Earth Science Today

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Minnesota State University Moorhead

Earth Science Today, Invertebrate fossils

1) Draw a picture of each sample.

2) For each fossil, write down one or two features you think are characteristic features (see characteristic features that are listed for each phylum).

3) Identify the correct phyla for each using the provided sheets of fossil types.

Fossils:

Small picture and key feature Phylum

E7

.

B7

F5

E4

C4

A3

F1

F4

B5

F3

D7

E3

E6

A7

E1

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Key to fossil groups

Some major invertebrate phyla of multi-cellular members of the animal kingdom are the following:

Porifera (these are the sponges)
often lack distinctive structures although spicules may be seen, may be spherical, or tubular.

Cnidaria (including jellyfish and corals)
corals are mostly colonial creatures with septated individual holes. Tabulate corals have layer-like tabulae,
rugose corals are horn shaped and may not be colonial.

Bryzoa (coral-like creatures)
are colonial, may be branching, encrusting, or fan-shaped. Small holes where individuals lived.

Brachiopoda (sea-shell like creatures)
2 shells, bilateral symmetry, opposing shells differ in size and/or shape.

Mollusca (including snails, sea-shells, octupus)
Bivalves: 2 shells, bilateral assymetry, opposing shells often mirror images.
Gastropods: single coiled shell
Cephalopods: shell coiled or straight, if coiled it is usually in a single plane, suture lines

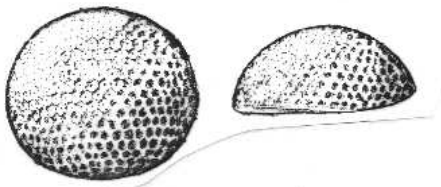
Arthropoda (includes insects, lobsters, and spiders)
Trilobites: bilateral symmetry, with head, thorax and pygidium.

Echinodermata (includes starfish)
pentameral symmetry, small plates, crinoid stems are distinctive "O's".

Pictures of various members of each phylum are available in the lab and on my web page.

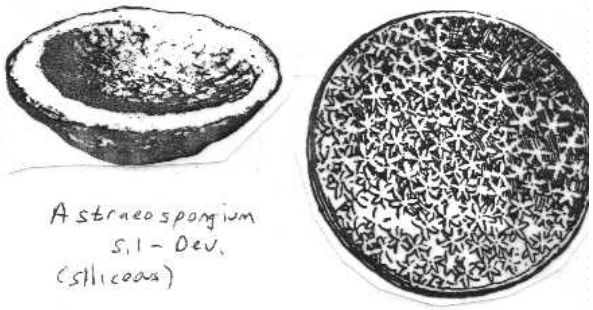
Porifera

Receptaculida :



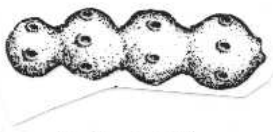
Sphaerospongia
ord.

Hyalospongia :



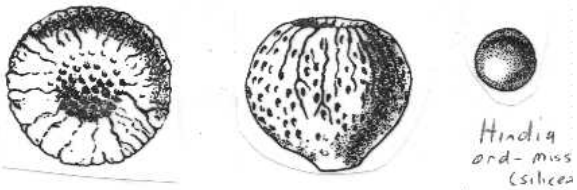
Astraeospongium
S.I - Dev.
(Siliceous)

Calcispongia :



Girty coelia
Penn - Perm.

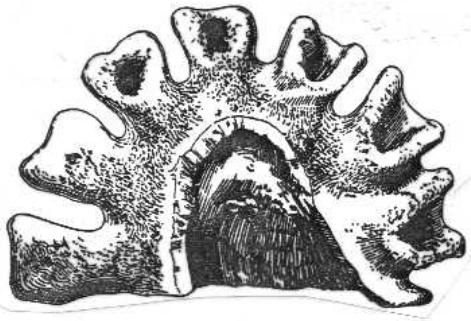
Demospongia



Hindia
ord - miss
(silicea

Astylospongia (Siliceous)
Sil.

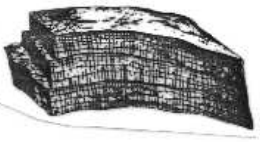
Uncertain :



Brachiospongia
Ord (Siliceous)

Cnidaria

Stromatoporid



actinostroma
Sil - Jur

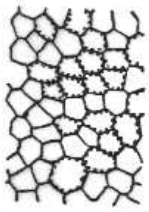
Anthazoa:
rugosa:

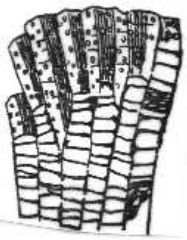
Lophophyllidium
Penn - Perm.

