The fossil record: becoming more random all the time

John Woodmorappe

The reality of the geologic column is predicated on the belief that fossils have restricted ranges in rock strata. In actuality, as more and more fossils are found, the ranges of fossils keep increasing. I provide a few recent examples of this, and then show that stratigraphic-range extension is not the exception but the rule. The constant extension of ranges simultaneously reduces the credibility of the geologic column and organic evolution, and makes it easier for the Genesis Flood to explain an increasingly-random fossil record

Different kinds of fossils do not occur randomly. Instead, they tend to be found at specific horizons, and these horizons can be located in rocks all over the world. For example, the evolutionist asks us why a layer of rock containing trilobites is never found to contain dinosaurs, and why a layer with dinosaurs is always found above one with trilobites and never the reverse. Fossil succession can be viewed in terms of solitary fossils, commonly called index fossils. Otherwise, groups of fossils can be used. These are often called fossil assemblages or assemblage zones. The essence of fossil succession, however, remains the same whether individual fossils, of groups of them, are used.

For approximately the last two hundred years, this succession of fossils in sedimentary rock has been used to argue that the earth has undergone successive events. For instance, trilobite-bearing beds are supposed to reflect a time when trilobites were the dominant life form on earth, and dinosaur-bearing beds are supposed to reflect a time when dinosaurs were dominant on the earth. However this view is weakened because the range of fossils from one supposed time period keeps extending and overlapping fossils ostensibly typical of another period of time in the past. In this article, I will examine some examples of increases of overlap of fossils that are assigned to different geologic periods of time.

Implications of fossil succession

At first, Bible-believers tried to cope with this discovery of successively-different types of fossils by retreating from the single Creation and Flood as clearly described in the Bible and replacing them with a ***series*** of creations and global floods. That was Baron Cuvier's compromise, and it did superficially seem to account for multiple and differing horizons of fossils. But Cuvier's notions obviously violated Scripture. The Word of God teaches only one episode of Special Creation, and only one global Flood, not many!

As is the eventual fate of all compromises, it was a only a matter of time before any semblance to Scripture (in this case, the multiple creations and the multiple floods) had been dropped altogether. After Darwin, evolution was added to the picture, and thus the notion of transformation of one life-form to another replaced the earlier belief that each horizon of fossils represented a separate creation and world-destroying flood. Both considerations, of course, tacitly suppose that each type of horizon of fossils represents a distinctive period of time over which the particular organism lived.

But what are the ramifications of fossils seeming to occur in multiple, different horizons in the earth's rock strata? Is the succession of life-forms, over long periods of time, the ***only*** way to explain the succession of fossils in earth's sedimentary rocks? Certainly not.

Creationists, including myself,[1] have provided a variety of alternative explanations for fossil succession. These include such mechanisms as the sorting of organisms during the Flood, differential escape of organisms during the same, ecological zonation of life-forms in the antediluvian world (such that different life-forms in different strata reflect the serial burial of ecological life-zones during the Flood), and TABs (Tectonically-Associated Biological Provinces—wherein different life forms occur in successive horizons of rock as a reflection of successive crustal downwarp of different life-bearing biogeographic communities).

All of these mechanisms do away with the notion that horizons of fossils demand successive passages of time during which the organisms lived. In other words, they allow for there to have been only one set of mutually-contemporaneous living things on a young earth, instead of a repetitive replacement of living things over vast periods of time. Most of the earth's sedimentary record is viewed as being deposited by the Noachian Deluge, and not over successive depositional events in analogues of modern sedimentary environments on an evolving earth.

Unfortunately, some modern creationists have also bought into the belief that successive fossils represent horizons of time. These neo-Cuvierists have, as their original namesakes, relegated the Noachian Deluge to only a small fraction of the earth's fossiliferous sedimentary rocks. This contradicts common sense as well as Scripture. After all, if all kinds of life had been created by God in six normal-length days several thousand years ago, then all fossil and contemporary life-forms must have been contemporaneous, and it makes absolutely no sense to use succession of fossils to delineate time-stratigraphic horizons in sedimentary rock.

For example, although trilobites and dinosaurs were contemporaries of each other, there is no basis for believing that trilobite-bearing and dinosaur-bearing rocks were necessarily deposited at the same time all over the world. During the Flood, trilobite-bearing beds at one point on earth were probably being deposited at the same time as dinosaur-bearing beds at another place on earth.

