic chicken and is found in limited numbers on the domestic guineafowl in the United States. Specimens have been examined from all species of wild chickens found in Southeast Asia, indicating that the true host is probably the wild chicken. The present distribution appears to be world-wide. This parasite is presently known as the "brown chicken louse."

Goniodes gigas (Taschenberg)

(Plate IV, figs. 1-3)

Goniocotes hologaster Denny, 1842 (*nec* Nitzsch, 1818). Mon. Anopl. Brit.: 56 and 153, pl. 13, fig. 4.

Goniocotes gigas Taschenberg, 1879. Z. ges. NatWiss., 52: 104, pl. I, fig. 10 (*Nomen novum* for *Goniocotes hologaster* Denny).

Goniocotes abominalis Piaget, 1880. Les Pédiculines: 238, pl. 20, fig. 9.

Goniodes gigas (Taschenberg), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 154.

This species is common on the domestic chicken and domestic guineafowl. Specimens have been examined from several species of wild guineafowl, and this appears to be the original host since it has not been recorded from any other wild host. The species is known to be present on the domestic chicken in North America, Central America, Australia, Africa, and Europe. It probably has spread to other parts of the world where the guineafowl has been introduced. This parasite is presently known as "large chicken louse."

Lipeurus caponis (Linnaeus)

(Plate V, figs. 1-3)

Pediculus caponis Linnaeus, 1758. Syst. Nat., 10th ed.: 614.

Lipeurus variabilis Burmeister, 1838. Handb. Ent., 2: 434.

Nirmus tessellatus Denny, 1842. Mon. Anopl. Brit.: 49 and 121, pl. 7, fig. 2.

Lipeurus antennatus Piaget, 1885 (*nec* Giebel, 1874). Les Pédiculines. Supplément: 75, pl. 8, fig. 3.

Lipeurus variabilis var. *alpha* Kellogg, 1908. In Wytzman's Gen. Ins., 66. Mallophaga: 45 (*Nomen novum* for *Lipeurus variabilis* var. *a* Piaget, 1880: 366).

Lipeurus variabilis var. *beta* Kellogg, 1908. *Ibid*: 45 (*Nomen novum* for *Lipeurus variabilis* var. *B* Piaget, 1880: 366).

Lipeurus variabilis var. *gamma* Kellogg, 1908. *Ibid*: 45 (*Nomen novum* for *Lipeurus variabilis* var. *r* Piaget, 1880: 366).

Lipeurus variabilis var. *formosanus* Sugimoto, 1929 (*nec* Uchida, 1917). Rep. Dep. Agri. Res. Inst. Formosa, 43: 53.

Lipeurus lineatus McGregor, 1917 (*nec* Giebel, 1874). Psyche, 24: 114, pl. 7, figs. 2 and 5.

Lipeurus dovei McGregor, 1918. Psyche, 25: 46 (*Nomen novum* for *Lipeurus lineatus* McGregor).

Lipeurus caponis (Linnaeus), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 192.

Lipeurus dovei McGregor, Hopkins and Clay, 1952. *Ibid*: 193.

Lipeurus caponis borcherti Eichler, 1953. *Mh. Vet. Med.*, 8: 556, fig.

This species is common on the domestic chicken and is world-wide in distribution. It is found on the wild chickens of Southeast Asia, thus indicating that the wild chicken is probably the original host. Specimens have been examined which were collected from various gallinaceous birds main-

