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Notes for B.Sc Part 3rd, paper VI.
Unit - 2 (B)

Question :- Write Notes on Fossil?

Answer :- Fossil :-

A fossil (from classical
Latin: Fossilis, literally "obtained by
digging") is any preserved remains,
impression, or trace of any once-
living thing from a past geological
age. Examples include bones, shells,
exoskeletons, stone imprints of animals
or microbes, objects preserved in
amber, hair, petrified wood, oil, coal,
and DNA. Remnants of the totality of
fossils is known as the fossil record.

Paleontology is the study of
fossils: their age, methods of formation
and evolutionary significance. Specimens
are usually considered to be
fossils if they are over 10,000
years old. The oldest fossils
are around 3.48 billion years old.
The oldest fossils are around
3.48 billion years old to 4.1
billion years old.

Fossilization processes :-

Permineralization :-

For some cases the original Permineralization is a process of fossilization that occurs when an organism is buried. The empty spaces within an organism (spaces filled with liquid or gas during life) become filled with mineral - such as groundwater. Minerals precipitate from the groundwater, occupying the empty spaces. This process can occur in very small spaces, such as within the cell wall of a plant cell. Small scale permineralization can produce very detailed fossils. For permineralization to occur, the organism must become covered by sediment soon after death, otherwise decay commences. The degree to which the remains are decayed when covered determines the later details of the fossil. Some fossils consist only of skeletal remains or teeth; other fossils contain traces of skin, feathers or even soft tissues. This is a form of diagenesis.

Authigenic mineralization :-

This is a special form of cast and mold formation. If the chemistry is right, the organism or fragment of organism can act as a nucleus for the precipitation of minerals such as siderite, resulting in a nodule forming around it. If this happens rapidly before significant decay to the organic tissue, very fine three-dimensional morphological detail can be preserved. Nodules from the Carboniferous Mazon Creek fossil beds of Illinois, USA, are among the best documented examples of such mineralization.

Adpression (Compression - Impression) :-

Compression fossils, such as those of fossil ferns, are the result of chemical reduction of the complex organic molecules composing the organism's albeit in a geochemically altered state. This chemical change is an expression of diagenesis. Often what remains is a carbonaceous film known as a phytolite. In which case the fossil is known

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as a phytolite, in which case the fossil is known as a compression. Often, however, the phytolite is lost and all that remains is an impression of the organism in the rock - an impression fossil. In many cases, however, compressions and impressions occur together. For instance, when the rock is broken open, the phytolite will often be attached to one part (compression), whereas the counterpart will just be an impression. For this reason, one term covers the two modes of preservation: adpression.

see also :-

- Bioerosion - Erosion of hard substrates by living organisms
- Cryptospore
- Ichonology - Geological record of biological activity
- List of molluscan genome represented in the fossil record - Wikipedia list article
- Living fossil
- Paleobiology
- Paleobotany