REVIEWS

CECIL J. SCHNEER (editor) 1969. *Towards a History of Geology.* Proceedings of the New Hampshire Inter-Disciplinary Conference on the History of Geology, September 7-12, 1967. Cambridge, Mass. M.I.T. Press, vi + 469pp., $22-50.

PRESTON CLOUD (selector and editor) 1971. *Adventures in Earth History.* San Francisco; Freeman, 992pp. £8.20 cloth, £3.70 paper.

The two works here reviewed, although their contents are entirely different, both evidence the currently growing interest in the history of geology. *Towards a History of Geology* contains 27 papers by various authors, each expert on their particular topic: quite often the geologist, period or event with which they are treating is already familiar and of known importance, but a number of papers rescue from oblivion some forgotten figure or episode and thus, indeed, bring us closer to the formulation of an adequate and balanced history of this fascinating science. It is perhaps to be expected - though certainly to be regretted - that the period covered is only up to about 1850: whilst it is true that more recent events are more difficult to put in perspective, it is equally true that the sharp decline in the publication of scientific biographies since 1910 will leave future geological historians very short on source works, such as those which have been available to the contributors to the New Hampshire Conference. *The history of geology is still happening*: when political historians can write freely of events only a few years old, must geological historians wait 120 years before they dare to make an assessment?

Within the time-span covered, the papers present a great deal of new data and refreshing surmise. The longest span is covered by V.V. Tikhomirov in "The development of geological sciences in the U.S.S.R. from ancient times to the middle of the 19th Century". Papers treating with the mediaeval period include "Theories of the Earth in Renaissance cosmologies," by Sister Suzanne Kelly; "Bernard Palissy", by Aurèle La Rocque, and "Edward Jorden and the Fermentation of Metals": an introchemical study of terrestrial phenomena" by Allen G. Debus. "Changing ideas about moving shorelines", by Eugene Wagman, spans the period from 1649 to around 1850.

The eighteenth century attracts a great deal of attention. The scene is set by Victor Eyles' "The extent of geological knowledge in the 18th Century and the methods by which it was diffused" : this is followed up by "Some notes on Dr. Scheuzer and on *Homo diluvii testis*", by Melvin A. Jahn: "The influence of Torbern Bergman (1735-1784) on stratigraphy; a resumé" by Hollis D. Hedberg; "De Maillet's *Telliamed* (1748): an ultra-Neptunian theory on the Earth" by Albert V. Carozzi; "Nicholas Desmarest and geology in the 18th Century" by Kenneth L. Taylor; "The geological atlas of Guettard, Lavoisier and Monnet; conflicting views on the nature of Geology" by Rhoda Rappaport; "Reflections on A.G. Werner's *Kurze Klassifikation* [1785]" by Alexander M. Ospovat: and "James Hutton and the concept of a dynamic Earth" by R.H. Dott; and "Early geological observation in the American Mid-West", by George W. White. Joan Eyles' "William Smith: some aspects of his life and work" bridges between the "pioneer" and "classical" phases of the history of geology, as does "The development of mineralogy in Philadelphia, 1720-1820: a summary" by John C. Greene.

The remaining papers all treat with the period between 1800 and 1850. "Porcelain and plutonism", by Cyril S. Smith, examines some ideas on the crystallisation of matter. Charles Lyell is the subject for an abstract ("Charles Lyell is permitted to speak for himself," by Walter F. Cannon) and two papers ("Lyell on Etna, and the antiquity of the Earth", by Martin J.S. Rudwick, and "The intellectual background to Charles Lyell's *Principles of Geology* (1830-1833)" by Leonard G. Wilson. Other papers on this period are "Geoffroy Saint-Hilaire versus Cuvier: the campaign for palaeontological evolution (1825-1838)" by Franck Bourdier, "Diluvialism and its critics in Great Britain in the early 19th Century" by Leroy E. Page, "Mineral classification in the early 19th Century" by John G. Burke, "Genesis, evolution and geology in America before Darwin: the Dana-Lewis controversy", by Morgan D. Sherwood, and "Alexander von Humbolt: remarks on the meaning of hypothesis in his geological researches" by Hans Baumgärtel.

