

**A Simple Picture Key:
Major Groups of Benthic Macroinvertebrates
Commonly Found In Freshwater New England Streams**

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June 8, 1992

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from W. Patrick McCafferty
Aquatic Entomology
Jones & Bartlett Publishers, 1983
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ABOUT THIS KEY

Keys are guides to the identification of plants or animals. Macroinvertebrate keys arrange macroinvertebrates' characteristics in a way that leads you in a logical manner to place the organism in the correct grouping or "taxon" (order or family, for example). Most keys use "couplets" – two mutually exclusive statements regarding a physical characteristic of the organism – and illustrations that highlight the characteristic being examined. The statement which is true for that organism directs the user to subsequent couplets until the organism is placed in a taxon.

This visual key is intended to be used with River Watch Network's "Guide To Macroinvertebrate Sampling" and "Key To The Freshwater Macroinvertebrate Fauna of New England." It is intended to make it easier for people unfamiliar with benthic macroinvertebrates to identify them, before attempting to use a more traditional "couplet" key. This key enables the user to first match the organism to one or more drawings, then see if the organism has the characteristics that would place it in the taxon illustrated by those drawings. In many ways, it's similar to a "field guide" approach.

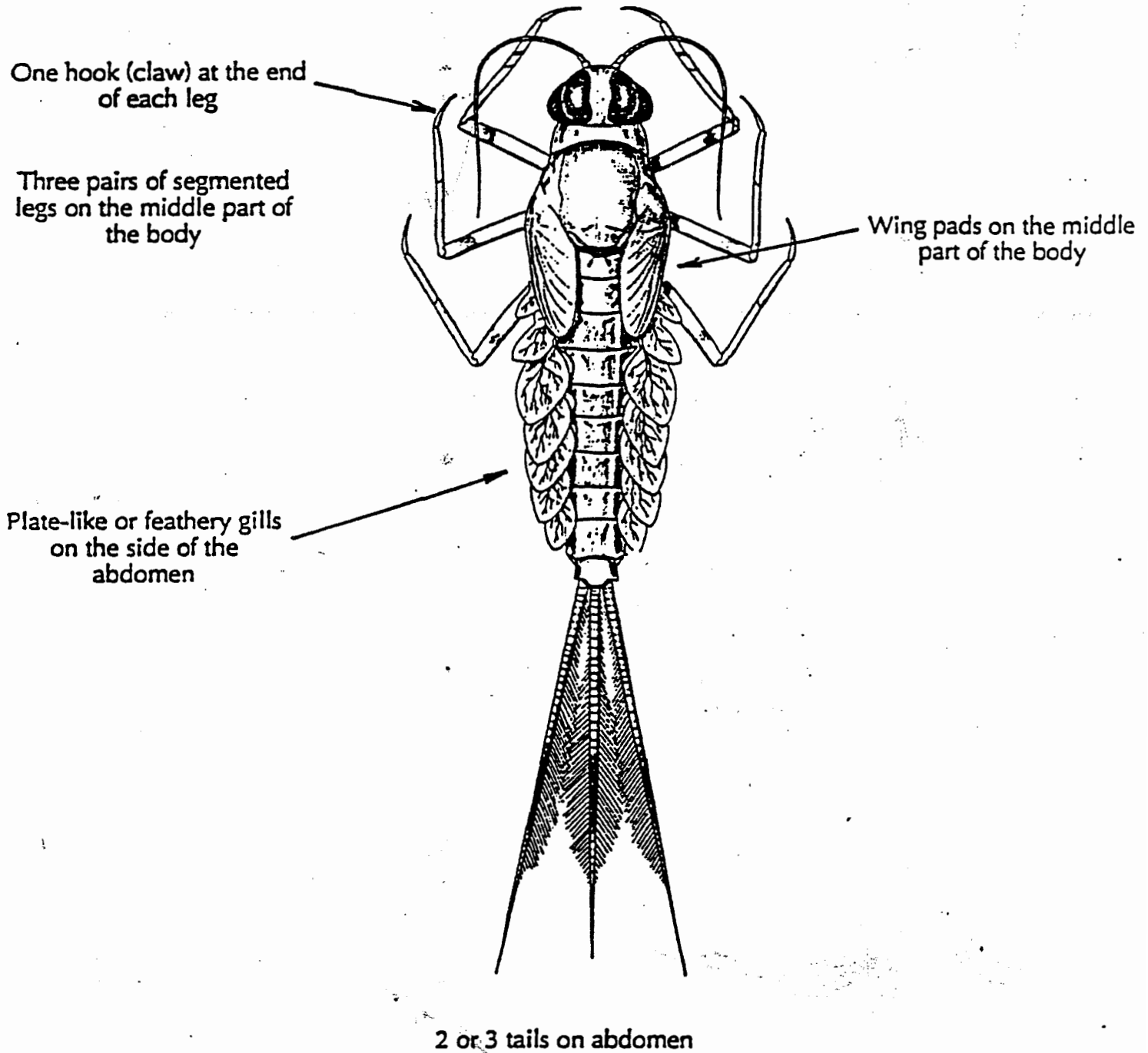
HOW TO USE THIS KEY

First, find the picture or pictures in the key that most closely resemble the organism you're trying to identify. Then find the page that illustrates the characteristics of the major group that goes with the picture. If the characteristics match those of your organism, you've identified the major group. If not, find another page with characteristics that match your organism. If you are still unable to identify the organism, refer to the "Key To The Freshwater Macroinvertebrate Fauna of New England." If you are still not sure about a particular organism, preserve it in a vial of ethanol and have a more experienced person assist you.

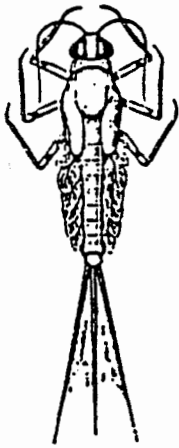
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Characteristics of : MAYFLIES (Order EPHEMEROPTERA)