Nor can it be said that, when dinosaur-bearing beds locally overlie trilobite-bearing beds, the former are significantly younger than the latter. This, of course, excepts the small amount of difference in time, within the Flood, that elapsed between the burial of the trilobites and the burial of the overlying dinosaurs.

Just how *real* is fossil succession?

The irony of the position taken by Cuvierists, neo-Cuvierists, and standard evolutionary-uniformitarians is the fact that fossil succession is a reality only to a ***limited*** extent. As we shall see, the Flood-related mechanisms discussed above need not have been overly efficient to account for only the ***limited*** degree of fossil succession that does exist. Successive episodes of time, however conceived, also are completely unnecessary to explain the ***limited*** degree of fossil succession.

When we consider the fact that fossil succession is limited in overall extent, it is another way of stating that there are many fossils which are found at ***many*** stratigraphic intervals. In fact, only a ***minority*** are confined to rocks attributed to only one geologic period.[2]

Since the early days of the acceptance of the standard geologic column, fossils have been turning up in 'wrong' places as more and more fossils have been collected, and this process continues to this very day.[3,4,5] And even this does not include the numerous instances where fossils are supposed to be reworked from older strata, often with no independent supporting evidence.[6]

Furthermore, extension of stratigraphic ranges occurs not only for individual fossils, but also for presumed grade of biologic complexity (that is, so-called stratomorphic intermediates). A stratomorphic intermediate is supposed to reflect a certain grade of complexity attained by all living things up to a certain point in the geologic time scale. An example would be the first appearance of vertebrate legs in the stratigraphic record. I will discuss stratomorphic intermediates shortly. Let us now consider some recent examples of stratigraphic range extension.

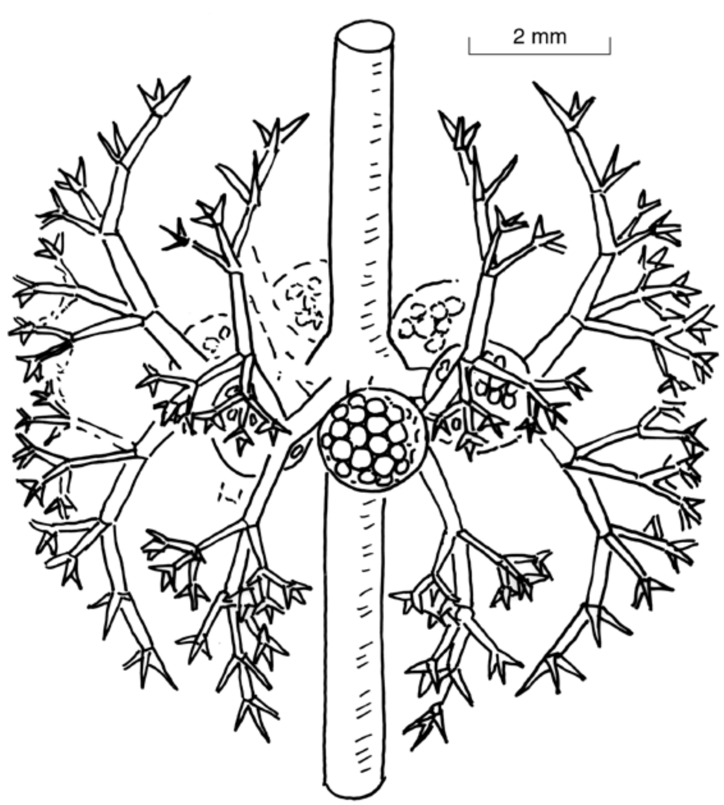

Figure 1. *A partial reconstruction of the Dasycladalean algae,* Uncatoella verticillata. *The spherical choristospore gametangiophore contains numerous spherical cysts (after Kenrick and Li).*[7]

Dasycladalean algae

As a result of a recent find, a dramatic increase in the stratigraphic range of Dasycladalean algae has occurred (Figure 1). Dasyclades are members of the algal family Dasycladaceae. It consists of 175 live and extinct genera. The extension of this plant has been into presumably-older strata:

> 'Uncatoella *possesses a suite of features usually associated with late Mesozoic and Cenozoic Dasycladales, and our proposed relationships imply very large range extensions (200–350 Myr) to some groups.'*[7]

