

BIO 475 - Parasitology Spring 2009

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<http://www4.nau.edu/isopod>

Lecture 24

Subphylum Hexapoda (Insecta)

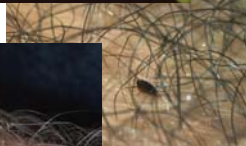
1.Characteristics

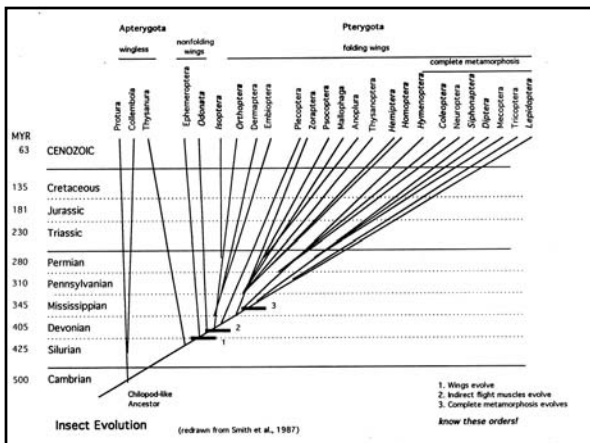
- a. Six legs,
- b. Head, thorax abdomen
- c. Often with winged adults



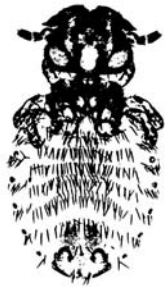
2. Main Parasitic Orders

- a. Mallophaga
- b. Anoplura
- c. Hemiptera
- d. Siphonaptera
- e. Diptera





Order Mallophaga



(b)
FIGURE 35.6
Trichodectes canis (Mallophaga, Ischnocera), the chewing louse of dogs.
(a) Male; (b) female.
Courtesy of Jay George.



FIGURE 35.5
Linognathus setosus (Mallophaga, Ischnocera), the dog biting louse.
Courtesy of Jay George.



Order Anoplura

Order Anoplura

1. Vectors of disease

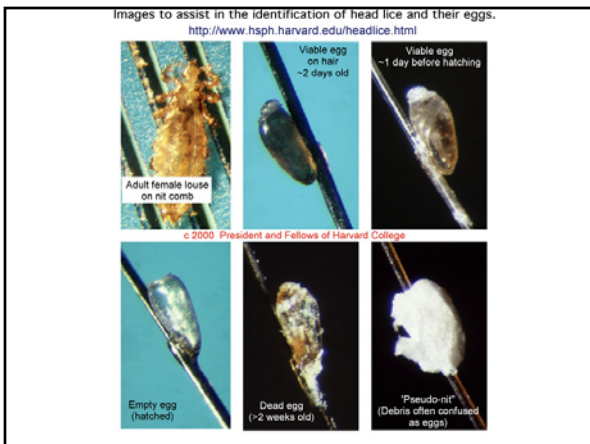
- Rickettsia* (typhus)
- Rhochalimaea* (trench fever)
- Borrelia* (relapsing fever)

2. Important species

- Pediculus humanus humanus* (clothing)
- Pediculus humanus capitis* (smaller, head)
- Phthirus pubis*







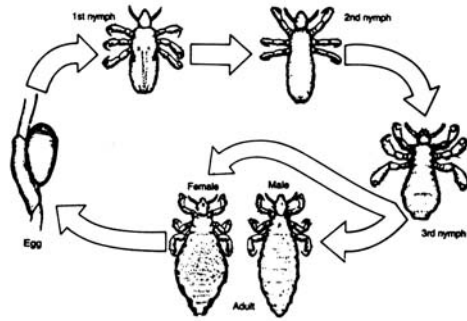
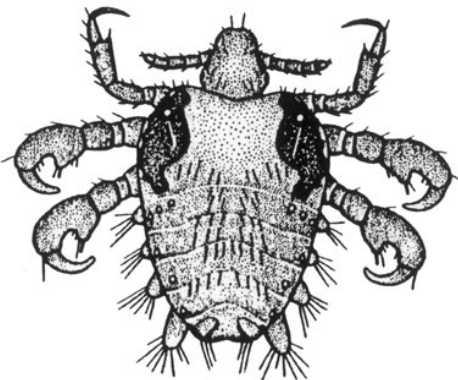


