well be spurious. There are many factors which can disturb the carbon ratio including local volcanic eruptions.<sup>19</sup>

So there are good lessons to be learned here. We should not blindly accept any claim before it is properly assessed, including the evidence on which it is based. When we examine Ryan and Pitman's work we can say confidently that their claim about Noah's Flood is wrong. Initially their geological work looked reasonable but now even their geological interpretations are under challenge. Either way, their claim about Noah's Flood is wrong because it does not agree with the details recorded in the Bible.

The Noah's Flood Hypothesis proposed by Ryan and Pitman generated much interest in the media with headlines such as 'Proof of Noah's Flood at the Black Sea?' Now that their hypothesis has been refuted, will we see headlines such as 'Proof that Noah's Flood never happened'. Given the propensity of the media and our culture to attack the authority of the Bible, it certainly would not be surprising. But such headlines would be wrong.

#### References

- Ryan, W.B.F., Pitman, W.C., Major, C.O., Shimkus, K., Moskalenko, V., Jones, G.A., Dimitrov, P., Gorur, N., Sakinc, M. and Yuce, H., An abrupt drowning of the Black Sea Shelf, Marine Geology 138(1–2):119–126, 1997.
- Ryan, W. and Pitman, W., Noah's Flood: The New Scientific Discoveries About the Event That Changed History, Simon & Schuster, 1998.
- Noah's Flood, Archaeology and Anthropology Network, BBC Television, 1996.
  <www.bbc.co.uk/horizon/noah.shtml>, 22
  November 1999.
- 4. Mestel, R., Noah's Flood, *New Scientist* **156**(2102):24–27, 1997.
- Gugliotta, G., For Noah's Flood, a new wave of evidence, Washington Post, p. A01, 18 November 1999.
- Noah's Flood: The geological evidence, *The Australian Geologist* 112:11, 30 September 1999.
- Pockley, P., Noah had a great flood but where is his ark? Australasian Science 20(10):21–23, 1999.
- Scientists confirm a great flood, *The Sunday Times*, Perth, West Australia, p. 34, 3 October 1999.

- Walker, T., The Black Sea flood: definitely not the Flood of Noah, CEN Tech. J. 14(1):40–44, 2000.
- Proof of Noah's Flood at the Black Sea? What has Robert Ballard really found? <www.an swersingenesis.org/docs/4168.asp>, 2 July 2002.
- 11. Walker, T., Pre-Flood relics on the bottom of the Black Sea? <www.answersingenesis .org/docs2/4377news9-14-2000.asp>, 2 July 2002.
- Aksu, A.E., Hiscott, R.N., Mudie, P.J., Rochon, A., Kaminski, M.A., Abrajano, T. and Yasar, D., Persistent Holocene outflow from Black Sea to the Eastern Mediterranean contradicts Noah's Flood Hypothesis, *GSA Today* 12(5):4–10, 2002.
- 13. Noah's Flood Hypothesis may not hold water: Rensselaer Polytechnic Institute professor part of international research group refuting popular theory, <www.rpi.edu/web/News/press\_release/2002/noahsark.html>, 28 June 2002.
- Newcott, B., Bob Ballard finds proof of Noah's Flood, <www.ngnews.com/news/ 1999/11/111899/ballardflood\_7432.asp>, 23 November 1999.
- 15. Stone, R., Black Sea flood theory to be tested, *Science* **283**(5404):915–916, 1999.
- Chamberlain, T., Exclusive interview: Ballard on oldest deep-sea wrecks, <www.ngnews.com/news/1999/06/062999/ ballardinterview\_4059.asp>, 22 November 1999
- 17. <www.nationalgeographic.com/blacksea>, 23 November 1999.
- 18. Dates damage Black Sea flood theory, *Creation* **23**(2):5, 2001.
- Woodmorappe, J., Much-inflated carbon-14 dates from subfossil trees: a new mechanism, *TJ* 15(3):43–44, 2001.

# Newly discovered dinosaur megatracksites support Flood model

Michael J. Oard

Dinosaur megatracksites are huge accumulations of dinosaur tracks concentrated in one area. According to Martin Lockley and Adrian Hunt,1 as of 1995 there were hundreds of dinosaur tracksites worldwide but only three megatracksites: 1) in southeast Utah, 2) along a linear zone from northeast New Mexico to northwest Colorado, and 3) the Glen Rose Formation of central Texas. Two more megatracksites have just been discovered in the northeastern Bighorn Basin of north central Wyoming.<sup>2</sup> Dinosaur tracks had previously been rare in Wyoming.

Two megatracksites were found in the vicinity of Shell, Wyoming, and are separated vertically by many meters of sedimentary rock, representing 3 million years within the evolutionary time scale. The higher megatracksite lies on a single horizon of the lower Sundance Formation, while the lower megatracksite is found throughout a one-meterthick layer of the evaporite-rich Gypsum Spring Formation. The tracks are found in widely scattered outcrops in an area 100 km north-south and 25 km east-west. In a 7.5 km<sup>2</sup> area in the vicinity of Shell, the researchers estimate 150,000 tracks per km<sup>2</sup> in the Sundance Formation. These megatracksites display several unusual features that make the evolutionary/uniformitarian interpretation perplexing while supporting the Genesis Flood paradigm.

