

## A KEY TO THE LICE OF MAN AND DOMESTIC ANIMALS

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## ABSTRACT

Dichotomous keys are given to the species of biting and sucking lice normally found on man and domestic animals. Illustrations of diagnostic characters used in the keys are included.

*Amphura mallocha*

## INTRODUCTION

The following keys are designed primarily for the non-specialist to facilitate the identification of the lice parasitizing man and domestic animals. The terms used in most keys, particularly those unaccompanied by illustrations and often poorly defined, are difficult to interpret.

It is hoped that the keys will fulfill two basic needs: first, make the identification of the most frequently encountered species of lice as simple as possible by elimination of the seldom encountered species; and second, explain the more important terms used in the keys by the use of an adequate number of illustrations. Throughout the keys, I have avoided using characters of the genitalia to separate species. More often than not, a person will have a specimen of the opposite sex than that referred to in the key. Also, specimens must be in an exceptionally good condition and properly mounted so that the characters of the genitalia can be seen.

It is essential to remember that although the wording in a key is fixed, the organisms are not and some variation within species' populations may be encountered.

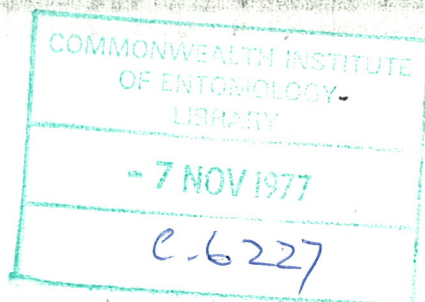
The keys will give an individual practice in identifying specimens of lice from domestic animals when the specific host is unknown. Generally, specimens can be identified simply by knowing the host, then confirmation of the determination by comparing the specimen with descriptions and illustrations in the laboratory is an easy matter. For the diagnosis of louse infestations, a host list, and photographs of several of the more common species found on domestic animals, the reader is referred to the works of La Page (1968) and Sloss (1973).

## KEY TO THE ORDERS OF LICE

- 1 Anterior margin of head acute, rostrum present, mouthparts adapted for piercing and sucking; opposing mandibles absent; tarsal claws single, often large . . . . . *Part I, ANOPLURA*

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- 1' Anterior margin of head generally broadly rounded, rostrum absent, mouthparts adapted for chewing; opposing mandibles well developed, on ventral surface; tarsal claws small, either single or paired . . . . . *Part II, MALLOPHAGA*

*Part I*

KEY TO THE FAMILIES, GENERA AND SPECIES OF  
ANOPLURA OF DOMESTIC ANIMALS

- 1 Eyes well developed, with distinct lens (Figure 1) . . . . *Pediculidae*, 3  
1' Eyes vestigial or absent . . . . . 2  
2(1') Paratergal plates of abdominal segments heavily sclerotized forming lateral lobes (Figure 2); all legs of equal size (Figure 3) . . . *Haematopinidae*, 4  
2' Paratergal plates of abdominal segments absent; if present, greatly reduced and weakly sclerotized; first pair of legs smaller than second and third pairs (Figure 4) . . . . . *Linognathidae*, 6

*Family Pediculidae*

- 3(1) All legs equal in size and shape, tarsal claws slender (Figure 5); abdominal segments normal, with sclerotized paratergal plates, each plate bearing a spiracle (Figure 6) . . . (the head louse and body louse) *Pediculus humanus*  
3' First pair of legs reduced (Figure 5), second and third pairs greatly enlarged with robust tarsal claws (Figure 7); abdomen with 4 pairs of prominent lateral tubercles (Figure 8); a group of 3 distinct spiracles located dorsally on each side of the abdomen behind the third pair of legs . . . . . (the crab louse) *Phthirus pubis*

*Family Haematopinidae*

- 4(2) Head 2 to 3 times as long as wide (Figure 9) . . . . . 5  
4' Head about as long as wide (Figure 10); paratergal plates tuberculated (Figure 11) . . . (the shortnosed cattle louse) *Haematopinus eurysternus*

Another louse is recognized here, *H. quadripertusus*, the cattle tail louse. This louse is ecologically isolated from *H. eurysternus*, being found on the tail of cattle, but is morphologically identical with *H. eurysternus*.

- 5(4) Paratergal plates rounded (Figure 2); tarsal claws toothed (Figure 12) . . . . . (the hog louse) *Haematopinus suis*  
5' Paratergal plates tuberculate (Figure 11); tarsal claws simple, not toothed (Figure 13) . . . (the horse sucking louse) *Haematopinus asini*

*Family Linognathidae*

- 6(2') Abdominal segments with only one transverse row of setae; abdominal spiracles borne on small tubercles (Figure 14) . . . . .  
 . . . . . (the capillate cattle louse) *Solenopotes capillatus*  
6' Abdominal segments with more than one transverse row of setae; abdominal spiracles not borne on tubercles (Figure 15) . . . . . 7

