



GEOSCIENCE NEWSLETTER

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GEOSCIENCE NEWS

Field Trip for Teachers



Iceland landscape. Photo by Dirk Heldmaier. CC-SA3.0. Wikimedia Commons.

GRI is offering a field school for teachers and church leaders, August 8-16 in Iceland. The group will visit sites of geological interest and listen to lectures on faith and science. Teachers in Europe are especially urged to come, and partial sponsorships are available. For further information, visit <http://grisa.org/home/events/2016-field-conference-on-faith-and-science-for-sda-teachers-and-leaders/> or email director@grisa.org.

Creation in Cuba



One of the break-out groups at the creation seminar in Cuba. Photo Raul Esperante.

Fifty students and others assembled 29-31 December in Havana, Cuba for a meeting on creation and science. Dr.

Raul Esperante presented several lectures to the group.

Nature Museum in Korea



The staff of the Nature Discovery Museum, in Nomok, South Korea.

During one week in November, Ben Clausen visited the Nature Discovery Museum (NDM) in Korea to lecture and provide a geology field excursion for the staff. While there he also sampled a variety of igneous and metamorphic rocks for possible further research. The NDM staff are sharing the wonders of creation with twenty to thirty thousand Korean students each year.

With Pastors in Israel



Group photo on the steps to the Dome of the Rock in Jerusalem.

Dr. Raul Esperante accompanied a group of pastors from the Florida

Conference on a trip through Israel. The group learned about the geology of Israel and visited sites of interest in biblical history.

EDUCATIONAL MATERIALS

Discovery Institute Summer Seminar on Intelligent Design

The Discovery Institute, a leader in the Intelligent Design movement, is offering a summer seminar in Seattle, Washington, July 8-16. Deadline for online registration is April 7. For further information on this seminar, visit www.discovery.org/sem.

The Designed Body

An ongoing series of articles on design of the human body is available online at http://www.evolutionnews.org/continuing_seri/the_designed_bo/. The series is written by a physician and includes examples of design in the cardiovascular, digestive, immune, respiratory and other systems.

GEOSCIENCE BLOG

See the Geoscience blog at <https://grisa.wordpress.com/> for articles on the nature of biology, mineralogy and *Homo naledi*

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SCIENCE NEWS

Protein Compass Discovered



A common pigeon, or rock dove, *Columba livia*.

Qin, S., H Yin, C Yang, 15 authors, and C Xie. A magnetic protein biocompass. *Nature Materials* (2016): 217-226. (Published online 16 November 2015.) doi:10.1038/nmat4484

Summary. A newly discovered protein may provide the key to understanding how birds and other animals are guided in their navigation. The protein, called *MagR*, was discovered in the fruit fly, *Drosophila*, but is also present in other organisms, including humans and pigeons. *MagR* forms a molecular complex with other proteins, called *Cry* (for cryptochrome). This complex binds to iron and sulfur atoms, and has magnetic properties that detect the earth's magnetic field.

Comment. Although this discovery is exciting, it is surrounded by controversy, especially over who has the rights to publish the results. There is also concern that the research did not identify how the *MagR/Cry* complex might signal the brain with information about compass direction. Nevertheless, it does add to our quest to understand how birds and other animals sense direction during migration.

The Cambrian Still Exploding

Huaqiao Zhang, Shuhai Xiao, Yunhuan Liu, five authors, and Guohua Cao. **Armored kinorhynch-like scalidophoran animals from the early Cambrian.** *Scientific Reports*, 2015; 5: 16521. doi: [10.1038/srep16521](https://doi.org/10.1038/srep16521)

Summary. Another phylum of animals has been discovered in Cambrian deposits. Kinorhyncha is a phylum of tiny marine animals that live

in the sand, feeding on diatoms or organic material. The fossils were found in Sichuan Province of China, in the Dengying Formation. They have more body segments than living species but are still identifiable as kinorhynchs.

Comment. This discovery adds to the list of metazoan fossils found in Cambrian rocks and adds emphasis to the magnitude of the Cambrian Explosion. It also shows that even microscopic animals may leave a fossil record, which suggests that the absence of Precambrian ancestors is not due to failure of preservation.



Reconstruction of a Cambrian seafloor, Geneva Museum of Natural History.

More Dinosaur Blood Vessels

Timothy P. Cleland, Elena R. Schroeter, Leonid Zamdborg, ten authors, and Mary H. Schweitzer. Mass Spectrometry and Antibody-Based Characterization of Blood Vessels from *Brachylophosaurus Canadensis*. *J Proteome Res.* 2015, 14,5252-5262.

Summary. Soft, flexible blood vessels have been recovered from a fossil of the Cretaceous hadrosaurian dinosaur, *Brachylophosaurus*. The identification of the material as original blood vessels was confirmed by chemical means. Proteinaceous material characteristic of blood vessel was confirmed by a series of chemical tests, including sequencing, mass spectrometry and immunofluorescence. These results should settle the controversy over whether previously reported dinosaur tissues were original or contaminants.

Comment. Persistence of soft tissue is not expected in ancient fossils, yet there is little doubt that the tissue is present. This should raise questions over whether these fossils are as old as widely thought.



This fossil mummified *Brachylophosaurus* was discovered in Montana in 2000. Photo The Children's Museum of Indianapolis, CCA3.0

A Gene for Fish Armor

Indjeian, VB, GA Kingman, FC Jones, four authors, and DM Kingsley. Evolving new skeletal traits by cis-regulatory changes in bone morphogenetic proteins. *Cell* 164(January 14, 2016),45-56.

Summary. Scientists have discovered the genetic basis for some of the variation in stickleback armor. Sticklebacks are small fish that have bones along the sides that provide a kind of armor. Freshwater sticklebacks have less armor than marine fish, due to insertion of a transposable element into a DNA enhancer that regulates a gene. The gene, *GDF6*, also affects the lengths of digits in the hindlimbs of mice, and the enhancer is missing in humans but is present in chimpanzees. The authors speculate this may explain why humans have short toes, and so are bipedal when chimpanzees are not.



Three-spined sticklebacks, *Gasterosteus aculeatus*. Photo Ron Offermans. CCA3.0

Comment. The *GDF6* gene is used in different ways in the body, presumably with different regulators for the different uses. It is also used in development of the retina, the light-sensitive layer of the eye. This system of separately regulated functions for the same protein product is an interesting example of intelligent design.