Examples of: Common MAYFLY Families (Order EPHEMEROPTERA) In Freshwater Rivers



BAETIDAE



HEPTAGENIIDAE



LEPTOPHLEBIIDAE



BAETISCIDAE



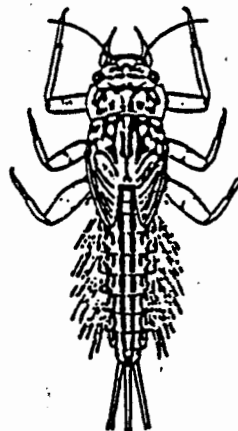
EPHEMERELLIDAE



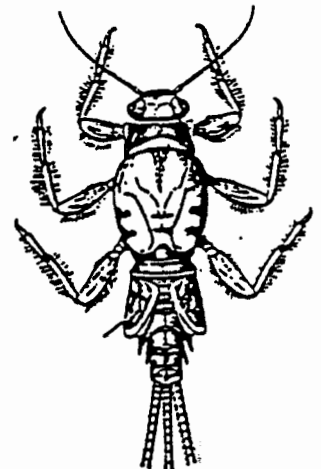
CAENIDAE



EPHEMERIDAE



POTAMANTHIDAE



TRICORYTHIDAE



OLIGONEURIDAE

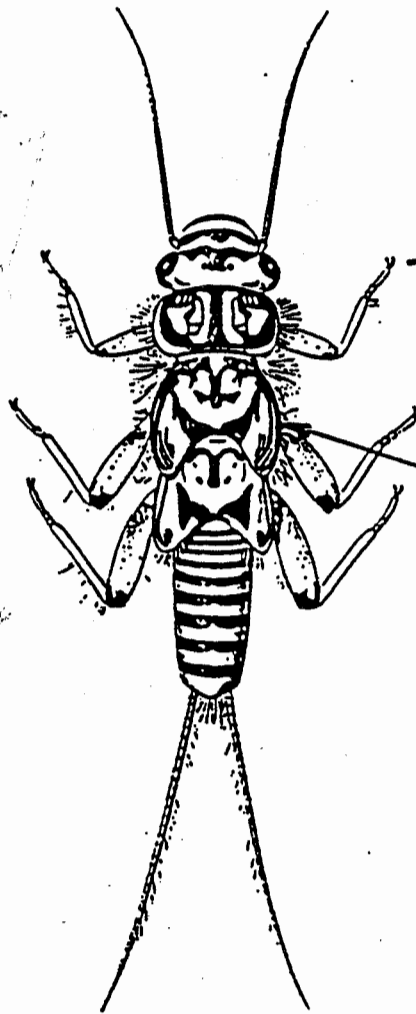
Characteristics of: **STONEFLIES** (Order PLECOPTERA)

Three pairs of segmented legs on the middle part of the body

2 hooks (claws) at the end of each leg

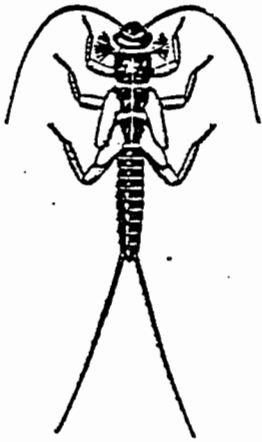
Wing pads often on the middle part of the body

No gills on the side of the abdomen or, if present, are filament-like



2 tails on abdomen

Examples of: Common **STONEFLY** Families (Order PLECOPTERA) In Freshwater Rivers



NEMOURIDAE



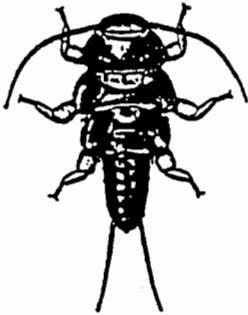
CHLOROPERLIDAE



PERLODIDAE



CAPNIIDAE



PELTOPERLIDAE



PTERONARCYIDAE



PERLIDAE

Characteristics of: CADDISFLIES (Order TRICHOPTERA)

The insect may be in a case made of sand grains, or bits of leaf or twigs



Three pairs of segmented legs on the middle part of the body



No wing pads on the middle part of the body

Filament-like gills may be present on the underside of the abdomen

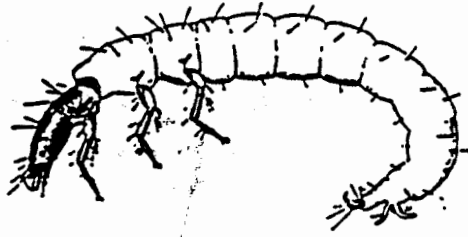
Short or long prolegs at the end of the abdomen that end in a single hook