This stratigraphic-range extension is dramatic, and equivalent to more than half of the entire Phanerozoic geologic column. Moreover, this discovery upends earlier notions of stratomorphic intermediates that were believed to be true of the evolutionary history of plant-reproductive traits:

> *'Choristospore gametangiophores are usually associated with Mesozoic and Cenozoic Dasycladales, but the new data on Uncatoella show that this form of reproduction had already developed by the Early Devonian.'*[8]

Many evolutionists, and also unfortu-

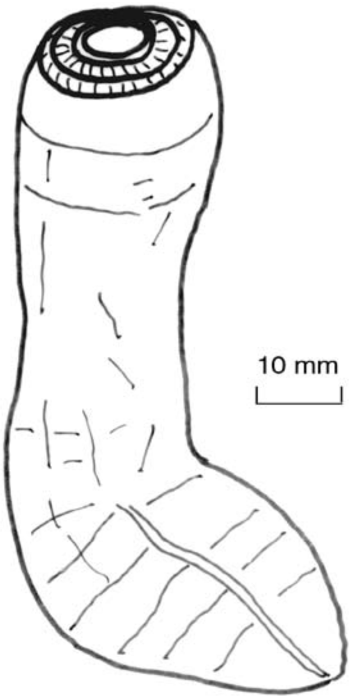

Figure 2. Sketch of the pipiscid-like fossil, Xidazoon stephanus, *from south China (after Shu* et al.*).*[9]

nately some professing creationists, have made much of the presumed significance of stratomorphic intermediates. But, as the above example proves vividly, it takes only one well-placed life-form to completely demolish existing notions of stratomorphic intermediates. A certain grade of complexity can be moved back considerably earlier in time with just one discovery of fossils! In the above example, a grade of morphological complexity, formerly believed to be of relatively recent origins (Mesozoic and Cenozoic) suddenly has become much more ancient (Devonian).

Pipiscids

The pipiscid group of metazoan animals represents another example of an extension of fossils into much older strata. Formerly thought to be restricted to the Upper Carboniferous, remains of possible pipiscids have now been discovered in Cambrian strata (Figure 2).[9] If the identification is correct, this find suddenly ages the pipiscids by nearly five geologic periods.

The foregoing instances may perhaps be belittled by the fact that both marine plants and soft-bodied fossils are said to have a poor fossil record, and hence stratigraphic-range extensions are perhaps not so surprising for that reason. But this consideration cannot possibly be applicable to the remaining examples in this report because their respective fossil records are good to excellent.

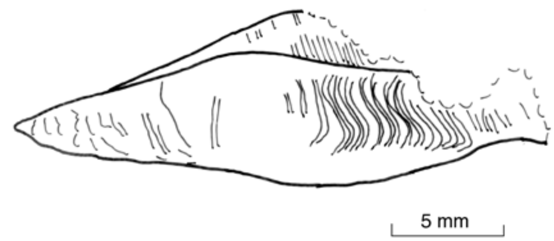

Figure 3. Drawing of Lower Cambrian agnathan vertebrate from south China (after Shu et al.*).*[10]

Agnathan (jawless) fishes

Many groups of fossils appear suddenly in the Early Cambrian. This is so much so that it is often called the 'Cambrian explosion'. As more and more fossils experience a stratigraphic-range increase down to the Early Cambrian, the 'Cambrian explosion' becomes more and more pronounced. Apropos to this, vertebrates have just recently been found in the Early Cambrian of south China (Figure 3).[10] These are agnathan fish, whose previous undisputed earliest appearance had been in the Lower Ordovician.

The therapsid reptile *Lystrosaurus*

Fossils of the mammal-like reptile, *Lystrosaurus* (Figure 4), are so common, notably in South Africa, that it is said that paleontologists don't even bother to pick up specimens when they see them at their feet. *Lystrosaurus* is an important index fossil. Directly or indirectly, it is used to correlate Early Triassic continental beds throughout much of the southern hemisphere. Let us therefore consider the implications of the recent discovery of *Lystrosaurus* in the Permian of Zambia.[11] Without question, it can no longer be straightforwardly believed, on uniformitarians' own terms, to represent a horizon of time and to correlate strata accordingly:

> *'...the widespread* Lystrosaurus*, hitherto regarded as characteristic of the Lower Triassic, cannot be used in isolation as a biostratigraphical zone fossil ... The occurrence of* Lystrosaurus *in Late Permian rocks indicates that isolated specimens of the genus should no longer be used for biostratigraphical purposes ... use of* Lystrosaurus *alone could be misleading. This is obviously unfortunate, since* Lystrosaurus *is the most common genus in many assemblages and so most likely to be encountered in the course of stratigraphical work.'*[11]

There are other implications of the fact that *Lystrosaurus*-bearing rocks can no longer automatically be assumed to be Early Triassic. The supposed chain of evolving mammal-like reptiles is placed in chronologi-

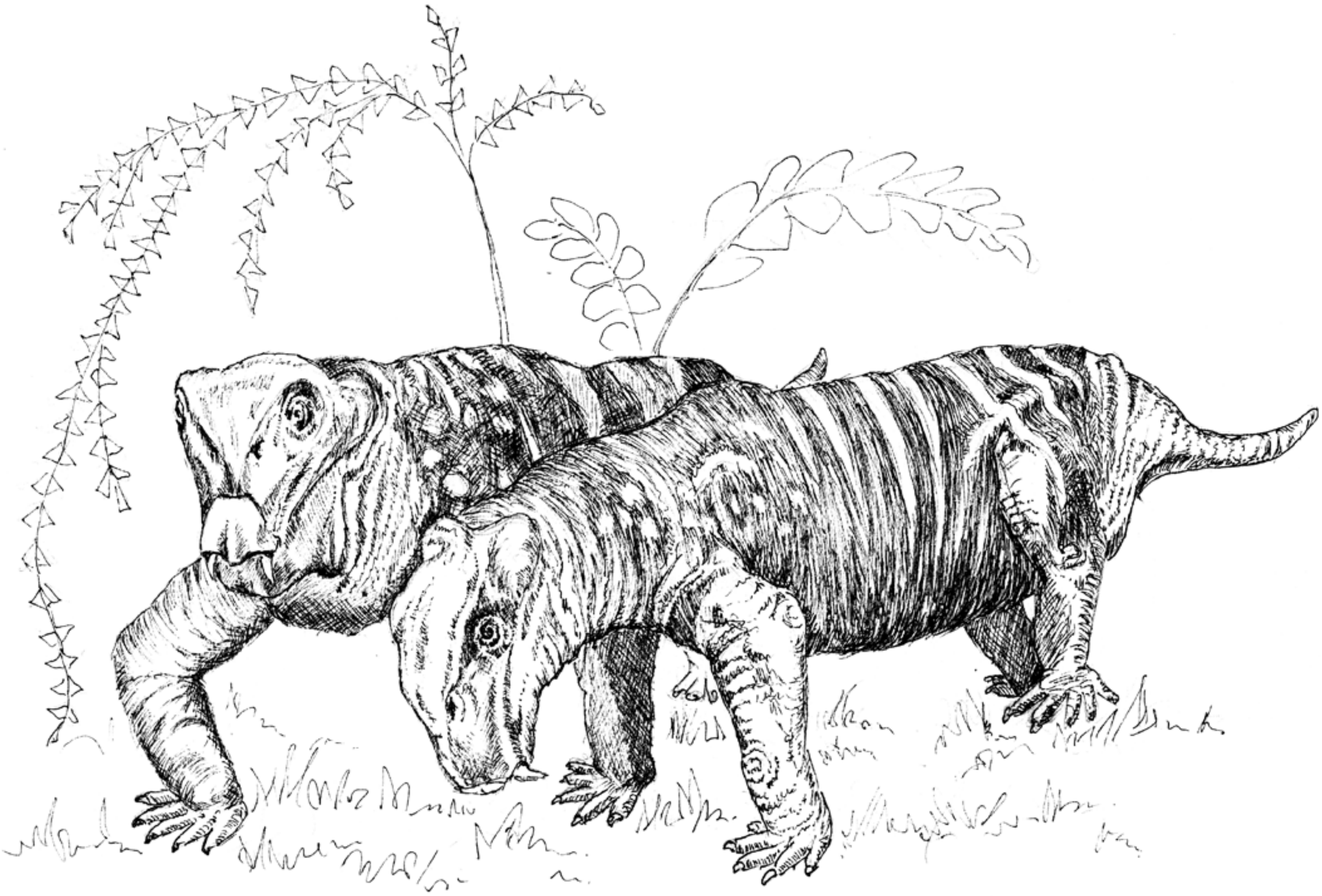

Figure 4. *A reconstruction of the dicynodont,* Lystrosaurus *(after Gee).*[23]

