FLY LARVAE: KEY TO SOME SPECIES OF PUBLIC HEALTH IMPORTANCE

Chester J. Stojanovich – Harry D. Pratt – Elwin E. Bennington

1. Larva with a definite, hard, sclerotized head capsule (Fig. 1 A).....2

   Larva without a definite, hard, sclerotized head capsule (Fig. 1 B).....3

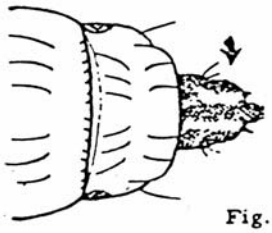

Fig. 1 A

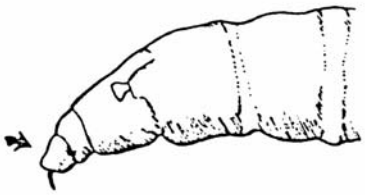

Fig. 1 B

2. Body flattened; large larvae 12-20 mm. long (Fig. 2 A)... (Hermetia illucens) SOLDIER FLY

   Body cylindrical with spiracles opening in a tubular segment at posterior end of body, last segment modified into a sclerotized air tube (Fig. 2 B).....
   .....(Genus Psychoda & allies) FILTER FLIES

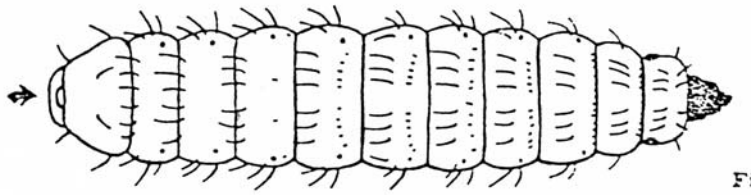

Fig. 2 A

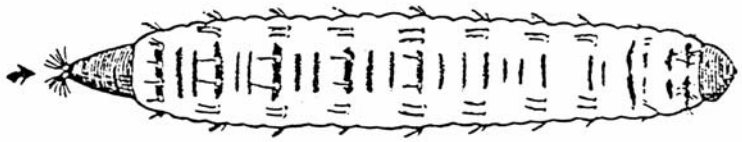

Fig. 2 B

3. Body with spine-like dorsal and lateral processes on each segment; posterior spiracles on small elevations (Fig. 3 A).....(Genus Fannia)...4

   Body smooth, or with short spines, but no long lateral processes (Fig. 3 B)..... 5

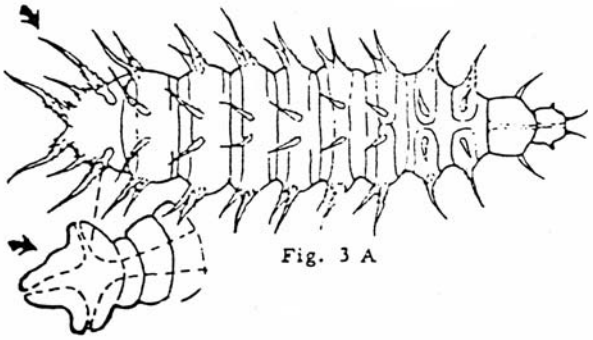

Fig. 3 A

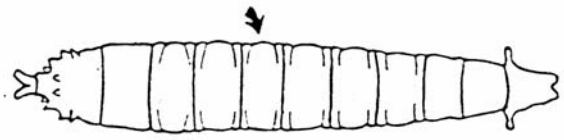

Fig. 3 B

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4. Processes branched or feathery (Fig. 4 A)..... (Fannia scalaris) LATRINE FLY

Processes without branches, spiny (Fig. 4 B).. (Fannia canicularis) LESSER HOUSE FLY

