

sin? In these terms, it would be surprising if the first appearance of sin did not lead to a considerable physical reaction on Earth.

Creationist discussions of the 'lost world' of Adam — post-Eden but pre-Flood — sometimes make it sound rather idyllic. Whilst conditions may have been less difficult than post-Flood, a great decline from Eden must have occurred. Genesis 3:17-19 tell us that the ground was cursed:

'In toil, you shall eat of it, All the days of your life. Both thorns and thistles it shall bring forth for you

This suggests climatic and soil changes. Volcanic activity could create such conditions.

Genesis 3:24 does not specify an end point for the guardianship of the cherubim and flaming sword. Given the decline in morality up to the time of the Flood, the flaming sword would surely need to continue to turn every way to block attempts to return to Eden until the Flood. This gives us 1,656 years of volcanic activity — or more, if the genealogy at Genesis 5 is incomplete. Such long lasting activity could create the processes — ticking time bombs — which in due time would cause the fountains of the deep to break open and the windows of heaven to open (Genesis 7:11).

Although not necessary to the case for volcanic activity fulfilling Genesis 3:24, it is interesting to look again at Ezekiel 28:11-19. This passage can be interpreted in various ways at various levels, but a simple reading suggests that Satan liked being in Eden and may literally have traded with human kingdoms, perhaps from Eden, until his base and material glory were destroyed. Thus, Ezekiel 28:11-19 may, conceivably, provide a parallel account of pre-Flood times to Genesis 6:2 and 4 (which may refer to angels cohabiting with women). Perhaps, when the Lord says to Satan in Ezekiel 28:18, 'I brought fire from your midst; It devoured you . . .', this refers to volcanic activity encroaching on Satan's base in Eden, or to a final fiery outburst at the onset of the Flood.

If a volcanic barrier was laid between Eden and Adam's new world, then there were possibly three distinct pre-Flood geological areas. Each would necessarily be of less than global extent, but could nonetheless be large — for example, the Lord may have set aside extensive lands in Eden for the generations.<sup>2</sup> All three areas would accumulate fossils, although most, if not all, human fossils would be in Adam's world area.

Note that the prevailing theme from the closure of Eden is fire, in contrast to the water theme of the Flood. This suggests that volcanic activity may predominantly have been pre-Flood, perhaps increasing toward the end, with the Flood serving to 'put the fires out'. Accordingly, the pre-Flood geological column may have partially survived the Flood, and the size of the Flood catastrophe becomes somewhat less overwhelming than that proposed by, for example, Robinson.<sup>3</sup> How otherwise could the Ark itself survive: think of the tsunamis, for example!

I appreciate the caution amongst creationists in looking at pre-Flood causes of parts of the geological column, as some such approaches have been associated with the gap and day-age hypotheses. However, it would be unfortunate if the development of creationist theory was to be driven primarily by the history of reactions against others. Based on the biblical record, it may be possible to construct creationist hypotheses, and thus to read the geological record in ways other than the Flood/post-Flood debate suggests. Thus, parts of the geological record may be explained by pre-Flood episodes and the Flood/post-Flood debate resolved, in part, by stepping outside of it, whilst remaining within the creation *ex nihilo* framework.

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#### REFERENCES

1. Walker, T., 1996. The basement rocks of the

Brisbane area, Australia: where do they fit in the creation model? *CEN Tech. J.*, 10(2):241-257(p. 246).

2. Translations of Genesis 2:10 tend to give a picture of a quite limited Eden; thus: 'Now a river *went out of* Eden to water the garden and *from there* it parted and became four overheads.' (NKJ; italics added.) However, on the basis of **Strong's Exhaustive Concordance**, the verse could also be translated as 'Now a river *arose in* Eden to water the garden and *therein* it parted to become four riverheads.'
3. Robinson, S. J., 1996. Can Flood geology explain the fossil record? *CEN Tech. J.*, 10(1):32-69.

## ROCK COLOURATION

Dear Editor,

I had not been able to locate any articles on one of the most beautiful aspects of geology — rock colouration. Recently, however, I did find one from the rare **Bulletin of Creation, the Deluge and Related Science**.<sup>1</sup> The authors explain that

*'rock coloration can be best accounted for on the basis of a brief period of universal wet conditions.'*<sup>2</sup>

They continue,

*'Under present conditions, with negligible amounts of wet sediments and nearly all hard rock or dry fragile shale, etc., the even coloration and even change of color could not be possible, as the water carrying the mineral colors cannot now penetrate the rock except in cracks. Neither could coloring minerals be brought near the surface and evenly distributed in great masses of sediments under present conditions. This all apparently had to be done during the necessarily brief mud stage. Heat from below also at that period, (and from chemically formed heat within the mass itself), could also only have been of brief duration. These processes coincided, a fact that is very pertinent.'*<sup>1</sup>

The majority of the colouration is from varying levels of iron oxidation. As iron oxidises it turns yellow first, then with increasing oxidation becomes brown then red. Iron oxidation can be hindered by carbon (which is dark) so the bright colouration does not develop. However,

*'When clays containing carbon and iron are burned, as in brick-making, the carbon is burned up, thus freeing the iron to oxidise; and it forms its vivid yellow, brown, and red colours'*.<sup>4</sup>

They list the main sources for the primary colours as follows:

**White:** lime (in chalk or white limestone), sodas, borates, magnesium and potassium compounds, quartz, diatomaceous shale, alumina, kaolinite, talc — (all of these in the pure state).