Breviphrentis
Sil - Miss

Hexagonaria
(Dev.)

Tabulata:

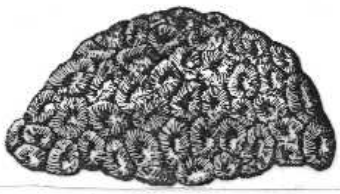




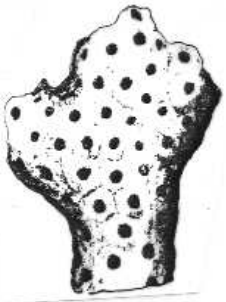
Favosites (ord - Perm)

Trachypora (Dev - Perm)

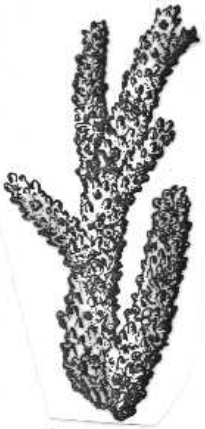
Scleractinian's



Favia Cret - Rec.



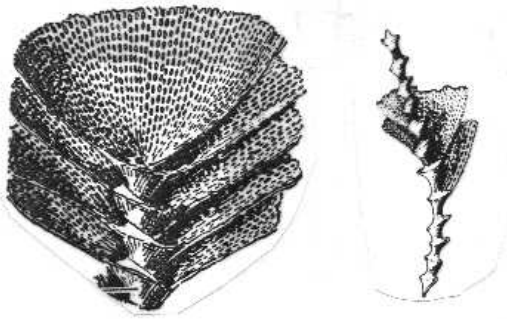
Astrhelia
Miocene



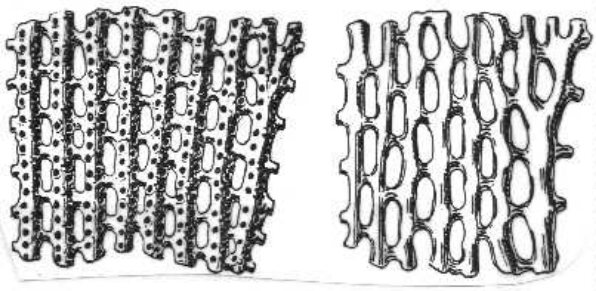
Acropora
Eocene - Rec

Flabellum
Eoc. - Rec.

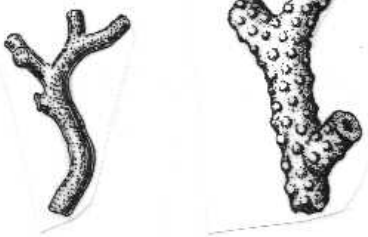
Bryzoa



Archimedes
Miss - Perm
(Cryptostomata)

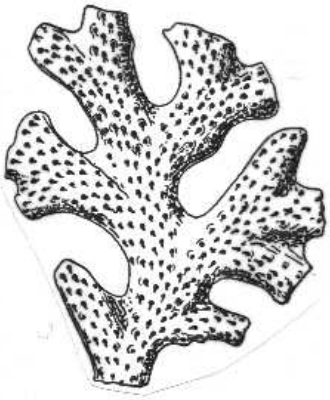


Fenestrilina (Cryptostomata)
Miss - Perm.



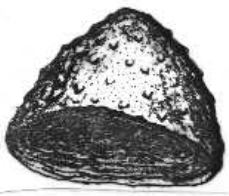
Hallopora
ord - Dev.
(Trepostomata)

Tubucellaria
Eocene - Rec.
(Cheilostomata)



Thamniscus
Sil - Perm.
(Cryptostomata)

Psilosolen
Pliest - Rec.
(Cyclostomata)



Prasopora
ord.
(Trepostomata)

Brachiopoda (cont)

Articulata (cont)

pentameracea

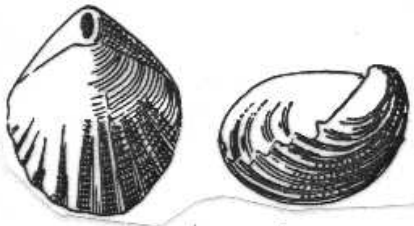
Pentamerus
M. Sil.

Rhynchonellacea

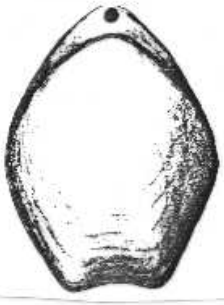
Stegerhynchus
M. Sil.