cal sequence largely through the use of *Lystrosaurus*, or on spore-bearing beds which are correlated with beds containing *Lystrosaurus*. In fact, for decades at least, beds all over the southern hemisphere have been assigned to the lowermost Triassic solely because they contain *Lystrosaurus*.[12] In view of the extension of this genus downward into the Permian, the chronological sequence of mammal-like reptiles needs to be re-examined. It is more than possible that some 'more mammal-like' therapsids will now be found to be contemporaneous with 'less mammal-like' therapsids. At worst, the entire chain of mammal-like reptiles and their presumed progression to mammals will come crashing down. A detailed analysis of the intercontinental correlation of the relevant strata should be undertaken to evaluate this possibility.

The Permo-Triassic boundary is conventionally believed to have been one at which there had been a greater turnover of living things than at any other comparable interval throughout the Phanerozoic fossil record. It is therefore interesting to note that this discovery admittedly blurs the distinctiveness of the Permo-Triassic boundary,[13] as do a variety of other transitional Permo-Triassic faunas and floras.[14]

The sponge *Neoguadalupia* — another Permo-Triassic boundary 'violator'

Up to now, all of the examples discussed have been ones where specific fossils have unexpectedly been found in strata older than where they were 'supposed' to be found. The remaining examples in this work are fossils whose stratigraphic ranges have been extended into presumed younger rocks. To show that *Lystrosaurus* was no fluke in terms of the crossing of the Permo-Triassic boundary, consider the sponge genus *Neoguadalupia oregonensis*. Formerly assumed to be found in strata no younger than Permian, it has been discovered in the Triassic (and Upper Triassic at that) in Oregon (Figure 5).[15]

The bivalve *Camptochlamys*

Let us now turn our attention to the K-T (Cretaceous-Tertiary) boundary. Consider the implications of *Camptochlamys* found occurring in the K-T beds of the

North Slope, Alaska:

> *'The occurrence of* Camptochlamys *extends the chronostratigraphic and geographic range of this genus, previously unknown from any strata above the uppermost Jurassic (Tithonian) of Europe and unknown from any strata in North America.'*[16]

In this particular instance, we have more than a stratigraphic-range extension. We also have a contradiction between this particular fossil's stratigraphic occurrence in European strata, and that of North America. So much for the myth that there is a consistent succession of fossils from one continent to another! Of course, this is not the only such instance. Whenever a fossil is listed as having a long stratigraphic range (say, Cambrian to Devonian), this range may conceal a contradictory stratigraphic occurrence of the fossil from one part of the world to another. Thus, the fossil in question may occur in only Cambrian rock on one continent, only in Ordovician rock on another continent, only in Silurian on another, and only in Devonian on still another continent.

Let us now take a closer look at the K-T boundary. Second to the Permo-Triassic boundary, in terms of faunal turnover, is the K-T boundary. It is at this boundary that dinosaurs, ammonites, and other Mesozoic animals became extinct, according to standard evolutionary-uniformitarian interpretations. Yet more and more hitherto-believed Cretaceous life-forms are turning up in Tertiary rock. These include marine fossils, for which a poor fossil record cannot be used as an excuse for their appearance beyond the 'proper' stratigraphic intervals. And these do not include the many instances of late Cretaceous life forms found in earliest Tertiary rock, for which a reworking rationalisation is frequently invoked.