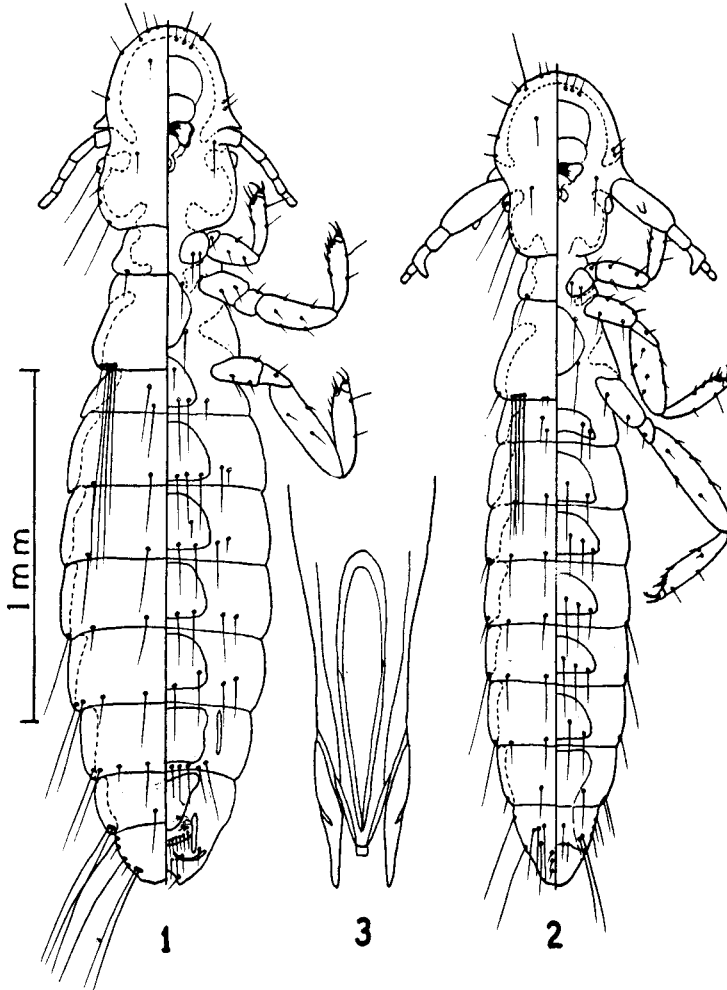


PLATE V

Lipeurus caponis (Linnaeus)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

tained in zoological gardens. This parasite is presently known as the "wing louse."

Lipeurus lawrensis tropicalis Peters

(Plate VI, figs. 1-3)

Lipeurus tropicalis Peters, 1931. Ent. News, 42: 195, figs. 1-2.

Gallipeurus lawrensis tropicalis (Peters), Clay, 1938. Proc. Zool. Soc. London, Ser. 8, 108: 156.

Lipeurus tropicalis Peters, Hopkins and Clay, 1952. A check list of genera and species of Mallophaga: 200.