- 7(6') Postantennal region laterally produced (Figure 16) . . . . .  
 . . . . . (on sheep and goats) *Linognathus africanus*
- 7' Postantennal region not laterally produced . . . . . 8
- 8(7') Head twice as long as broad; preantennal region as long as broad  
 (Figures 17, 18) . . . . . 9
- 8' Head about as long as broad or slightly longer; preantennal region  
 much broader than long (Figures 19, 20) . . . . . 10
- 9(8) Preantennal region elongate, apically acute (Figure 17a); lateral mar-  
 gins of postantennal regions straight, appearing rectangular (Fig-  
 ure 17b) . . . . . (the long-nosed cattle louse) *Linognathus vituli*
- 9' Preantennal region acute (Figure 18a); lateral margins of postantennal regions  
 slightly convex (Figure 18b) . (the goat sucking louse) *Linognathus stenopsis*
- 10(8') Head as long as broad, preantennal region very short (Figure 19a), lateral  
 margins of postantennal region slightly convex (Figure 19b) . . . . .  
 . . . . . (the sheep foot louse) *Linognathus pedalis*
- 10' Head slightly longer than broad, preantennal region well developed, with  
 lateral margins straight and apex blunt, (Figure 20a), lateral margins of post-  
 antennal region parallel (Figure 20b) . . . . .  
 . . . . . (the dog sucking louse) *Linognathus setosus*

## Part II

KEY TO THE SUBORDERS, FAMILIES, GENERA AND SPECIES  
OF MALLOPHAGA OF DOMESTIC ANIMALS

- 1 Antennae distinctly clubbed or capitate, concealed in a groove on un-  
 derside of head (Figure 21) . . . . . AMBLYCERA 2
- 1' Antennae not clubbed or capitate, project from lateral margins of head  
 (Figure 22) . . . . . ISCHNOCERA 6

## KEY TO THE FAMILIES OF THE SUBORDER AMBLYCERA

- 2(1) Underside of head with two long stout backward projecting spine-  
 like processes; antennae clubbed (Figures 23, 24) . . . . . Boopidae
- 2' Underside of head with spine-like processes reduced or absent; antennae  
 not strongly clubbed (Figures 25, 26) . . . . . Menoponidae 3

## Family Boopidae

There is one species of Boopidae, *Heterodoxus spiniger*, found in the United States and occurs on dogs. *H. spiniger* is easily recognized by the shape of the head and the larger backward projecting spines. The body is covered with large and numerous setae.

## Family Menoponidae

- 3(2') Underside of head with 2 short spine-like processes (Figure 25) . . . . 4
- 3' Underside of head without spine-like processes . . . . .  
 . . . . . (the shaft louse [on chickens]) *Menopon gallinae*

- 4(3) Abdominal tergites III-VII each with one transverse row of setae (Figure 27) . . . . . (on chickens) *Menacanthus pallidulus*
- 4' Abdominal tergites III-VII each with two transverse rows of setae (Figure 28) . . . . . 5
- 5(4') Dorsal portion of meso and metathorax with numerous short setae (Figure 29) . . . . . (the chicken body louse) *Menacanthus stramineus*
- 5' Dorsal portion of meso and metathorax with a few short setae on the lateral margins (Figure 30) . . . . . (on chickens) *Menacanthus cornutus*

## KEY TO THE FAMILIES OF THE SUBORDER ISCHNOCERA

- 6(1') Tarsi each with two claws (Figure 31) . . . . . Philopteridae 7
- 6' Tarsi each with one claw (Figure 32) . . . . . Trichodectidae 13

## Family Philopteridae

- 7(6) Temporal lobes angulate (Figures 33, 34) . . . . . 8
- 7' Temporal lobes rounded (Figure 35) . . . . . 11
- 8(7) Temporal lobes extending backward and terminating in long stylet-like processes (Figure 36) . . . (the large turkey louse) *Chelopistes meleagridis*
- 8' Temporal lobes not produced into stylet-like processes . . . . . 9
- 9(8') Lateral margins of temporal lobes parallel; two long setae at posterior margin of each lobe (Figure 33) . . . . . (the fluff louse [on chickens]) *Goniocotes gallinae*
- 9' Lateral margins of temporal lobes distinctly angulate, not parallel; two or three long setae at posterior margin of each lobe, a short spine at angular process (Figure 34) . . . . . 10
- 10(9') Two long setae at posterior margin of each temporal lobe . . . . . (the brown chicken louse) *Goniodes dissimilis*
- 10' Three long setae at posterior margin of each temporal lobe (Figure 34) . . . . . (the large chicken louse) *Goniodes gigas*
- 11(7') Anterior portion of head with a series of backward projecting chitinized processes (Figure 37) . . . (the slender turkey louse) *Oxylipewus polytrapezius*
- 11' Anterior portion of head without such chitinized processes . . . . . 12
- 12(11') Dorsal posterior margin of pterothorax with four groups of long setae (Figure 38) . . . . . (the chicken head louse) *Cuculotogaster heterographus*
- 12' Dorsal posterior margin of pterothorax without groups of setae; posterior lateral margins of pterothorax each with a patch of long setae (Figure 39) . . . . . (the wing louse [on chickens]) *Lipecurus caponis*

## Family Trichodectidae

- 13(6') Lateral margins of preantennal region straight, strongly convergent; apex of head with distinct narrow emargination (Figure 40) . . . . . (the cat louse) *Felicola subrostrata*
- 13' Lateral margins of preantennal region rounded, arched; apex of head blunt, broadly emarginate or rounded (Figure 41) . . . . . 14

