



# Creation Matters

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## Living Fossils — How Significant Are They?

by Margaret Helder, Ph.D.

It goes without saying that all living creatures are interesting. Some, however, possess an extra mystique. These are organisms which have closely similar counterparts preserved in stone. Obviously a long history has been enjoyed by living examples of such fossil specimens. The living populations are called *living fossils*. But what about the rest of living creatures, whose preserved remains we do not find in low-lying rock? Is their past any different? Let's delve into the story of the living fossils in order to find out if they are really special and what is their real claim to fame.

The attention paid to certain living fossil organisms leads many people to conclude that these are rare phenomena. Such, however, is not the case. Some living fossils have achieved celebrity status because of an element of surprise. They were assumed to have been long extinct and only relatively recently were discovered to be still living.

Naturally, lots of publicity has been accorded these discoveries. Among them were the sea lilies or crinoids, discovered in the 1890's to be living in deep sea trenches. Then, the coelacanth *Latimeria* was discovered in 1938. Even subsequent landings of this fish have received lots of media coverage. The mollusk *Neopilina* was first identified in 1956; and among plants, dawn redwood trees were discovered in 1948. Most recently, in *Nature* there is an account of an early Cretaceous flower, *Takhtajania perrieri*, rediscovered living in Madagascar 85 years after its original identification (1). The brachiopod *Lingula* has a different

story. Fossils of this organism are found consistently in the rocks from Cambrian levels upward. Today *Lingula* is found living in restricted habitats. This is a living fossil which does not receive a lot of attention.

### Living fossils abound

The world, in fact, abounds in organisms which merit living fossil status. For example, Peter Ward says of mussels, scallops and oysters, "Their fossil shells are virtually identical to those of our present

mens in Precambrian rock.

Characterization of an organism as a living fossil basically depends upon the degree of similarity the viewer seeks between living and fossil creatures. If the definition is in terms of general categories of organism, such as sponges in general, or ferns in general, or even specific groups of ferns, then, says Niles Eldredge, "... by such a yardstick, virtually everything is a living fossil" (4, p. 3). Whether one allows one's definition to be this broad or not, it is

safe to conclude that living fossils are not rare.



**Coelacanth**

Live coelacanth specimen (*Latimeria chalumnae*). Photo credit: <http://weber.u.washington.edu/~islander/fish.html> See p. 8 for a fossil specimen.

oceans" (2, p. 67). Moreover Beverley Halstead points out that there are many organisms of common occurrence which actually qualify for living fossil status. Among the diverse creatures which he lists are silverfish, cockroach, monkey puzzle tree, horsetails, Magnolia, lamprey, tortoises, crocodiles, American opossum, and insect eating shrews (3, p. 196). In addition many microscopic organisms such as bacteria and blue green algae are also identical with speci-

### Embarrassments to evolution

Darwin first drew attention to the idea of living fossils. At this time he was thinking of the Ginkgo tree. From his evolutionist point of view, he was at a loss to imagine how creatures which appeared long ago, and therefore presumably have simple characteristics, could do well in communities where the other organisms enjoy the latest developments. It was a wonder to Darwin that archaic or old-fashioned forms were not eliminated, even though they were apparently untouched during the passage of time. From an evo-

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lutionary perspective then, living fossils are viewed as organisms with a very long history. Creationists point out that this idea of long time intervals is open to question. Nevertheless, it is the idea that organisms are "very old" which arouses the interest of the public.

Darwin realized that living fossils are not what evolutionists expect to find in nature. Indeed, to supporters of the evolution paradigm, the idea of living fossils, so ancient and unchanged, is definitely a problem. As Niles Eldredge remarked, "In the context of Darwin's own founding conceptions, and certainly from the perspective of the modern synthesis, living fossils are something of an enigma, if not an embarrassment" (4, p. 272). And Peter Ward terms living fossils "evolutionary curiosities, more embarrassments to the theory of evolution than anything else" (2, p. 13).

## Damage control

Therefore, a number of evolution-oriented works on living fossils have been devoted, for the most part, to damage control; *viz.*, how best to minimize the damaging implications of living fossils for evolution theory. The first technique is to assume that some change has actually taken place. Some have called this the "Volkswagen Effect," whereby an outward similarity conceals a great deal of presumed internal changes over time. As Eldredge says, no one supposes that the same species, which we see today, have actually lasted for long spans of time: "It is fair to conclude, I think, that no one supposes that it is the actual longevity of a single species that underlies cases of extraordinarily low-rate lines of morphologic transformation" (4, p. 275). Because of this prior assumption that modern examples **must** be different from fossil representatives, the two groups (fossil and extant) are routinely given different scientific names — at the species level at the very least.