**Black:** carbonaceous material from vegetation, manganese oxide, and other mineral compounds.

**Blue:** carbonaceous material, some copper-sulphur combinations, some silver compounds, and many minor sources.

**Yellow:** from sulphur in many forms, from the first step in iron oxidation, etc.

**Brown:** mixtures of greens and reds, also second step in iron oxidation.

**Red:** from complete oxidation of iron, and from many other mineral oxides and other compounds, all very much less in amount than iron.

**Green:** mixtures of yellows with blues, silver chloride, and blue carbonaceous material tinged with yellow iron oxidation, etc.

**Purple:** reds and blues mixed.

The authors note that they had written a thorough technical paper on rock colouration which they intended to publish, but evidently it never was. If anyone knows of the whereabouts of this work I'm sure it would make fascinating reading.

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## REFERENCES

1. White, H. C. and Allen, B. F., 1944. The deluge on the screen, a synopsis. *Bulletin of Creation, the Deluge, and Related Science*, 4(2): 15-18.
2. White and Allen, Ref. 1.
3. White and Allen, Ref. 1.
4. White and Allen, Ref. 1.

## THE ORIGIN OF LIFE

Dear Editor,

In reading the article 'The origin of life' (Aw)<sup>1</sup> I noticed the reference to Schidlowski's 1988 estimate of life's antiquity based on the ratio of <sup>12</sup>C/<sup>13</sup>C in rocks at Isua in Greenland,<sup>2</sup> held to be the oldest on Earth. Although Schidlowski's proposition was made years ago I was amused, nay disgusted, when in October this year this was presented on the media as if it was a conclusion scientists had only just reached!

Pflug, Jaeschke-Boyer and Sattler reported finding structures in the Swartkoppie cherts, South Africa, in 1979, similar in size, shape and formation to modern yeast cells.<sup>3</sup> The cherts are supposedly 3.4 Ga old, and the existence of yeasts in these rocks would push back the antiquity of eukaryotes by an alleged 2 Ga. The structures were not therefore initially presented as microfossils. Later that year Pflug and Jaeschke-Boyer reported similar structures in the metamorphosed rocks as Isua.<sup>4</sup>

Regarding the <sup>12</sup>C/<sup>13</sup>C proportions in the Isua rocks, Walters, Shimoyama and Ponnampuruma reported such as evidence of photosynthesis in the Isua deposits at a meeting of the American Chemical Society in autumn 1979.<sup>5</sup>

*'In a broadcast interview for the Sri Lanka Broadcasting Corporation in January 1980, Ponnampuruma was more positive: ". . . we have now what we believe is strong evidence for life on Earth 3,800 million years ago . . . we are now thinking, in geological terms, of instant*

*life...'*<sup>6</sup>

As Schidlowski's suggestion would mean that 'Almost from its beginning the Earth had life', the idea of this life being an immigrant from outer space seems to be growing in favour. Perhaps his conformist colleagues may follow Hoyle in discarding belief in evolution altogether in a decade or two from now?

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## REFERENCES

1. Aw, S. E., 1996. The origin of life: a critique of current scientific models. *CEN Tech. J.*, 10(3):300-314.
2. Schidlowski, M., 1988. A 3,800-million-year isotopic record of life from carbon in sedimentary rocks. *Nature*, 333:313-318.
3. Pflug, H. D., Jaeschke-Boyer, H. and Sattler, E. L., 1979. *Cited in: Evolution from Space*, F. Hoyle and C. Wickramasinghe, 1981, Granada Publishing, pp. 77-80.
4. Pflug, H. D. and Jaeschke-Boyer, H., 1979. *Cited in: Evolution from Space*, F. Hoyle and C. Wickramasinghe, 1981, Granada Publishing, pp. 77-80.
5. Walters, C., Shimoyama, A. and Ponnampuruma, C., 1979. *Cited in: Evolution from Space*, F. Hoyle and C. Wickramasinghe, 1981, Granada Publishing.
6. Hoyle, F. and Wickramasinghe, C., 1981. *Evolution from Space*, Granada Publishing.

See pp. 2-4 of this issue for further comments and developments on these topics.

— Editor

## ARCHAEOASTRONOMY THEORY — IS IT THE PITS?

Dear Editor,

This *Perspectives* item<sup>1</sup> notes the findings of Linda Therkorn, University of Amsterdam, that pits dug at sites in the Netherlands in prehistoric times seem to be arranged to match certain familiar constellations (Taurus, Canis Major, Pegasus, Hercules). The item is based on a brief review of this work