



GEOSCIENCE NEWSLETTER

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GRI Blogs

The GRI blog series (grisa.wordpress.com) has been active this quarter, featuring the following topics.



Blog: “Change in Species – Biblical or Not?”

“Protology and the Seventh-day Adventist Church: A Brief Historical Survey,” by Sergio Silva.

The Adventist Church emerged during a historical period of great epistemological turmoil, especially relating to protology (i.e., the study of beginning – creation, the day of rest, and flood – Gen 1-11)... To continue reading, press [here](#).

“Biomimicry: The Search for Brilliant Design,” by David Steen.

The West Chester University Professor of Biology, Frank E. Fish, was vacationing along New England’s coast frequented by magnificent humpback whales.... To continue reading, press [here](#).

“Where Did Life Come From?” by Timothy Standish.

Among those who reject the Biblical record of God’s action in creating everything, including all living things, the process of chemical evolution from atoms to the first cell is usually explained something like this: . . . To continue reading, press [here](#).

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The study group on a field trip.

Seminar in Chile

Three GRI scientists met at Chile Adventist University in January with over 100 K-12 teachers. The meetings featured lectures by GRI scientists Raúl Esperante, Ben Clausen and Ronny Nalin on contemporary issues in faith and science, along with a field trip to observe fossils at an outcrop along the beach.



The Chilean group attending a lecture.

Teaching in the Philippines

In March, GRI’s Tim Standish taught a course in science and faith, offered every second year, at the Adventist International Institute of Advanced Studies in the Philippines (AIAS). Dr. Standish has also spoken at the Adventist University of the Philippines graduation exercises, guest lectured in the School of Education and led out in multiple church programs.



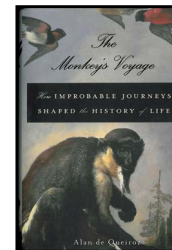
Tim Standish speaks to a large crowd in the church at AIAS.

New Biogeography Book

De Queiroz A. 2014. The Monkey’s Voyage: How Improbable Journeys Shaped the History of Life. New York: Basic Books. \$27.99.

This *book* discusses the problem of explaining biogeographic distributions restricted to the southern “Gondwanan” continents. The traditional scenario purports that, as the supercontinent Pangaea split into tectonic plates, once-continuous populations were divided, leaving remnants that evolved over many

millions of years into similar species on the different plates. However, the scenario is flawed. Some “Gondwanan” groups, such as the ratite birds, do not appear in the fossil record until after the



plates were well separated. Also, DNA sequence comparisons often show that many of the separated populations, such as baobab trees, are too similar genetically to have been isolated for many millions of years.

Regardless of how implausible the story seems, many species must have somehow dispersed across the ocean. Such “improbable journeys” allegedly explain, for example, the presence of monkeys in South America and Africa.

An alternative explanation that should be considered is that the plates separated only a few thousand years ago, during a global catastrophe that scattered living organisms around the world in ways not seen since that event. Rafts would likely be common during and immediately after the Flood, and there is evidence for a circumglobal subtropical oceanic current that might have carried species to distant places.

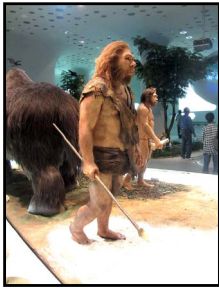
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Our Neanderthal Brethren

Prufer K, Racimo F, Patterson N, et al. 2014. The complete genome sequence of a Neanderthal from the Altai Mountains. *Nature* 505:43-49. Doi:10.1038/nature12886.

Summary. The genome of a Neanderthal woman from Siberia was sequenced and compared with DNA sequences from other Neanderthals, a Denisovan fossil human and modern humans. Results are interpreted to show the effects of occasional interbreeding among these groups, as well as a fourth, unidentified group that could be *Homo erectus*. Modern humans, including Africans retain genetic sequences from Neanderthals and, to a lesser extent, from Denisovans.



Reconstruction of Neanderthal displayed in Jeongok-ri Prehistory Museum, South Korea.

D'Anastasio R, Wroe S, Tuniz C, et al. 2013. Micro-biomechanics of the Kebara 2 hyoid and its implications for speech in Neanderthals. *PLoS ONE* 8(12):e82261. Doi:10.1371/journal.pone.0082261

Summary. Cultural artifacts suggest that Neanderthals could speak, but some experts remain skeptical. A hyoid bone, which is necessary for speech in humans, was discovered in 1983 in a Neanderthal skeleton known as Kebara 2. The shape and microstructure of the human hyoid bone are known to be influenced by its usage in speech. Comparisons of the Kebara 2 hyoid showed it is similar to modern humans and also to the hyoid of *Homo heidelbergensis* from Sima de los Huesos in Spain, indicating the probable capacity for speech in each of



Reconstructed skull of "Old Man" found at La Chapelle-aux-Saints. Displayed in the Kenya National Museum.

these specimens. In contrast, the hyoid from an *Australopithecus afarensis* was similar to that of the modern chimpanzee, which lacks the capacity for speech.

Rendu W, Beauval C, Crevecoeur I, et al. 2014. Evidence supporting an intentional Neanderthal burial at La Chapelle-aux-Saints. *Proceedings of the National Academy of Sciences* 111(1):81-86. www.pnas.org/cgi/doi/10.1073.pnas.1316780110.

Summary. Nearly 40 possible cases of intentional burial of Neanderthals have been discovered, including the one at La Chapelle-aux-Saints, in France. However, some anthropologists have doubted that Neanderthals possessed religious ideas, and have suggested the proposed Neanderthal burials were uncovered with outdated or improper methods. This report refutes such questions by carefully examining both the sediments around the pit and the skeletons that were found within it. The human bones were not weathered, evidence that the corpse was covered quickly after death. The pit had been modified by humans, presum-



Neanderthal burial in Shanidar Cave, Iraq. Reconstruction displayed in Jeongok-ri Prehistory Museum, South Korea.

ably other Neanderthals. Together, this evidence points strongly to intentional burial of these skeletons.

Comment. Neanderthals are no longer regarded as crude "ape-men," but have been increasingly recognized as part of the human family that was morphologically more diverse in the past.

To the Third and Fourth Generations

Dias BG, Ressler KJ. 2014. Parental olfactory experience influences behavior and neural structure in subsequent generations. *Nature Neuroscience* 17:89-96.

Summary. When a parent is subjected to a trauma, their offspring may exhibit increased sensitivity to the source of the trauma. The genetic basis of this is unknown. In this study, when mice were presented with a specific odor (acetophenone) and then given an electrical shock, their offspring showed



Mice can pass on learned behavior to their offspring.

increased sensitivity to the odor, but not to other odors. DNA studies revealed that the gene which detects acetophenone (Olf151) had reduced methylation of CpG base pairs in the offspring. This would increase the activity of the gene, and may explain how an environmental factor experienced by parents may affect the heredity of their offspring.

Comment. The new field of epigenetics is concerned with how changes may occur in inherited traits without changes in the DNA sequence. This exciting new field may help reveal the mechanism by which human children can be affected by the behavior of the parents, even before conception.