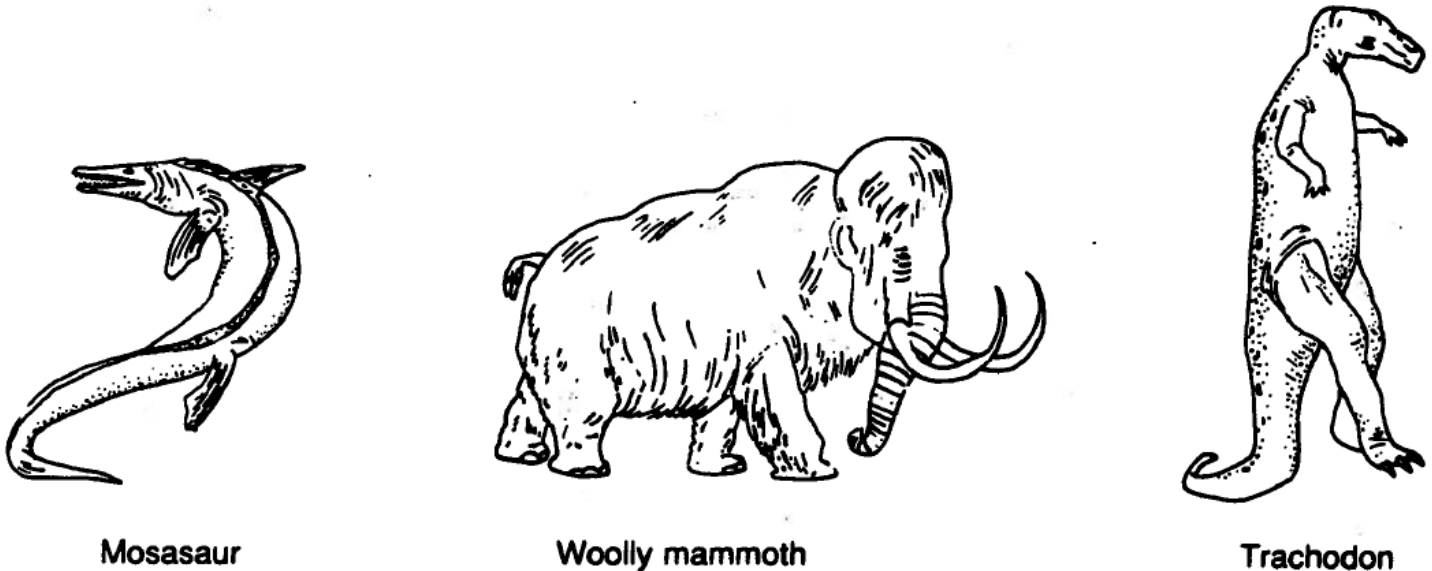


## LAB #52: *Fossil Classification*

Many of the fossils found in the United States occur in marine sedimentary rocks. These rocks formed at a time in the past when the ocean and its sediment covered vast areas. Today, large quarries in marine limestone beds yield many excellent fossils.

Dinosaurs lived during the Triassic, Jurassic, and Cretaceous periods. Tracks of bird-hipped dinosaurs, such as the trachodon, have been found in Cretaceous rocks. Mosasaurs, marine lizards, were also present. Their fossilized remains are found in Cretaceous rocks. Woolly mammoths of the Ice Age were abundant. Their bones have been removed from stream gravel pits deposited during the Pleistocene (Ice) Age. Some of these extinct creatures are pictured in Figure 1.