### **Unusual features**

The first unusual feature is that the tracks were discovered in carbonate units that were believed to be *totally* marine. The dinosaur tracks have forced a sudden 'reinterpretation' of the paleoenvironment of the sedimentary rocks. The uniformitarian

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geologists now see

"... previously unrecognized intertidal to supratidal [just above tide] carbonate units once thought to be totally marine in origin ....'

Uniformitarian scientists often deduce a paleoenvironment for a particular stratum, based on the type of fossil and certain characteristics of the rock. Although there often is no modern analog for their deduced paleoenvironments, uniformitarian reasoning is applied regardless.<sup>4</sup> Because of the Wyoming tracks, a shoreline was needed and, therefore, was invented, forcing a major paleoenvironmental reinterpretation:

'This discovery necessitates a major change in the paleogeographic reconstructions for Wyoming for this period.'5

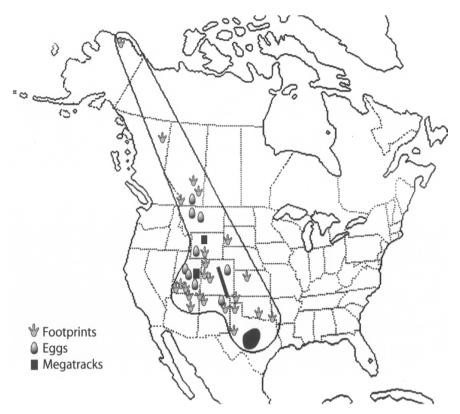
The dinosaur tracks in this case were enough to switch a marine paleoenvironment to one that was terrestrial at times, demonstrating the equivocal nature of such paleoenvironmental reconstructions. Within a Flood context, we would expect to find dinosaur remains, tracks, and eggs associated with marine sediments.

The second perplexing feature of these sites for uniformitarianism is the tracks are nearly all alike; they are all bipedal, tridactyl (three-toed) tracks of similar size range on *both* horizons! Kvale *et al.* state:

'The sizes of the tracks from the Gypsum Spring and Sundance intervals are quite comparable both in print widths and digit III lengths, and were generated by small- to medium-sized bipedal dinosaurs.'6

This is truly amazing when considering the supposed separation of 3 million years between the megatracksites. Wouldn't other types of dinosaurs, as well as bipedal, tridactyl dinosaurs of different sizes, walk on this strip of land, if it really was separated by 3 million years?

Instead, the similarity of the tracks supports a Flood model<sup>7</sup> that postulates the dinosaur tracks were made during the Inundatory Stage of the Flood. The Inundatory Stage comprises the



**Figure 1.** Location of postulated strip of land or series of shoals in western United States generally parallel to the crest of the Rocky Mountains. The three previous megatracksites, plus the two new ones in Wyoming are indicated in black (modified from Oard).

first 150 days while the water was rising and covering the Earth, according to Tas Walker's Biblical Geological Model.8 According to Walker's defining criteria, tracks represent a live animal that would have perished by Day 150 of the Flood. Furthermore, dinosaur tracks were made on Flood sediments. This seems contradictory. until one realizes that the Flood was not simple, and there are at least four mechanisms that would temporarily expose freshly deposited Flood sediment while the water continued a net global rise. These are: 1) tidal oscillations, 2) tsunamis, 3) vertical tectonic uplift, and 4) the dynamics of rapid Flood currents in relatively shallow water that would cause the sea level to fall in 'troughs'.9 This briefly exposed land could be a series of shoals. Some dinosaurs would be able to swim for a while and then get on these exposed sediments making tracks and laying eggs before finally succumbing to the Flood. Based on dinosaur eggs and tracks, this area of exposed land or series of shoals would have been as shown in Figure 1.

The situation in Wyoming could be explained by a large herd of bipedal, three-toed dinosaurs trapped in one area of the exposed land or series of shoals. Fluctuating sea level would drive the dinosaurs en masse over various areas of the exposed land. So after making tracks in one area, sea level rose depositing sediments over the tracks, preserving them, and forcing the dinosaurs to flee. As sea level fell, the dinosaurs moved back into the particular spot of the previously-made tracks. Evidence for a wet substrate,10 swim tracks in the lower strata,11 and ripple marks formed at the same time as the tracks<sup>12</sup> add support for this Flood scenario. One would then expect the same dinosaurs that made the first set of tracks in the Gypsum Springs Formation to come back and make the same type of print on the Sundance Formation strata. These events had to occur rapidly in order to cover up and preserve the tracks.

