plain the excellent preservation.

Then there is an enigmatic diatom whose living analog is a *marine-brackish* water taxon. However, even this diatom is said to include one ecological variety that is only able to live in low salinity conditions.[10,11] Of course, this latter variant is the one assumed to have lived in ancient Lake Clarkia. Altogether, there is an impressive amount of evidence that components from marine and terrestrial environments have been mixed together.

Interestingly, some of the fauna are exotic to the northwestern United States. The trophy trout is comparable to those living in southern Europe and Japan.[12] The single dinoflagellate species is similar to one known only from the Oligocene of China.[13] Remember that this is supposed to be a *Miocene* lake. Much of the flora is exotic to the northwest United States and is more typical of eastern Asia or the southern Appalachians.[14] Batten *et al.* state that the Clarkia fossils represent a unique distribution:

> 'Most of the Clarkia plant taxa and many of the other organisms no longer live together in western North America or in any other single biogeographic region.'[14]

All the warm climate elements suggest an environment unique to northern Idaho.

Conclusion

A superficial look at the Clarkia beds seems to support a typical uniformitarian terrestrial lacustrine environment and uniformitarian scientists commonly make such paleoenvironmental interpretations. However, the more one examines the details, the more enigmatic their interpretation becomes.[15] In the case of the Clarkia beds, the uniqueness of the fossils, the warm environmental indicators, the exquisite preservation, and the indications of rapid deposition contradict the simplistic uniformitarian deduction of a lacustrine environment.

The evidence supports an interpretation based on the global Flood recorded in the Bible. The Flood is expected to occasionally mix organisms from terrestrial and marine or brackish water environments. In addition, it is not a problem for the Flood to deposit warmth-indicating taxa in middle and high latitudes. And rapid deposition during the Flood is expected to produce well-preserved fossils.

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Livoniana—have they (finally!) found a missing link?

