Larger-than-life characters

M. J. S. Rudwick

The Dawnseekers: The First History of American Paleontology. By R. W. Howard. Pp. xiii+314. (Harcourt Brace Jovanovich: New York and London, October 1975.) £3.95.

THIS is a popular history of palaeontological research in the US, from the first great vertebrate finds in the eighteenth century to the full professionalisation of the science in the twentieth century. The style is journalistic, with racy narrative and fictional dialogue. The subject matter should be ideal for a good popularisation of the history of science, for many of the personalities involved were as colourful and as larger-than-life as the extinct animals that they discovered and reconstructed. The author claims that "*The Dawnseekers* was not meant to be a definitive history", but even the most modest popularisation should utilise the more accessible results of modern historical scholarship. The best parts of *The Dawnseekers* are those that describe the epic feats of Cope, Marsh and others in the newly-opened American West; but it is sad that the opportunity of setting this work reliably in its historical context has been so completely missed.

The story is still framed in the terms set (or at least, propagated) by that old warhorse of the 1890s, Andrew D. White, as a conflict between crusading scientists in shining armour and a benighted army of clerics and other obscurantists defending the sanctity of Ussher's date of 4004 BC. This kind of interpretation is inexcusable in the 1970s, when several readable books based on accurate historical research are easily available. To mention only one, the omission of which is all the more surprising because it rightly emphasised the importance of American discoveries, John Greene's *Death of Adam* (1959) placed those discoveries firmly in their historical context as part of a continuing debate on the implications of the history of life for human self-understanding.

Science needs good popularisations, and popularised history of science is an excellent way of communicating the historical dynamics and humanity of the scientific enterprise. Unfortunately the simplistic journalism of *The Dawnseekers* will do little to advance the lay understanding of science. □

Preparing *Brontotherium gigas*, 1900

Courtesy American Museum Natural History

Geological clocks

A. Hallam

Growth Rhythms and the History of the Earth's Rotation. Edited by G. D. Rosenberg and S. K. Runcorn. Pp. xvi+559. (Wiley-Interscience: London and New York, September 1975.) £22.50.

In the 12 years that have elapsed since Wells published his pioneer paper on corals as geological clocks a large amount of research has been conducted on growth rhythms in living and fossil organisms in relation to solar and lunar periodicities. This book, the outcome of a NATO conference held in Newcastle-upon-Tyne, summarises this work, and contains in addition a number of interesting papers by geophysicists and astronomers on the Earth's rotation. These range from an analysis of eclipses from ancient historical records to more theoretical studies of the dynamics of the Sun-Earth-Moon system. Greatest interest attaches to the study of rhythmicity in fossil growth layers as the best hope of obtaining hard data on diurnal, monthly and annual cycles in the distant geological past. Although it is impossible to summarise adequately in a brief review the results of so many diverse contributions, it is apparent that early efforts in the field greatly underestimated the complexities in growth patterns that emerge from more detailed analysis, and that stromatolites come a poor third to bivalves and corals as research material. Some rhythms perceived in living organisms relate more to varying environmental conditions than to astronomical periodicities, and misinterpretation of fossils is likely to arise unless one has

access to large amounts of excellently preserved material with continuous growth records. There is also a need in the future for more objective measurements utilising, for instance, the optical densitometer. Nevertheless there still seems to be qualified support for a gradual slowing down of the earth's rotation throughout most of Phanerozoic time.

The editors are to be congratulated on a finely produced and splendid interdisciplinary effort. □

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