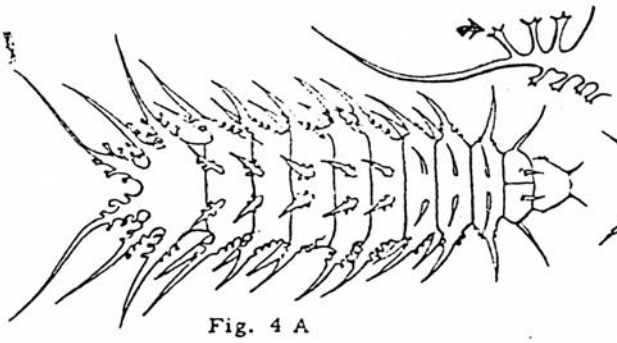

Fig. 4 A

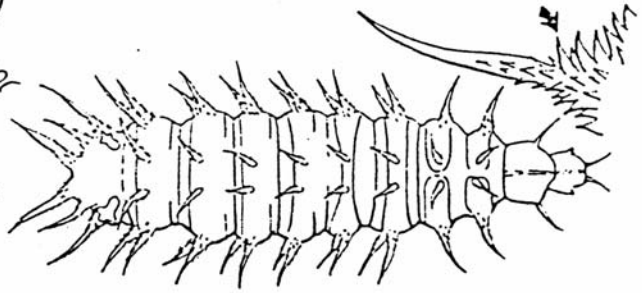

Fig. 4 B

5.. Posterior spiracles on peg-like tubercles or cones; smaller larvae, usually 6-9 mm. long (Fig. 5 A)..... 6

Posterior spiracles not on peg-like tubercles; larger larvae, usually 9-18 mm. long (Fig. 5 B)..... 7

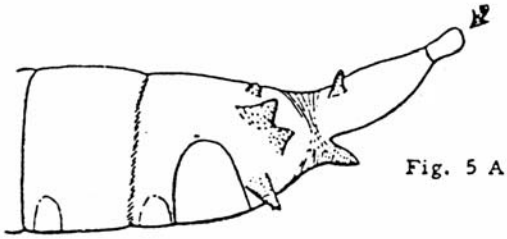

Fig. 5 A

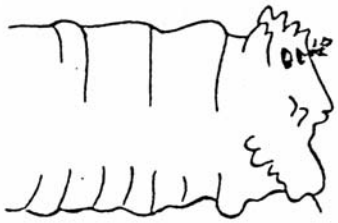

Fig. 5 B

6. Posterior spiracles at ends of long tubercles (Fig. 6 A)..... (Genus Drosophila) VINEGAR FLIES

Posterior spiracles on short cones, last segment with short finger-like lateral process (Fig. 6 B)..... (Piophila casei) CHEESE SKIPPER

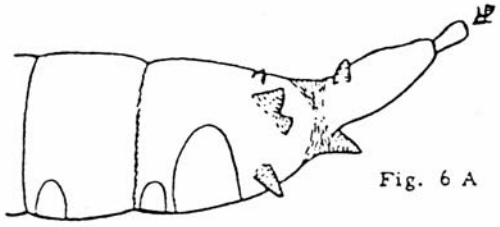

Fig. 6 A

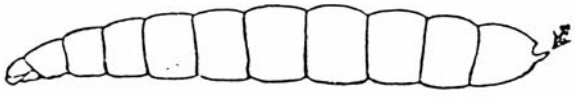

Fig. 6 B

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7. Posterior end of body extended to form a tail (Fig. 7 A).....
.....(Eristalis tenax) RAT-TAILED MAGGOT

Body swollen or tapered posteriorly, but never extended into a tail like process (Fig. 7 B)..8