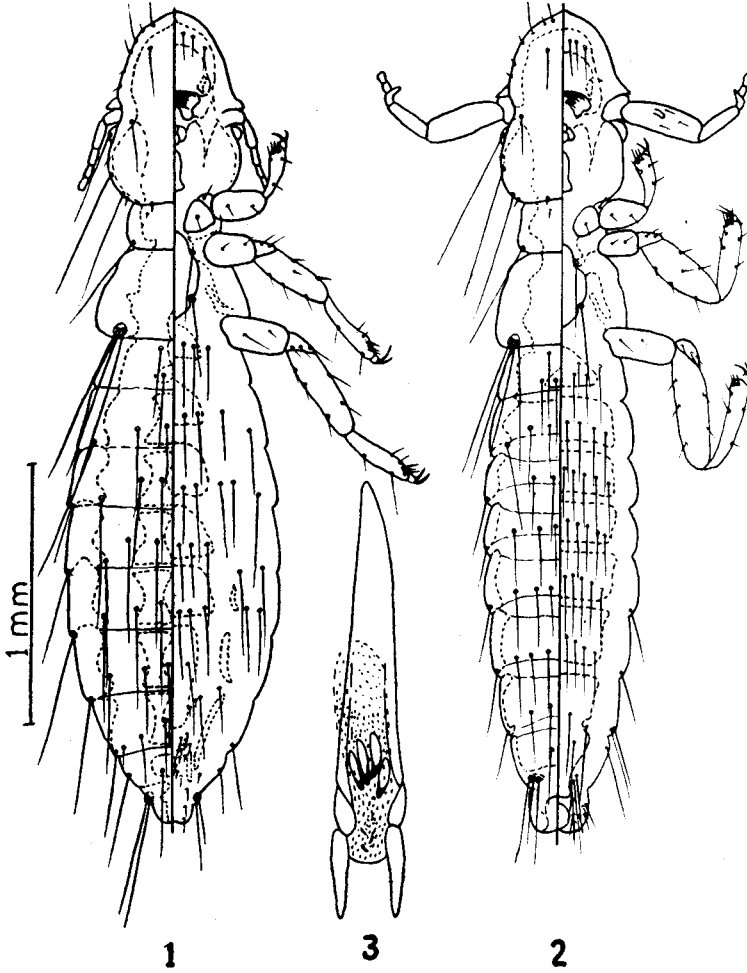


PLATE VI

Lipeurus lawrensis tropicalis (Peters)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

This species has been recorded from the domestic chicken in tropical or sub-tropical regions, and from five subspecies of wild guineafowls. The U. S. National Museum has material of this species collected from the domestic chicken in Brazil, Venezuela, Panama Canal Zone, British West Indies, Puerto Rico, Cuba, British East Africa, Liberia, Ethiopia and India.

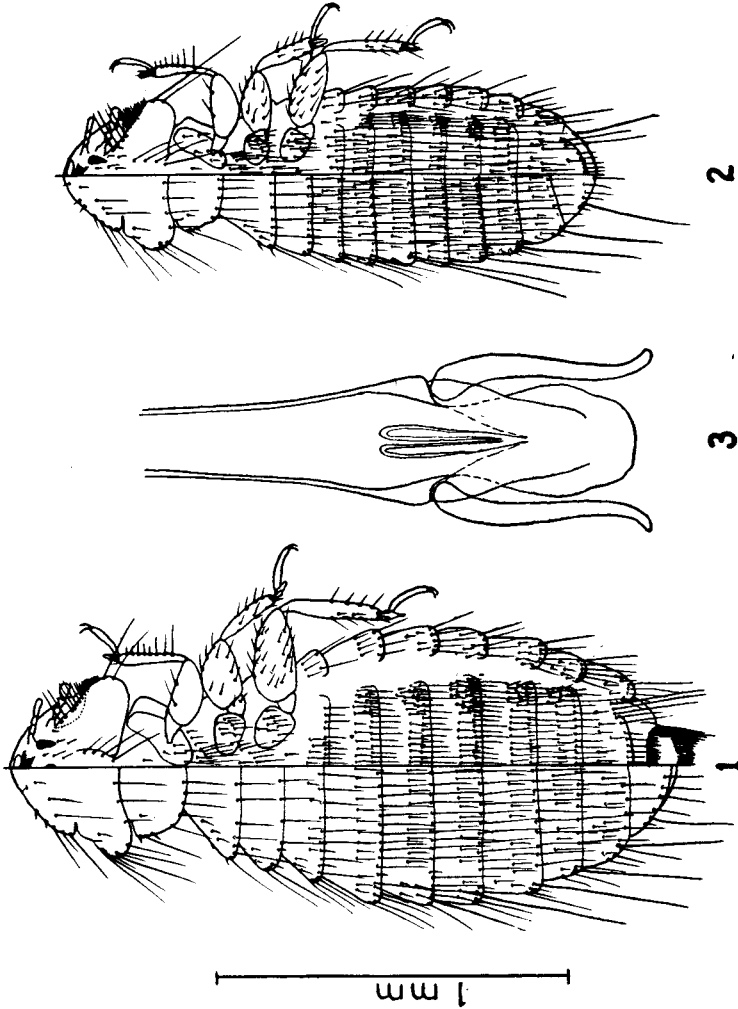


PLATE VII

- Menacanthus cornutus* (Schommer)
 FIG. 1. Dorsal-ventral view of female.
 FIG. 2. Dorsal-ventral view of male.
 FIG. 3. Male genitalia.

To date, this species has not been recorded from the United States, but its presence in the Gulf Coast region is to be expected. *Lipeurus lawrensis* Bedford, a closely related form, has also been recorded from wild guineafowls, thus indicating that *tropicalis* was derived from the wild guineafowl. Neither has been found on the wild chickens of Southeast Asia.