Examples of: Common CADDISFLY Families (Order TRICHOPTERA) In Freshwater Rivers

Netspinners



HYDROPSYCHIDAE



PHILOPOTAMIDAE



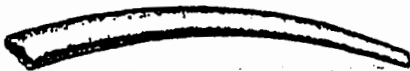
POLYCENTRIPODIDAE

Freeliving



RHYACOPHILIDAE

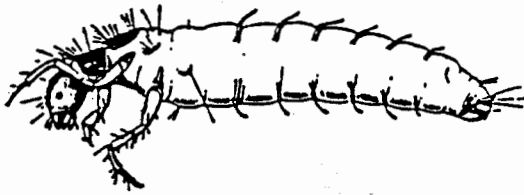
Casebuilders



LIMNEPHILIDAE

Examples of: Common CADDISFLY Families (Order TRICHOPTERA) In Freshwater Rivers

Casebuilders



LEPIDOSTOMATIDAE



BRACHYCENTRIDAE



GLOSSOSOMATIDAE



HELICOPSYCHIDAE



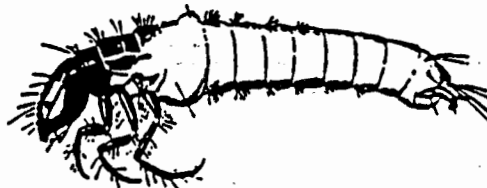
ODONTICERIDAE



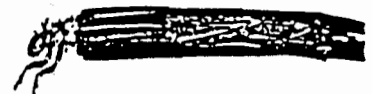
PHRYGANEIDAE



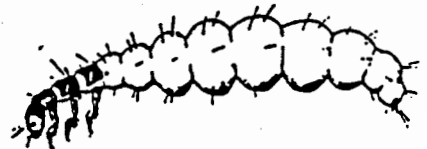
MOLANNIDAE



LEPTOCERIDAE



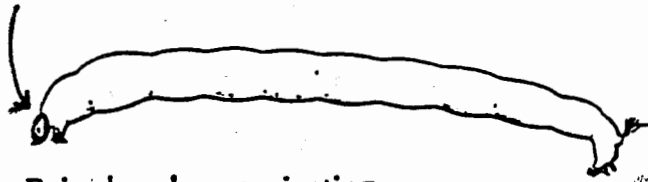
HYDROPTILIDAE



MIDGES (Family CHIRONOMIDAE)

Distinct head

Worm-like body

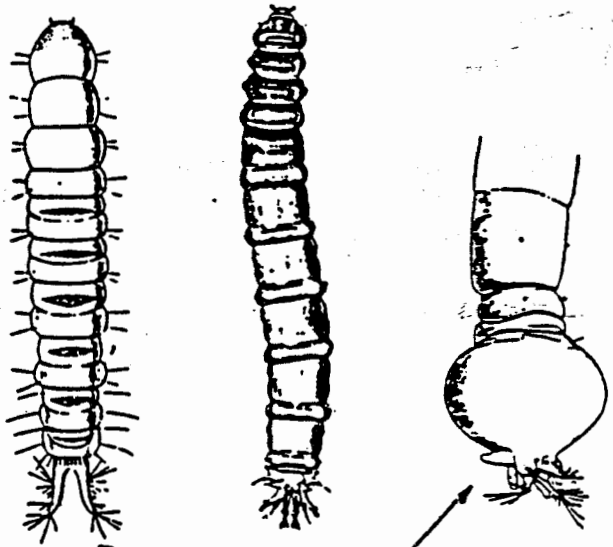


Paired prolegs projecting forward from front of thorax

CRANE FLIES (Family TIPULIDAE)

No distinct head

Cylindrical body

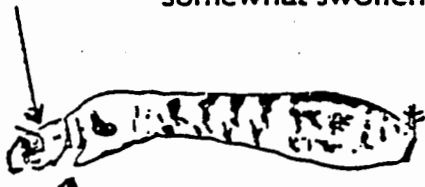


Abdomen may be bulbous or end in fleshy projections

BLACK FLIES (Family SIMULIIDAE)

Distinct head

Worm-like body, with somewhat swollen abdomen

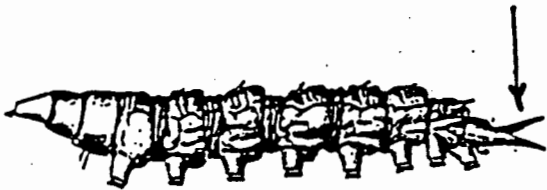


Paired prolegs projecting forward from front of thorax

SNIPE FLIES (Family ATHERICIDAE)

No distinct head

Abdomen ends in two projections longer than prolegs



Well-developed prolegs on underside of abdomen

DANCE FLIES (Family EMPIDIDAE)

No distinct head

Abdomen ends in two projections shorter than prolegs



Well-developed prolegs on underside of abdomen

DEER FLIES (Family TABANIDAE)

No distinct head

Cylindrical body with fleshy rings

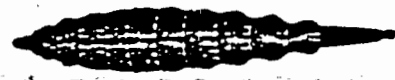


No prolegs on underside of abdomen

SOLDIER FLY (Family STRATIOMYIDAE)