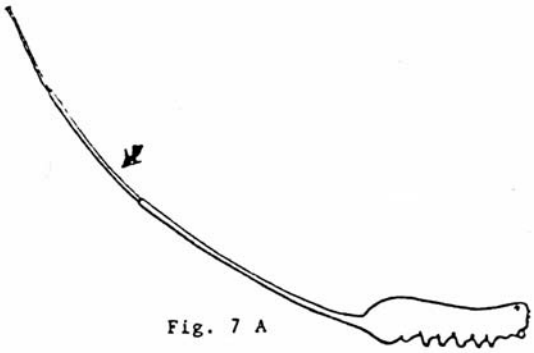


Fig. 7 A

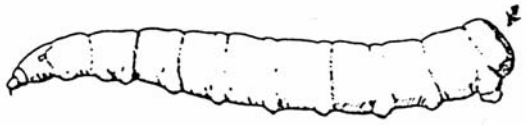


Fig. 7 B

8. Peritreme present, with 3 distinct slits (Fig. 8 A).....9

Peritreme absent; or if present without 3 distinct slits (Fig. 8 B & C).....23

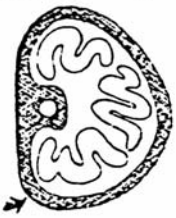
Fig. 8 A 

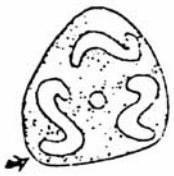
Fig. 8 B 

Fig. 8 C 

9. Slits of posterior spiracles straight (Fig. 9 A).....10

Slits of posterior spiracles strongly sinuous (Fig. 9 B).....22

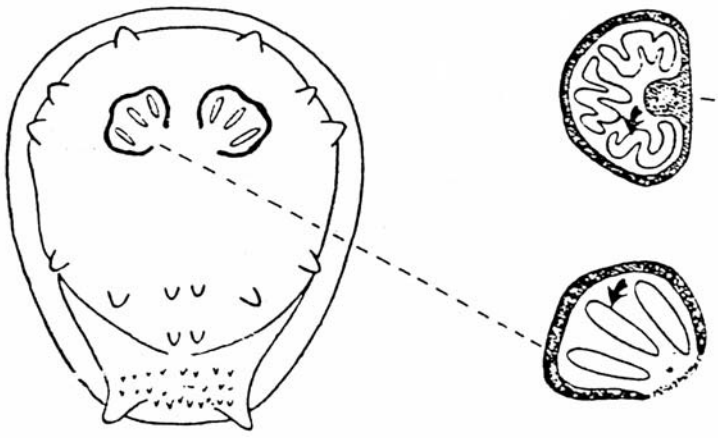


Fig. 9 A

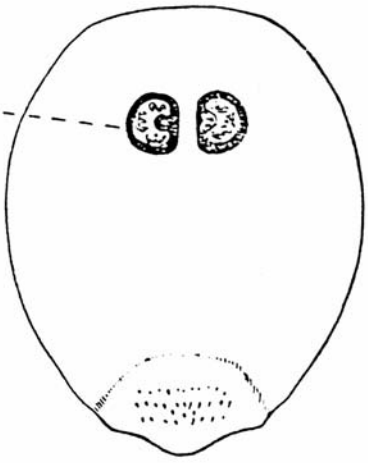


Fig. 9 B

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10. Dorsal and ventral arms of cephaloskeleton almost equal (Fig. 10 A); peritreme with two non-sclerotized areas away from the button (Fig. 10 B).. (Genus Ophyra) DUMP FLY

Dorsal arm of cephaloskeleton longer than ventral arm (Fig. 10 C); peritreme complete or with one weakly sclerotized area (Fig. 10 D & E)..... 11

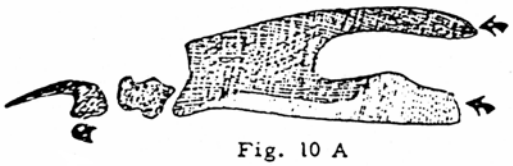

Fig. 10 A

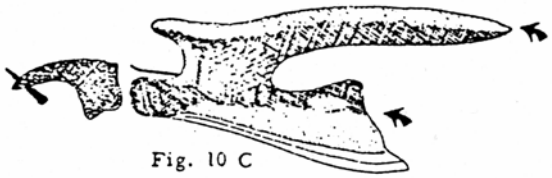

Fig. 10 C

Fig. 10 B

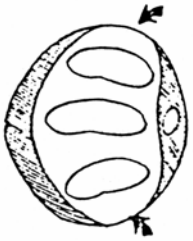

Fig. 10 D

Fig. 10 E

11. Posterior spiracles with peritreme complete, sometimes weak in area of button (Fig. 11 A) 12

Posterior spiracles with peritreme incomplete, not enclosing a sometimes ill-defined button (Fig. 11 B)..... 16

