A uniformitarian paleoenvironmental dilemma at Clarkia, Idaho, USA.

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A farmer digging a snowmobile course accidentally unearthed one of the most remarkably-preserved plant fossil localities in the world.[1] The site is situated outside the small town of Clarkia in northern Idaho, about 60 km northeast of Moscow, Idaho, USA. One hundred and thirty species of plants are represented, many typical of a warm-temperate to subtropical environment, such as avocado, magnolia, and sycamore.

Leaves and fish

It is suggested that the fossils formed in a Miocene lake, dammed in the St Maries River Valley when the Columbia River basalts erupted to the west. The northern Rocky Mountains, USA, are postulated to have been a terrestrial environment during the Tertiary. The idea of leaves falling into fine-grained lake clays appears to be a reasonable paleoenvironmental deduction—at first glance. However, such an interpretation is contradicted by a number of facts. There is even evidence of *marine catastrophic inundation*.

The remarkable preservation of the leaves extends even to microscopic structures within leaf cells that exhibit beautiful cellular detail. Just as interesting, the original *colour* of the leaves has been preserved within the laminated clays. The original green, brown or red colours, suggestive of autumn, are retained, which upon exposure promptly turn black.[2] The fossils are preserved within laminated clay, interspersed with massive clay, both containing ash beds that are barren of fossils.

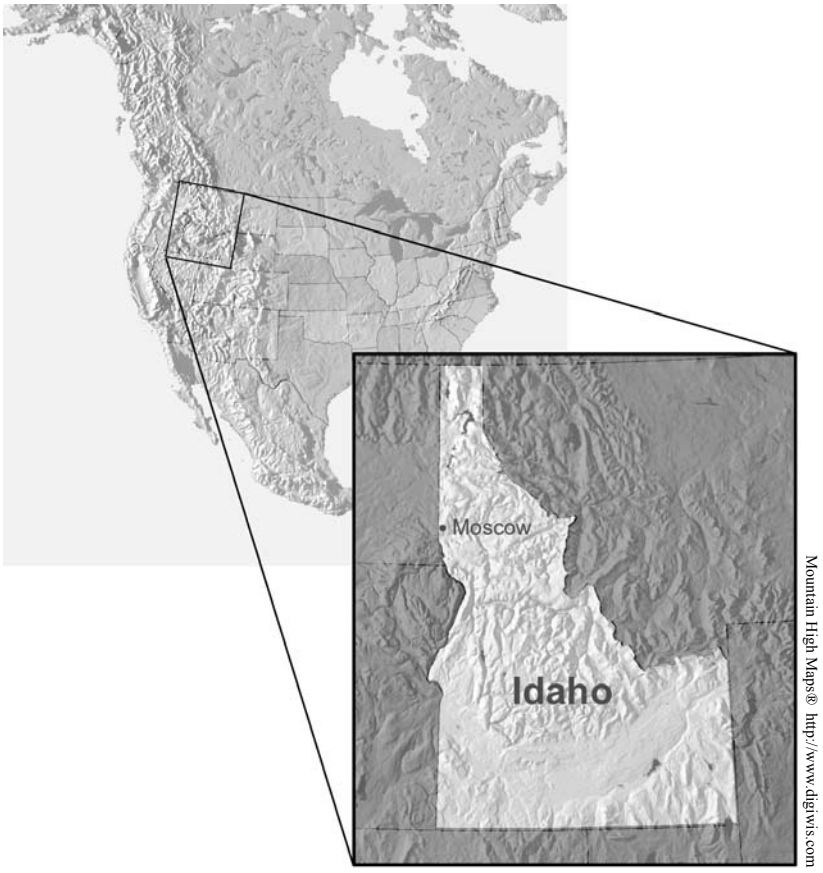
Some investigators believe the laminated clays are varves and that each couplet represents one year of seasonal deposition. However, Charles Smiley believes the laminated clays represent *storm* rhythmites[3]—a radical departure from the varve interpretation. Smiley's deduction seems more reasonable since there are also fish fossils within the rhythmites—one a trophy-sized extinct trout. All the fish had their mouths open, as if they died of anoxia. One would not expect such well preserved fish with little or no sign of deterioration[4] while paper thin 'varves' were being deposited. The unusual condition of the leaves and the fish fossils points to rapid deposition, not slow lacustrine accumulation.

Furthermore, the leaves are not stacked one on top of another as expected with autumn leaves dropping into a quiet lake. Instead, the leaves are *separated* by sediments, an indication of very rapid deposition considering the degree of preservation and the colour of the leaves.[5] Many leaves even cut through several rhythmite layers with no physical damage, another sign of rapid deposition.[6]

Marine environment

There are signs that the water was not fresh, as typical of most lakes, but marine or brackish. For instance, abundant dinoflagellates, mysteriously all of one species, have been identified.[7] Dinoflagellates are normally considered marine. Hence, it is suggested that fresh water dinoflagellates existed in the past. However, this freshwater interpretation comes from other fossil localities that are *assumed* terrestrial, just like the Clarkia beds.

Sponge spicules are also an abundant constituent of the rhythmites.[7,8] Practically all sponges are marine. Apparently, there are rare occurrences of freshwater sponges,[8] and this latter is the type chosen for the paleoenvironment of the Clarkia beds. It is interesting that the sponges also suggest that the bottom water temperature was unusually warm at 26–30°C,[9] a paleoclimatic enigma. Furthermore, the high temperatures suggested are not conducive to the anoxic paleoenvironment needed to ex-



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?

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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