Adventures in Earth History is described succinctly in its title page as "being a volume of significant writings from original sources, on cosmology, geology, climatology, oceanography, organic evolution and related topics of interest to students of earth history, from the time of Nicholas Steno to the present." The writings of some 84 scientists are quoted directly, under ten sectional groupings - "Ordering Principles in Earth History", "Origin of the Universe, Solar System and Planets", "Antiquity of the Earth and the records of geologic time". Earths air, water and climate", "Differentiation of the Solid Earth", "Interacting evolution of biosphere, atmosphere, and lithosphere on the primitive Earth", "Selections from Phanerozoic history", "Glimpses of Phanerozoic life", "Evolution environment, extinction, palaeoclimatology" and "The rise of man, the Recent, and the Future". The writings selected are extremely well chosen and satisfactorily illustrated: after each, a selected list of references for further reading is appended.

This work is, in the judgement of the reviewer, admirably conceived and presented. It contrasts favourably with Kirtley L. Mather's disappointing *Source book in geology* 1900-1950 (Cambridge, Mass., 1967), in being much less markedly americocentric. The size is too large for this to be an altogether successful paperback, but strong stitching and a stoutish cover ensure fair resilience to handling - and the price differential between the cloth and paper-bound editions is enormous.....

Both books are, unfortunately, priced so high as to deter the individual buyer, but both are excellent and can be unhesitatingly recommended for library purchase. Whatever one's interest in geology, one will find much that is of interest in these two books.

William A.S. Sarjeant

BERNHARD KUMMEL 1971 *History of the Earth. An introduction to historical geology.* 2nd edition, San Francisco; Freeman. xv + 707pp. £5.20.

Stratigraphers are notoriously - and unjustifiably - insular. Few British geologists have even a vague conception of the pattern of outcrop in France: their knowledge of more distant outcrops is yet hazier. This attitude has been fostered, in the past, by anglocentric textbooks and by our dilatoriness in accepting and applying such aids to international understanding as the stage divisions of the geological systems: we have even, with truly Victorian insularity, long retained the Rhaetic as a separate system, scorned the Paleocene, and retained an overlong Carboniferous system against all logic, simply because the Transatlantic names for its two subdivisions offended our insular prejudices.

Some excuse could be found for this blinkered world vision so long as the only textbooks available were themselves so markedly slanted. The inept English translation of Gignoux's *Geologie stratigraphique*, produced in 1955, added further difficulties to the comprehension of a work that was far from lucid in the original: this first truly international stratigraphic work thus had little impact. It was not until 1961, when the first edition of the work here reviewed appeared, that English-speaking geologists at last had a readily comprehensible and truly international stratigraphic text at their disposal. The plan, adhered to in this second edition, is admirable. After an introductory section, the Pre-Cambrian is dealt with in terms of the various shield areas; the Palaeozoic and subsequent eras are then each dealt with in two sections, one treating with North America, the other with the rest of the World, Europe receiving especially detailed coverage.

Particularly useful are the series of correlation charts, which illustrate admirably the World sedimentational pattern in the various epochs. It is unfortunate that international stage names are not generally used for the North American charts, since this makes it less readily possible to appreciate Transatlantic correlations. Kummel's omission of the Aalenian from the Jurassic charts is technically incorrect but will be applauded by the many Mesozoic stratigraphers who deprecate this particular unit. I personally applaud his sensible adherence to the Portlandian stage, in preference to a shortened Kimmeridgian plus "Tithonian" or "Volgian",

his fragmentation of the Senonian and his firm placement of the Danian into the Paleocene. Inevitably, the charts will prove inaccurate in detail, but they are invaluable conceptual aids, as well as good summaries of almost - current knowledge. Of corresponding value are the many palaeogeographic maps. Kummel will attract some criticism for having avoided grouping the Continents in accordance with Continental-drift theories; but, in view of the successive modifications being currently introduced into these theories by our growing knowledge of suboceanic geology (in particular, the growing evidence of areas of foundered "Continental crust") his procedure seems wise.

The well-designed binding and dust-jacket, the clear type-face and the excellent illustration combine with the lucid text to make this book equally readable for amateur and professional geologist alike. I strongly recommend it to anyone, wishing to gain a sound grounding in world stratigraphy.

William A.S. Sarjeant