Fig. 11 A

Fig. 11 B

12. Spiracular plate and button heavily sclerotized; accessory oral sclerite present (Fig. 12 A & B)..... 13

Spiracular plate and button not heavily sclerotized; accessory oral sclerite absent (Fig. 12 C & D)..... 14

Fig. 12 A

Fig. 12 B

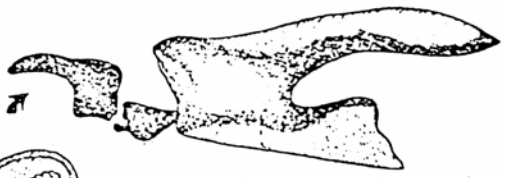

Fig. 12 C

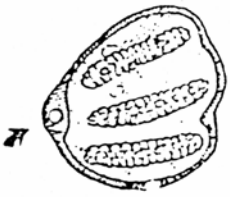

Fig. 12 D

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13. Mandibular sclerite with tooth longer than greatest width of basal portion (Fig. 13 A)..... ..... (Calliphora vicina) A BLUE BOTTLE FLY

Mandibular sclerite with tooth only as long as greatest width of basal portion (Fig. 13 B).. .....(Cynomyopsis cadaverina) A BLUE BOTTLE FLY

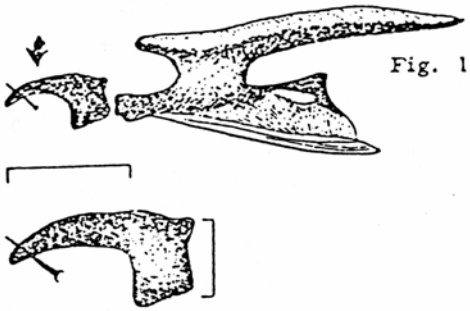


Fig. 13 A

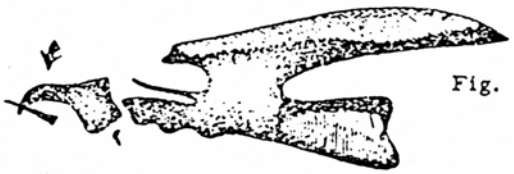


Fig. 13

14. Peritreme thick with rounded or sharp projections which extend inward toward spiracula slits (Fig. 14 A); cephaloskeleton as in figure 14 B..... .....(Phaenicia caeruleiviridis) A GREEN BOTTLE FLY

Peritreme thin, usually with no projections or if present only slightly sclerotized (Fig. 14 C).....

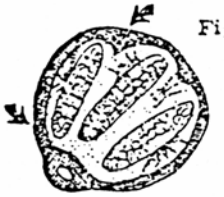


Fig. 14 A

Fig. 14 B

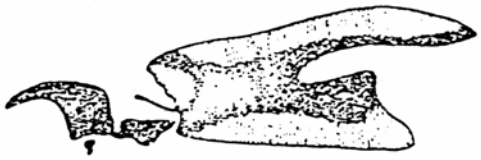
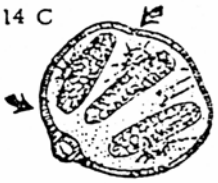


Fig. 14 C



15. At least one of the prothoracic spiracles with 8 or more openings (Fig. 15 A); peritreme and cephaloskeleton as in figures 15 B & C..(Phaenicia sericata) A GREEN BOTTLE FLY

At least one of the prothoracic spiracles with 6 or less openings (Fig. 15 D); peritreme and cephaloskeleton as in figures 15 E & F..... (Syn. P. pallescens).....(Phaenicia cuprina) A BRONZE BOTTLE FLY

