How Are Fossils Formed?

By Claudia Mann

How are fossils formed? For fossil formation to take place a series of fortunate events must occur. If

any part of the series is missing, we will never see the fossil! In fact, fossilization is a rare occurrence. Nature tends toward recycling. That includes just about everything from plants and animals to rocks and minerals.

Let's narrow it down to just animals for a minute. Animals, dead or alive, are food for other animals. From insects to dinosaurs, an animal could be someone's lunch! Any part of the animal's body that isn't consumed is usually scattered about; leftovers! Just like those leftovers in your fridge, these leftovers make great food for bacteria. In addition, these leftovers are exposed to the elements: sun, rain, and even the soil itself all help to breakdown and decompose the sturdiest of bones, shells and wood.

If we are ever going to see a fossil, some very specialized events must intervene to ward off the natural process of decomposition. The following is the most common scenario for fossil formation:

How Are Fossils Formed? Death Is The First Step To start with, an animal or plant must die in water or near enough to fall in shortly after death. The water insulates the remains from many of the elements that contribute to decomposition. An example may be helpful. Let's say that a trilobite has died of old age on the bottom of the sea. Bacteria consume the soft body parts but leave the hard exoskeleton intact.

How are fossils formed? Step two is Sedimentation As time passes, sediments bury the exoskeleton. The faster this happens the more likely fossilization will occur. Land and mudslides definitely help. River deltas are also good for quick accumulation of sediments. This further insulates our trilobite from decomposition.

The sediments themselves have a huge influence on how well our trilobite fossil turns out. Very fine−grained particles, like clays, allow more detail in the future fossil. Course sediments, like sand, allow less detail to show. The chemical make up of the sediments also contributes to the future fossil. If iron is present, it may give the rock a reddish color. Phosphates may darken the rock to gray or black.

The possibilities are truly endless.

Permineralization As the sediments continue to pile on, the lower layers become compacted by the weight of the layers on top. Over time, this pressure turns the sediments into rock. If mineral−rich water percolates down through the sediments, the fossilization process has an even better chance of preserving our ancient animal. Some of the minerals stick to the particles of sediment, effectively gluing them together into a solid mass. These minerals make an impact on our original trilobite as well. Over the course of millions of years, they dissolve away the outer shell, sometimes replacing the molecules of exoskeleton with molecules of calcite or other minerals. In time, the entire shell is replaced leaving rock in the exact shape of the trilobite.

Uplift As the continental plates move around the earth, crashing into each other, mountains are formed. Former sea floors are lifted up and become dry land. This is exactly what has happened to our trilobite. Now a fully formed fossil, our trilobite is buried under hundreds or even thousands of feet of

rock! Thanks to the movement of the plates, our trilobite will come closer to the surface and nearer to discovery by some fortunate fossil hunter. Luckily, nothing stays the same.

Erosion at work Rain, wind, earthquakes, freeze and thaw all work toward erosion. The mountains that were built up are worn away over time. Our fossil trilobite once again sees the light of day! With a little wisdom about where to look and some luck, you may be the first one to find him!

This is the fossilization process known as Permineralization. It is not the only answer to the question: "How Are Fossils Formed?" There are many other ways that fossils can be formed. You can read about them using the links below.

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http://www.fossils−facts−and−finds.com

where you can

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Transitional Fossils

By Greg Neyman

Transitional fossils, or the supposed lack thereof, has been used for many years by anti−evolutionists to argue against evolution. Here, I will explain what a transitional fossil is, and why it is not valid as an

argument against evolution.

A transitional fossil shows the evolutionary development from one species to another. For example, if organism 1 existed 70 million years ago, and organism 2 shows up in the fossil record 5 million years later, then theoretically there should be intermediate species in this 5 million year gap, which shows gradual progression from one species to another. The lack of these "transitional" fossils is proof to young earth creationists that evolution is false.

Evolutionists have shown that indeed there are transitional fossils, and there are plenty of examples of them. For instance, see this article.1 Here is the key point...even if young earth creationists accept these examples of transitional fossils, they will still claim that there are no transitional fossils! These fossils will be called either unique species, or they will come up with some reason (disease, birth defect, etc) that accounts for the apparent transition feature.

Naturally, they will say, "Where are the transitional fossils between these transitional fossils?" If we had a clear fossil record, showing progression every 10,000 years for millions of years, they will not believe it, and will want the "transitional" fossils for the missing 10,000 year period. No amount of evidence will convict them that their belief is wrong.

The same thing could be said of progressive creationists as well. Progressive creationists believe in an old earth, but that God created each species a unique creation, and not evolved from an earlier species. I happen to be one of these myself. However, we must be careful not so say our view is the only one that is valid. Dr. Hugh Ross of the old earth ministry Reasons to Believe, has put forth many arguments against evolution. However, when you consider the possibility that within Theistic Evolution, you have God guiding the evolutionary process, then all bets are off. Yes, evolution by itself could not have happened...as Dr. Ross explains, 13.7 billion years is not nearly enough time, statistically speaking, for evolution to occur. However, with God's supernatural intervention and guidance, it could have easily happened.

I'm not saying that evolution is right, but what I am saying is that with God, all things are possible, including evolution. We should not be so quick, as progressive creationists, to condemn evolution.

Conclusion

The fact that young earth creationists will not be convinced, no matter how much evidence is presented, makes this a weak argument. The argument is not based on science, but on assumptions based on a young earth interpretation of creation.

This article comes from the Answers In Creation website (

http://www.answersincreation.org

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source article is located at

http://www.answersincreation.org/transitional_fossils.htm

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