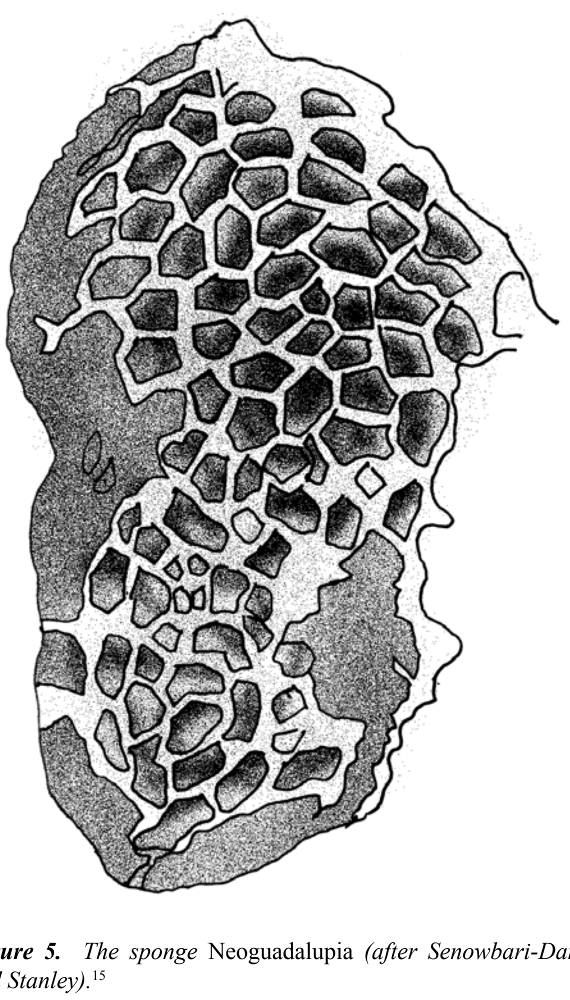

Figure 5. *The sponge* Neoguadalupia *(after Senowbari-Daryan and Stanley).*[15]

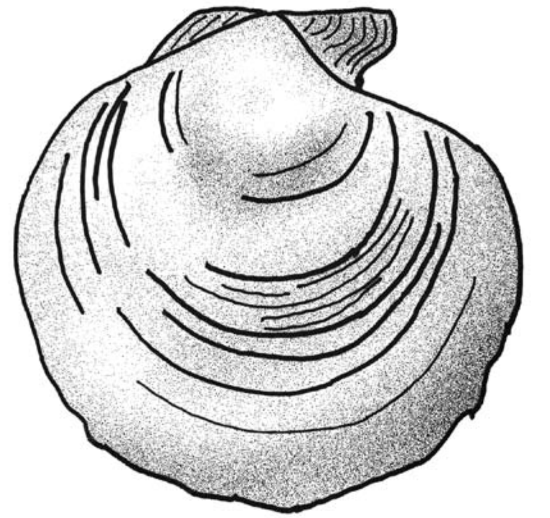

Figure 6. *New fossil bivalve find from Alaska (after Waller and Marincovich).*[16]

The gastropod *Parafusus*

The remaining example in this report is an erstwhile Cretaceous fossil that has turned up in Tertiary strata. Formerly restricted to Upper Cretaceous rocks, members of the gastropod *Parafusus* have been found in large numbers in the Palaeocene rocks of northeastern Mexico.[17]

The norm or the exception?

Are the foregoing examples of stratigraphic-range extensions, and thus the corresponding randomisation of global fossil succession, the exception or the rule? To begin with, it must be stressed that the instances discussed in this brief report are hardly comprehensive. To the contrary, they are in fact only those instances which have inadvertently come to my attention while I was in the process of researching other topics.

So how common are stratigraphic-range extensions? Two recent comprehensive databases of the stratigraphic occurrence of fossils give a clear answer to this question. Maxwell and Benton[18] have compared the stratigraphic

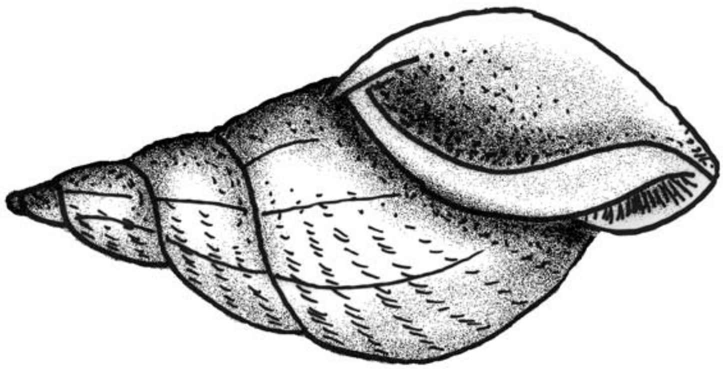

Figure 7. *A gastropod.*

ranges of all of the fossil vertebrate families (excluding Aves, which have a spotty fossil record) as perceived in 1966–1967, and again in 1987. For 96 families, there was no change in stratigraphic range. Another 87 fossil families went through a decrease in their accepted stratigraphic range. Yet considerably more families (150) underwent an increase in the amount of strata which they overlap. This trend is even more evident in fossil marine families. In just ten years (1982–1992), Sepkoski[19] reports that 513 fossil families underwent a decline in their stratigraphic range. A decline in range may mean that the first and/or last occurrence had been misidentified. But whatever the cause, the number of fossil-range declines is dwarfed by the 1026 families that enjoyed an increase in either their first occurrence, or their last occurrence, or both.