- 14(13') Median transverse bands on abdominal tergites present; antennae normal (Figure 42) . . . . . 15
- 14' Median transverse bands on abdominal tergites absent; antennae stout . . . . . (the dog biting louse) *Trichodectes canis*
- 15(14) Body sparsely covered with short setae . . . . . 16
- 15' Body densely covered with long setae. . . (on angora goats) *Bovicola crassipes*
- 16(15) Head narrowing anteriorly, anterior margin sharply rounded or blunt (Figure 43) . . . . . (the cattle biting louse) *Bovicola bovis*
- 16' Head having anterior margin broadly rounded or flattened (Figure 41) . . 17
- 17(16') Anterior margin of head rounded, preantennal angle not markedly expanded; antennae long, basal segment of male antenna robust (Figure 44) . . . . . 18
- 17' Anterior margin of head flattened or slightly concave; preantennal angles expanded, pointed, antennae same in both sexes (Figure 45) . . . . . 19
- 18(17) Width of temporal lobes about equal to that of preantennal region (Figure 44) . . . . . (the horse biting louse) *Bovicola equi*
- 18' Width of temporal lobes less than that of preantennal region (Figure 46) . . . . . (the sheep biting louse) *Bovicola ovis*

*B. equi* and *B. ovis* are closely related species, their separation is quite difficult, generally the characters mentioned in the key will be useful.

- 19(17') Anterior margin of head slightly flattened or concave in female (Figure 47), not so in the male; second abdominal tergite in male with a concave posterior border (Figure 48) . . . . . (the angora goat biting louse) *Bovicola limbata*
- 19' Anterior margin of head slightly flattened or concave in male (Figure 47), not so in female; second abdominal tergite in male with a straight posterior border (Figure 49) . . . . . (the goat biting louse) *Bovicola caprae*

*B. limbata* and *B. caprae* have been considered distinct species by some authors; others consider them the same. *B. limbata* is more common on angora goats whereas *B. caprae* is more common on short-haired goats. The separation of the females of these species is practically impossible since only minor variation exists. The separation of the males is an easy matter because the genitalia of each species is characteristic for that species.

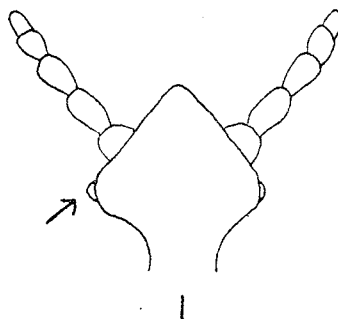
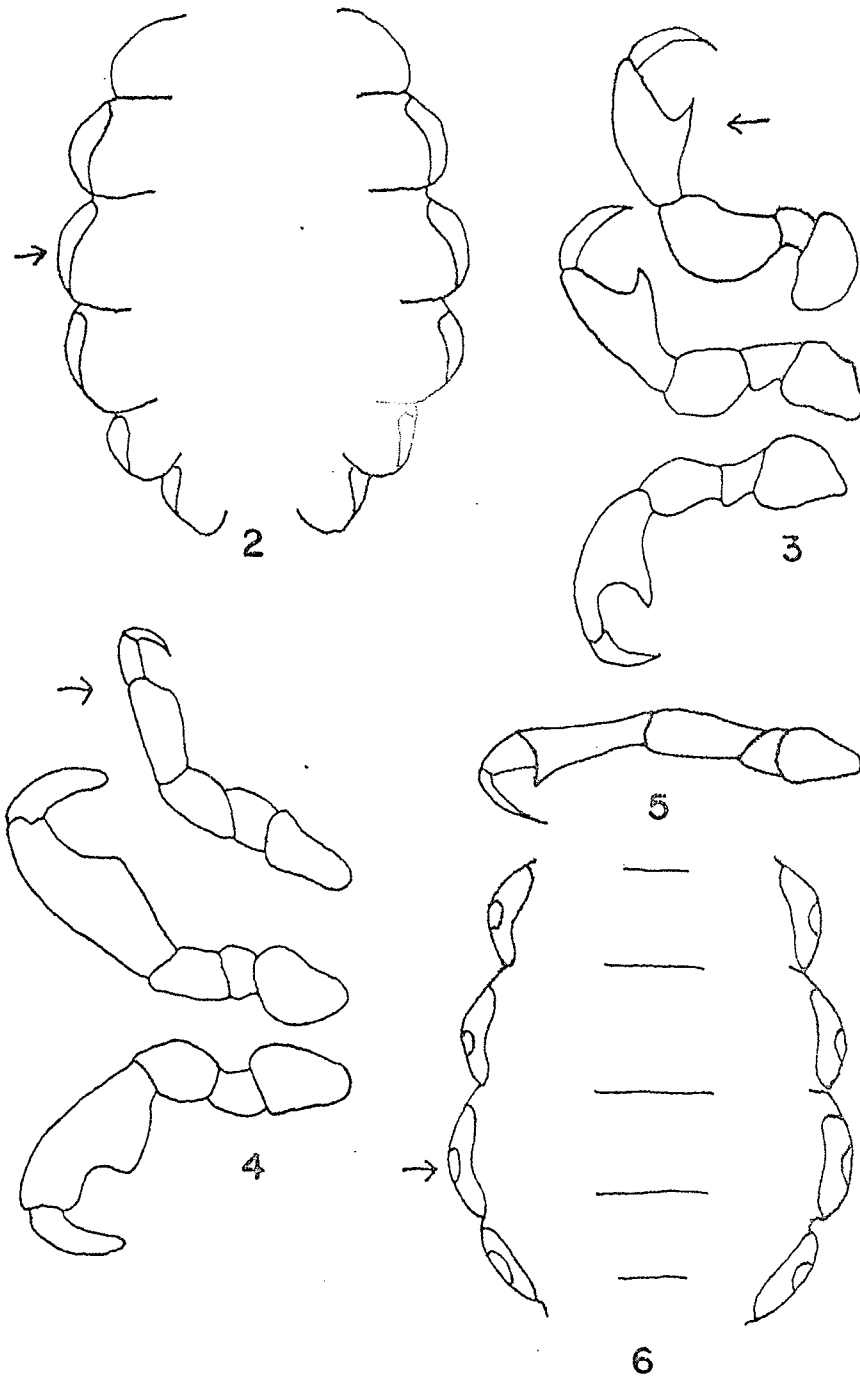


