

A fossil is a fossil is a fossil. Right?

Cecil Allen

The recent findings of bio-molecules, soft-tissue blood vessels and blood cells in 65-million-year-old *Tyrannosaurus rex* fossil bones¹ have caused geologists to re-evaluate the process of the preservation of fossils. After all, everyone knows that a fossil is an impression, cast, outline, or track of any animal or plant that is preserved in rock after the original organic material is transformed or removed.² So, how can blood vessels and bio-molecules be found in fossils that are rock? Answer: a fossil does not need to be turned to stone to be a fossil.

The definition of *fossil* by the American Geological Institute begins, ‘The remains or traces of animals or plants which have been preserved by natural causes in the Earth’s crust.’³ There is nothing in this definition that requires transformation into rock. All that is important is that the fossil has been preserved. And preservation is a qualitative term that does not describe how the fossil was preserved. This is illustrated by Schweitzer in describing the fossil specimen MOR 555 [AKA, ‘Wankel T-rex’]:

‘An exceptionally well preserved specimen of the tyrannosaurid dinosaur *Tyrannosaurus rex* shows little evidence of permineralization or other diagenetic effects.’ She further states, ‘Most fossils show signs of sediment infilling or secondary mineral deposition, but certain specimens can show little evidence of diagenetic change.’⁴

In other words, MOR 555 is a well preserved fossil with almost no mineral petrification, i.e. it is nearly pure bone (see figure 1)! This ‘65 million year old’ fossil is almost exactly the same today as it was when it was buried. So, if a fossil like MOR 555 can be a fossil without being turned to rock, then what makes a fossil a fossil?

We need to read the rest of the definition of *fossil* by the American Geological Institute. ‘The remains or traces of animals or plants which have been preserved by natural causes in the Earth’s crust *exclusive of organisms which have been buried since the beginning of historic time.*’³ It is more clearly stated as, ‘A remnant or trace of an organism *of a past geologic age*, such as a skeleton or leaf imprint, embedded and preserved in the earth’s crust.’⁵

So, according to this definition, a true fossil is something that has been preserved in some way or other from some ‘past geologic age before the beginning of historic time.’ It doesn’t matter if the material has or has not been turned to stone, i.e. petrified, but just that it was buried before the historic records of man!

Has this added caveat of deep time always been a part of the definition of fossil?

Let’s begin with a history of the use of the word fossil as paraphrased from Challinor’s *A Dictionary of Geology*:

The term ‘fossil’ (*L. fossilis*, dug up) was, as the word suggests, originally given to anything extracted from the earth or the rocks. It included minerals, all kinds of stony objects, and pieces of the rock itself, as well as the remains of organisms. ‘Fossilia’ in the wide sense and not, in fact, including organic remains, was used by Agricola in 1546. Gesner’s illustrated work on fossils included organic remains (1565). In Britain organic fossils were called ‘petrified shells’ (1665), ‘formed stones’ (1677), ‘fossil-shells’ (1695), ‘figured stones’ (1699), ‘marine fossils’, ‘fossil fish teeth’ (1721), ‘native’ (minerals, &c.) and ‘extraneous’ (fossil shells, &c.) (1728). Owing, no doubt, to these various confusing usages, the term ‘fossil’ dropped out for a time, ‘petrification’ largely



Figure 1. MOR555 (AKA Wankel T-rex) on display at the Museum of the Rockies, Montana, USA. All bones are in excellent preservation but show little sign of petrification. They are pure bone thought to be 65 million years old.



Figure 2. The right foot of MOR555 on display at the Museum of the Rockies, Montana, USA. In the background is the display of the rest of Wankel T-rex.

taking its place. The always appropriate ‘organic remains’ then became popular (1804/11), and was being used much later (1849 and following years). Meanwhile ‘fossil’ was again coming into