FIGURE 35.1

Life cycle of the head louse, *Pediculus humanus capitis*. The eggs (nits) are cemented to hairs and require 5 to 10 days to hatch. The life cycle about 21 days from egg to egg.
Source: H. D. Pratt and R. S. Latta, *Life of Public Health Importance and Their Control*, Department of Health, Education, and Welfare, Pub. No. (CED 77-8265, 1973, U.S. Government Printing Office, Washington, D.C.



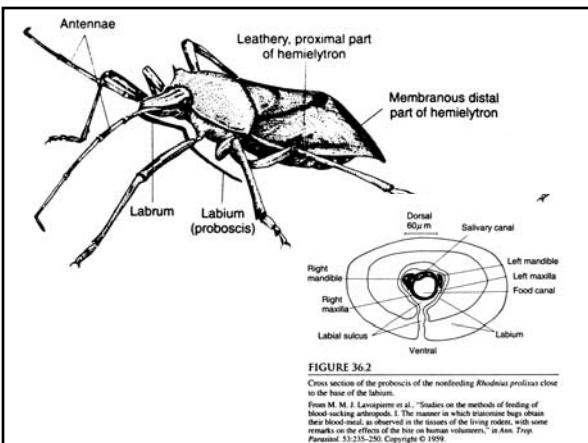
Medscape® www.medscape.com

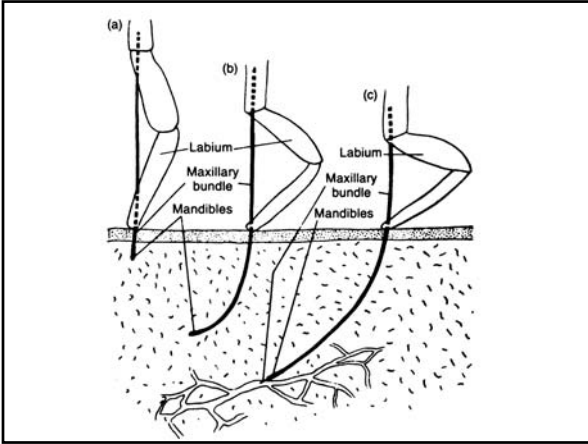




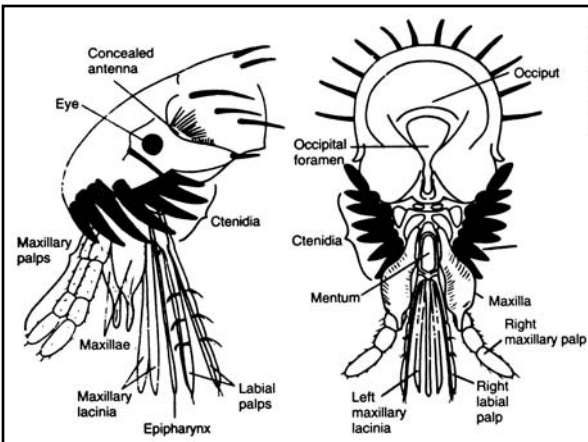
Phthirus pubis Infestation







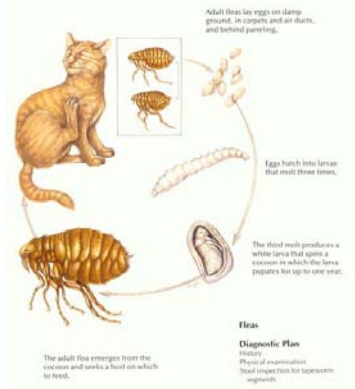




Order Siphonaptera

1. Are
holometabolous
insects.

a. Have egg ->
larvae-> pupae -
-> adult.