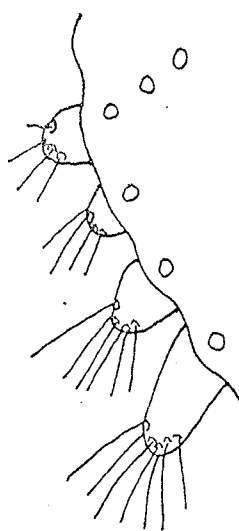
Figure 1. Illustration of diagnostic characters used in this key.



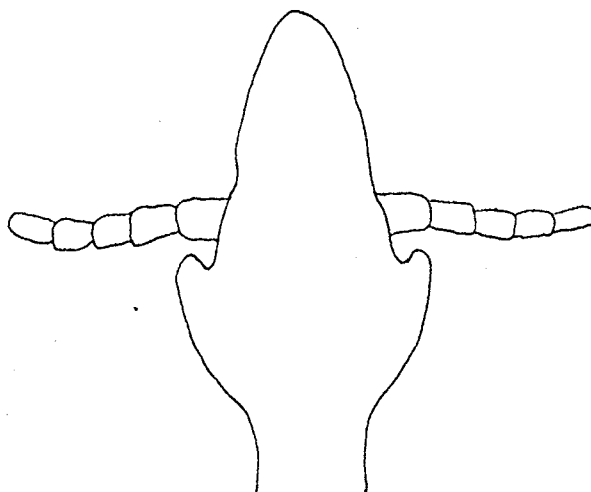
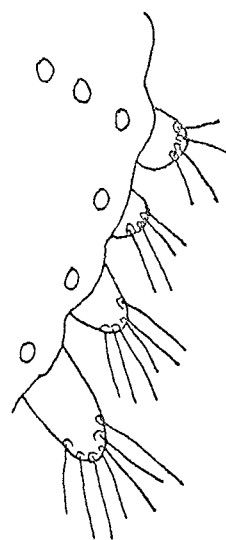
• Figures 2-6. Illustrations of diagnostic characters used in this key.



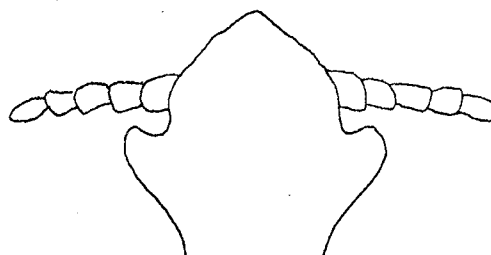
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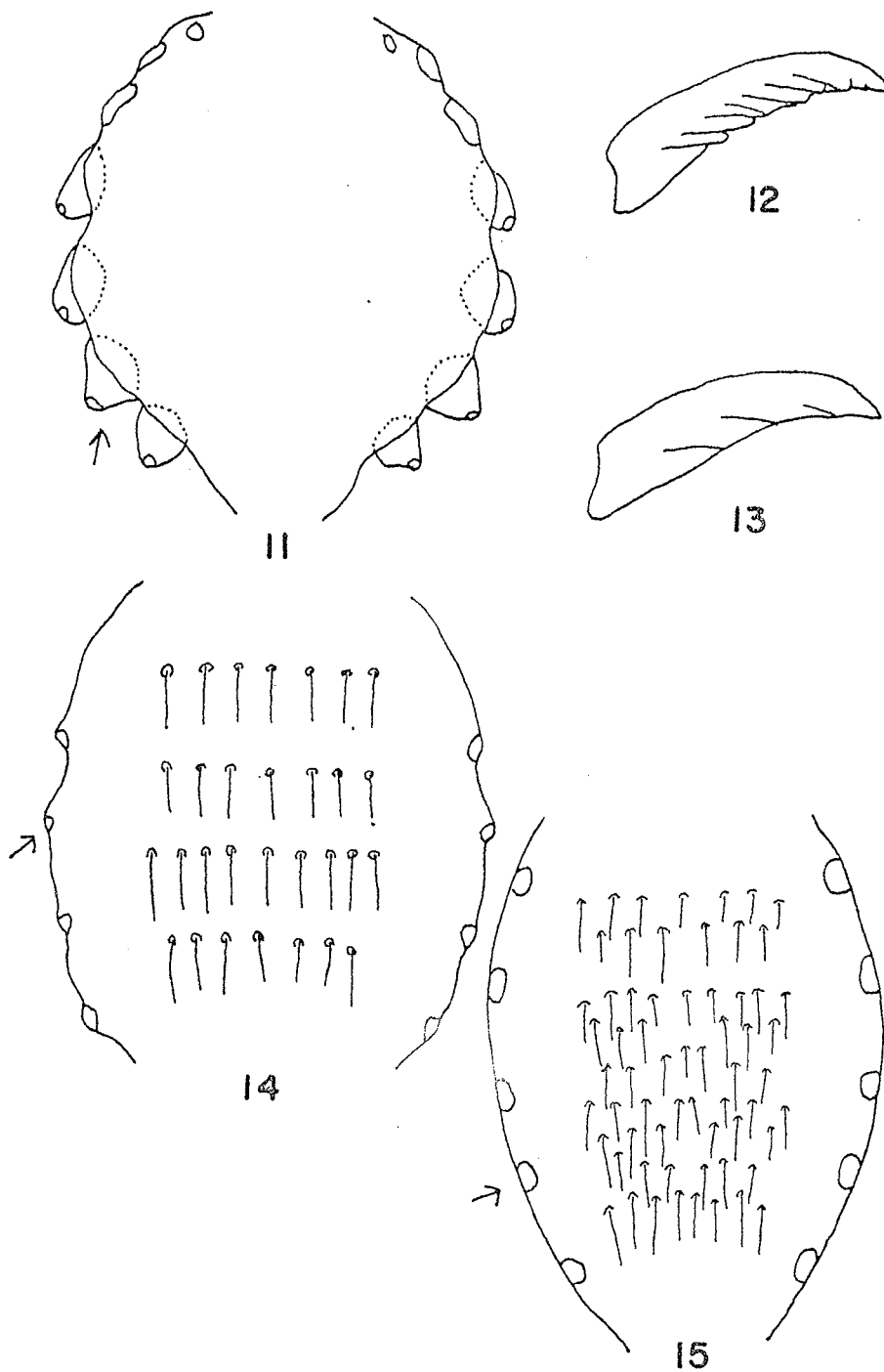