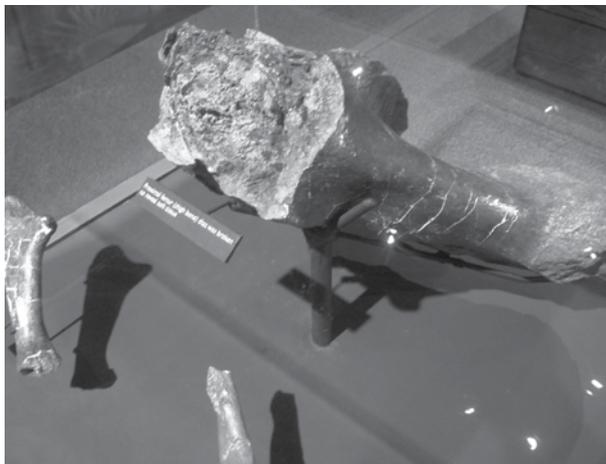


Figure 3. The femur of MOR1125 (AKA B-rex), the first dinosaur fossil from which soft tissue was extracted. B-rex is also the first dinosaur to be identified as female.

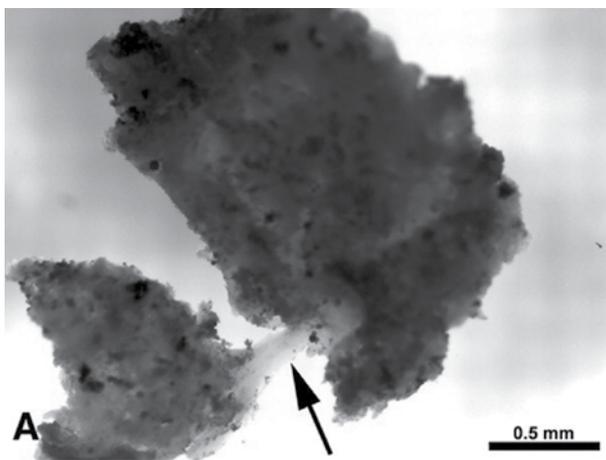


Figure 4. Well preserved soft tissue that is still elastic within a recently discovered *Tyrannosaurus rex* skeleton. For an animal that is claimed to have died at least 65 million years ago, the existence of soft tissue in its remains is astounding.

use, but now for organic remains only, though usually with, or as, a qualifying adjective (1816, 1822). Already, however, the word by itself was beginning to be used. Parkinson (1804) remarks that ‘in the common language of those most conversant with these substances’ their nature ‘is conveyed by the substantive (“fossil”) alone’. Lamarck in France seems to have been the first definitely to restrict the term (1801, 1802). The substantive ‘fossil’, alone and exclusively for organic remains, became thoroughly established some twenty years later (1822).⁶

Up through 1948, fossils were

defined as the remains of animals and plants or direct evidence of their presence preserved in the rocks of the earth. Yet, even then, the caveat of age is hinted at. While fossils were ‘evidences of animal or plant life in the rocks, such as petrified shells, skeletons, leaf and fern imprints, animals foot-prints and the like. *It is chiefly by the aid of fossils that the age of the rock is determined.*’⁷

As is typical of much of the debate about evolution and creation, the definition of fossil is not just descriptive but also interpretive since it includes the evolutionary interpretation of long ages. Therefore, in the evolutionists’ minds, every time creationists use the word *fossil*, they unwittingly concede the validity of the evolutionary paradigm.

Furthermore, since creationists believe that most everything typically called a fossil was

actually buried during Noah’s Flood, which occurred within historic time, then, from the creationists’ viewpoint, there is no such thing as a fossil, by that definition!

So what are creationists to do with the word *fossil*? It seems there are two choices. Either creationists can redefine *fossil* to fit the creationary viewpoint every time we use it, or invent a new word. A redefinition of *fossil* could be as simple as using just the first part of the American Geological Institute’s definition: The remains or traces of animals or plants which have been preserved by natural causes in the earth’s crust. The inconvenient part would be the need to state that

redefinition in each creationary paper where *fossil* is used. The Latin *clades fossio*, meaning ‘catastrophic buried fossil’, has been suggested⁸ as a possible replacement. But anything new that is not as simple as the original may not catch on. In any case, the important thing to remember is a fossil may or may not be petrified. But we do not accept the evolutionary definition that a fossil is a biological remnant of *a past geologic age before the history of mankind*.

References

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