

Geosemiosis

Victor R. Baker



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ABSTRACT

Geology is both (1) a body of knowledge about Earth, and (2) a way of thinking about Earth. Many geologists, including G. K. Gilbert, T. C. Chamberlin, and W. M. Davis, among others, emphasized the latter. Their vision of geology as a "science of hypothesis" places emphasis on the mode of reasoning by geologists; that is, on the "-ology" of "geology." The logic in "-ology" involves a formal science of sound reasoning, but much current philosophy of science denies that there is a logic to hypothesis generation. Does this mean that the methodological writings of Gilbert, Chamberlin, and others are quaint anachronisms in our modern age of predictive computer models, rigorous theory testing, and high-tech experimental laboratories?

The above question is not merely a matter of arcane epistemology. If geology is just physics, chemistry, mathematics, etc., applied to the earth, then its future will be a reduction of those more fundamental sciences. However, if geology has its own unique mode of reasoning, then cultivation of that reasoning will be critical to advancing understanding of Earth, the home to all humankind.

Geologists have always considered their science to be revealed in rocks, sediments, fossils, and other signs of Earth's processes. Thus, Earth logic is not detached from its objects of study. Instead, the best reasoning ("logic") of geologists is closely tied to a complex system of signs, a semiotic, that is continuous from the natural world through the thought processes of geological investigators. Moreover, this

geological thought is profoundly enriched by a structure of one thing following from another, with antecedent flowing to consequent in logically pure deduction. The realization of that structure, which informs geology as no other science, we call "time."

Nearly a century ago, former GSA President H. L. Fairchild wrote, "Geologists have been far too generous in allowing other people to make their philosophy for them." Even today, some geologists waste a lot of time reading philosophy of science books, in the hope of making their discipline "more scientific." Geology's great intellectual strength does not lie in some generic "scientific method" for testing purported "truths." Geology is a science of connection to our real environment, informed by the action of signs, a geosemiosis, that leads investigators on a fruitful course of hypothesis generation. This mode of inquiry has profound implications for public understanding of science, for achieving a habitable planet, and for advancing creative thought about Earth as a planet. Geologists should be proud of their intellectual tradition, and they need to proclaim its merits if our species is to survive and flourish. Hypothesize outrageously, geologists; you have nothing to lose but your paradigms! ■

Note: The full text of Victor Baker's 1998 GSA Presidential Address will be published in the *GSA Bulletin* in spring 1999.

Coal Geology Division Seeks Nominations for Cady Award

The Coal Geology Division of the Geological Society of America seeks nominations for the Gilbert H. Cady Award for the year 1999. The Cady Award is made for outstanding contributions in the field of coal geology. As defined in the bylaws of the Coal Geology Division of the Society, "coal geology refers to a field of knowledge concerning the origin, occurrence, relationships, and geologic characteristics of the many varieties of coal and associated rocks, including economic implications." The award will be made for contributions considered to advance the field of coal geology within and outside North America. It consists of a certificate and an engraved silver tray. Presentation of this award will be made at the Coal Geology Division Business Meeting and Mixer at the 1999 GSA Annual Meeting in Denver.

Nominations for the Cady Award will be evaluated by the Gilbert H. Cady Award Panel. For the year 1999, the panel consists of members James Staub (Southern Illinois University) and Brenda Pierce (USGS, Reston), and it is chaired by Thomas Demchuk (Conoco, Houston).

Nominations should include: name, office or title, and affiliation of the nominee; date and place of birth, education, degree, honors and awards; major events in the professional career including a brief bibliography; and outstanding achievements and accomplishments that warrant the nomination. Three copies of the nomination are required. For a list of past recipients, see <http://www.mysite.com/coalgeology/page8.html>.

Send nominations to: Thomas D. Demchuk, Conoco Inc., Permian 3048, P.O. Box 2197, Houston, TX 77252-2197, (281) 293-3189; thomas.d.demchuk@usa.conoco.com.

Deadline for submission of nominations is February 28, 1999.

The Coal Geology Division established the award in honor of Gilbert H. Cady; the first award was presented in 1973. Monies for this award are derived from the annual interest income from the Gilbert H. Cady Memorial Fund, which is administered by the GSA Foundation.

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