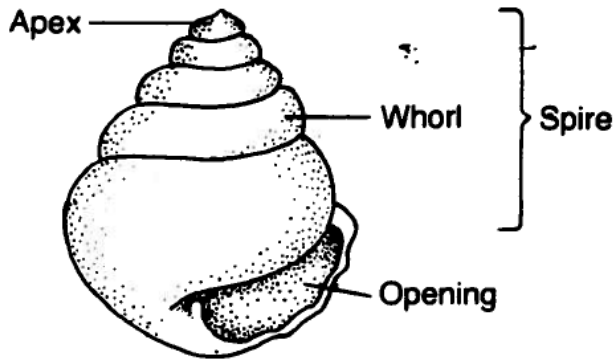


**Figure 1**

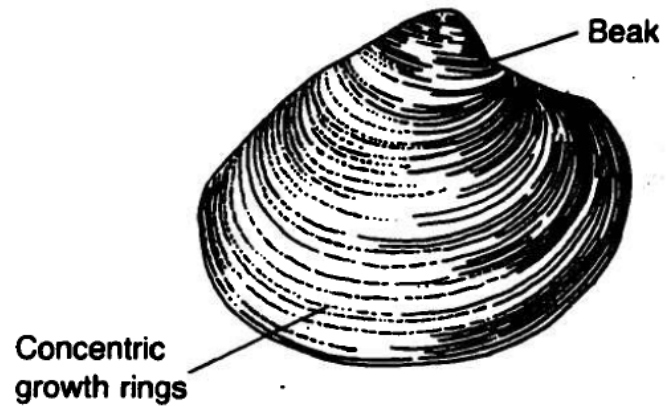
Other types of fossils also abound. Common among these are the marine fossils (Figure 2). Included in this group are the gastropods, snaillike animals, and the pelecypods, oyster-like or clamlike animals. The typical gastropod is spirally coiled with one opening. The typical pelecypod has a shell composed of two halves and covered with growth rings.

Many gastropods are well preserved and can be found in marine rocks of the Paleozoic, Mesozoic, and Cenozoic ages. Pelecypods can be found in Cambrian rocks but are most abundant in Mesozoic and Cenozoic rocks.

**Gastropod**



**Pelecypod**



**Figure 2**

1. In what type of rock are many fossils found? \_\_\_\_\_  
\_\_\_\_\_
2. Compare the general features of gastropod and pelecypod fossils. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Under normal conditions, why would you not find trachodon fossils with woolly mammoth fossils? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

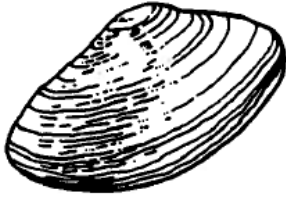
## Part II:

Many areas of the United States were covered by the sea several times during the earth's formation and stabilization. These processes lasted millions of years. Each geologic age during this time had characteristic plant and animal life that left fossil remains locked in limestone and sediments.

The oldest geologic formations are buried so deep that they are known only from core samples brought to the earth's surface during petroleum exploration. Some of these formations, almost 2.8 kilometers deep, contain the remains of dinosaurs.

Some of the most common fossils are marine mollusks. This group includes the gastropods, which are snaillike animals, and the pelecypods, which are oysterlike animals. Gastropods have a single opening at one end of a spiraling coil. Pelecypods, commonly called bivalves, have a split shell that usually shows growth rings. Echinoderms, which include sea urchins, sand dollars, and starfish, are also common fossils.

Marine fossils range in age from 1 million to 100 million years. Vertebrate fossils date only to recent times. Their age is measured in tens of thousands of years. Recent fossils are found near the surface in limestone formations, sinkholes, and springs.



Hard-shell clam



Gastropod



Violet snail



Pelecypod



Sea urchin



Starfish

Less than a million years ago, the animal life in certain areas of the United States was so rich and varied that it compared to the wealth of animals currently found in Africa. Predators included lions, saber-toothed cats, and dire wolves. Herbivores included small horses, camels, mammoths, and mastodons. Giant ground sloths and huge armadillo-like creatures also roamed the peninsula.

Because mammoths and mastodons were so abundant, their teeth are the most commonly found mammal fossil. The remains of saber-toothed cats, manatees, buffalo, and camels have also been found. Fossil fragments also include parts of ancient humans. This evidence supports the theory that the earliest people hunted the last great prehistoric animals that once dominated the earth. It seems certain that just 10,000 years ago, people and prehistoric animals lived side by side.