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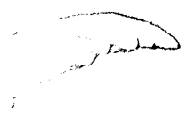
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Figures 7-10. Illustrations of diagnostic characters used in this key.

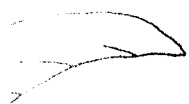


Figures 11-15. Illustrations of diagnostic characters used in this key.

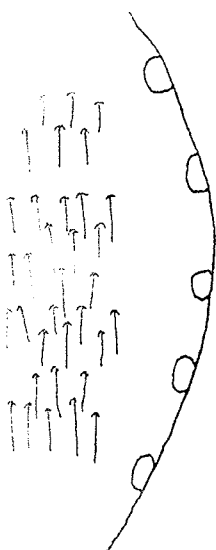




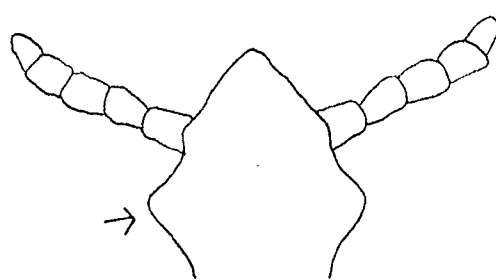
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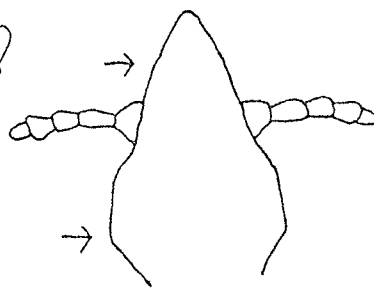
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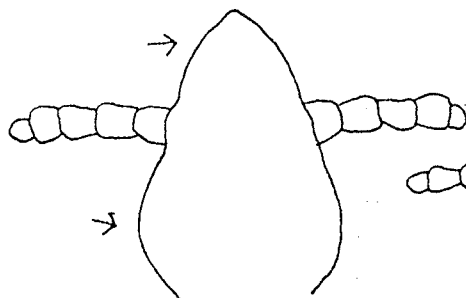
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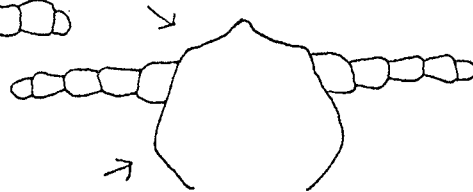
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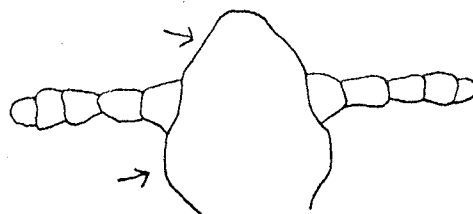
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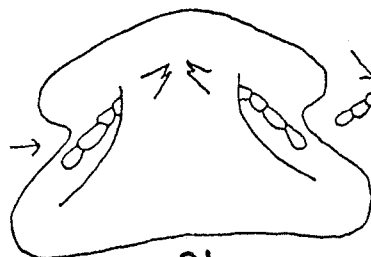
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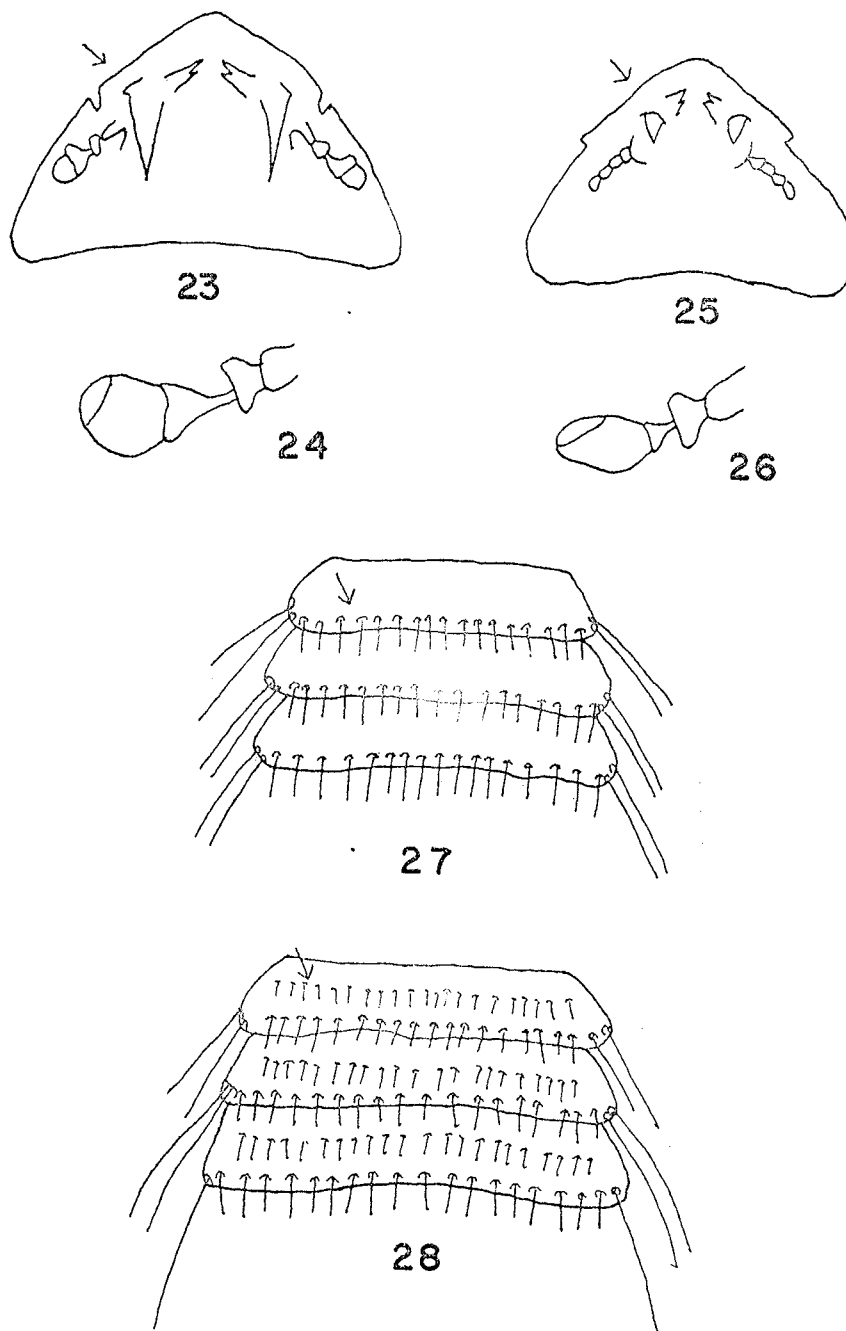