Consider, for example, the blue coral *Heliopora coerulea* which today is a common reef former of the Indo-Pacific Oceans. Very similar specimens make an abrupt appearance in rocks said to be more than 100 million years old. Numerous fossils have been found as well in higher-lying rock layers up to the present. A wide variety of species names have been

given to the fossil specimens. All of these species, however, have characteristics within the range of variation of the modern species, says Mitchell Colgan (5, pp. 266-270). Therefore, all the fossil specimens should have been given the same name as the modern species. The numerous names accorded the fossil representatives convey an inaccurate impression.

The approach of evolutionists, then, is to overemphasize differences in order to maximize the appearance of change. For



*New Caledonian nautilus*. Photo reprinted by permission of Toba Aquarium (3-3-6 Toba, Toba-shi Mie 517 Japan). <http://www.infoweb.or.jp/toba-aq/info/kodai-e.html>

example, of the famous living fossil horseshoe crab (see *Creation Matters*, 1997, vol. 2 no. 1) some evolutionists say that the modern species has no known fossil representatives (6, p. 205). This statement is based on shell (carapace) shape. As Peter Ward remarked, "To a less critical eye, the horseshoe crabs of that long-ago time look virtually identical to present day species. But Fisher found slight differences in the carapaces of the Jurassic and the modern species ..." (2, p. 148). Nevertheless, Fisher himself admits that compression by overlying sediments makes it hard to figure out fossil shell shapes (6, p. 206). Thus, scientists do not really know what the shapes of the shells of former populations were like. This seems to be a clear case of overemphasizing differences which might or might not be real.

A second method of damage control used by evolutionists is to suggest that unusually slow rates of change are to be expected for some populations. There is a major problem with this explanation, however. Evolutionists have not been able to find any general rules which would enable them to predict which organisms might show slow rates of change. Both

Eldredge and Stanley comment on this in their 1984 book on living fossils. As Eldredge remarked:

"Schopf is certainly correct that a number of somewhat different kinds of phenomena underlie our rather casual use of the expression 'living fossil.' Some species do have relict distributions (*e.g.*, *Sphenodon* ...), while others patently do not, such as ... *Lingula*. Some lineages are depauperate in species, such as *Limulus* and its close relatives, while others generally considered living fossils (such as the nuculoid bivalves ...) are relatively speciose. All sorts of combinations are possible ..." (4, pp. 275-276). [Note: omitted phrases refer to pages devoted to each topic in Eldredge and Stanley's book.]

For his part, Stanley said, "Thus although the punctuational expectation is that living fossil groups should exist, the reasons why some groups rather than others fulfill that expectation can only be assessed on a case-by-case basis" (7, p. 280). So it clearly is special pleading for them to simultaneously claim that, at the evolutionists' whim, some organisms are supposed to evolve so slowly that they do not visibly change over hundreds of millions of years, while other organisms (notably and conveniently the ones that are supposed to serve as transitions between major groups) are supposed to evolve so rapidly that they leave no fossil record at all.

## Déjà vu

Another effort at damage control is to suggest that an organism really has been evolving quickly, only the end result is always the same as before. Peter Ward suggested such a situation for *Nautilus*, an organism characterized by considerable genetic variability. In his book on living fossils (2, p. 254) he speculates about the situation: "Rather than being a prime example of a living fossil, the nautiloids may be examples of rapidly speciating organisms that change only slightly during each [speciation] event, and then return to the same form over and over. The result would be apparent stasis, but the actual history would be similar to that of any other rap-

idly speciating group — except that the net morphologic change over time would be small, rather than large." Such a hypothesis would, of course, be exceedingly hard to test.

### Creation alternative

From the creationist perspective, the flora and fauna which we see today represent remnants of much richer collections of organisms which lived in the past. The fact that some living forms are different only in detail or not at all from specimens deposited at low levels in the fossil record raises the question whether any living creatures differ (other than in detail) from their progenitors. Moreover, not all organisms which lived at the time of fossil formation actually left fossils. Living taxa have been identified which lack a fossil record, but which are nevertheless considered primitive, close in characteristics to the first representatives of that group of organisms. Examples include *Psilotum*, an uncomplicated vascular plant, cephalocarids (blind crustaceans) and *Peripatus* (worm-like).