Distinct head

Body somewhat flattened



Abdomen fringed with hairs

RIFFLE BEETLE larva (Family ELMIDAE)

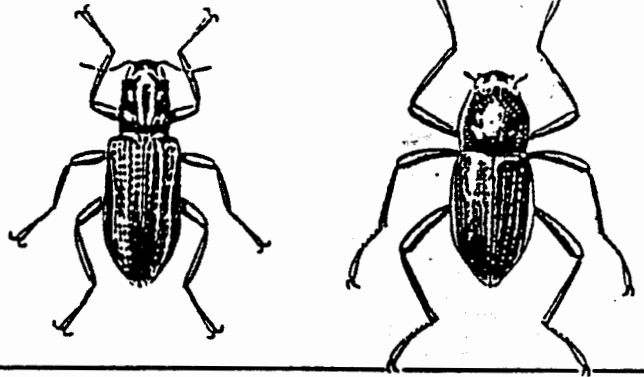
Body elongated



Abdominal segment 9 has a notched chamber with filament-like gills inside and hooks underneath

RIFFLE BEETLE adult (Family ELMIDAE)

Antennae:
- usually slender, - sometimes short and clubbed

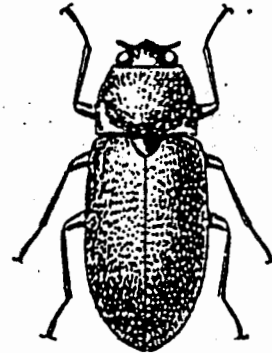


LONGTOED WATER BEETLE larva (Family DRYOPIDAE)

(no picture)
similar to ELMIDAE larvae but no gills in notched chamber

LONGTOED WATER BEETLE adult (Family DRYOPIDAE)

Antennae: always short, never clubbed



WATER PENNY (Family PSEPHENIDAE)

Body disk-like with plates covering head and legs

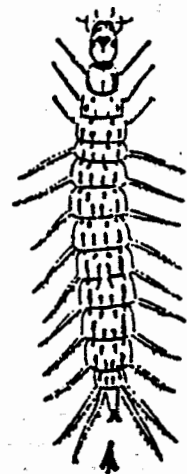


WHIRLIGIG BEETLE (Family GYRINIDAE)

Light-colored

Three pairs of segmented legs on the middle part of the body

Filaments on the side of the abdomen

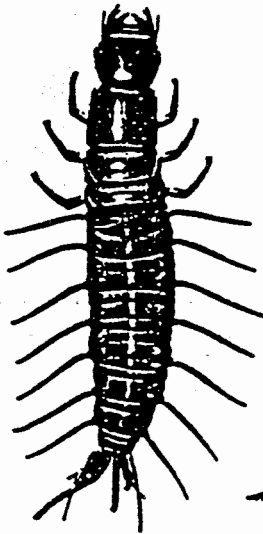


Four terminal hooks on a single projection at the end of the abdomen

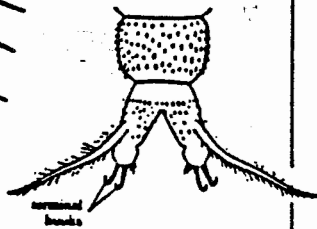
DOBSONFLY or HELLGRAMMITE
(Order MEGALOPTERA, Family CORYDALIDAE)

Dark-colored

Filaments
on the side
of the
abdomen



Three pairs of
segmented legs
on the middle-
part of the
body

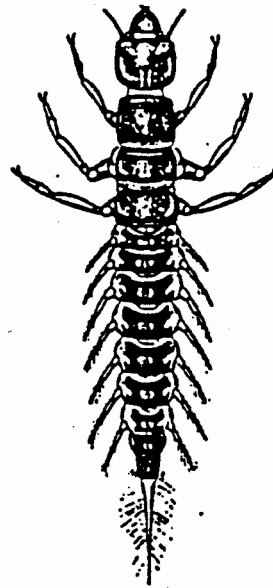


Four terminal hooks on two projections
at the end of the abdomen

ALDERFLY
(Order MEGALOPTERA, Family SIALIDAE)