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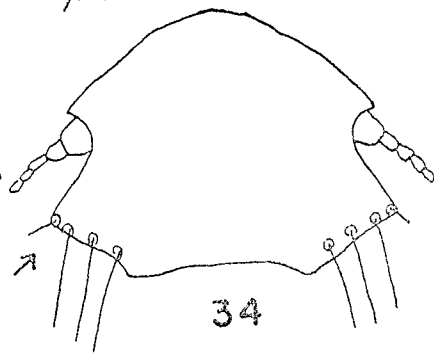
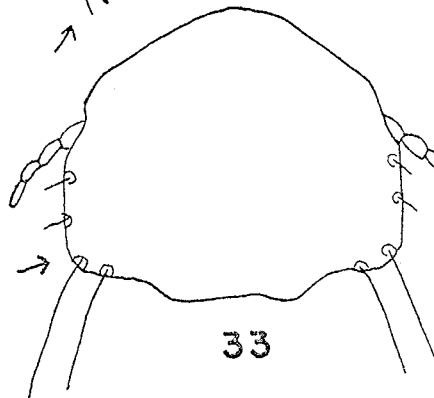
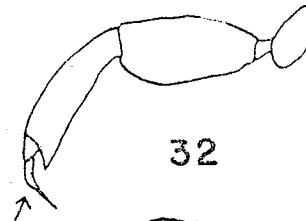
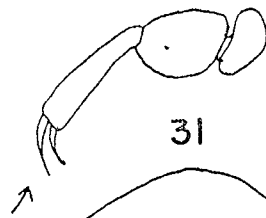
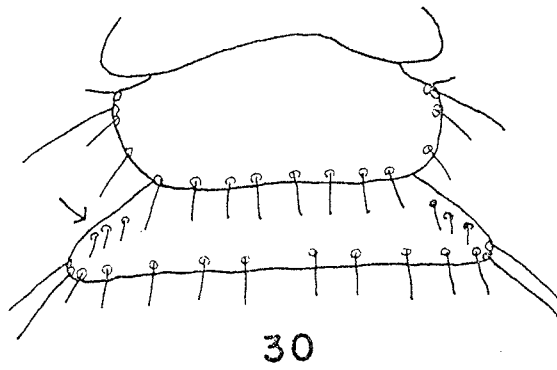
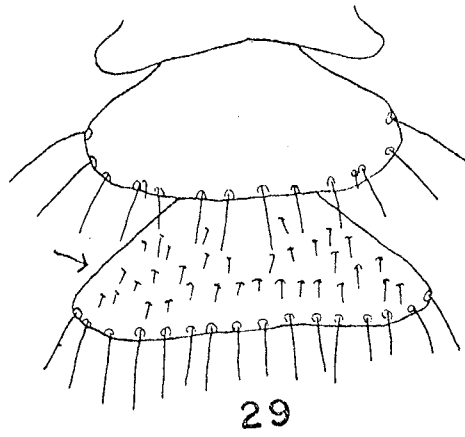