Secondly, the very existence of living fossils calls into question evolutionary assumptions about long time intervals. Two opposite interpretations of the relevant data are possible. One is that fossilized specimens lived long ago, and survivors have continued little-changed since then. Alternatively, it is possible that fossilized specimens were entrapped relatively recently, and that populations have not changed other than in minor details in the ensuing time.

The idea of very long intervals with no change actually makes evolutionists nervous. For example, Wilson Stewart (8, p. 76) remarks that the whisk fern (*Psilotum*) might have been a contemporary of primitive land plants — but if that is the case, 360 million years have since passed. As this passage of time seems unrealistic, another specialist actually redefined *Psilotum* as a degenerate fern and thus of much more recent origin. This reduces the problem of a long time interval, but ignores some important information, says Stewart.

Creationists do not have such logical difficulties, as they are dealing with a much shorter time frame. Since organisms

like *Neopilina* (mollusk), *Sphenodon*, and coelacanths are all extant today, their fossils could have been entrapped and preserved relatively recently. There is no need to assume incredible gaps in a long fossil record. The case of *Neopilina* is particularly dramatic. According to evolutionary interpretations, living specimens are separated from fossil representatives by a gap

The idea of very long intervals with no change actually makes evolutionists nervous.

of almost 430 million years. Indeed, fossil specimens are almost identical (except for shell thickness) to living specimens. If, alternatively, they have since lived in a restricted environment for only a few thousand years, we would not necessarily expect change or higher-lying fossil representatives.

It is noteworthy that organisms recognized as living fossils have, in certain instances, provided a useful check on evolutionary speculations based on the fossil record. The most conspicuous example of this is the coelacanth, which, before living specimens were known, was considered to be related to ancestors of the terrestrial vertebrates. As Peter Ward remarked: "We now know that *Latimeria*, the living coelacanth, is substantially different from what we suppose the immediate ancestor of amphibians looked like" (2, p. 201). Today some authorities promote an altogether different group (lungfishes) for this honor. Nevertheless, the former idea was so strongly imbedded in the public's mind that we still see traces of it. The *Toronto Globe and Mail*, on January 4, 1960, called the coelacanth a "missing link between man and primitive life." Thirty years later (October 20, 1990), the same publication used almost identical language when discussing the coelacanth, even though such ideas were discarded long since by scientists.

Living fossils are clearly a topic which merits further research by young-earth scientists. When evolutionists admit that they have a problem, then it behooves us to pay attention. But philosopher of science Del Ratzsch suggests that creationists mis-

construe evolutionary theory (9). Dr. Ratzsch states that Darwin's theory has no expectation of inevitable change. Whether there is change or not, and lengthy absences from the fossil record or not, evolution theory accommodates all situations, he says. As we have seen, however, some prominent specialists indeed feel that there are features of living fossils which are difficult to explain in terms of evolution theory. As they themselves admit, their explanations are *ad hoc* in nature and scarcely satisfactory. Research in the recent scientific literature does not support Dr. Ratzsch's criticism of creationary claims concerning living fossils. Let's not give up this promising source of information.

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# Fossils – Missing, Missing, Missing

by Ray Strom

"Living fossils," their counterparts in the geologic record and the paleoenvironments that they were supposed to have inhabited, are very important to an understanding of creationary thinking. **Paleoenvironment** is defined as "an environment of the geologic past" (1). As such, it is deemed that these environments, implied in the geologic record, had their own unique characteristics, or that they had characteristics comparable to those found in the modern setting. Each of these environments would have had specific types of organisms associated with them, in order that the paleoenvironment could be ascertained from the fossil record. For example, a terrestrial paleoenvironment would have all the characteristics of those deposits normally found on land, while a marine paleoenvironment would have had typical marine sediments and the associated organisms. These are, in turn, broken down into more specific types of settings or zonations.

Let us consider the coelacanth, the fish deemed to be extinct, but rediscovered in 1938. The startling surprise of this fish was:

"Presumed extinct for nearly 80 million years, the curious creature was named *Latimeria chalumnae* by J. L. B. Smith of South Africa and was variously heralded as a 'missing link' and a 'living fossil.' It was hoped that this holdout from the Cretaceous would provide an opportunity to look back to the transition from fish to amphibians, for it was then held by many biologists that ancient coelacanths were the sister group to the tetrapods. Subsequent discoveries have not supported that hypothesis" (2).

