

ANNOTATIONS FROM THE LITERATURE

Bowler PJ. 1983. The eclipse of Darwinism. Anti-Darwinian evolution theories in the decades around 1900. Baltimore & London: The Johns Hopkins University Press. 291 p.

Summary. Covers comprehensively the previously barely studied period around the turn of the 20th century where the reactions and counter-reactions to Darwin were more severe than the current debates over evolution and creation. The author takes the reader through the initial period of theistic evolution to the synthesis of Darwinism with genetics which culminated in the mutation theory.

Branscomb LM. 1985. Integrity in science. *American Scientist* 73:421-423.

Summary. This is a must for anyone interested in the question of the validity of science. The author, chief scientist for IBM, points out that there is very little malice in science, but a great deal of self-deception. Scientists, instead of probing thoroughly through the harder questions of their queries, cease when their data agree with expected results.

Brooks DR, Wiley EO. 1986. Evolution as entropy. Toward a unified theory of biology. Chicago & London: University of Chicago Press. 335 p.

Summary. An attempt to reconcile the second law of thermodynamics, which predicts disorder with time, with biological evolution, which predicts increase in organization with time.

Comment. This book should be read by anyone interested in learning how to argue that black is white, or left is right, etc.

The Decade of North American Geology (DNAG) Series. Publishing dates 1985-1988. Approximately \$30/volume. Boulder, CO: Geological Society of America.

Summary. The DNAG releases comprise a series of 40 well-illustrated volumes which include: the United States (17 vols.), Mexico (2 vols.), Canada (9 vols.), field guides (6 vols.), special topics (4 vols.), 23 continent-ocean transects, and 7 spread maps of North America. Produced and edited by over 1000 collaborators, the series promises to be a landmark reference on North American geology.

Eyles N, editor. 1983. Glacial geology. An introduction for engineers and earth scientists. NY: Pergamon Press. 409 p.

Summary. This multi-authored volume deals with both theoretical considerations and practical consequences of glaciation. It is unusual in that it raises serious questions regarding some traditional interpretations of glacialology.

Gale BG. 1982. Evolution without evidence. Charles Darwin and *The Origin of Species*. Albuquerque: University of New Mexico Press. 238 p.

Summary. A study of Charles Darwin's work from 1838 to the time of the publication of *The Origin of Species* in 1859. The author points out the weaknesses in Darwin's argumentation which relied heavily on the work of others. Factors contributing to the success of Darwinism are also considered. A well-documented study.

Hallam A. 1983. Great geological controversies. NY: Oxford University Press. 182 p.

Summary. A brief and well-documented account of the major geological battles that were waged as this science matured. Controversies considered include neptunists-plutonists, catastrophism and uniformitarianism, the ice age, the age of the earth, and continental drift.

Mahaney WC, editor. 1984. Quaternary dating methods. Developments in Palaeontology and Stratigraphy, 7. Amsterdam: Elsevier Science Publishers. 431 p.

Summary. A discussion of a wide variety of methods used for dating the Quaternary. Most of the papers candidly evaluate the limitations of the methods employed and the implied inferences.

Comment. This volume is a must for anyone wanting to evaluate current dating techniques.

Rutter NW, editor. 1985. Dating methods of Pleistocene deposits and their problems. Geoscience Canada, Reprint Series 2. Geological Association of Canada. 87 p.

Summary. This concise volume covers over a dozen different methods for dating recent samples. It is written in a readily understandable style. Several of the methods are interdependent, and consideration is given to the problems encountered with each method.

Seibold E, Meulenkamp JD. 1984. Stratigraphy quo vadis? American Association of Petroleum Geologists Studies in Geology No. 16, International Union of Geological Sciences No. 14. 70 p.

Summary. The report of a symposium of the Commission on Stratigraphy of the International Union of Geological Sciences. Held in Germany, the symposium was attended by 60 geologists from 13 countries. It was organized to incorporate the new data for the oceanic realm that have been obtained especially from the Deep-Sea Drilling Project and related programs. The report presents the summary of 11 papers and reflects the tendency towards episodocity and cyclicity of events in contrast to more gradual and sustained changes proposed a few years ago. While major conclusions are not arrived at, this summary serves to indicate potential new trends in stratigraphy.

Shapiro R. 1986. Origins: a skeptic's guide to the creation of life on earth. NY: Summit Books. 332 p.

Summary. A witty, easy-to-read evaluation of a variety of concepts of the origin of life, including origin in a primordial soup, clay, space, and by creation.

Comment. The author is somewhat critical of all commonly held views, but disappointingly does not come up with anything better. The book is well-written and entertaining, but does not provide any new ideas regarding origins.

Takahashi K, Mathews GJ, Bloom SD. 1986. Shell-model calculations of ^{99}Tc beta decay in astrophysical environments. Physical Review C 33(1):296-302.

Summary. The purpose of this paper was to recalculate the half life of ^{99}Tc (Technetium) in astrophysical environments. Previous calculations at 3×10^8 °K gave a decay half life of about 5 years. This is shorter than the 10-100 year time scale usually suggested for formation. According to theory, then, no ^{99}Tc would be expected at the stellar surface. In fact, it is abundant on at least some red-giant stars. The half-life calculated in this paper is 20 years instead of 5 years, removing the contradiction between theory and observation.

There is general agreement between this and previous papers in that, whether the half life of ^{99}Tc is 5 or 20 years at 3×10^8 °K, it is still 5 orders of magnitude shorter than the half life of 2.12×10^5 years observed at terrestrial temperatures. Theory gives the following order of magnitude half lives as temperature increases: 0 °K — 2×10^5 years; 1×10^8 °K — 2×10^5 years; 2×10^8 °K — 100 years; 3×10^8 °K — 10 years;

5×10^8 °K — 1 year. (For comparison the sun's surface temperature is 6000 °K.) The decay rate changes because at high temperatures the ^{99}Tc neutrons gain energy and are promoted from the ground state into several excited states. The spin of the ground state is such that beta decay to ^{99}Ru is forbidden by selection rules. As a result this decay rate is slow. The spins of two of the excited states are such that beta decay is allowed by the selection rules, and the decay is much faster.

A NEW JOURNAL — AGAIN!

PALAIOS. Bimonthly, \$75.00/year. Issue 1, February 1986. Published by the Society of Economic Paleontologists and Mineralogists, a division of the American Association of Petroleum Geologists. SEPM, P.O. Box 4756, Tulsa, OK 74159-0756.

Summary. This journal appears to be a good one. The title is from the Greek “palaios,” meaning “ancient,” and the journal proposes to cover historical biology, especially where paleontology and biology become significant to geological interpretations. Nominally it covers paleontology, paleobiology, paleogeography, paleoecology, and paleoceanography. The two issues published to date cover topics from sedimentology to contemporary biology, with much emphasis on paleontological subjects. The composition of the journal includes more than a compilation of research reports. Divisions are: Online (editorial), Research Reports, Research Letters, New Books, News and Comments, and Afterthoughts (miscellaneous comments).

This journal accommodates the much-needed interdisciplinary studies that are so important in the study of earth history. It is informal enough to allow some bold suggestions such as molluscan shells carried almost instantly 500 km offshore into the Atlantic Ocean by turbidity currents, and a reef from the near Europe Tethys Sea being rifted to eastern Oregon. Techniques of analysis of data and the study of preservation of organisms further enrich this useful journal.