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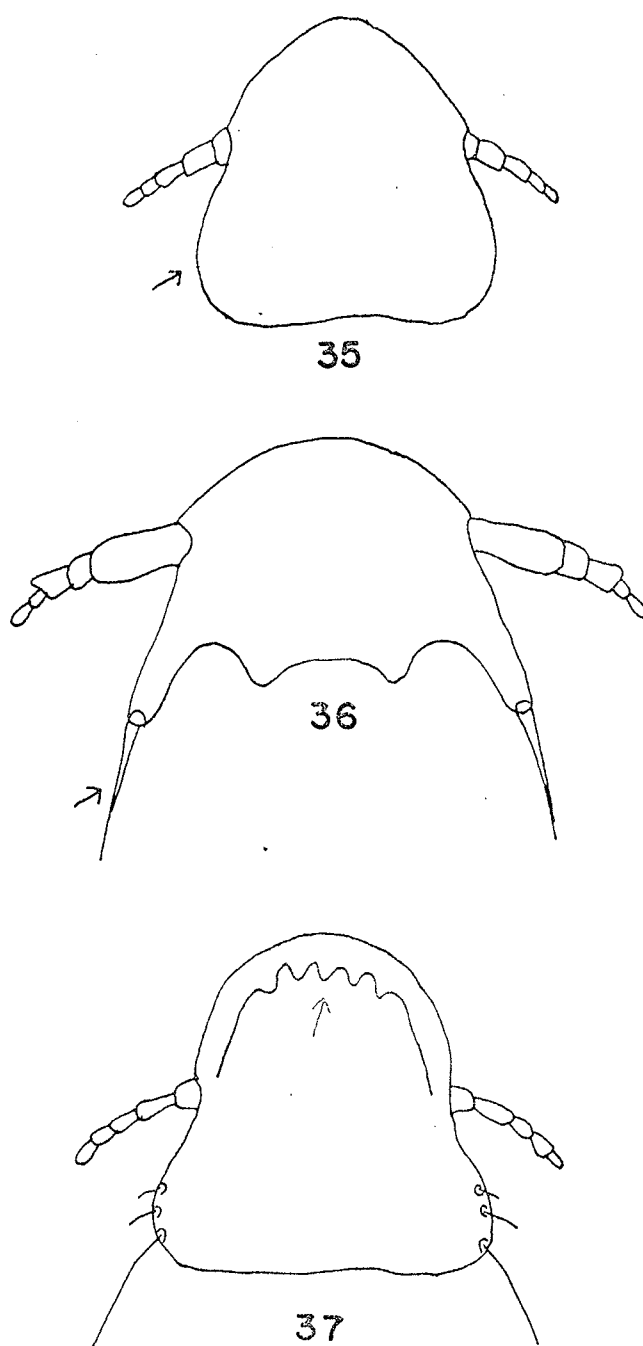
Figures 16-22. Illustrations of diagnostic characters used in this key.



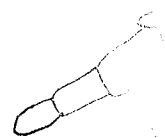
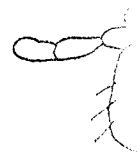
Figures 23-28. Illustrations of diagnostic characters used in this key.



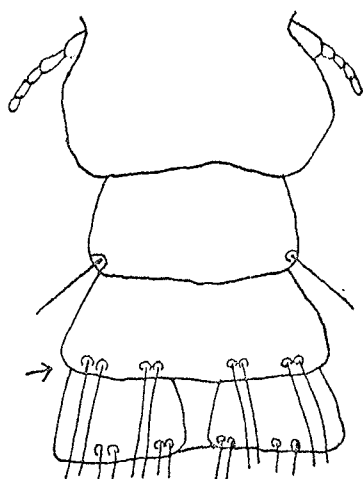
Figures 29-34. Illustrations of diagnostic characters used in this key.



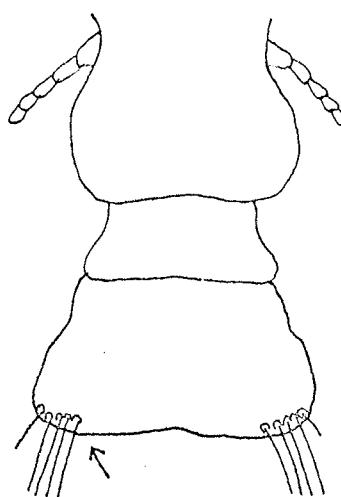
Figures 35-37. Illustrations of diagnostic characters used in this key.



