

More junk re-claimed

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Large sequences of DNA called introns have been called ‘junk’ or ‘leftovers of evolution’. Introns are sequences of DNA that lie within a gene but do not code for protein. During the production of a messenger RNA (mRNA) template, from which a protein is made, the introns are edited out in a process called *splicing*. A complex molecular machine called a spliceosome does this editing.

Walkup reviewed the concept of ‘junk DNA’ and pointed out the growing body of evidence that introns, as well as other DNA once reckoned to be ‘useless’, actually play important roles in organisms.¹ For example, the mRNA can be edited in different ways to create different proteins from the same gene—for example, by joining together the exons, or protein coding sequences, in different ways. Some introns are involved in gene regulation; others even have other genes embedded within them, while the evidence is mounting for a role in chromosome structure. More and more functions for introns are being discovered.

Now researchers have found that an intron mutation causes the disease *ataxia-telegiectasia*.² Deletion of just four nucleotide ‘letters’ from the middle of a 69 nucleotide intron disrupts the splicing process. The intron is not spliced out, so the final, edited, mRNA has the extra sequence incorporated, resulting in the manufacture of a defective protein. Further analysis revealed that the four nucleotide sequence removed was crucial to the spliceosome recognizing the intron so that it could be snipped out. This represents a new type of binding site for spliceosome action and shows how the nucleotide sequence in introns can be quite severely constrained (introns have been used in molecular phylogeny studies supposedly because they are free to mutate without constraint).³

The discovery further erodes the claim that introns are ‘junk’. Introns comprise up to 15% of human DNA,¹ and supposedly only 1.5% of the DNA is exons (protein coding). So recognition that introns are not ‘junk’ could impact the faith of the many in the adequacy of mutations to generate the amount of information in human DNA. To this must be added the accumulating evidence for the functionality of such things as the large amounts of repetitive sequences. Of course there are likely to be some junk sequences. What we see today has deteriorated since Creation. Things are falling apart and the hundreds of human diseases now attributed to mutational errors⁴ underline the truth of the Fall.

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The uniformitarian mystery of radiolarian chert

Michael J. Oard

The more I learn about geology, the more often I find that present processes do not account for the sedimentary rocks laid down in the past. The concept that only processes observed today should be used to explain the history of the rocks is the geological doctrine of uniformitarianism. This is often summarised by the slogan: ‘The present is the key to the past’.

It is upon this doctrine, rigidly held, that practically all geological data has been interpreted. As if by a single pen stroke, this doctrine eliminates from consideration the very possibility of the global Flood recorded in the Bible. It is true that in recent years the doctrine has been modified to allow an occasional catastrophe, such as the Lake Missoula flood¹ and an asteroid impact that supposedly wiped out the dinosaurs.² But basically the doctrine continues to undergird mainstream geological thought.

Ancient and modern sandstones

At the same time, research on the rocks reveals that uniformitarianism is a poor organising principle and often invalid. For instance, sandstones, which make up approximately 20% of the sedimentary rocks on the Earth, are consistently different from modern sand deposits.³ As an example, ‘Pure quartzites (orthoquartzites) are common in the older record but none seem to be forming today’.⁴ Quartzite is metamorphosed sandstone.

Furthermore, in the modern world sand generally accumulates in linear deposits while ancient sandstones form very large sheets:

‘It is noteworthy that the most common sites of sand accumulation in the modern world are linear (beaches and rivers); yet most

sands of the past form extensive stratiform deposits'.⁵

The evidence is consistent with the global Flood, which would be expected to deposit sand in sheets.