What should be noted is that the coelacanth, thought to be extinct for 80 million years, presumably continued to survive throughout that time period without leaving any yet-discovered trace of its fossil existence or evolutionary change. (See chart.) This is a serious problem, at least for the evolutionist. During that lengthy time period, each and every implied paleoenvironment that was suitable for the existence and preservation of the coelacanth demands an explanation as to why no coelacanth fossils are preserved. In short, why are these fossils not found in the suitable localities and strata?

The *Wollemi* pine, discovered recently in Australia, represents another of the living fossils that somehow survived from the end of the Cretaceous period (65 million years, according to evolutionists) with little change. (See chart.) In spite of the fact that paleoenvironments suitable for the *Wollemi* pine exist in the geologic record, no trace of its fossils has been found in that intervening time period. How can a tree type exist, and no fossil evidence of it be found? Evolutionists have a bit of explaining to do.

Even more bizarre is the mollusk, *Neopilina*, which has survived as a living fossil, with its precursor existent possibly as late as 350 million years ago. (See chart.) The occurrence of appropriate paleoenvironments in those 350 million years of the geologic record are enormous; yet, apparently no precursors to the modern organism were preserved. Why not?

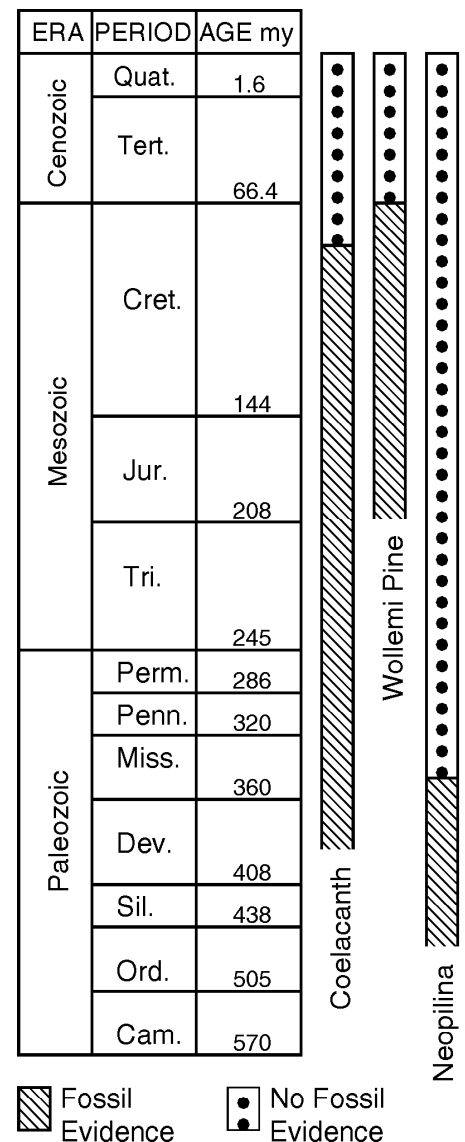
These three organisms, found in widely diverse environments, seemingly left no trace in the fossil record for large spans of evolutionary time. While evolutionists demand that creationary scientists explain the general "order" of fossils in the geologic record, creationary scientists, in turn, must demand that evolutionists explain not only the lack of transitional organisms, but also the paucity of fossils in the geologic record over the times when these organisms must have survived. "Stasis" is more common than once believed and, therefore, those unchanging fossils should be found repetitively in the geologic record in their implied paleoenvironments.

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**General Evolutionary Geologic Column**



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# Inherit the Wind – A Commentary

by John P. Turnbull, M.S.

Anyone who has ever seen the film (or play) *Inherit the Wind* has witnessed a fictionalized caricature of William Jennings Bryan and the Scopes trial in Dayton, Tennessee. In the words of Phillip E. Johnson, "*Inherit the Wind* is a propaganda masterpiece, promoting a stereotype of the public debate about creation and evolution that gives all virtue and intelligence to the Darwinists."

There is a fascinating essay on the Scopes trial and William Jennings Bryan in the book *Bully for Brontosaurus* by Stephen Jay Gould. This book is a collection of essays from the monthly series "This View of Life" in *Natural History* magazine.

Gould finds himself politically sympathetic to Bryan in many ways. Bryan, as a politician, was concerned about the excesses of big business, and favored labor protection laws. He saw the effects of social Darwinism and how the robber barons used this to justify their ways. Gould also makes a strong case as to the extent of social Darwinism's influence on the leading World War I German generals and the eugenics (race betterment) movements of that time.