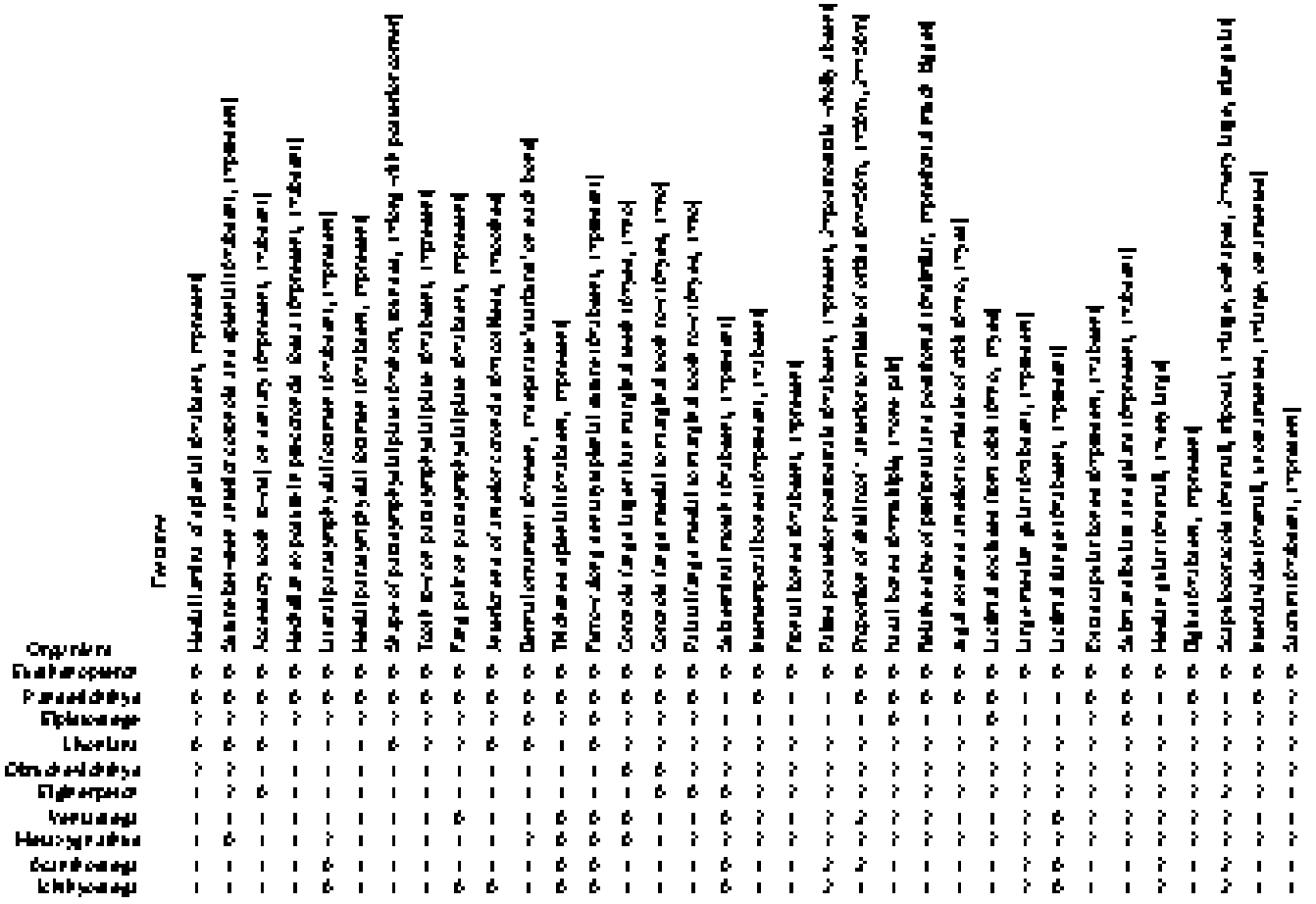
Andrew Lamb

Appearing on SBS TV [Australia] on 29 September 2001, was a program called: *As it Happened: the Missing Link*. Produced by the BBC in the UK,[1] it tells the story of how young scientist Per Ahlberg discovered, in a long-neglected drawer in a museum in Latvia, a fossil fragment of an unusual jaw. He ran its details through cladistic analysis software that had been programmed with all the distinguishing anatomical features of fish and tetrapods, and the jaw supposedly turned out to be part fish and part tetrapod (vertebrate with four limbs). He named the organism *Livoniana*.

There seems to be only one published academic paper on *Livoniana*, written by Ahlberg himself and some colleagues.[2] In their paper the authors compiled a table comparing 34 different features of 10 different organisms on their supposed transition series from fish to tetrapod (see Table 1). The 34 features include presence/absence of accessory teeth rows, presence/absence of digits, etc. The first organism in their table, *Eusthenopteron*, which is 100% fish, scores 0 for all 34 features. The second organism, also a fish, scores 0 on most features and 1 on a few features. The tenth organism, *Ichthyostega*, an undisputed tetrapod, scores 0 on only seven of the 34 features examined. Organisms 5 to 9, all tetrapods, score 1 for most features, out of those features that could be determined.

Organisms number 3 and 4, *Elpistostege* and *Livoniana* respectively, score a mix of 0's and 1's. However, from the small scrap of Livonianan jawbone available, only a paltry *eleven* of the 34 features could even be determined! As with most proposed transitional forms, it is this *lack* of evidence that makes it suitable for the evolutionists as a transitional form, since this gives them room to speculate on those features that

Table 1. *Phylogenetic analysis of supposed fish to tetrapod evolution (from Ahlberg* et al*).*[8]



* *Measured as length from tip of snout to posterior margin of postparietals.*

are not available for observation. Note that the BBC program was supposed to be about how tetrapods got their legs. However, all that Ahlberg found was a fragment of a *jaw*—no legs; no partly-formed legs, etc.

It is reminiscent of the situation with the proposed land-mammal to whale 'transitional forms', *Pakicetus* and *Ambulocetus*.[3] Because only fragments of their skeletons were found, and because crucial bones were missing, evolutionists were able to make fanciful 'transitional' claims that would not have been possible had more complete data been available. This applies especially to the reconstruction, now known to be totally wrong, of *Pakicetus's* alleged mode of locomotion, which was based on mere skull fragments! Despite repeated embarrassments, many evolutionary paleontologists still compulsively engage in speculative reconstructions from fragmentary fossil remains.

TJ recently published a paper refuting the supposed reptile-to-mammal transitional series.[4] The same sort of reasoning and logic as was used in that article would apply to Ahlberg's fish-to-tetrapod series. In the proposed reptile-to-mammal series, features did not progress consistently. Some organisms towards the mammal end of the series were devoid of certain mammal-like features that were present in organisms closer to the reptile end of the series. The majority of the hundred-odd traits examined did not progress consistently.