Rhynchotreta
miss.

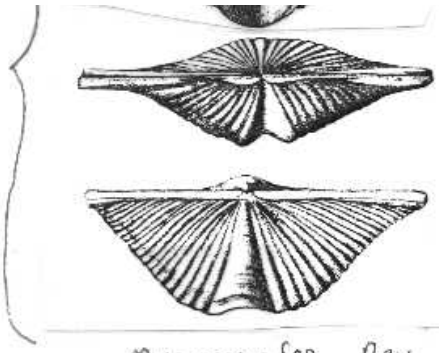
terebratulida



Plectoconcha
Triassic



Terebratula
K - Tert.

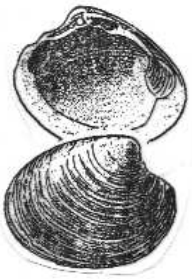


Mucrospirifer Dev.

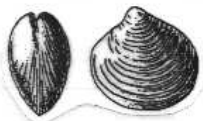
Brachyspirifer
M. Dev.

Mollusca

Pelecypoda:

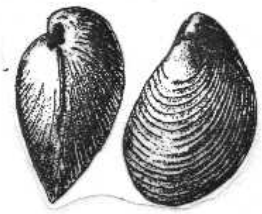


Arctica
Jur - Rec

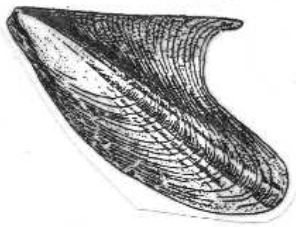


Astarte
Tr - Rec

Ctenodonta
Ord - Sil

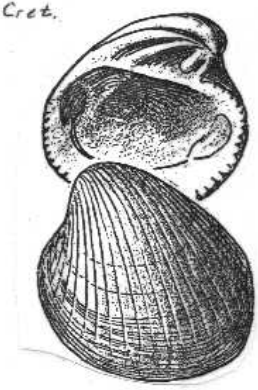


Buchia
Jur - Cret.



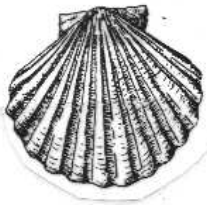
Gervillia
Jur - Eoc.

Exogyra
Jur - Cret.



Venericardia
Cret - Rec.

Gryphaea
Jur - Rec



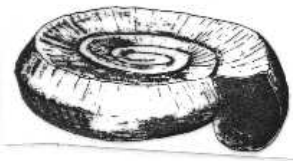
Pecten
Miss - Rec

Durania
(Rudistid clam)
Upper Cret.

Trigonia
Jur - Rec

Mollusca

Gastropoda:

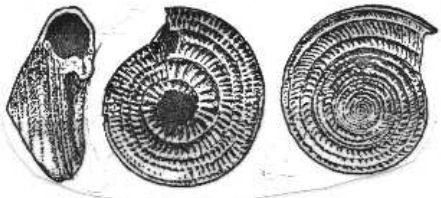


Euomphalus
Miss – M. Tri.

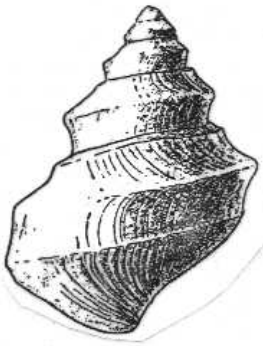
Straparolus
Dev – Perm

Bellerophon
Ord – Tri.

Glabrocingulum
Miss – Penn.



Architectonica
Cret – Rec.



Lophospira
Ord – Dev.

Hormotoma
Ord – Dev.

Murex
Eoc – Rec

Subulites
Ord – Sil.

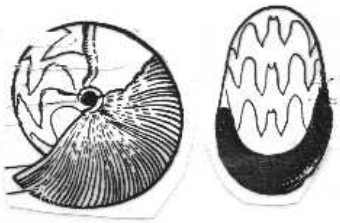
Conus Eoc-Rec

Busycon
Olig – Rec.

Mollusca (cont)

Cephalopoda

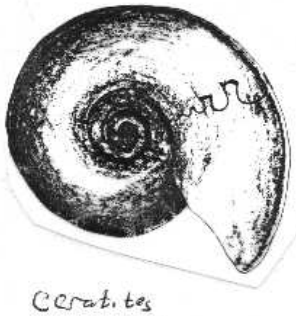
Ammonoids:



Goniatites
miss.