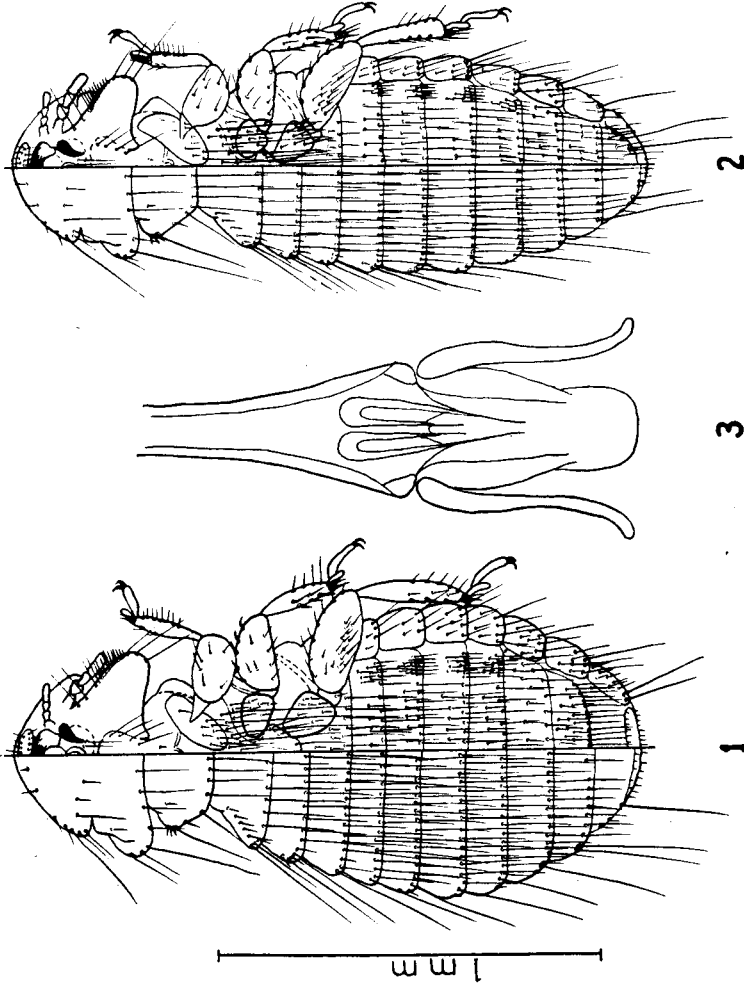


PLATE VIII

Menacanthus pallidulus (Neumann)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

Menacanthus cornutus (Schömmmer)

(Plate VII, figs. 1-3)

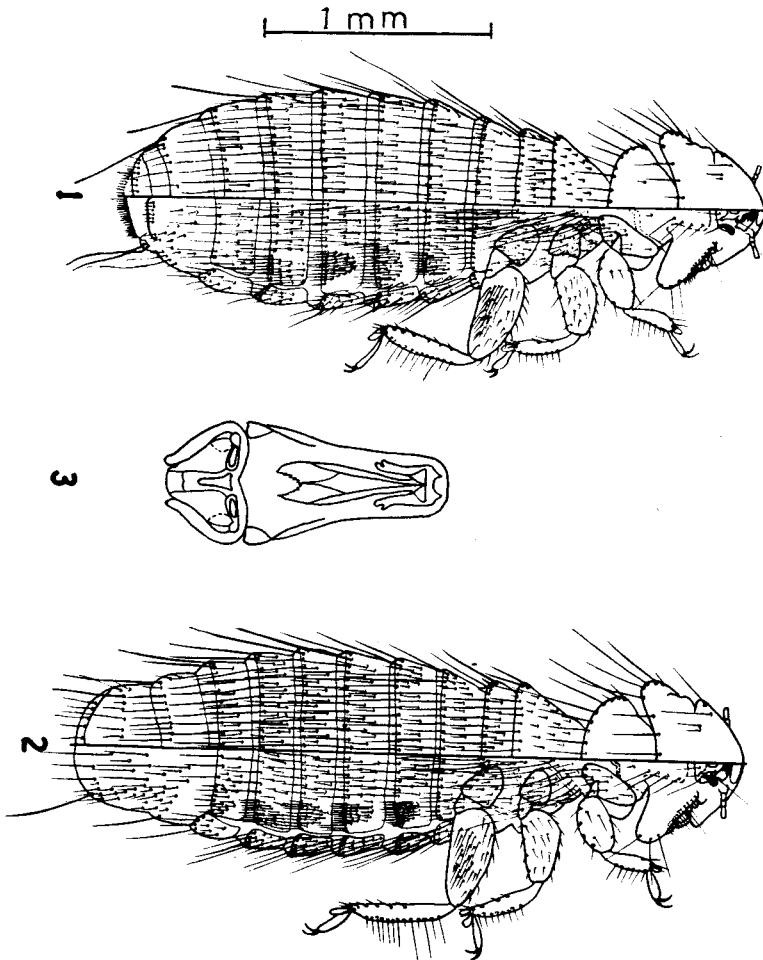
Menopon cornutum Schömmmer, 1913. Über die Mallophagen, insbesondere die unserer Haustiere: 64 and 71, pl. 7, figs. 29a-e.*Menacanthus cornutus* (Schömmmer), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 208.

