

GEOSCIENCE NEWSLETTER

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GEOLOGIST RONALD NALIN JOINS GRI

Dr. Ronald Nalin joined the GRI in March. Dr. Nalin graduated from the University of Padova, Italy, with a specialty in sedimentology and sequence stratigraphy. His research focuses on Cenozoic carbonate successions, especially in the Mediterranean area. Dr. Nalin has done research in Italy on marine terraces and in New Zealand on red algal-dominated deposits. He will participate in the Field Conference in the Spanish Pyrenees this summer.



Folded turbidites, Spanish Pyrenees.

JULY 2007 FIELD CONFERENCE

The Geoscience Research Institute and the Euro-Africa Division are sponsoring a Field Conference for teachers in the Pyrenees of Spain in July, 2007. The Field Conference will feature a combination of lectures and field trips designed to help teachers be better prepared to deal with issues of origins in their classes.

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Dr. Ronald Nalin examining limestone outcrop in Portugal.

During the Conference, the group will visit sites of geological significance, illustrating such concepts as trace fossils, overthrusts, dinosaur bones, footprints and eggs, and other fossils. Discussion will be encouraged among the participants, with emphasis on origins topics, including catastrophism in the geologic column, rates of sedimentation, volcanoes, the formation and meaning of fossils, origin of species and speciation, radiometric dating, and intelligent design.

FIELD CONFERENCE FOR TEACHERS IN 2009

A Field Conference for teachers is scheduled for July 12-23, 2009, sponsored by the Geoscience Research Institute and the Department of Education for the North American Division.

The Field Conference will be held in the area of Denver, Colorado, and will feature lectures with recent developments in creation thinking, classroom exercises, and field trips.

All teachers, whether at elementary or secondary level, are invited to participate in the Field Conference.

For further information, please contact Dr. Timothy G. Standish at tstandish@llu.edu, and watch for further information at http://www.grisda.info/main/field_trips/teachers_2009.html.



Meandering stream in Rocky Mountain National Park, Colorado.

GRI WEBSITE

Origins #60 (<http://www.grisda.org/origins/ndx-yr.htm#60>)

Editorial: Genesis kinds and the sea urchin.

Article: Irreducible independence: An IC-like ecological property potentially illustrated by the nitrogen cycle.

Annotations

Literature reviews: **Beginnings; Fly, Not Horse?; Privileged Planet; Before Darwin; Evolution-Creation Struggle**

General Science Note: Genomes and design

SCIENCE NEWS

Evolution: A single tree?

Doolittle WF, Baptiste E. 2007. *Pattern pluralism and the tree of life hypothesis. Proceedings of the National Academy of Sciences (USA) 104:2043-2049.*

Summary. Bacteria and other prokaryotes do not exhibit genetic relationships that fit a tree-like pattern. Different genes produce different patterns of relationship, yielding a reticulate or net-like pattern, due to lateral gene transfer. Hence, it is futile to pursue the ideal of a single evolutionary tree that includes bacteria and similar types of organisms.

Comment. Discordance of gene phylogenies may be caused by lateral gene transfer, as proposed here, or by



Cyanobacteria in hot springs in Norris Geyser Basin, Yellowstone National Park, Wyoming.

other factors. For example, an intelligent creator might have used a modular system of creation, using different combinations of modules to produce different types of organisms. Such a process might help explain some patterns of gene discordance.

Hominid fossils: Lucy no longer a human ancestor.

Rak Y, Ginzburg A, Geffen E. 2007. *Gorilla-like anatomy on Australopithecus afarensis mandibles suggests Au. afarensis link to robust australopiths. Proceedings of the National Academy of Sciences (USA) 104:6568-6572.*

Summary. A fossil skull of *Australopithecus afarensis* (same species as “Lucy”) reveals a morphological link with the robust australopithecines in-



Cast of *Australopithecus afarensis* skull.

stead of the genus *Homo*. The fossils’ mandibular ramus, where the lower jaw attaches to the skull, is nearly identical to that of the gorilla and the robust australopithecines, and quite different from other primates. A similar morphology is apparent in a specimen of *Australopithecus africanus*. This discovery removes *Australopithecus afarensis* from the direct ancestry of humans. Another fossil species, *Ardopithecus ramidus*, has the same type of mandibular ramus as humans and many other primates.

Comment. Removal of *A. afarensis*, and probably all members of the genus *Australopithecus*, from the ancestry of humans, is not unexpected. Although the humans and australopithecines have numerous similarities, there are enough anomalies in the data to suggest they are not as closely related as generally thought.

Paleontology: Gliding lizard fossil

Li P-P, Gao K-Q, Hou L-H, Xu X. 2007. *A gliding lizard from the Early Cretaceous of China. Proceedings of the National Academy of Sciences (USA) 104:5507-5509.*

Summary. A Cretaceous fossil lizard from China has elongated ribs con-



Photo of gliding lizard, *Draco volans*. Retrieved April 26, 2007 from Encyclopaedia Britannica online: <http://www.britannica.com/eb/art-18201>.

nected with a membrane that formed a gliding surface. The “wing” is very similar in morphology to that of *Draco*, a gliding lizard living in eastern Asia. The fossil and *Draco* also share a specific way in which the teeth are attached to the jaw (acrodont).

Comment. Both terrestrial and gliding lizards seem to have existed from the beginning of the agamid fossil record.

Speciation: Punctuated change

Pagel M, Ventitti C, Meade A. 2006. *Large punctuational contribution of speciation to evolutionary divergence at the molecular level. Science 314:119-121.*



Rock squirrel, from the Grand Canyon National Park, Arizona. One of the groups studied in this report.

Summary. The theory of punctuated equilibria has not been adequately examined at the molecular level. This study analyzed 122 studies comparing molecular sequences by testing for relationship between number of speciation nodes and mutational path lengths. Results show that 22% of DNA substitutional change can be attributed to punctuational (rapid) evolution

Comment. An alternative explanation for DNA differences that are greater than expected might be that unexpectedly large sequence differences might be original, and indicate separate ancestries. Such a conclusion would depend on corroboration from other data sets, and should not be assumed *a priori*.