Fig. 15 A

Fig. 15 D

Fig. 15 B

Fig. 15 E

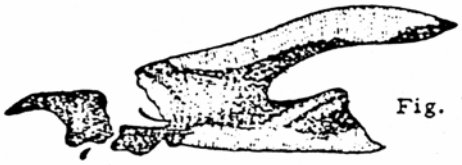


Fig. 15 C

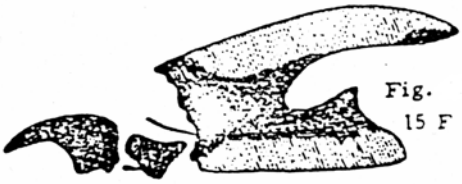


Fig. 15 F

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16. Spiracular slits not pointing toward opening in peritreme (Fig. 16 A).....17

Spiracular slits pointing toward opening in peritreme (Fig. 16 B)..... 18

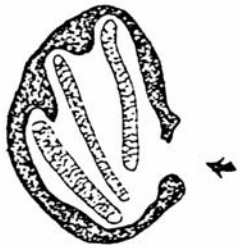

Fig. 16 A

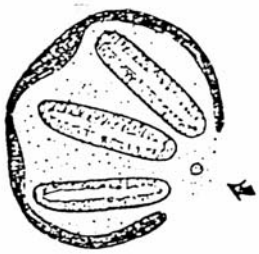

Fig. 16 B

17. Very large size, about 20 mm. long; mandibular sclerite as in figure 17 A.....
.....(Sarcophaga clitellivora or S. bullata) A FLESH FLY

Smaller size, about 10 mm. long; mandibular sclerite as in figure 17 B.....
..... (Sarcophaga haemorrhoidalis) A FLESH FLY

Fig. 17 A

Fig. 17 B

18. At least one of the prothoracic spiracles with 9 or less openings (Fig. 18 A).....19

At least one of the prothoracic spiracles with 10 or more openings (Fig. 18 B).....20

Fig. 18 A

Fig. 18 B

19. Mandibular sclerite with tooth longer than width of basal portion (Fig. 19 A).....
.....(Wohlfahrtia opaca) A FLESH FLY

Mandibular sclerite with tooth only as long as greatest width of basal portion (Fig. 19 B)..
..... (Wohlfahrtia vigil) A FLESH FLY

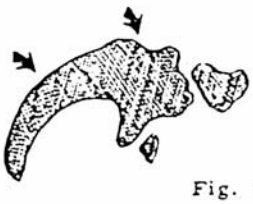

Fig. 19 A

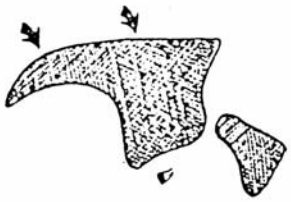

Fig. 19 B

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20. Button indistinct or absent; walls of slits with lateral swellings (Fig. 20 A).....21

Button present; walls of slits without lateral swellings (Fig. 20 B).....
.....(Phormia regina) BLACK BLOW FLY

Fig. 20 A

Fig. 20 B

21. Tracheal trunks pigmented (Fig. 21 A).....
.....(Cochliomyia hominivorax) PRIMARY SCREW-WORM

Tracheal trunks not pigmented (Fig. 21 B).....
.....(Cochliomyia macellaria) SECONDARY SCREW-WORM

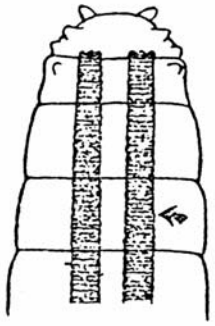

Fig. 21 A

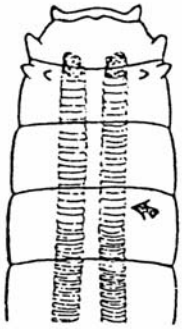

Fig. 21 B

22. Peritreme thick (Fig. 22 A).....(Musca domestica) HOUSE FLY

Peritreme thin (Fig. 22 B).....(Haematobia irritans) HORN FLY

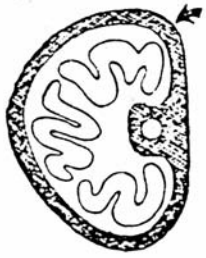

Fig. 22 A

Fig. 22 B

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23. Small or slender, round larvae, usually less than 13 mm. long, tapering anteriorly (Fig. 23 A).....24

