

8th Science

Notes 12-2

II. Fossils = the remains of animals or plants that lived in a previous geologic time.

A) Paleontology = The study of fossils

- 1) Fossils mostly found in sedimentary rock because sediment covers the organism and prevents decay. Igneous and metamorphic rock forming processes destroy the organic structures. Fossils in rock can form if organism is buried immediately after death and the hard parts become preserved as rock forms around them

B) Interpreting the Fossil Record

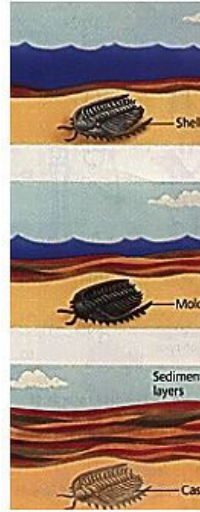
- 1) Shows us clues to the Earth's geologic history
 - a) Climate changes are seen by marine fossils found on land. This shows that the area was once was under oceans. (Michigan was under water for 300 million years laying down our salt, gypsum, dolomite, as well as Petoskey stones (our state stone) which are fossilized coral.
 - b) Shows how living things have evolved over time

C) Types of fossils

- 1) Mummification = Form in dry places where decomposing bacteria can not live.
- 2) Amber = fossils form when insects land on a tree and get covered in sap which hardens. Sometimes DNA can be extracted (Jurassic Park?)
- 3) Tar seeps/asphalt = fossils form when an organism fell into a asphalt/tar pit while trying to drink the water above it. Creature is then preserved. (Le Brea asphalt/tar pit in LA, California)
- 4) Freezing = Frozen fossils form when organisms from the last ice age died and froze, slowing down the decay process.
- 5) Petrification = Petrified fossils form when pores in wood, bones, or shells fill with dissolved minerals (silica, calcite, pyrite) and crystallize over time
- 6) Imprints = When original organic material partially decays, leaving behind a carbon film



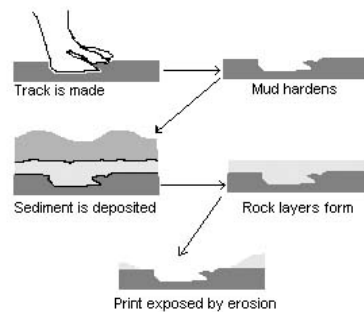
- 7) Mold = A mark or cavity made in a sedimentary surface by a shell or other body part. Cast = A fossil that forms when sediments fill in the cavity left by a decomposing organism.



- 8) Coprolites = Fossilized dung can preserve information about what the animal ate



- 9) Gastroliths = Stones that were used in the digestive tract of some dinosaurs. (Like the stones in a bird's gizzard) They reveal that the dinosaur was a plant eater.
- 10) Trace fossil- A fossilized mark that is formed in soft sediment by the movement of an animal (foot prints, burrows, boring, etc.)



- D) Index Fossil = A fossil that lived during a relatively short geological time that can be used to find the absolute date of the rock layer it is found in.



Ammonites Mesozoic Era (245 to 65 mya)



Trilobites Paleozoic Era (540 to 245 mya)