Several stratigraphic relationships outlined by the most recent research demonstrate the close relationship between undersea volcanism and BIFs. Since the igneous rocks were extruded rapidly within the uniformitarian paradigm, the BIFs must also have formed fairly rapidly due to the magmatic activity. New radiometric dates also confirmed in the minds of the investigators that the BIFs formed relatively quickly. The authors state:

> *'Thus, there is mounting evidence that pulses of enhanced igneous and hydrothermal activity, related to a large igneous province (or provinces), may have accompanied both Brockman and Woongarra supersequence BIF deposition.'*[3]

Including periods of non-deposition, the authors propose a possible deposition rate of 100 to 1000 m/Ma. This compares to a modern ocean pelagic sedimentation rate of 40 m/Ma. They also suggest that these much faster rates of BIF deposition also apply to the large BIF province in South Africa.

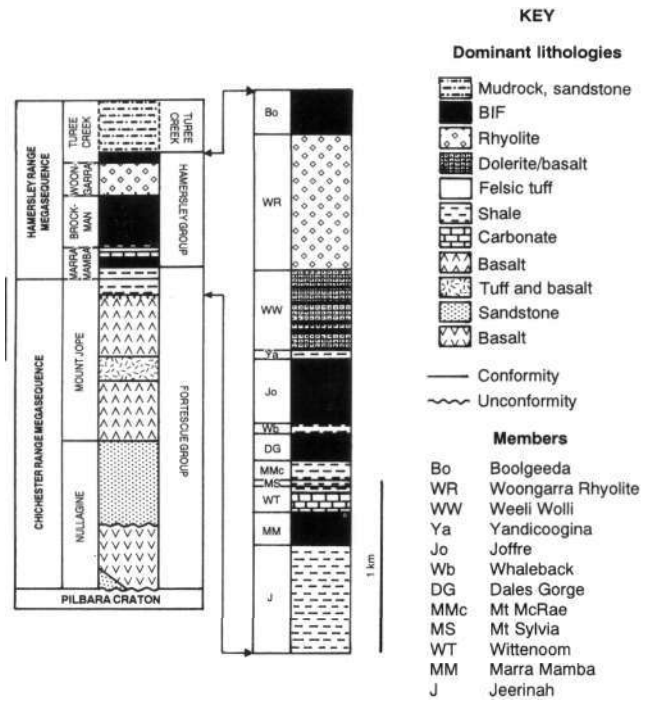

Figure 2. *Stratigraphic column of the Hamersley Basin showing the association of banded iron formations (BIFs) with outpourings of volcanics.*

Of course, the authors' analysis was still carried out within the uniformitarian paradigm. Now switch their results to a catastrophic paradigm. If BIFs are among the first sedimentary rocks deposited on the Earth, could they be caused by the 'fountains of the great deep' that initiated the Genesis Flood? Although the exact meaning of the 'fountains of the great deep' is rather controversial, creationists still regard the fountains as the primary source of the water that covered the Earth during the Flood.[4] Such an event would surely be accompanied by massive magmatic and hydrothermal eruptions. Thus BIFs could have formed rapidly from the hot hydrothermal fluids and rapid currents spreading out from such eruptions. This conclusion supports the suggestion by Max Hunter that Archaean sediments were derived from magmatic fluids rich in iron and quartz.[5]

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M. J. Oard

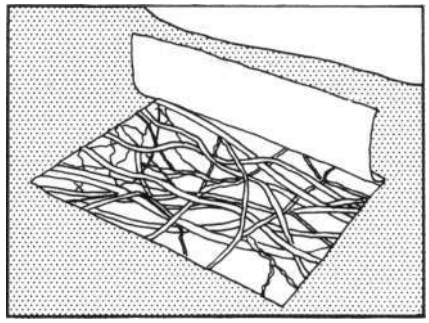
Mechanical Biology?

For 30 years biochemists have held centre stage with developing our understanding of the living cell. So pervasive has the chemical approach been that many have come to view the cell as little more than a (very) complex bag of chemicals interacting together.

When the cell's cytoskeleton was discovered, it did not impinge on the chemical view — it was considered merely a passive structural support for the cell.

All this has changed. In some really clever work, Andrew Maniotis, Donald Ingber and Christopher Chen at Harvard Medical School and the Children's Hospital in Boston, used a combination of micro-manipulation, recently-available proteins that bind to specific cell-surface receptors, and video microscopy, to show that mechanical tugging on particular receptors on the surface of living cells caused almost instantaneous rearrangements in the nucleus.[1]

Their procedure was as follows: they coated 4.5 µm beads with fibronectin protein, which binds specifically to cell surface receptors, called integrin receptors, which are



A force-carrying network extends from the cell membrane into the nucleus.

connected through the cell membrane to the cytoskeleton. These beads then adhered to the specific binding sites on the cell surface. When the beads were mechanically bumped with a micro-manipulation device, almost instantaneous movements in the nucleus were recorded on the video microscope — nuclear structures called nucleoli lined up, or moved towards the nuclear membrane.

Mechanical manipulation of other areas of the cell membrane, away from the integrin receptors, did not result in the changes in the nucleus, showing that the response was specific; it was not caused by a general distortion of the cell membrane.

Maniotis and others also recently published evidence showing that the chromosomes and nucleoli are all interconnected in the living cell — by strands of DNA. The apparently isolated nature of chromosomes in fixed cells appears to be an artefact of the preparation procedures.

These findings probably relate to those of Mina Bissell, at the Lawrence Berkeley National Laboratory in California, who showed that mechanical deformation of malignant cells can affect whether they proliferate or not.

These developments amount to a new field of biology and a new level of complexity in the living cell. Not only are there the biochemical systems of control and communication (which are only partly understood, even in bacteria[2]), but there is a mechanical level of cellular communication and control as well. And then there must be interaction between the two — which will be fascinating to unravel.

How anyone with some knowledge of this complexity can believe it all developed without an intelligent Creator defies logic.

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D. Batten

New Bat Species Puzzle

A new species of European pipistrelle (bat) was discovered by British scientists after one of them noticed that their voices squeaked at different frequencies. This led to DNA studies, which showed that there were two distinct types of bats living side by side. According to evolutionary reasoning, they are 'divided by 5 to 10 million years of separate evolution'.

However, in reality, the bats not only live together, they are absolutely identical in every way that scientists can measure. Peter Cotgreave of the London Zoo says:

> *'The bat people have measured everything you can think of measuring, they have weighed everything you can think of weighing, and they can't tell the difference'}*

In this instance, the assumed evolutionary process has altered the genotype (that is, the information on the DNA) drastically over the alleged millions of years. Yet evolution is supposed to operate by way of natural selection, which acts on the phenotype (that is, the expressed physical characteristics of the organism). It would appear to be a significant challenge to explain how two creatures could exist side by side, deviating so much genetically with not even the faintest trace of an external change.

However, the matter is not quite straightforward for creationists, either. It would be difficult to imagine two such identical creatures, living together, **not** being members of the same 'created kind' originally. The creationist therefore would have to explain how the two became reproductively isolated sympatrically (while living together).

This is not inconceivable — perhaps random mutational mistakes altering the pitch of the bat's squeal coupled with sexual selection for a few generations. Even this way, it would appear that the standard evolution model, with its longer time-span over which the environment can interact with mutational change, has more difficulty accounting for the total **absence** of any other detectable phenotypic change.

Whereas if there is some hitherto unsuspected intrinsic (that is, genetic) mechanism for **rapid** speciation (as some creationist biologists, requiring something like this for post-Flood radiation, have long suspected) the observed situation may be easier to accommodate.

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