Radiolarian chert

Another type of rock that defies uniformitarianism is radiolarian chert or radiolarite. Chert (or flint) is a chemical sediment composed almost totally of silicon dioxide (SiO₂), the major chemical constituent of sandstone. It is made up of one or several forms of silica, such as opal, chalcedony or microcrystalline quartz. Radiolarians are microscopic single-celled planktonic animals that live in the ocean today.⁶ Their skeleton is composed of silicon dioxide. When chert contains radiolarians, it is called a radiolarian chert or radiolarite. The number of siliceous fossils in chert is quite variable. A recent review of radiolarian chert documents that the present is *not* the key to the past.⁷

Specifically, the concentration of silica dissolved in oceans today is remarkably low.⁸ So bedded chert is not forming today. Pettijohn writes:

'In the absence of modern de-

posits of this nature and because geochemical considerations make silica precipitation in open marine waters unlikely, some workers have looked elsewhere for an answer to the chert problem.'⁹

Racki and Cordey also admit: 'No modern analogues to bedded cherts are known As discussed previously, the past, not the present, is the key to understanding widespread radiolarian blooms and the specific radiolarite deposition'¹⁰

But chert in sedimentary rocks can be thick and aerially extensive. In Borneo, for example, a 100-m thick deposit of chert covers some 40,000 km². Moreover, chert is commonly found in limestone as nodules and irregular lenses. Also, such chert nodules and lenses are not known to be forming anywhere today.

Thus, the present is not the key to the past, but supposedly the *past is the key to the past*.⁷ In other words, uniformitarian geologists are left only with speculations about the past for the origin of chert and radiolarian chert. These problems with the origin of chert challenge the validity of the uniformitarian principle.

Racki and Cordey⁷ review the competing hypotheses for radiolarian chert and conclude that all have flaws. Apparently, the hypothesis that radiolarian cherts are formed by consolidation of siliceous oozes is not popular. Siliceous ooze forms today on the sea floor in areas where the remains of radiolarians and diatoms (microscopic marine algae) sink.

Also, it is interesting that present processes do not explain much about

other oceanic phenomena. Racki and Cordey extrapolate their overview of radiolarian cherts to other aspects of the oceans:

'...most of the geological history of the oceans cannot be easily anchored in the present

The ancient taxonomic uniformitarianism (sensu Dodd and Stanton, 1990), paraphrased as: "the past is the key to the past", is more and more useful palaeoecological approach' [emphasis mine].¹¹

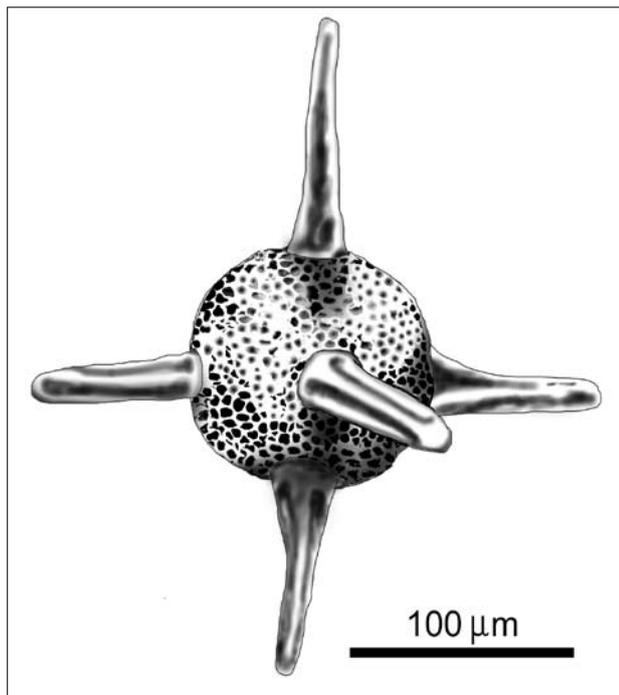
As creationists, we must always be aware that uniformitarianism is just a philosophical hypothesis,¹² and that the rocks are not easily explained by it.

