

was of decisive importance in the origins of the modern Earth sciences.

Before he reaches that point, however, he deals with the ancient non-biblical Flood stories, explaining the huge impact of the clay tablets that revealed the Gilgamesh epic to the Victorians. He also mentions the rich repertoire of typological interpretation that was taken for granted in the patristic and mediaeval study of biblical texts — Noah and the Ark as the metaphors or ‘types’ of Christ and the Church, for example — which forms such a contrast to the rigidly literal methods of modern fundamentalists.

However, that literalism has its distant roots in the highly rationalistic activities of seventeenth-century scholars and naturalists — it would be grossly anachronistic to call them scientists — who set about calculating, for example, how the Ark could have contained the requisite pairs of all known animals. Similarly, the latest and trendiest scientific knowledge, such as of the motions of comets, was brought in to explain the physical causes of the Flood. But, rather than laughing or sneering at such work, we should recognize in it the exploratory spirit of modern science. As with more modern research, it was self-correcting: the theories, like the reconstructed Ark, burst at the seams, and their underlying assumptions were examined critically and then refined or rejected.

By the early nineteenth century, the extremely peculiar physical features that were attributed to the Flood could be metamorphosed conceptually with little difficulty into the traces of a vast glaciation. By then, the Flood/Ice Age was recognized as both ancient in human terms, yet geologically recent: the short span of human history was fully integrated into the huge timescale of geohistory.

Cohn’s survey touches only lightly on such themes of overarching historical interpretation. For the most part it is a highly readable and reliable summary of what successive authors thought and wrote about the Flood, its physical traces and its religious meaning. His account is accompanied by a wealth of attractive illustrations, beautifully reproduced to Yale’s customary standards. They are generally pertinent to the text but only loosely linked with it: Kircher’s prosaic Ark rubs against a charming twelfth-century predecessor, with little regard for half a millennium’s change of context.

Still, this is a book that is well worth a read by anyone with an interest in the historical roots of modern scientific study of the Earth. □

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Take a nature walk on the ocean floor

Oceanography: An Illustrated Guide by C. P. Summerhayes and S.A. Thorpe
Manson Publishing: 1996. Distributed in the United States by Wiley. Pp. 352. £48, \$74.95 (hbk), £24.95 (pbk)

Peter G. Brewer

Ocean science in Britain has been through a period of great change, culminating in the creation of a new institute, the Southampton Oceanography Centre. This brings together previously separate research groups and ships in a fine new setting, and provides one of the world’s major oceanographic research centres.

This book was written by the staff of the centre to mark the occasion. It is a guide, not an advanced textbook, and the stated purpose is to “express some of the delight” of being an ocean scientist, and to provide a description of the field “at a level at which a science undergraduate should have no difficulty in understanding”. How well have they done? Very well indeed.

Written as a comprehensive collection of scholarly essays by diverse authors on important topics in the field, with excellent colour illustrations, the book holds together remarkably well. The editorial mandate must have been to use no equations, and only

the chapter on oceanic carbon chemistry manages modestly to get by this barrier. Nonetheless it would be a great mistake to regard this book as lightweight. The authors are experts, and whether the topic is the evolution of the lithosphere or of deep-sea animals there are densely argued presentations.

For the most part the presentation is up to date. The following subjects are all covered superbly in understandable terms: the ocean–climate connection, ocean-observing satellites, new discoveries of the extraordinary effects of iron enrichment of blue oceanic waters, and a synthesis of recent knowledge of hydrothermal activity and of the structure of ocean basins. And there is a wonderful nature walk on the ocean floor from Ireland to Florida with an educated guide at your side.

There are gaps: the molecular revolution in biology is not present in any way here, although it is providing dramatic advances in understanding at all levels. And palaeo-oceanography and microbiology are skimmed. There is an excellent historical chapter, and several applied science topics — instrumentation, marine resources, and scientific diving — that provide much of the lore well known to those in the field.

I could not teach a course solely from this book, but I would love to have it at my side when I do. It is a delight to dip into. □

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