GEOSCIENCE NEWSLETTER

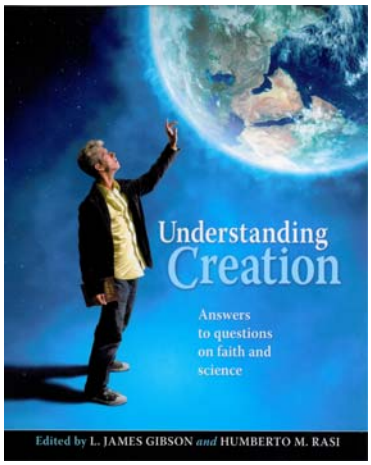
Number 25 April 2011

NEW BOOK ON CREATION

Understanding Creation. LJ Gibson & HR Rasi, eds. Nampa, ID: Pacific Press. $19.95. Hardbound, 223 p.

A new edited volume on creation has been published by Pacific Press, of Nampa, Idaho. The book consists of twenty chapters, each written by a different author and addressing a specific topic.

Several chapters address issues in philosophical and theological aspects of creation, including worldviews, the



relationship of the Bible and science, the meaning of the Genesis creation account, and how one may deal with unanswered questions.

Other chapters address issues in geology or paleontology, such as radiometric dating, plate tectonics, fossils and the flood, and dinosaurs. Several biological themes are also discussed, including the origin of life and biodiversity, the origin of humans and the issue of morality.

The book is intended for a general audience, including university students, educated laypersons and others who are interested.

The panel considers questions and answers during the Creation Summit. Photo by Ray Ammon.

PORTLAND CREATION SUMMIT

A "Creation Summit" was held in Portland, Oregon April 1-2, 2011. The Summit was sponsored by the Oregon Conference of Seventh-day Adventists, and presented by the Geoscience Research Institute in conjunction with scholars from the Biblical Research Institute and Adventist universities.

A view of a portion of the crowd as Dr. Leonard Brand lectures during the Creation Summit.

CREATION DAYS POSTERS

The GRI has produced a set of seven posters (each 24" x 36") that describe some of the design features seen in the events of creation week.

The earth was lighted on Day 1. Light shows evidence of design in its ability to carry energy through space rather than through molecular motion as with most other forms of energy. The sun's output is favorable for supporting life on Earth, in contrast to the output of most stars. The fitness of sunlight for life can be understood as the result of design of Earth for life.

The posters describe features of the physical environment prepared on the first four creation days and infer design as an explanation for the fitness of the environment for life. Design is also seen in the events of the last three creation

Poster for Creation Day 1.

days, in which animal life is created, and the seventh day is set aside as a day of rest and communion with God.

The entire set of posters may be viewed and downloaded at *http://www.grisda.org/2011/04/posters/*.

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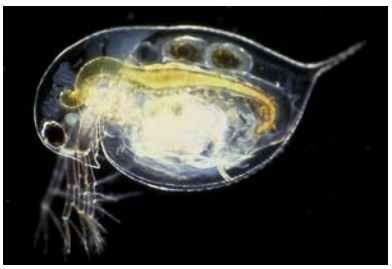
SCIENCE NEWS

Orphan Genes in *Daphnia*

Tautz D. 2011.Not just another genome. BMC Biology *9:8. Doi: 10.1186/1741-7007-9-8.*



Daphnia pulex. *Photo by Paul Hebert. http://tinyurl.com/3ff5h8r*

Summary. *Daphnia* is a fresh-water arthropod that plays an important role in fresh-water ecology. It is very sensitive to pollution, making it useful for assaying water quality. It has a complex life cycle and experiences an annual population boom and bust. This article is a commentary on the significance of the recent sequencing of the *Daphnia* genome (Colbourne JK et al. 2011.The ecoresponsive genome of *Daphnia pulex*. *Science* 331:555-561.

All organisms studied have been found to possess some genes not found in other lineages. Such genes are known as "orphan genes." Remarkably, nearly one-third of *Daphnia*'s genes appear to be orphan genes, far higher than expected. Many of these genes seem to function in responding to changes in the environment, raising the intriguing possibility of identifying genetic mechanisms involved in responses to environmental stress.

Comment. The abundance of orphan genes raises an interesting question regarding the relationship of *Daphni*a to other lineages of organisms. Is it possible for new genes to arise so easily through evolutionary processes, or are they better explained as the result of independent ancestry? This question becomes especially interesting in the light of the companion report in this newsletter on the statistical difficulties of producing new adaptive genes by gene duplication and divergence. As more genomes are sequenced and compared, we may gain greater insights into how to identify lineages with independent origins.

A Potential Evolutionary Boundary

Axe DD. 2010. The limits of complex adaptation: an analysis based on a simple model of structure bacterial populations. BIO-Complexity *2010(4): 1-10. Doi:10.5048/BIO-C.2010.4*

Summary. Evolutionarily new genetic functions require changes in existing information. An important question is how new adaptations may arise if the intermediate stages are not favored by selection. A recent paper concluded that the waiting time for new adaptations with neutral intermediate stages is relatively constant, regardless of the number of genetic steps required, when the number of intermediate steps is relatively large. This paper refutes that idea. If the intermediate stages are maladaptive, the adaptation cannot arise if more than two specific base changes are required. For neutral intermediates, the maximum number of specified base changes is six. This means that new adaptations cannot rise through large mutational jumps, but must be accomplished through small steps. This conclusion raises questions about some of the claims made for adaptive divergence of paralogous (duplicated) genes.

Comment. The implausibility of generating new functional and adaptive genes from newly formed random sequences of DNA has led evolutionary biologists to conclude that new adaptations must be produced via a different mechanism. The received wisdom is that new functions arise when existing genes are duplicated, and one gene copy diverges to produce a new adaptation. The result reported here casts doubt on the probability of such changes actually occurring unless the number of specific base pair changes is quite small.

Escherichia coli *culture. Photo by Kelsey M Flanagan. http://tinyurl.com/3jxb2sr*

Abupt Diversity in Angiosperms

Sun G, Dilcher DL, Wang H, Chen Z. 2011. A eudicot from the Early Cretaceous of China. Nature *471:625-628. Doi:10.1038/nature09811*

Summary. A fossil angiosperm from the Yixian Formation has been identified as a member of the eudicots, with affinities to the Ranunculaceae (buttercup family). Eudicots are believed to have evolved from a series of ancestors that should have preceded them in the fossil record but have not been discovered in these lower layers. The newly described fossils, named *Leefructus*, resemble leaves of the larkspur, *Delphinium*. This discovery provides additional evidence for the existence of diverse types of angiosperms at their first appearance in the fossil record, and suggests that angiosperms must have existed before their first appearance in the fossil record.

Delphinium *leaves are similar to the fossil* Leefructus*. Photo by Opiola Jerzy. http://tinyurl.com/4yetceg*

Comment. The absence of angiosperm fossils in pre-Cretaceous rocks remains an enigma, both to creationists and to evolutionists. Their abrupt appearance has been an unsolved problem for two centuries, but perhaps further study may shed some light on processes responsible for preserving the fossil record.