On Geological Time

The Abyss of Time. Changing Conceptions of the Earth's Antiquity after the Sixteenth Century. CLAUDE C. ALBRITTON, JR. Freeman, Cooper, San Francisco, 1980. 252 pp., illus. $12.75.

"I am confident," writes Albritton, "that someday the concept of geological time will be acclaimed as one of the more wonderful contributions from natural science to general thought." His confidence is surely justified: it is a story that deserves to be as well known as the analogous history of the concept of astronomical space. Albritton has adapted some earlier lectures into a readable popular account of some of the more striking episodes in the history of ideas about the age and development of the earth. He has read many of the original publications for himself and quotes from them effectively; he is also familiar with at least some of the relevant historical research of the past decade. His book is one that can be recommended to that convenient figure the general reader if he or she wants a first taste of the historical story.

After the first taste, however, the general reader ought to feel somewhat dissatisfied. This is history of science by a scientist, not a historian, and it is cast in the old heroic mold. Albritton is best on the history of estimates of geological time in the past hundred years, where the arguments are closest to the practice of modern geologists. Each of the earlier chapters, by contrast, deals almost exclusively with a single Great Man. The author's biographical sketches of these heroes are evocative and generally accurate on a factual level, and his summaries of their published writings are clear and concise. But the heroes are linked in a triumphal line of succession by little more than coincidences of dates and attributed conceptual influences. The line of succession leads almost inexorably from the first groping intuitions of Steno and Hooke to the pioneers of modern radiometric dating, disturbed and retarded only by the repeated intrusion of misplaced and misguided religious convictions. The reader is given scarcely a hint of what was generally "taken-for-granted" knowledge in a given period, against which an individual's conclusions might be judged innovative. There is little to indicate how conclusions that seem to us bizarre might have been highly plausible in earlier cultures. Above all, the theme of continuous conflict between a self-evident "science" and an undifferentiated "religion" is presented in terms that could have come straight from Draper or White a century ago.

The reason for this slant to the book is not hard to find, however: in Albritton's view the conclusions of modern geologists need to be defended here and now against the criticisms of fundamentalist creationists. They are the ones who are now suffering from "chronophobia" and who would like to squeeze geological time—at least in U.S. public schools—back into the straitjacket of a few thousand years, as it was in the days of Steno and Hooke. In other words, this is not just an absorbing historical narrative but also—just beneath the surface—a tract for the times. Albritton's notion of chronophobia is an interesting one that would have been worth pursuing. There is indeed some evidence in the historical record that people in Western societies have often found it difficult for imaginative reasons to accept the notion of a time scale that dwarfs human lives and even human history. This is not unlike their difficulty in comprehending the vast scale of the universe in space. But it is far too simple to equate this difficulty in imagining a vast time scale with religious reasons for adopting a literal interpretation of certain parts of the Bible. It is also too simple to equate the cultures of the 17th century, in which the precritical sense of a unitary biblical narrative was part of the ordinary knowledge of society, with the modern fundamentalists' deliberate rejection of the corresponding mainstream knowledge of present-day society (including modern theologians' critical methods of biblical hermeneutics).

Albritton quotes against the creationists the memorable graffito, "If daunted by the noxious stench / Exhaled from Time's Abyss, / Retreat into some lesser trench / Where ignorance is bliss." But his own story hardly begins to tackle the fascinating question why some people in the past have thought the stench noxious, or why some still do; or, in other words, why the vast quantitative estimates that have emerged in the past three hundred years should have been experienced humanly as an alarming abyss in the first place. His book, readable though it is as an introduction to the story, only highlights our lack of unified cultural interpretation of changing conceptions of the age and development of the earth and of mankind's place in it. What is still needed is a historical sociology of the perception of time in the natural world in relation to time in human lives; in that story the work of the great men of the past would find its true meaning.

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Matters Relating to the Sea

Oceanography: The Past. Proceedings of a congress, Woods Hole, Mass., Sept. 1980. M. SEARS and D. MERRIMAN, Eds. Springer-Verlag, New York, 1980. xx, 812 pp., illus. $37.50.

The third international congress on the history of oceanography was held in Woods Hole in late 1980 on the occasion of the 50th anniversary of the founding of the Woods Hole Oceanographic Institution. This book is a product of the congress, but because it was in print at the time of the congress it represents not the actual proceedings of that meeting but those intended.

What is, or was, oceanography? Historically, the difficulty and expense of making observations at sea have thrown together into single institutions scientists of otherwise divergent interests who had to club together to afford a ship, or at least a view of the beach. If we lived in the sea, instead of in the air, perhaps there would be "meteorographic" institutions, which would include, willy nilly, meteorologists as we know them, but also aeronautical engineers, ornithologists, lawyers involved in air pollution litigation, entomologists, continental geologists, and farmers. One can imagine the stresses and strains of such a place and the difficulty of writing a connected history of such a "discipline" of the "air." Such is oceanography, where many of the proclamations of interdisciplinary intellectual content reflect more pious wishful thinking than reality.

In this book we see a reflection of the kaleidoscope that is oceanography. Beyond the broad requirement that there be some connection, however remote, with