Gould makes the following interesting statement:

"Two years ago, I obtained a copy of the book that John Scopes used to teach evolution to the children of Dayton, Tennessee — 'A Civic Biology,' by George William Hunter (1914). Many writers have looked into this book to read the section on evolution that Scopes taught and Bryan quoted. But I found something disturbing in another chapter that has eluded previous commentators — an egregious claim that science holds the moral answers to questions about mental retardation, or social poverty so misinterpreted ... he writes:

"Hundreds of families such as those described above exist today, spreading disease, immorality and crime to all parts of this country. The cost to society of such families is very severe. Just as certain animals or plants

become parasitic on other plants or animals, these families have become parasitic on society. They not only do harm to others by corrupting, stealing or spreading disease, but they are actually protected and cared for by the state out of public money. Largely for them the poor house and the asylum exist. They take from society, but they give nothing in return. They are true parasites.

"If such people were lower animals, we would probably kill them off to prevent them from spreading. Humanity will not allow this, but we do have the remedy of separating the sexes in asylums or other places and in various ways preventing intermarriage and the possibilities of perpetuating such a low and degenerate race.'

"Bryan had the wrong solution, but he had correctly identified a problem!"

The irony is that the play *Inherit the Wind* glorifies Henry Drummond (the fictional portrayal of Scopes' lawyer, Clarence Darrow) as a protagonist of free thinking, fighting against the dark forces of bigotry, dogmatism and ignorance. Imagine what would happen if a biology teacher were to teach from Hunter's book today! I don't think you would find many advocates of free thought coming to the teacher's defense. The politically-correct thought patrol would shut him/her down in an instant (and well they should), but they would act for the same reasons as did William Jennings Bryan.

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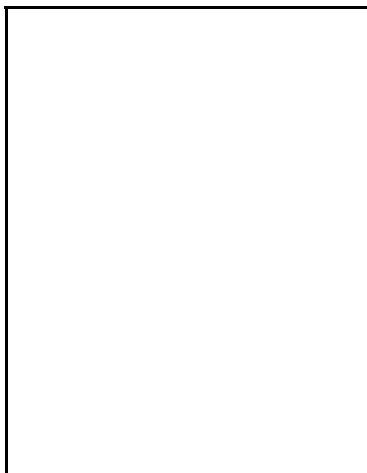
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**Creation Research Society**  
*Annual Meeting of the Board of Directors*  
San Diego, CA

**May 22-25**

*Western Kansas Chalkbed Safari*  
CSA for Mid-America (Kansas City area)  
Tom Willis, (816)658-3610

**June 28-July 3**

*Twin Peaks Family Science Adventure*  
Alpha Omega Institute, Grand Junction, CO  
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**August 3-8**

*Developing & Systematizing the Creation Model of Origins*  
1998 International Conference on Creationism (ICC)  
Geneva College, Beaver Falls, PA  
Creation Science Fellowship  
Dennis Wert, (412)341-4908

**August 9-11**

*Niagara Falls Bus Tour (following the 1998 ICC)*  
Creation Quest Expeditions, Creation Research Society  
John Meyer, (520)636-1153

**August 9-14 or 16-21**

*Red Cloud Family Mountain Adventure*  
Alpha Omega Institute, Grand Junction, CO  
(970)523-9943

**August 20-26**

*Bob Marshall Wilderness Trail Ride (Montana)*  
Creation Quest Expeditions, Creation Research Society  
John Meyer, (520)636-1153

**September 28 - October 3**

*San Juan Mountains Trail Ride (Colorado)*  
Creation Quest Expeditions, Creation Research Society  
John Meyer, (520)636-1153

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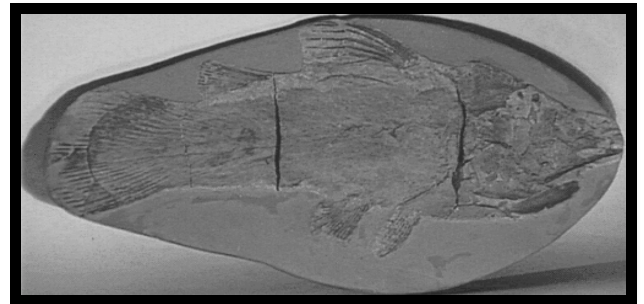
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Fossil coelacanth from Madagascar.

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