A goniatites
Devo.

goniatic
suture



Ceratites
M. Tri

Prodromites
Miss

ceratitic
suture

Baculites
U. Cret

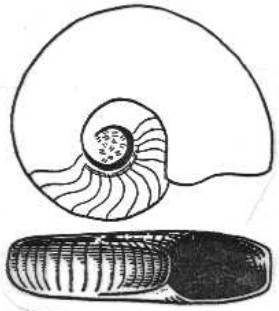
oxybropidoceras
Cret.

ammonitic
Suture

Mollusca (cont)

Cephalopoda (cont)

Nautiloids:



Domatoceras
Penn - Perm

Cosmonautilus
Triassic

Michelinoceras
ord.

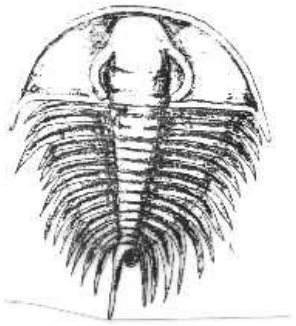
Belemnites:

Belemnopsis (Jur)

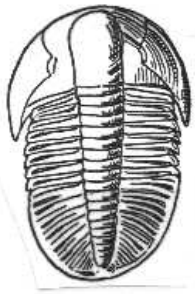
Belemnitella
U. Cret.

Arthropoda

Trilobites:

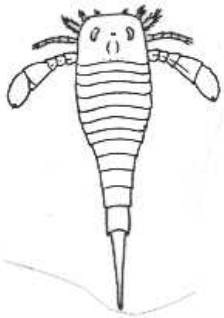


olenellus L. Camb



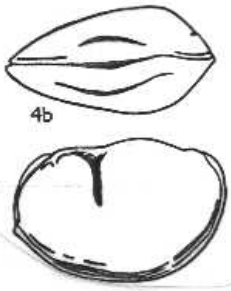
Ogygopsis M. Camb

chelicerates:



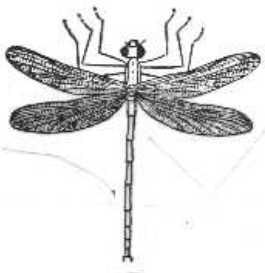
Eurypterus (a eurypterid)
Ord - Pem. (act. size ~3')

ostracoda:



Hast. faba Penn.

insects:



Tarsophlebia
Jur.

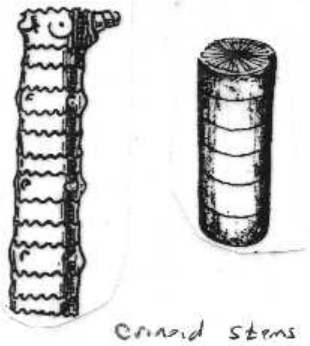
Cirripeds:

Balanus (Barnacle)
Tert. - Rec.

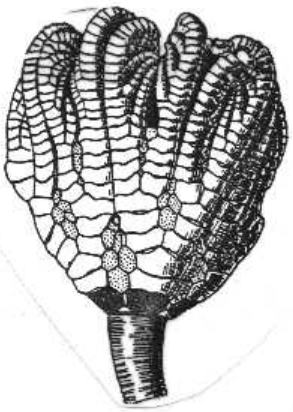
Echinodermata

attached:

Crinoids:



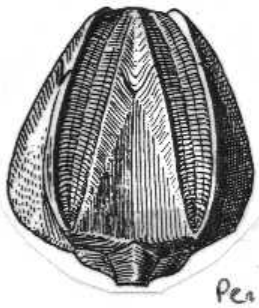
crinoid stems



talanteocrinus
calyx (Penn)

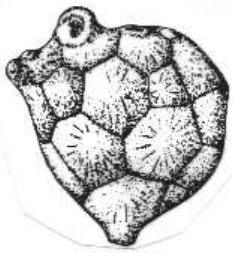
Dizygocrinus
calyx (Miss)

Blastoids:



Pentremites
(Miss)

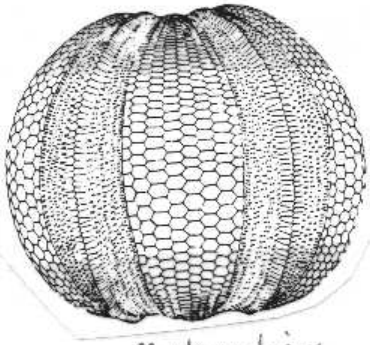
Cystoids:



Caradocystis
ord.

unattached:

Echinoids:



Melonechinus
Miss

clypeaster
Eoc - Rec

Asteroidea:

Hudsonaster
m-u ord