

dismissed. In view of the vast current literature on all these subjects, they could warrant more attention in a future edition of the book.

Although the critic could well suggest a more unified approach to the discussion of each topic by bringing descriptive observation into closer contact with the mathematical analysis, it is clear that a considerably enlarged volume would be required to cover the ground adequately. The selected references, given at the bottom of each page, should assist the reader in this respect. In spite of certain difficulties of expression and odd printing errors (especially in the mathematics), the author has succeeded admirably in breaking through the barrier that has long baffled the average geomorphologist, and it is hoped that this will lead to the clearer understanding and investigation of many more of the lesser known surface features of the Earth.

R. J. ADIE

A. E. M. NAIRN, *ed. Descriptive palaeoclimatology*. New York and London, Interscience Publishers Inc., 1961. 380 p. £4.

GLACIOLOGISTS are naturally concerned with the establishment of the evidence, the areal extent and the quantitative characteristics of the vicissitudes that the Earth's climate has undergone throughout geological time. Fifteen authors have collaborated in this most useful and authoritative book. The majority are primarily geologists, drawn from a wide field; four from the United States, three from England, two each from Germany and Japan, and one from Canada, Scotland, South Africa and Australia. The editor in his introduction emphasizes that the pooled knowledge of many scientists has gone into the probing of the generally accepted evidence of past climates with results that demonstrate the need for caution. The plan of the book includes three interesting chapters on the palaeoclimatic significance of desert sandstones, evaporites and red beds, and outlines essays on the climatic history of large areas, for example M. Schwarzbach summarizes that of Europe and North America and L. C. King writes on Gondwanaland.

Glaciologists can emphatically be commended to the second chapter; in 37 pages H. H. Lamb provides an admirably comprehensive discussion of fundamentals of climate from the standpoint of a meteorologist, conscious of the need to relate the energetics and the behaviour of the general circulation to changes in the extent and characteristics of land and sea. This very fine contribution deserves careful reading. Elsewhere R. F. Flint's short but salutary chapter on the geological evidence for cold climates is noteworthy; it is appropriately cautious, and for example enthusiasts will find a reminder that sediments that appear to be due to solifluction can be formed in other ways. Some may find R. Kräusel's chapter on palaeobotanical evidence over-compressed; less than five pages are given to the Quaternary, and it is a little surprising to find that in a list of 154 references Faegri's work is not named. It is instructive to read elsewhere the cautionary views that have been put forward with regard to the interpretation of ocean cores; and continental drift is clearly a subject on which active discussion continues.

Most of the chapters are abundantly furnished with references; one author lists 334. There are some misspellings here and there, and there are differences of practice between one author and another. There are useful author- and subject-indexes, although one can find that some of the authors mentioned in the text are lacking. The book is of handy size and impeccably produced. It can be strongly recommended to all glaciologists who wish to begin the exploration of this fascinating field, or to learn what progress has been made.

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