

The Devil's Doing: Fossils and mythology

Fossils and the Devil

Associations of fossils with the devil and the occult have existed for centuries. Like most superstitions, these associations probably arose as a result of the coincidence of a fossil discovery and the occurrence of a significant negative event. Some fossils may have also resembled various objects/features associated with the devil. Lacking an alternative interpretation, the existence of these beliefs among ancient peoples might be easily understood.

The scientific study of fossils (modern palaeontology), which does provide an alternative explanation, has been in existence for less than 300 years.

Even today, however, some people are still fond of claiming that "fossils were put in rocks by the devil to deceive us".

Paleontologists (people who study ancient life), of course, think otherwise.

Examples of British fossils associated with the Devil/Occult



Cretaceous echinoids were thought to possess dark magical powers associated with their five-rayed (pentaradial) symmetry which was likened by some to the five pointed pentagram.



Uniquely curved and wrinkled left valves of the Jurassic oyster *Gryphaea* have long been referred to as "Devils toe nails" in England.

Internal moulds of the Silurian brachiopod *Pentamerus*, might have been easily likened to cloven hooves commonly associated with the goat-like devil.



The Significance of Fossils

Within the context of modern palaeontology and geology, the significance of fossils rests primarily on the information that they provide about: 1) how life developed and changed through geological time (evolution), 2) aspects of ancient sedimentary environments, and 3) the age of the rocks in which they are found. The succession of fossil forms in the rock record is the foundation of the relative geological time scale (as opposed to the absolute time scale).

Fossils, consequently, have much to offer modern science.

Still, as we have already seen, it may also be interesting to examine the possible significance of fossils within the context of human culture.

While it is easy to dismiss ancient myths and superstitions as products of overactive imaginations, it is likely that at least some of these came about as a result of early interpretations of fossils.

The Griffin/Gryphon

The mythical creature known as the Griffin, may be a very good example of this!

The Griffin, one of the oldest mythical creatures, has existed for at least 5,000 years in human culture.

The Griffin was a composite creature, having the body of a lion and the head and wings of an eagle (complete with a beak and talons on the forelimbs).



The Griffin's image is geographically widespread, and has been used extensively for thousands of years.

The Griffin is featured in ancient artifacts from Egypt, Mesopotamia, Greece, and India. It is commonly represented in gargoyles, and is a common figure in heraldry (coats of arms).

Even today, the Griffin has currency as a symbol of courage, strength and wisdom (e.g. think about the Harry Potter books).



Coat of arms, Griffin family (Ireland)



Griffin gargoyle on condo roof, Long Beach, California



Vauxhall Auto logo

Gold prospectors take note!

According to Greek legend, the Griffin's nests were made of gold, a substance that the Griffin fiercely guarded.

The Griffin is also said to have laid stone (agate) eggs similar in size to those laid by ostriches.



Modern version of the "Griffin egg" in attractive blue crystal (by Fabergé)

Although the Greeks claimed that the Griffin generally resided in India, gold artifacts (decorated with Griffins) excavated in the 1940s by Soviet archeologist Sergei Rudenko suggest that the idea of the Griffin probably originated in central Asia (probably in the Gobi desert region). Interestingly, this area is known to contain extensive deposits of placer gold. This is gold that has been eroded and transported from its original igneous source by water and/or wind. Due to its higher specific gravity than most other eroded mineral components, gold may be concentrated as the other, lighter sediment grains are carried away.



This region is also well-known for its well-preserved dinosaur fauna. One of the most common types of dinosaur found is the Cretaceous herbivorous dinosaur *Protoceratops*.

Protoceratops features:

- Compact skull with a strong beak (used for snipping vegetation), and delicate frill; the latter has a lower chance of being preserved than the rest of the skull.
- A squat body with a long tail and four legs (so might be deemed similar to a lion, although it was a reptile).
- Long shoulder blades (which could be misinterpreted as the bases of wings).



The mythical Griffin



Protoceratops: inspiration for the Griffin?

A Small Complication



It was assumed that all of the nests were made by *Protoceratops*.

Later investigations indicated that at least some nests were made by the carnivorous dinosaur *Oviraptor* (containing unhatched *Oviraptor* babies).

One such nest preserves the skeleton of an adult *Oviraptor* fossilized in the act of protecting its nest.

What about the famed nests ?



Also found in the dinosaur-bearing sandstones of Gobi desert are dinosaur nests, some containing fossil eggs of similar size to those thought to have been produced by the Griffin.



Are these the stone/agate eggs of the Griffin ?

Agates are typically found as elongate nodules with a prominent outer "crust" which might resemble an egg shell.

Oviraptor: Another possible inspiration for the Griffin?

The direct association of *Oviraptor* with fossil eggs might suggest that it was the remains of *Oviraptor*, not *Protoceratops* that spawned the Griffin myth.

Oviraptor was considerably more bird-like than *Protoceratops*. It too, had a beak-like snout and a head crest; additionally it had forelimbs that bore talons as well as a thinner tail. This seems to fit the concept of the Griffin to a greater extent.

