

📖 Topic Page: [fossil](#)

Definition: **FOSSIL** from *A Dictionary of Entomology*

Noun. (Latin *fossilis* = dug out, dug up. PL, Fossils.) Any traces, impressions, animals or plants that are preserved in Earth's crust. Study of process of fossilization called Taphonomy. Fossils not limited to material preserved in stony form. Most fossils preserved in rock or amber. Fossils constitute one line of evidence used in establishing classifications. See Compression Fossil; Facies Fossil. Rel. Amber; Classification; Resins.

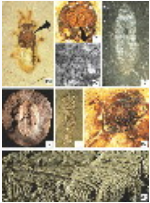


Image from: [Various kinds of fossil insects, modes of... in Encyclopedia of Insects](#)

Summary Article: **fossil**

From *The Columbia Encyclopedia*

remains or imprints of plants or animals preserved from prehistoric times by the operation of natural conditions. Fossils are found in sedimentary rock, asphalt deposits, and coal and sometimes in amber and certain other materials. The scientific study of fossils is paleontology. Not until c.1800 were fossils generally recognized as the remains of living things of the past and accepted as an invaluable record of the earth's history.

The Formation of Fossils

Conditions conducive to the formation of fossils include quick burial in moist sediment or other material that tends to prevent weathering and to exclude oxygen and bacteria, thereby preventing decay. Shells and bones embedded in sediment in past geologic time, under conditions suitable for preservation, left exact reproductions of both external and internal structures. Skeletal remains have been preserved as a result of the engulfment of an animal's body in ancient asphalt pits, bogs, and quicksand. At Rancho La Brea, near Los Angeles, Calif., asphalt deposits have yielded a rich variety of skeletons of birds and mammals. Some fossils have been found buried in volcanic ash; such fossil deposits exist in the Cenozoic rocks of the W United States.

The Creation of Natural Molds

Sometimes, after specimens were enclosed in the rock formed from the hardened sediments, water percolating through the ground dissolved out the remains, leaving a cavity within which only the form was preserved. This is known as a natural mold. When such molds are discovered by fossil hunters, casts can be made from them by filling them with plastic materials. If molds have been filled with mineral matter by subsurface water, natural casts are formed. Molds of insects that lived many millions of years ago are sometimes found preserved in amber. These were formed by the enveloping and permeation of an insect by sticky pine tree resin which hardened to become amber. So perfectly formed are these molds that detailed microscopic studies can be made of the insect's minute structure. Molds of thin objects such as leaves are usually known as imprints.

The Preservation of Flesh and Soft Parts

Fossilization of skeletal structures or other hard parts is most common; only rarely are flesh and other soft parts preserved. Impressions of dinosaur skin have aided scientists in making restorations of these animals. Imprints of footprints and trails left by both vertebrate and invertebrate animals are also valuable aids to studies of prehistoric life. Coprolites are fossilized excrement material; if it is possible

to determine their sources they are useful in revealing the feeding habits of the animals.

Entire animals of the late Pleistocene have sometimes been preserved. In Siberia some 50 specimens of woolly mammoths and a long-horned rhinoceros were found preserved in ice with even the skin and flesh intact. Several specimens of the woolly rhinoceros bearing some skin and flesh have been found in oil-saturated soils in Poland.

The Petrification of Remains

Petrification is another method of preservation of both plant and animal remains. This can occur in several ways. Mineral matter from underground water may be deposited in the interstices of porous materials, e.g., bones and some shells, making the material more compact and more stonelike and thus protecting it against disintegration. The original material may be entirely replaced with mineral matter, molecule by molecule, so that the original appearance and the microscopic structure are retained, as in petrified wood. Sometimes, on the other hand, all details of structure are lost in the replacement of organic matter by minerals, and only the form of the original is retained. In shales are sometimes found the silhouettes of plant tissues (more rarely of animals) formed by the carbon residue of the organism that remains after the volatile elements have been driven off.

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