Clearly, then, extension of stratigraphic ranges is the rule and not the exception. This is even more remarkable when we remember that there is the ever-present evolutionary bias which tends to cause overemphasis of minute differences in fossils located in different horizons of strata, and hence the proliferation of questionable taxonomic names for essentially the same organism found at different stratigraphic horizons.

The disappearing geological column

Let us now examine the progressive randomisation of the fossil record in the light of the history of the geologic column. Modern researchers are not the first to notice the progressive extension of fossil stratigraphic ranges with increasing collection of fossil specimens from the world's sedimentary strata. During the time that parts of the geologic column were still being worked out in the mid 19th century, the Victorian philosopher Herbert Spencer commented on the illogicity of the geologic column in his appropriately-named essay, *Illogical Geology*.[20] In doing this, Spencer could hardly be accused of creationist bias. After all, he was a hardened atheist who had been an enthusiastic supporter of both social Darwinism and 'scientific' Darwinism.

One of the things Spencer challenged was the use of fossils for the correlation and dating of strata. Specifically, he took issue with the practice of using particular fossils as supposed time-markers for the global correlation of strata, and then not questioning the whole procedure when frequently finding such fossils in the 'wrong' strata with further collecting of fossil specimens.[21] As we have seen, the finding of fossils in previously-unrecognised stratigraphic horizons has continued unabated to this very day, and dwarfs anything that Spencer could have been familiar with. What would Spencer think were he alive today?

Let us take the aforementioned occurrence of *Lystrosaurus* to its logical conclusion. Since *Lystrosaurus* has always been used to correlate rocks into time-equivalent horizons, and to place them all into the Early Triassic, the Permian find of *Lystrosaurus* should now mean that Permian and Triassic are contemporaneous! An analogous line of reasoning should lead to the position that Cretaceous and Tertiary are now contemporaneous because the Upper Cretaceous genus *Parafusus* is now known from Early Tertiary rocks.

Of course, the uniformitarians would never follow their own reasoning to its logical conclusion because it would lead to the very *reductio ad absurdum* discussed in the previous paragraph. At minimum, it would require the uniformitarians to acknowledge the fact that the Permian-Triassic and Cretaceous-Tertiary are now respectively contemporaneous. Such a conclusion, of course, destroys the very foundations of the geologic column, and is unthinkable to standard uniformitarian dogma. In order to paper over this fatal flaw in the geologic column, uniformitarians simply back-pedal, discard *Lystrosaurus* as well as other once-esteemed index fossils as time-stratigraphic indicators, choose other index fossils as presumed time-indicators, and otherwise act as if nothing has happened in terms of empirical evidence. This enables them to go right on believing in such things as the Permian, Triassic, Cretaceous, and Tertiary periods. Heads I win, tails you lose. Clearly, the evolutionary-uniformitarian geologic column has become protected from falsification. To the uniformitarian, no possible fossil discovery would ever count as evidence that would invalidate the sacrosanct geologic column. It is thus clear that use of index fossils and assemblages of such fossils for correlation of strata is an exercise in special pleading.

Some scientific creationist implications

Clearly, now more then ever, creationist scientists should resist the temptation of buying into any sort of scheme which presumes that fossils can be used to delineate time-horizons in the Earth's sedimentary rocks. Even at the local level, fossil succession is related to Flood-related processes instead of changes in fauna over time. This fact discounts neo-Cuvierism. And, for the mainstream diluvialist, the extension of stratigraphic ranges has implications in terms of Flood-related depositional processes. As the fossil record comes closer to randomness, proposed Flood-originated non-temporal mechanisms[22] for fossil succession need to be less and less efficient in order to account for a fossil succession that is becoming more and more crude as more and more fossils are gathered.

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John Woodmorappe has an MA in geology and a BA in biology, from a midwestern US state university. He is a science educator by profession. He is the author of *Studies in Flood Geology*, *Noah's Ark: A Feasibility Study*, and the recently released *The Mythology of Modern Dating Methods*.