Large, robust larvae, over 15 mm long, with very stout spines (Fig. 23 B)..... 26

Fig. 23 A

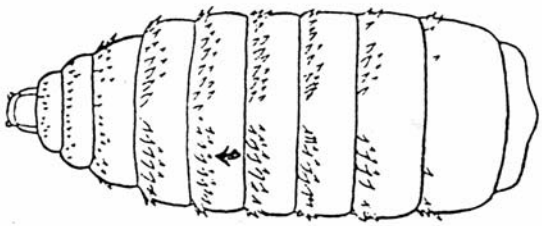

Fig. 23 B

24. Button centrally located (Fig. 24 A)..... (Stomoxys calcitrans) STABLE FLY

Button not centrally located (Fig. 24 B).....25

Fig. 24 A

Fig. 24 B

25. Slits of posterior spiracles strongly sinuous (Fig. 25 A).....(Musca autumnalis) FACE FLY

Slits of posterior spiracles not strongly sinuous (Fig. 25 B).....
.....(Genus Mucina) FALSE STABLE FLY

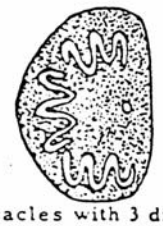

Fig. 25 A

Fig. 25 B

26. Posterior spiracles with 3 distinct slits (Fig. 26 A).....27

Posterior spiracles without 3 distinct slits (Fig. 26 B).....28

Fig. 26 A

Fig. 26 B

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27. Spiracular slits straight and sunken in deep cavity (Fig. 27 A); body shape as in figure 27 B. .....(Genus Dermatobia) HUMAN BOT FLY

Spiracular slits curved and at most in shallow cavity (Fig. 27 C); body shape as in figure 27 D.....(Genus Gasterophilus) HORSE BOT FLY

Fig. 27 A

Fig. 27 C

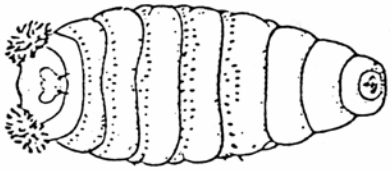

Fig. 27 B

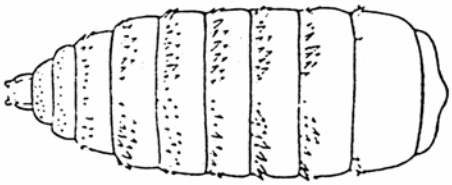

Fig. 27 D

28. Each spiracle divided into several plates (Fig. 28 A)..... .....(Genus Cuterebra) RABBIT AND RODENT BOT FLY

Each spiracle not divided into several plates (Fig. 28 B).....29

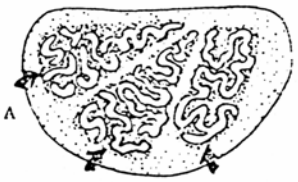

Fig. 28 A

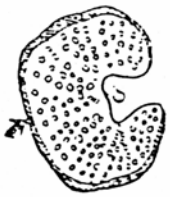

Fig. 28 B

29. Button centrally located (Fig. 29 A).....(Oestrus ovis) SHEEP BOT FLY

Button not centrally located (Fig. 29 B).....30

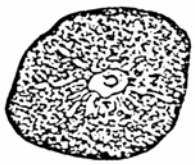

Fig. 29 A

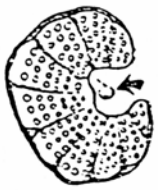

Fig. 29 B

30. Opening toward button narrow (Fig. 30 A)....(Hypoderma bovis) NORTHERN CATTLE GRUB

Opening toward button wide (Fig. 30 B).....(Hypoderma lineatum) CATTLE GRUB

Fig. 30 A

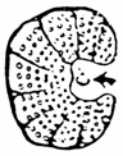

Fig. 30 B

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Public Health Service, Communicable Disease Center, Training Branch, Atlanta Georgia—1962