



GEOSCIENCE NEWSLETTER

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GRI ONLINE

Recent GRI blog topics include evidence of a worldwide flood ([July](#)), Lazarus species ([August](#)), and fossil pterosaurs ([September](#)).

You can find comments on these and other topics on our Facebook page, at <https://www.facebook.com/Geoscience-researchinstitute>.

Readers of Spanish, please check out our ongoing update of our Spanish language web page, at <http://grisda.org/espanol/>.

GRI ACTIVITIES

International Conference on the Bible and Science

GRI scientists participated in a conference on the Bible and Science, held August 14-25 in St. George, Utah. The Conference was sponsored by the Faith and Science Council of the General Conference and attended by more than 400 scholars and spouses from all areas of the world. Several different speakers gave presentations on biblical and scientific topics. Attendees enjoyed a field



Tim Standish presents a talk at the conference in St. George, Utah.

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trip to the Grand Canyon National Park to observe important geological features.

Research Notes

Ben Clausen traveled to Peru to continue his studies on granitic rocks. Ben also recently contributed papers to a special volume on the geology of granites.



Ben Clausen studies a map to locate outcrops for his research in Peru.

Dr. Raúl Esperante presented three papers at the 4th International Palaeontological Congress held in Mendoza, Argentina, from September 29 through October 3. He gave an oral presentation on the characteristics of sediments deposited in the Pisco Formation in Peru that indicate a rising sea level or marine transgression. The other two articles, also on the Pisco Formation, were in the poster format, one of them co-authored with Orlando Poma, a geologist at the School of Environmental Engineering at Universidad Peruana Union (UPEU).

Orlando Poma, who holds a bachelor degree in geology and a master in degree in education, has been collaborating with both GRI and Loma Linda University for over fifteen years in research in the Pisco Basin. Both Dr. Esperante and Poma spend several weeks in the field every year, collecting data on fossils and sediments. Usually several graduate students, both from the USA and South America work with them.

Recent Seminars



Speakers for the AMiCUS conference in Portugal.



Drs. Ben Clausen and Jim Gibson of GRI, with Luciano Gonzales, meet with Dr. Antonio Cremades, director of the GRI Branch Office in Mexico.



Dr. Joel Alvarez, manager of the GRI Resource Center in Chile, shows Dr. Jim Gibson the museum.

GRI staff presented creation lectures and seminars in Chile (Adventist University of Chile), Portugal (the university student group, AMiCUS) and Mexico (Montemorelos University, Linda Vista University).

The trips included visits to the GRI branch office at Montemorelos University in Mexico, and the GRI Resource Center at The Adventist University of Chile.

SCIENCE NEWS

Speciation in Reverse



Small tree finch, *Camarhynchus parvulus* from Floreana. Rare larger females tend to mate with common smaller males, resulting in loss of the largest species by hybridization. Photo by Mike Comber; licensed under Creative Commons by shared attribution 2.0

Kleindorfer S, O'Connor JA, Dudaniec RY, et al. 2014. Species collapse via hybridization in Darwin's tree finches. *American Naturalist* 183:325-341.

Summary. Natural selection can vary in different populations, tending to “pull” the populations in different ecological directions, and potentially eventually resulting in speciation. Species hybridization can reverse this process, “undoing” the speciation event

Three species of Darwin's tree finches (*Camarhynchus*) have been recorded from the Galapagos island of Floreana: small, medium and large. Comparison of finch specimens studied in 2010 with those collected 100+ years ago revealed three morphological groups, none of which is as large as those from a century ago. Genetic analysis showed that there are only two genetic populations, and they are hybridizing frequently. Hybrids form the third morphological group, which is intermediate between the other two populations. The large tree finch has apparently become extinct on Floreana due to hybridization with the other two species on the island.

Comment. Examples such as this suggest that an ancestral species can give rise to various locally adapted populations that may be regarded as separate species. In some cases, these locally adapted populations may reunite by interbreeding, removing the morphological differences, while in other cases,

the populations may diverge. Such variability would be necessary for a species dispersing from the ark through various habitats after the flood.

Long Live the Precambrian!

Just J, Kristensen RM, Olesen J. 2014. *Dendrogramma*, new genus, with two new non-bilaterian species from the marine bathyal of Southeastern Australia (*Animalia*, Metazoa incertae sedis) – with similarities to some medusoids from the Precambrian Ediacara. *PLOS One* 9(9):e102976. Doi:10.1371/journal.pone.0102976 Sept 2014. (11 pages)

Summary. A collection of material from the sea floor off southeastern Australia included 18 specimens of a previously unknown kind of animal. Specimens were collected from two separate samples, one from 400 m depth and one from 1000 m. The newly discovered animals are somewhat mushroom shaped, with a stalk and disc. Two cell layers are present, separated by a mesogleal layer. The specimens do not appear to belong to any extant phylum, but show interesting similarities with certain trilobozoid Precambrian Ediacaran fossils, such as *Albumares*.



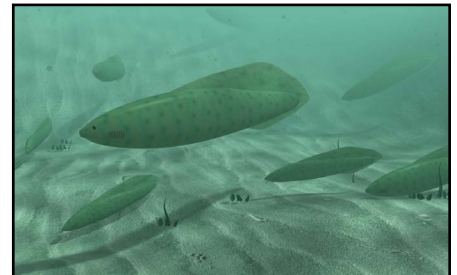
Dendrogramma specimens. Photo courtesy of Jean Just, Reinhardt Mobjerg Kristense Jorgen Olesen, under Creative Commons by Shared Attribution 4.0.

Comment. The idea that examples of the Precambrian Ediacaran fauna might be found living on the seafloor today is intriguing, and would contribute to our understanding of the meaning of the fossil record. The seafloor around Australia may be a good place to explore for other examples of fossilized groups thought to be long extinct.

Fish in the Lower Cambrian

Conway Morris S, Caron S J-B. 2014. A primitive fish from the Cambrian of North America. *Nature* doi:10.1038/nature13414.

Summary. The recently discovered Marble Canyon fossil quarry in British Columbia, Canada, has produced numerous specimens of the fossil *Metaspriggina*, showing it to be a true vertebrate fish. The fossils possess a notochord, a pair of camera-type eyes, a tail and apparently a head, which are vertebrate traits. The fossils also show external gills, as in jawed fishes, although *Metaspriggina* is not thought to be a gnathostome (jawed vertebrates).



Reconstruction of *Haikouichthys*. Courtesy of Talifero under Creative Commons by Shared Attribution 3.0

Comment. Fossil fish-like vertebrates, such as *Haikouichthys*, have previously been reported from the Lower Cambrian, some scientists have been skeptical that such “advanced” organisms would be present in Cambrian sediments. Confirmation that vertebrates were in fact present in Cambrian sediments adds to the dramatic sudden appearance of diverse types of organisms in the fossil record, known as the “Cambrian Explosion.”

New Molecular Animations

Video animations of two molecular machines, [kinesin](#) and [ATP synthase](#), have been released by the Discovery Institute. Kinesin is a transport molecule that carries materials along microtubules to appropriate destinations. APT synthase produces the molecule ATP, which provides power for the cell. The video clips are slightly over 3 minutes each and can be viewed on YouTube.