Order Siphonaptera

Excellent jumpers:

Click mechanism in
thorax permits 140g
force in 1/1000 sec.

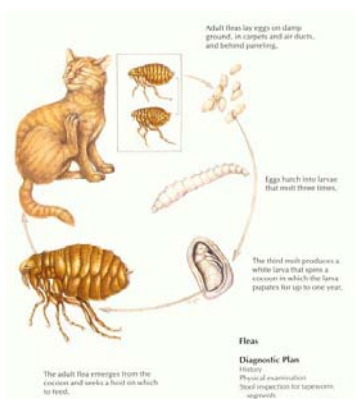
Equals 800 foot
standing jump!



Order Siphonaptera

Often host
specific with
particular
affinities.

Associated with
nests or hosts,
hair or feathers,
surface or
burrowing.



Nest Associated

Most rodent fleas.

Including prairie
dogs.

Xenopsylla cheopis



Disease Transmission

Plague (*Yersinia pestis*).

Usually associated
with *Xenopsylla*
cheopis.

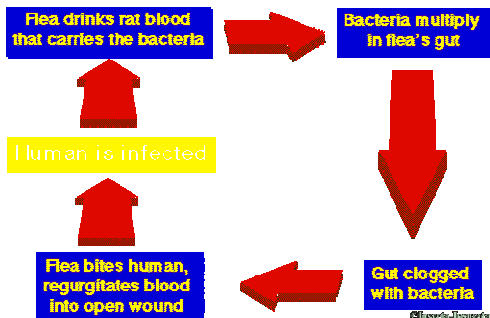
Also:

Murine typhus

Myxomatosis



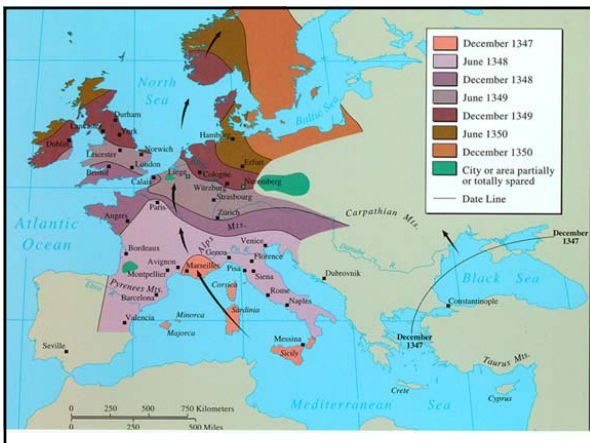
Plague Transmission





The bubonic plague was the most commonly seen form of the Black Death. The mortality rate was 30-75%. The symptoms were enlarged and inflamed lymph nodes (around arm pits, neck and groin). The term 'bubonic' refers to the characteristic bubo or enlarged lymphatic gland. Victims were subject to headaches, nausea, aching joints, fever of 101-105 degrees, vomiting, and a general feeling of illness. Symptoms took from 1-7 days to appear.





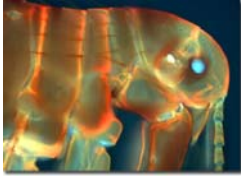
Host Associated

Most fleas
including:

The human flea,
Pulex irritans

Rabbit fleas,
Nosopsyllus

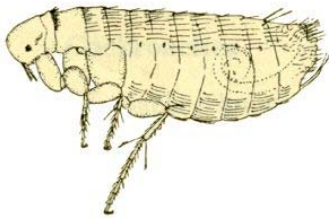
Cat fleas,
Ctenocephalides



Attached Fleas

Chicken fleas
(stick tight fleas)

Echidnophaga



Burrowing Fleas

*Tunga
penetrans*