PLATE IX

Menacanthus stramineus (Nitzsch)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

This species has not been previously reported from the United States, but previous records of *Menacanthus pallidulus* (N.) probably have included this form since the two are very similar. The author has found it in abundance on farm flocks of chickens in Oklahoma, and the U. S. National Museum has material collected at Auburn, Alabama. While the species has

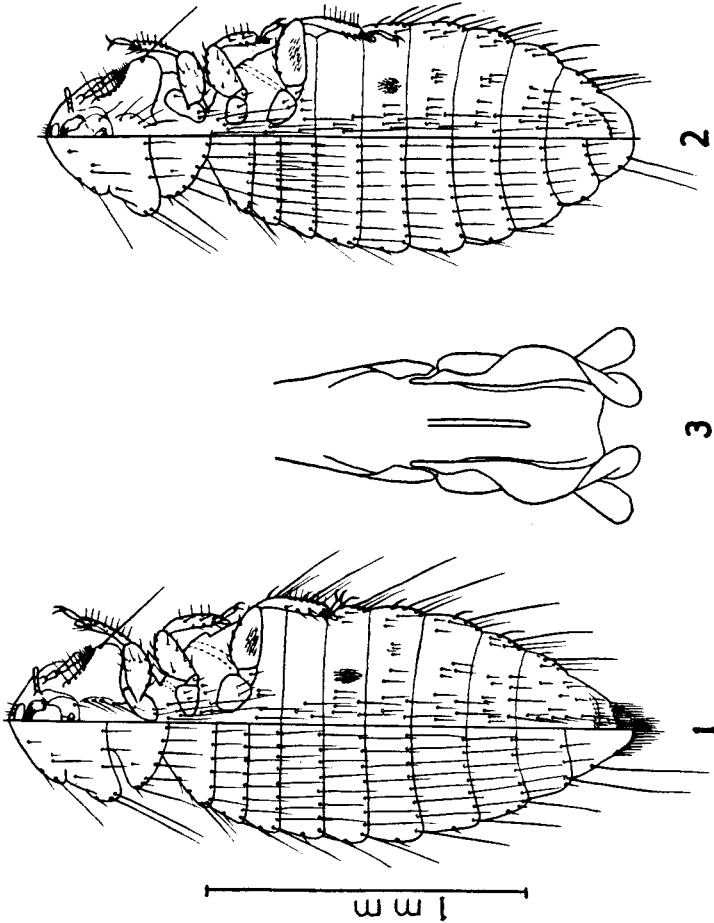


PLATE X

Menopon gallinae (Linnaeus)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

been collected from domestic chickens in many regions of the world, I have examined only one specimen collected from a wild chicken. Further collections will be necessary to determine its distribution in the United States, and to determine the original host.