The same occurs in Ahlberg's fish-to-tetrapod series. For example, *Acanthostega*, ninth organism in his series, boasts two tetrapod features that are *absent* in the tenth organism! Despite much effort, evolutionists cannot find organisms that will fit into their theoretical constructs of smooth progression from one type of organism to another.[5]

It is probable that if more data about *Livoniana* becomes available, scientists will either conclude that it was definitely a fish or definitely a tetrapod. Even if it does turn out to be a 'mosaic' creature like the platypus,[6] which contains features which are typical of various different classes of animals but which are not usually found together in one organism, this does not indicate evolution. Evolutionists do not regard mosaic creatures such as the platypus as evidence of transformation of one basic kind of creature into another. Creation is a valid, and far more logical and reasonable, explanation for such creatures.

Interestingly, the TV program gave a good account of this process of abandoning a transitional form as more data

becomes available. It described how when living coelacanths were found, they were seen to be 100% fish, and so had to be abandoned as a transitional form.

At the end, the program said of *Livoniana*:

> 'It also has one freakish feature: there are seven rows of teeth. It is unlike any other creature we know of. This suggests it must be one of the host of mutants that made this change, just one of which would eventually become our ancestor.'

But multiple rows of teeth are not unusual in *fish*. In a typical supermarket you can usually find fish with multiple rows of teeth. Two well-known fish with multiple rows of teeth are piranhas[7] and sharks.

In summary the claim that *Livoniana* constitutes a 'missing link' between fish and tetrapods is not only false, but highly fanciful.

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'Snowball Earth'—a problem for the supposed origin of multicellular animals

Michael J. Oard

Many uniformitarian scientists believe that about five major periods, and several short periods, of glaciation have occurred on Earth.[1] In the evolutionary time scale, these ice age periods sometimes lasted several hundred million years and extended back 2–3 billion years ago. These supposed ice ages have been interpreted from till-like rocks[2] and other apparent glacial signatures observed within sedimentary rocks around the world (Figure 1). One such ice age is called the Neoproterozoic, or Late Precambrian, and thought to have started about 950 million years ago and ended about 520 million years ago.[3] During this 430 million-year period, according to evolutionary time, there were several long 'glacial' and 'interglacial' periods.

'Snowball Earth' hypothesis

Based on early paleomagnetic studies, evolutionists deduced that most Precambrian 'ice ages', including the one about 2.5–2.2 billion years ago extended as far south as the equator.[4] This radical proposal caused many scientists to question the paleomagnetic results, mainly because it is easy to remagnetize rocks. After many paleomagnetic measurements and several decades (i.e. Sohl, Christie-Blick and Kent[5]), the idea of an equatorial ice sheet, implying a completely glaciated Earth, has become widely accepted. Kerr writes:

> 'And last year, most researchers agreed that one part of the sweeping hypothesis—the claim that glaciers once flowed into ice-covered tropical seas—is correct … .'[6]

This is the 'snowball Earth' hypothesis. John Crowell, one of the chief investigators of supposed ancient ice ages, had been skeptical of the paleomagnetic measurements for several decades, but now has accepted the measurements.

There are several major problems with the idea that ice sheets reached the tropics at low elevation. One problem is that, once ice and snow covered the entire Earth, a frozen Earth would maintain itself indefinitely by ice-albedo positive feedback. Ice and snow have a high albedo, which causes most of the solar radiation to be reflected back to space. Without atmospheric warming, the temperature of the Earth would plummet far below freezing and the frozen condition would become very stable. So, a catastrophic climatic event would be required to melt a 'snowball Earth'.

How could life have survived?

The Cambrian period and its supposed 'explosion' of life occurred around 550 million years ago.[7] This means that the worldwide Neoproterozoic ice age was raging during, or just at the end of, the time when multicellular life exploded over the Earth. The origin of multicellular life would have occurred earlier, at the beginning of the supposed ice age, since some metazoan life occurs between 1,000 and 700 million years ago according to their time scale.[8] The origin of life itself has already been pushed back to over 3 billion years ago. So, it seems that evolutionists now have a serious problem with the supposed evolution of multicellular life. Kerr asks:

> 'How could life have survived … in a world in which the average surface temperature would have hovered around –50°C, not to mention the all-encompassing sea ice that would average a kilometer thick compared to the Arctic Ocean's few metres?'[6]

In a later article, he asks:

> 'How could early life have weathered such a horrendous environmental catastrophe without suffering a mass extinction? … How could algae and perhaps even early