Alternative Flood explanation

A few comments made by Racki and Cordey⁷ and Pettijohn³ on the origin of bedded chert and radiolarian chert offer a basis for an alternative hypothesis of catastrophic formation during the Genesis Flood. Pettijohn¹³ remarked that many scientists believe bedded chert was directly precipitated from silica-supersaturated water and that the radiolarians in the chert are *incidental*. Moreover, Racki and Cordey¹⁴ suggest that volcanic and hydrothermal processes may have quickly increased the silica content of the water. The silica concentration of hydrothermal water can be over a thousand times that of ambient seawater.

So a Flood scenario can be envisioned in which volcanic/hydrothermal processes added great quantities of hot, silica-rich fluid to the water. The additional silica would sometimes cause a huge radiolarian bloom, depending upon whether live radiolarians were floating above the silica-rich waters.

Changes in temperature or chemistry of the water could force the rapid precipitation of silica over a local or regional scale, sometimes with radiolarian organisms within the precipitate. Such chemical precipitation during the Flood would be a fruitful area for creationist research.



A radiolarian fossil from chert.

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Dinosaur footprints, fish traces and the Flood

John Woodmorappe

Vertebrate footprints can be found throughout much of the upper two-thirds of the standard Phanerozoic geologic column. Some of these footprints occur at stratigraphic horizons that are, according to orthodox uniformitarian geology, tens to hundreds of millions of years *older* than the supposed first appearance of the animal that made them.¹ However, the occurrence of footprints is, at times, needlessly supposed to be a hindrance to our understanding of the Flood origins of most Phanerozoic sedimentary strata. Actually, small changes in floodwater levels would have easily allowed the temporarily surviving animals to make numerous footprints, and to do so repeatedly at successive local horizons within sediment. However, it is astonishing to realize that certain fish can make traces that resemble dinosaur footprints. This admits the possibility that many 'vertebrate track' surfaces in the fossil record do not require *any* subaerial exposure of sedimentary surfaces during the Flood.

Vertebrate footprints and the Flood

The Noachian Deluge is commonly misconceived, tacitly if not openly, by anti-creationists and neo-Cuvierists² alike, as a one-time rise of water over the continents. This misunderstanding prompts the fallacious argument that vertebrate footprints in the Phanerozoic are incompatible with the global Flood origins for the contained sediment. In actuality, owing to such factors as tectonic upheavals of the land and ocean surfaces, the floodwater must have flowed and ebbed many times, on a scale ranging from local to subcontinental, before finally submerging all land areas globally for a

certain period of time. Consequently, the land animals were not drowned as a result of single movement of floodwater, but were killed in a more attritional manner. Meanwhile, many temporary survivors were able to walk on the recently emerged surfaces, which consisted of unlithified sediment deposited by earlier pulses of flowing floodwater. Oard³ demonstrated the feasibility of the genesis of the extensive early-Flood dinosaur footprints over much of the western United States.

We must remember that the very high width/depth ratio of floodwater allows a very small change in topography to expose significant strips of land that can henceforth be walked on by any land vertebrates still surviving. For instance, assuming a flood that is 1 km deep, a mere 1° change in slope, sustained over a lateral distance of 100 km, translates into a 43 km wide swath of exposed land.⁴ In those locations where the Flood-land boundary is oscillating but relatively stable for at least a few days, numerous horizons of vertebrate footprints could have been locally generated.⁵ Even if large animals were carried away by the floodwaters, many of them would have still survived such an episode, and been once again able to make footprints in sediment, provided that the water re-deposited them on a land surface within a few hours of their initial flotation. This follows from the fact that large animals are known to be able to swim distances of at least a few kilometres⁶ and for durations of at least several hours.⁷ Finally, it would only require a small number of vertebrates to survive temporarily to be able to make an astonishing number of footprints in a short period of time. For instance, one horse can produce 10,000 footprints in only one day.⁸

An alternate cause for 'dinosaur' footprints

Up to now, the factual identity of vertebrate tracks has been accepted as a given. Recently however, Martinell *et al.*⁹ advanced the provocative thesis that a series of traces found in