Light-colored

Filaments
on the side
of the
abdomen

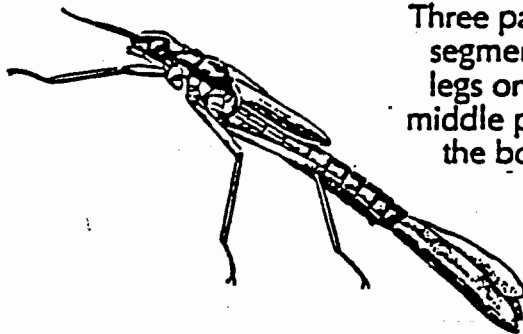


Three pairs of
segmented
legs on the
middle part of
the body

Single projection at the end of
the abdomen with no hooks

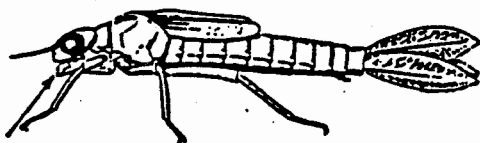
DAMSELFLY LARVA (Order ODONATA)

Large eyes



Three pairs of
segmented
legs on the
middle part of
the body

Three leaf-like tails at end of abdomen



Lower lip is large and covers the
other mouthparts from below

DRAGONFLY LARVA (Order ODONATA)

Large eyes

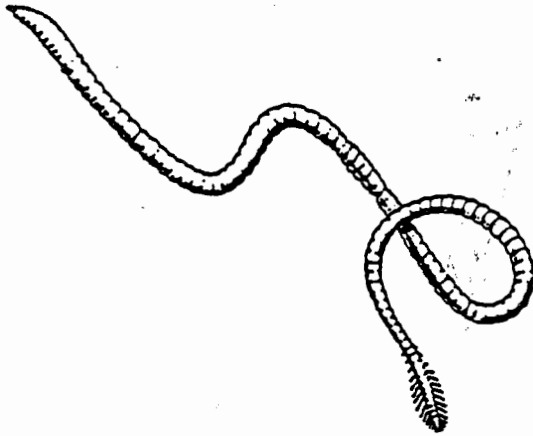


Three pairs of
segmented
legs on the
middle part of
the body



Lower lip is large and covers the
other mouthparts from below

SEGMENTED WORMS



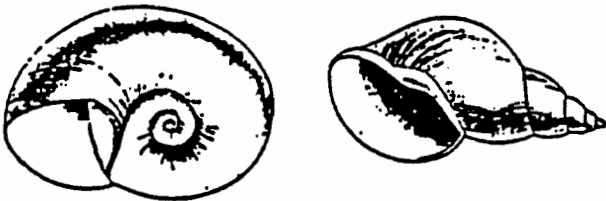
LEECHES



MOLLUSKS
Body enclosed in a shell

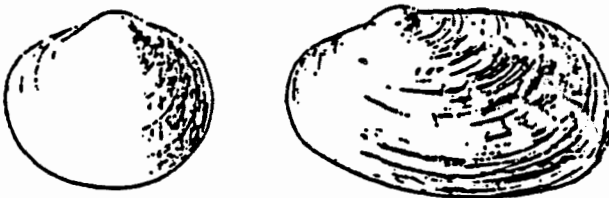
SNAILS

Single spiral shell



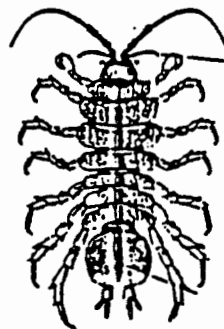
CLAMS AND MUSSELS

Two-piece hinged shell



CRUSTACEANS

SOWBUGS



SCUDS



CRAYFISH