Oviraptor, however, was bipedal (walked on two long bird-like back legs) and had relatively light forelimbs. As typically conceived, the back legs of the Griffin were suggestive of quadrupeds, so *Protoceratops* remains a contender.

Another possibility: The Griffin myth was fabricated from findings of the remains of both *Protoceratops* and *Oviraptor* (both commonly found in the Gobi).



The mythical griffin



Oviraptor: the real Griffin ?

The supposed occurrence of gold in Griffin nests may also be related to these dinosaurs.

Some placer gold deposits in the Gobi Desert are known to be of the same general age (Late Cretaceous) as these dinosaur fossils. Consequently, it is likely that particles of gold were being scattered across the desert by the prevailing winds and sand storms at this time.

The dinosaur nests (excavated as shallow depressions) are interpreted to have been made in low areas between vegetation-stabilized sand dunes. The excellent preservation of many of these may be due to rapid burial as a result of sand dune slumping, especially during sand storms.

These depressions (troughs) in the sand dune fields are likely to have acted as gravity traps for detrital gold particles pushed along by the wind. Due to their high specific gravity, only the smallest gold particles would have been easily carried in suspension from the top of one dune to another. Consequently, the sediments in these troughs would be enriched in heavier mineral components, including gold.

The Cyclops

The Cyclops is another mythical beast whose origins may be related to early interpretations of fossil organisms.

Homer's famous tale of the adventures of Odysseus during his 10-year return trip from Troy (The Odyssey) to his homeland, features a band of one-eyed giants called the Cyclopes.

While searching for supplies on an island, (Cyclopes) several men of are captured and eaten by one of the Cyclopes (Polyphemus).

The survivors escape the clutches of the Cyclopes by getting the monster drunk, and blinding it.



Artist's rendition of a Cyclops

Early gold prospectors may have actively sought out fossil dinosaur nests with the knowledge that they were commonly associated with local concentrations of gold !

To sum all this up...

Protoceratops (and/or *Oviraptor*) remains
+
Nests containing fossilized dinosaur eggs
+
Gold concentrations in dinosaur nest areas
+
Lots of imagination
= Griffin myth

It is very possible that the Cyclops myth is based on fossil remains of an extinct relative of modern elephants.

Remains of an ancient mammals called deinotheres are widespread throughout Europe, Asia and Africa, preserved in rocks ranging in age from 1.8 to 23 million years old.



Deinotherium

Recently, remains of an exceptionally large deinothere species called *Deinotherium giganteum* were found on the island of Crete.



Deinothere skull

This animal was an incredible 4.5 metres tall at the shoulder and unlike modern elephants possessed two tusks in its lower jaw.

But more significant to this discussion is the very large nasal opening in the centre of the skull (typical of all elephants, both modern and ancient).



Skull of modern elephant

It would be very easy for a person to misinterpret the nasal opening as a single eye orbit.

Some examples of old views versus modern interpretations of invertebrate fossils (i.e. fossils of animals without backbones)

Connecting the Pieces

Remains of a huge, bulky creature

+

...with a very big hole in the centre of its head

+

...on the Island of Crete

+

...some imagination

...suggests a very strong connection to the Cyclops myth?



"stone swallows"

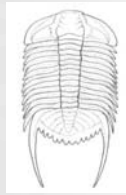
These fossils were once interpreted to be "stone swallows" by the ancient Chinese.

The 5th century (A.D) Chinese scholar Li Tao-Yuan recorded that during thunderstorms the stone swallows flew about as if they were real swallows

True identity of "stone swallow" – the tail (pygidium) of an extinct creature called a trilobite (Phylum: Arthropoda, Class Trilobita)

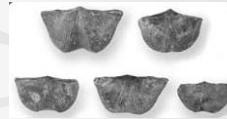


"stone swallows"

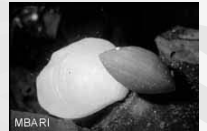


Drepanura: a trilobite

True identity of "butterfly stone" – brachiopods (Phylum Brachiopoda)



"Butterfly stones"

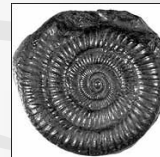


Modern brachiopods



"Butterfly stones"

English quarrymen thought these objects were butterflies that turned to stone.



"Snakestones"

In Yorkshire, U.K., these coiled objects were thought to be the remains of snakes. Legend has it that St. Hilda (614-680 AD), a Nun in Whitby, North Yorkshire, captured snakes that plagued the countryside, severed their heads with a whip and threw their remains over the cliff edge, turning them to stone in the process.

True identity of "snakestones" – the shells of the extinct squid-like ammonites (Phylum Mollusca, Class: Cephalopoda)
These are commonly found along the shore where Hilda is purported to have cast the snakes into the sea).



Hilboneras with carved snake's head

"Snakestone"



Reconstruction of ammonite



Nautilus:
Modern relative of the ammonites

END OF LECTURE