

BOOK REVIEWS

FORD, T.D., (Editor) *Limestones and caves of the Peak District*

Geoservices Ltd., University of East Anglia, Norwich, 1977.

Paper Back and Cloth Bound editions. 469 pp., 99 figs., 106 photographs, 24 tables.
Index. £11.50 or £15.00.

The aim of the book is a comprehensive account of the limestones and caves of the Peak District and is written by a number of contributors of whom the main author is the editor. Dr. Ford has worked on these subjects throughout his geological career. The other authors are likewise well known in geology or speleology.

The contents include a review of the area to be studied first of all geologically with chapters on the limestones and volcanic rocks and rather surprisingly perhaps also on the Millstone Grit Group, Tertiary Sands and the Pleistocene Deposits. An excellent account of the structure of the area is followed by a rather long (for the title of this book) description of minerals, mines and natural resources. After considering the ages of the rocks the hydrology is discussed and commencing on p.231 (about the half-way stage) details of the caves are given including the palaeontology, biology, archaeology and the physical description of the caves and cave systems arranged regionally.

The book thus brings together a considerable amount of related material updating previously published data and opinion and including some original contributions. The limestone section is full of interesting topics, particularly the sediments and environments of deposition but may lack detail for some readers. The stratigraphical section could be expanded. As might be expected more information is available for the northern outcrops than elsewhere, although it is good to see some of T.D. Ford's work on the southern outcrops appearing in print. The section on the caves is well detailed and contains many maps and diagrams.

Whereas the contributions are good, the production and printing of the book is disappointing. Items of complaint - considering the price of the book - include the thin type face of the text, variable ink intensity, text-figs. lettering of different sizes, type style and illegibility (fig.77), photographs with little or too much contrast (figs. 21, 33, 105, 106), binding of the paper-back edition which is very weak. Mercian Geologist readers will recognise photograph 11, which turned through 90° appeared in Vol.1, No.1, Plate 1 (no acknowledgement) and fig. 25 is almost identical to the text-fig.1, p. 125 of Mercian Geologist, Vol.6, No.2. Again having paid £11.50 or £15.00 for a book one should not find obvious proof reading errors. Without really concentrating your editor found, no explanation for letter S on fig.41, p.111; photograph 8, p.xv is presumably 58; and Ford and Burek 1976 (p.127) is listed in the bibliography for the year 1977.

Thus the authors have produced a worthy publication but the publisher has not produced quite an equal effort.

F.M. Taylor

SMITH, A. G. and BRIDEN, J. C. *Mesozoic and Cenozoic Palaeocontinental Maps*

Cambridge University Press 1977. Cambridge Earth Science Series. 63 pp.

52 maps. Soft Cover, £1.95.

The theories of drifting continents need not be those of the past. This book attempts to show the outline of world continental areas in provisional positions going back in time some 220 million years. The maps show the present positions and at 10, 20 and then at 20 million year intervals. Detail is plotted on 3 projections, Mercator, N. and S. pole stereographic and Lambert Equal Area. The maps are based on available quantitative and topographic information. The continents are indicated by two lines - Ordnance Datum and the 1000 m submarine contour. No intercontinental information is given - geologists are expected to use the maps, to plot on them palaeogeographical detail as required. Lines of longitude and latitude, both for the present day and for the chosen interval of time are added and the position of plate margins, except for the Pacific area.

Two questions immediately spring to mind. (a) Why go back only 220 million years and (b) Why no information on the oceanic plate boundaries of the Pacific? On the first point, presumeable data is too inconclusive to be used although both authors have been involved in producing world maps going back approx. 600 million years. The second point presumably is that the last 220 million years is concerned with the break up of Wegener's Continent *Pangea* and the reassembly in the present land hemispheres, producing new intercontinental boundaries.

The book will be of great interest to all geologists who work on a global scale. Colour the maps, as shown on the front cover of the book, and then commence the reconstruction of a world geography at one chosen time. This could be arm-chair geology at its best.

The maps have been drawn by computer so that ideally they can be up-dated very quickly as new information is made available. At least the master-maps can be produced, no doubt the appearance of a second edition of the book is another matter.

Cambridge University Press have produced a pleasing publication (compare previous review) the only quibble I can find is that the closeness of some of the lines is confusing and it took me a long time to find the point in the text confirming the meaning of the X symbol used on all the maps. This book is a valuable guide for all interested in geological history of the world. We await maps for the period before 220 million years,- at the same favourable price.

F. M. Taylor

HALLAM, A.