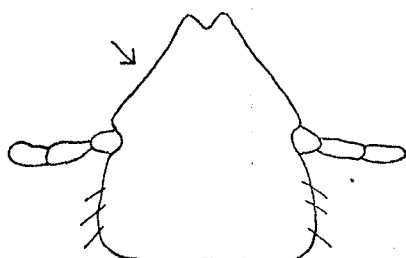
Figures 38-41



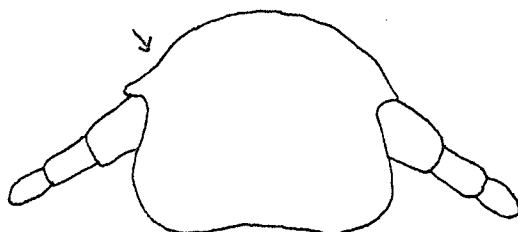
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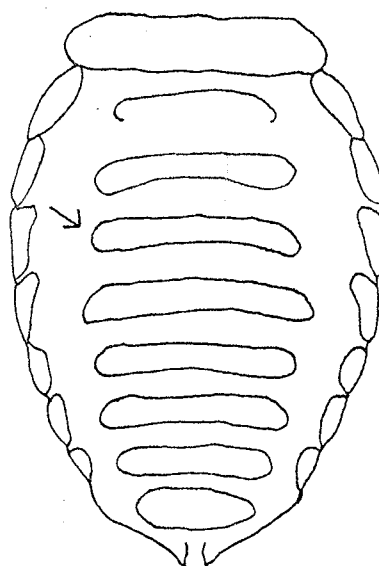
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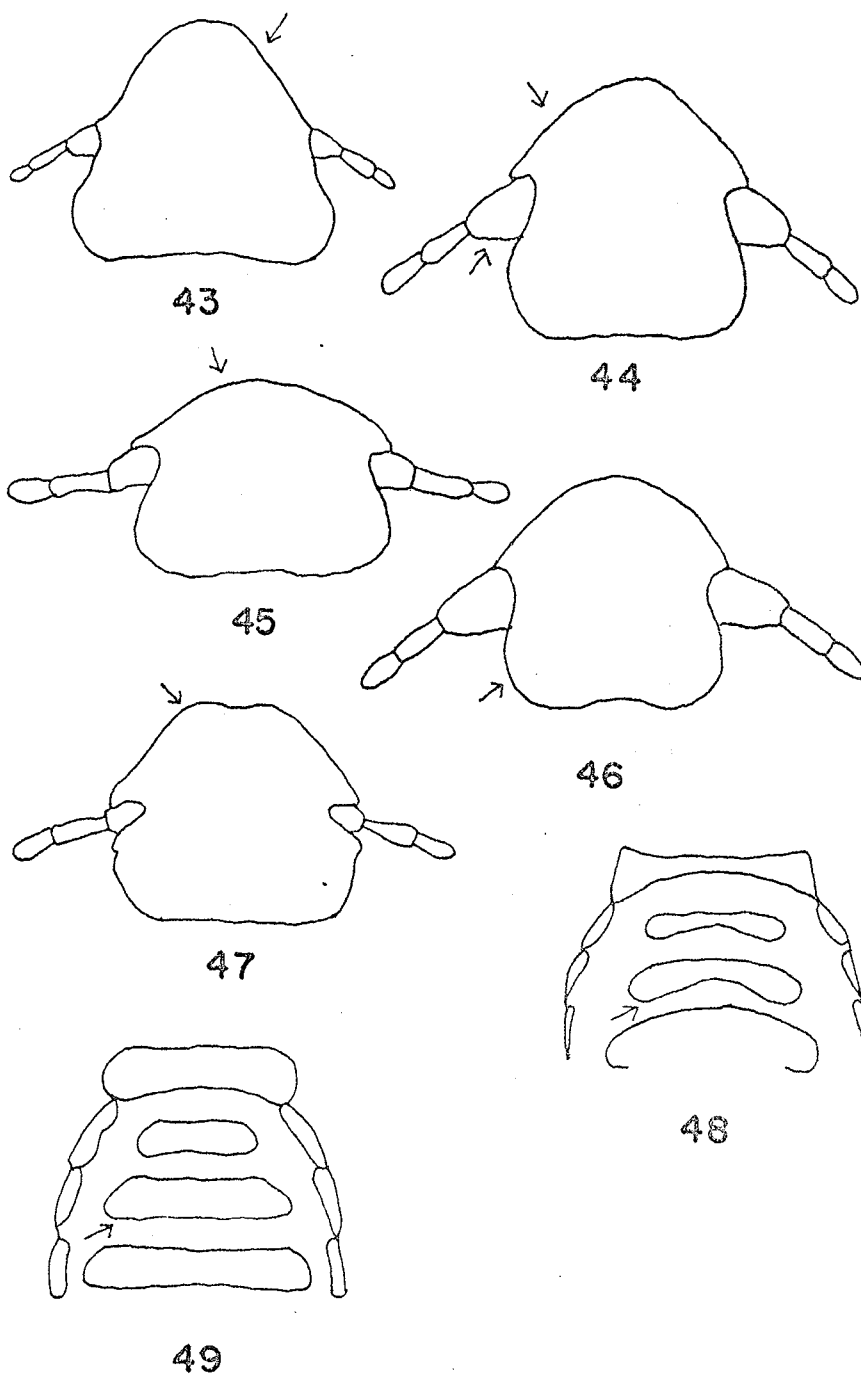


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Figures 38-42. Illustrations of diagnostic characters used in this key.



Figures 43-49. Illustrations of diagnostic characters used in this key.

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Emerson, K.  
*Patomol.*

Fwing, H. E.  
225 pp.

Ferns, G. E.  
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LaDage, G.  
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Mercator, J.  
1641-1642

Morse, M. L.  
1917, 370

Seguy, J.  
1918, 17

Seguy, J.  
1918, 17

Sloss, M. W.  
1918, 17

Werner, J. E.  
1918, 17

Wiseman, J.  
specialist  
Texas, 17

## LICE

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