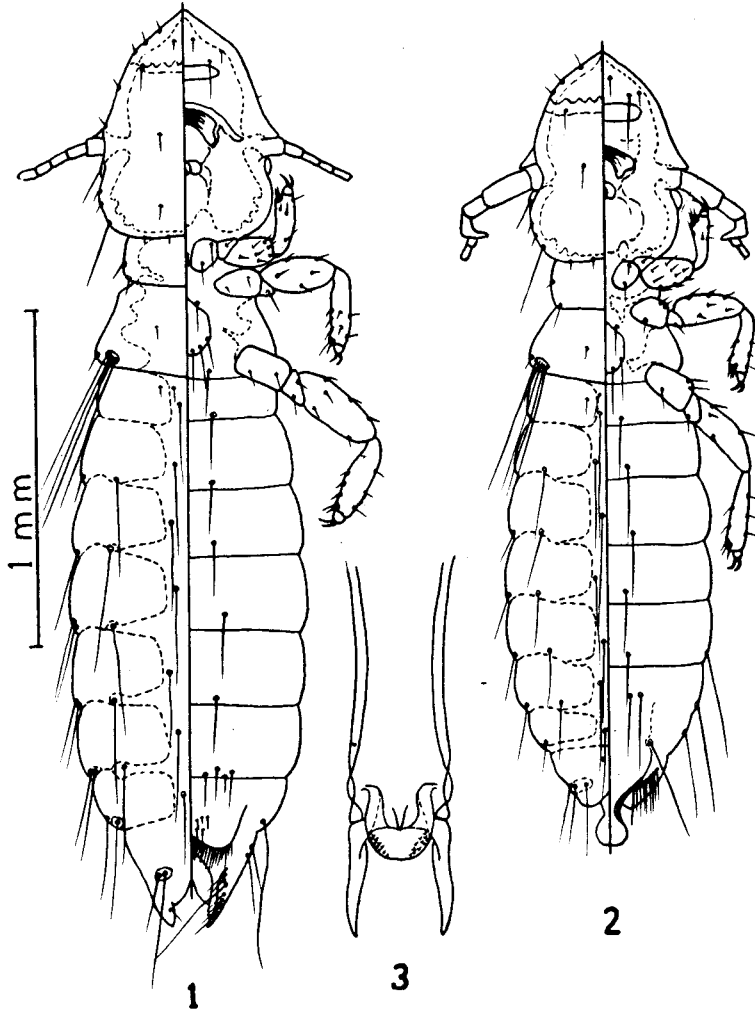


PLATE XI

Oxylipeurus dentatus (Sugimoto)

FIG. 1. Dorsal-ventral view of female.

FIG. 2. Dorsal-ventral view of male.

FIG. 3. Male genitalia.

Menacanthus pallidulus (Neumann)

(Plate VIII, figs. 1-3)

Menopon pallidulum Neumann, 1912. Arch. Parasit., 15: 361, figs. 7-9.*Menacanthus pallidulus* (Neumann), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 212.

This species is common on the domestic chicken and is world-wide in distribution. Previous records from the United States have been few because frequently the species has been misidentified as the immature form of *Menacanthus stramineus* (N.). Material in the U. S. National Museum shows that the species is common throughout the United States. It has been collected from the wild chickens of Southeast Asia, thus indicating that the original host was the wild chicken.

Menacanthus stramineus (Nitzsch)

(Plate IX figs. 1-3)

Pediculus meleagridis Panzer, 1793 (*nec* Linnaeus, 1758). Faun. Ins. Germ.: 51, fig. 20.*Liotheum* (*Menopon*) *stramineum* Nitzsch, 1818. Germar's Mag. Ent., 3: 300 (*Nomen novum* for *Pediculus meleagridis* Panzer).*Menopon biseriatum* Piaget, 1880. Les Pédiculines: 460, pl. 37, fig. 2.*Zemiodes zumpti* Eichler, 1944. Z. hyg. Zool., 35: 172, fig.*Menacanthus stramineus* (Nitzsch), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 125.*Zemiodes zumpti* Eichler, Hopkins and Clay, 1952. *Ibid.*: 362.