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# Fleeing from catastrophe

A third problem for the uniformitarian scenario is that the individual trackways shown in the article are generally straight, a pattern similar to other trackway sites.<sup>13</sup> Furthermore, all the trackways in the Sundance Formation in the vicinity of Shell are primarily directed towards the south to southwest.14 The trackway directions in the Gypsum Springs Formation are not given, probably because they are of poor quality. This is unusual behavior for such a large group of dinosaurs. Normal behavior should include many meandering tracks. The large number of orientated trackways indicate that the animals were fleeing from catastrophe.15,16

A fourth quandary for uniformitarian scientists is that there are no baby or young juvenile tracks. A normal assemblage of tracks should include abundant baby or young juvenile tracks, for instance 50% of the elephant tracks from Amboseli National Park, Africa, were made by juveniles.<sup>17</sup> This rarity of immature dinosaur tracks indicates that the tracks were made during unusual conditions and is against the uniformitarian principle. In the Flood model, babies and young juveniles would be left behind while those able to flee the encroaching Flood waters ran away. (It is expected that babies would be found within or close to egg laying sites on the exposed land, which seems to be the case, for instance Egg Mountain and other areas of north central Montana. 18,19)

The characteristics of the new Wyoming megatracksites are perplexing within the uniformitarian paradigm. However, the tracks are easily explained by a Flood model of temporarily exposed land or a series of shoals during the Inundatory Stage of the Genesis Flood.

#### References

 Lockley, M. and Hunt, A.P., Dinosaur Tracks and Other Fossil Footprints of the Western United States, Columbia University Press, New York, 1995.

- Kvale, E.P., Johnson, G.D., Mickelson, D.L., Keller, K., Furer, L.C. and Archer, A.W., Middle Jurassic (Bajocian and Bathonian) dinosaur megatracksites, Bighorn Basin, Wyoming, USA, *Palaios* 16:233–254, 2001.
- 3. Kvale et al., Ref. 2, p. 252.
- Froede, Jr., C.F., Field Studies in Catastrophic Geology, Creation Research Society Monograph No. 7, Creation Research Society, St. Joseph, Missouri, pp. 7–13, 1998.
- 5. Kvale et al., Ref. 2, p. 233.
- 6. Kvale et al., Ref. 2, p. 248.
- 7. Oard, M.J., Polar dinosaurs and the Genesis Flood, *CRSQ* **32**:47–56.
- Walker, T., A Biblical geological model; in: Walsh, R.E. (Ed.), Proceedings of the Third International Conference on Creationism, Technical Symposium Sessions, Creation Science Fellowship, Pittsburgh, pp. 581–592, 1994.
- Baumgardner, J.R. and Barnette, D.W., Patterns of ocean circulation over the continents during Noah's Flood; in: Walsh, R.E. (Ed.), Proceedings of the Third International Conference on Creationism, Technical Symposium Sessions, Creation Science Fellowship, Pittsburgh, Pennsylvania, pp. 77–86, 1994.
- 10. Kvale et al., Ref. 2, p. 252.
- 11. Kvale et al., Ref. 2, p. 249-251.
- 12. Kvale et al., Ref. 2, p. 243.
- 13. Kvale et al., Ref. 2, p. 165.
- 14. Kvale et al., Ref. 2, p. 248.
- 15. Oard, M.J., The extinction of the dinosaurs, *CEN Tech J.* **11**(2):144–145, 1997.
- 16. Oard, M.J., Dinosaurs in the Flood: a response. *CEN Tech J.* **12**(1):72–73, 1998.
- Lockley, M.G., Dinosaur ontogeny and population structure: interpretations and speculations based on fossil footprints; in: Carpenter, K., Hirsch, K.F. and Horner, J.R. (Eds), *Dinosaur Eggs and Babies*, Cambridge University Press, London, p. 359, 1994.
- 18. Oard, Ref. 15, pp. 145-147.
- 19. Oard, Ref. 16, pp. 71-76.

# Speed of light slowing down after all? Famous physicist makes headlines

Carl Wieland

Headlines in several newspapers around the world have publicized a paper in *Nature* by a team of scientists (including the famous physicist Paul Davies) who (according to these reports) claim that 'light has been slowing down since the creation of the universe'.

In view of the potential significance of the whole 'light slowing down' issue to creationists, it is worth reviewing it briefly here.

Well over a decade ago, *Creation* magazine published very supportive articles concerning a theory by South Australian creationist Barry Setterfield, that the speed of light ('c') had slowed down or 'decayed' progressively since creation.

In one fell swoop, this theory, called 'c decay' (CDK) had the potential to supply two profound answers vitally important for a Biblical worldview.

## The distant starlight problem

One was, if stars are really well over 6,000 light years away, how could light have had time to travel from them to Earth? Two logically possible answers have serious problems:

- 1. God created the starlight on its way: this suffers grievously from the fact that starlight also carries information about distant cosmic events. The created-in-transit theory means that the information would be 'phony', recording events which never happened, hence deceptive.
- 2. The distances are deceptive: but despite some anomalies in redshift/distance correlations, it's just not possible for all stars and

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