Jurassic Environments

Cambridge University Press

Cambridge Earth Science Series, 1975 (Received 1976) i-ix + 269 pp., illustrated, index, boards. £11.00.

Following on the review of Smith and Briden above, this book illustrates the use of world maps although biostratigraphical stage units are used and not chronological units. The author has attempted to produce environmental or facies maps for parts of the Jurassic on an international scale. Much of the detail is from N. America, Europe, Asia and N. Africa with much less evidence from S. America, South Africa, Australia, New Zealand and Antarctica. The book is concerned mainly with marine sediments and faunas with little attention given to continental interiors or vertebrate palaeontology. Dinosaurs are mentioned almost exclusively for climatic evidence.

With this breadth of geographical coverage, it is tempting to compare the book with Arkell's (1956) *Jurassic Geology of the World*. The approach to the subject is however different for whereas Arkell's is mainly stratigraphical with less emphasis on environment, Hallam's book is mainly concerned with the environment and the stratigraphy forms the introductory chapter.

Nevertheless this chapter is most important and establishes the necessary stratigraphical and chronological controls that are required for the ensuing chapters. There is a justification for the continued use of ammonites as the main stratal control and arguments are proposed to show that the ammonite zones are equivalent to time planes. Biostratigraphical divisions of the Jurassic are reviewed and those adopted in various international conferences up to 1974 are generally approved. A number of correlation charts for Western Europe are included with the British Isles featuring prominently.

The main part of the book then deals with the environments as depicted by their sediments and their location. Thus there are chapters on the arenaceous, argillaceous and ferruginous facies of Europe. Calcareous and argillaceous facies of northern and central Europe; calcareous and siliceous facies of southern Europe and N. Africa. The United States Western Interior is considered separately. These details lay the foundations for the palaeotectonic reconstructions that follow including discussion on sea levels. In a book of this type it is refreshing to read details of the climate of the time and the summary of invertebrate fauna provides the last element given for the geography of the Jurassic.

The book is an excellent synthesis of the marine Jurassic and progresses logically to its final chapter. The scale of the book inevitably means that opinion must be expressed about subjects for which there is still incomplete or controversial evidence or opinions are included which are based on national policy which prevents acceptance of decisions made at International level. Thus will the Callovian be accepted by all as a Middle Jurassic stage? The volcanic origin for the Fullers Earth (Bathonian) is preferred despite the absence of other volcanic rocks of the same age in the same locality. Some Bathonian rocks in North Sea sequences are the nearest direct evidence. Such opinions and the arguments given for and against live in the text of the book and ensure anyone interested in the subject of the book will maintain that interest to the end.

Thus Professor Hallam (now at the University of Birmingham) has gathered a very useful text written and produced in an attractive format.

F. M. Taylor

PATRICIA PAYLORE (Ed.) *Arid lands research institutions : A world directory.*

The University of Arizona Press, Tucson, Arizona, (2nd Revision and Updated Edition) 1977, 317 pp. no illustrations (ISBN 0-8165-06.31-0) US \$ 7.50 (paper).

This excellent directory supercedes the 1967 edition, and renders the former obsolete.

The purpose of this book is to list the institutions that have an active involvement in a study of arid lands. For each institution the following are listed:

- nature of the institution (e.g. government, academic)
- governing body
- postal address and location
- description of areas where field studies are undertaken
- scope of interest
- research programmes
- finances, staff and organisation
- facilities (including arrangements for visiting scientists)
- publications, and history of the institution

The entries appear alphabetically within the list for each country, and countries are arranged by continent. They include national Geological Surveys and academic as well as governmental bodies concerned with geological research in arid lands. This, however is only part of the total list of disciplines represented, for these include zoology, botany, forestry, ecology, livestock farming, agriculture, meteorology, water research, pedology, geomorphology, human geography, and so on.

Clearly this volume can be no more comprehensive than the returns received to correspondence with the institutions concerned, nevertheless there are over 150 entries.

The entries listed for England are:

Centre for Middle Eastern and Islamic Studies, Department of Geography,
University of Durham.

Centre for Overseas Pest Research, London.

Ministry of Overseas Development, Land Resources Division.

Overseas Development Group, University of East Anglia.

Overseas Development Institute, London.

Department of Geography, University College, London.

Department of Geography, University of Cambridge.

Department of Geography, University of Durham.

The directory concludes with name and subject indexes.

This is a well-conceived and well-presented useful volume. A comparison volume suggests itself (or a separate part of this same volume) on the fund giving organisations that support research in arid lands carried out by individuals who do not belong to the formal institutions listed in this directory.

J. C. Doornkamp.