This species is common on the domestic chicken and turkey. Domestic guineafowls, peafowls, quails and pheasants hatched under chickens or maintained in zoological gardens are usually infested. Occasionally individuals may be found on domestic ducks and geese. It is very unlikely that breeding populations have become established on the non-gallinaceous hosts, but probable that the few individuals encountered are stragglers from close association in the barnyard with chickens and turkeys. Specimens have been examined from several subspecies of wild turkeys collected in the United States and Mexico. The species has not been found on other wild hosts, thus indicating that the original host was probably the wild turkey. The species is common in Canada, United States, Mexico, Australia, Europe, Turkey, and South and East Africa. It is probably found in all regions into which the turkey has been introduced. This parasite is presently known as the "chicken body louse."

Menopon gallinae (Linnaeus)

(Plate X, figs. 1-3)

Pediculus gallinae Linnaeus, 1758. Syst. Nat., 10th ed.: 613.*Nirmus trigonocephalus* Olfers, 1816. De Veg. et Anim. Corp. in Corp. Anim. Ref. Comm.: 90.*Liotheum* (*Menopon*) *pallidum* Nitzsch, 1818. Germar Mag. Ent., 3: 299 (*Nomen novum* for "*Pulex capri* Redi" and "*Pediculus gallinae* Panzer").*Menopon productum* Piaget, 1880. Les Pédiculines: 461, pl. 37, fig. 8.*Menopon productum* var. *major* Piaget, 1880. *Ibid.*: 462 (*nec* 441).*Menopon subaequale* var. *producta* Piaget, 1885. Les Pédiculines, Supplément: 109.

- Menopon brevipes* Piaget, 1885. *Ibid*: 110, pl. 12, fig. 1.
Menopon longicephalum Kellogg, 1896. Proc. Calif. Acad. Sci., (2) 6: 535, pl. 73, fig. 4.
Menopon lunale Eichler, 1947. Arkiv för Zoologi, 39a (2): 17, fig. 35-38.
Menopon gallinae (Linnaeus), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 219.
Menopon brevipes Piaget, Hopkins and Clay, 1952. *Ibid*: 217.
Menopon lunale Eichler, Hopkins and Clay, 1952, *Ibid*: 220.
Menopon major Piaget (p. 462, *nec* 441), Hopkins and Clay, 1952. *Ibid*: 220.
Menopon productum Piaget, Hopkins and Clay, 1952. *Ibid*: 222.
Menopon productum Piaget (*nec* 1880), Hopkins and Clay, 1952. *Ibid*: 222.
Menopon gallinae (Linnaeus), Emerson, 1954. Ann. Mag. Nat. Hist. (2) 7: 225, fig. 8.

This species is common on the domestic chicken and is world-wide in distribution. Collections from the domestic guinea fowl are common. It has been found on all but one species of the wild chickens of Southeast Asia, thus indicating that the wild chicken is probably the original host. Specimens have been examined which were collected from various gallinaceous birds maintained in zoological gardens; however, the guinea fowl appears to be the only other domestic bird on which the form is found. This parasite is presently known as the "shaft louse."

Oxylipeurus dentatus (Sugimoto)

(Plate XI, figs 1-3)

- Lipeurus dentatus* Sugimoto, 1934. Taiwan no Chikuzan, 2: 2 (of reprint, original not seen), figs. 1-12.
Lipeurus denticlypeus Sugimoto, 1935. Zoological Record. 72, Insecta: 419 (Quotation of name altered by Sugimoto in reprint).
Lipeurus angularis Peters, 1935. Ohio J. Sci., 35: 102, figs. 1-3.
Oxylipeurus dentatus (Sugimoto), Hopkins and Clay, 1952. A check list of the genera and species of Mallophaga: 257.

The abundance and distribution of this species is not well known. It has been collected from several of the wild chickens of Southeast Asia, indicating that the true host is probably the chicken. The few collection records in the U. S. National Museum from the domestic chicken are: Nicaragua, Panama Canal Zone, and the various islands of the Central Pacific Area. To date, this species has not been recorded from the United States, but its presence in the Gulf Coast region is to be expected.

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