1. How were some of the oldest fossils found? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

2. Describe the difference between gastropods and pelecypods. \_\_\_\_\_

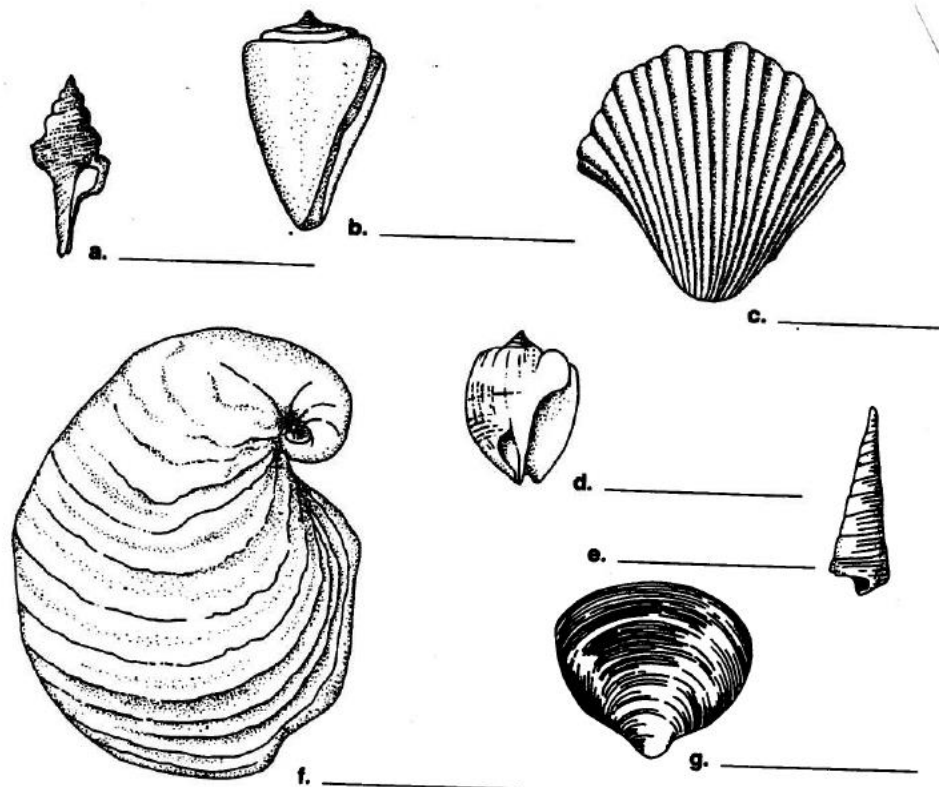
3. What was the animal life like in certain areas of the United States a million years ago?

4. What evidence supports the theory that humans inhabited the earth 10,000 years ago?

### Part III:

The drawings in Figure 3 are of typical Tertiary, Pennsylvanian, and Cretaceous marine fossils. Use the dichotomous key to identify each fossil. Fossils are identified with Latin names.

Figure 3 Classifying Marine Fossils



Put a check mark in the chart below to indicate whether each fossil is a gastropod or a pelecypod.

<b>Marine Fossil</b>	<b>Gastropod</b>	<b>Pelecypod</b>
<i>Fusus</i>		
<i>Exogyra</i>		
<i>Pecten</i>		
<i>Mesalia</i>		
<i>Conus</i>		
<i>Pseudoliva</i>		
<i>Schizodus</i>		

### Key

1. a. Shell has a beak b. Shell has no beak	Go to 5 Go to 2
2. a. Shell is short-spined b. Shell is tall-spined	Go to 3 Go to 4
3. a. Shell is cone-shaped b. Shell not cone-shaped	<i>Conus</i> <i>Pseudoliva</i>
4. a. Shell has smooth whorls b. Shell has bumpy whorls	<i>Mesalia</i> <i>Fusus</i>
5. a. Shell has concentric rings b. Shell has no concentric rings	Go to 6 <i>Pecten</i>
6. a. Shell has narrow rings b. Shell has wide rings	<i>Schizodus</i> <i>Exogyra</i>