

BOOK REVIEWS

CLAYTON, A.R., 1979. The Sand & Gravel Resources of the country around Bawtry, South Yorkshire; Description of 1:25,000 Resource Sheet SK 69. Miner. Assess. Rep. Inst. Geol. Sci. No. 37. ISBN 0 11 884053 3. £5.75.

This report is one of the latest in a series by the Industrial Minerals Assessment Unit of the Institute of Geological Sciences and deals with the Sand and Gravel resources of the area around Bawtry in South Yorkshire.

Sand and Gravel production in Britain exceeded 117 million tonnes in 1976 and the total annual take of land for quarrying is currently about 2,500 ha. It was against this background that the Industrial Mineral Assessment Unit was established to identify and assess potential workable deposits with a foreseeable use as aggregate. Such deposits are technically defined as resources and a clear distinction needs to be made between these and reserves, the latter being those deposits which have been proven to be economically viable under present day conditions. This remains quite firmly the responsibility of the extractive industry, the surveys undertaken by the Institute of Geological Sciences on the other hand are designed to improve our knowledge of national resources for the long term.

The report is clearly intended for the local and government planning officials, professional geologists and the extractive industry in general and not the amateur geologist. It contains an account of the survey procedure and techniques and much detailed information, all clear and well presented. The report loosely falls into two parts. The first contains a brief section describing in turn the geology of the area (with particular emphasis on the drift deposits) the composition of the sand and gravel, a description of the 2½" geological map which accompanies the report and the results of the borehole survey together with a description of what are referred to as "Resource Blocks". The area has been divided into eight of these blocks and for each the geology of the deposit is described, overburden and mineral thicknesses assessed and volume and gradings computed. A simple statistical approach is adopted in computing these figures but no allowance is made for any possible constraints on working and hence the estimated volumes bear no relation to the amount that can be extracted in practice. The danger is that a false impression can be given of large tonnages when in reality recoverable content may be small. Regrettably this has led many involved in the sand and gravel industry to treat the exercise as of academic interest only and argue that it would prefer to see the IGS concentrating its resources on producing good quality maps and leaving the industry to locate and assess deposits.

The second part of the report contains the detailed logs of 87 boreholes and these records account for 75% of the total volume. It is questionable whether this detail is necessary, an abridged form with details available separately on request might be a better alternative and would help to keep the costs down. It is interesting to note that the boreholes were completed in late 1974 and the early part of 1975. Four and a half years seems a long time to produce a report of this nature and if the format could be simplified or reduced, a shorter publication period may be achieved.

The area covered in the report has been extensively worked for sand and gravel since the turn of the century and these workings now cover approximately 750 ha. In the circumstances brief mention of reclamation and restoration aspects might have been appropriate and certainly a section on hydrogeology would not have been out of place.

R. J. Hawkins

H.H. SWINNERTON and P.E. KENT. *The Geology of Lincolnshire*.
Second Edition with revisions and additions by Sir PETER KENT.
Lincolnshire Naturalists' Union. Lincoln 1976. £3.45

The first edition of this book, under the joint authorship of Professor H.H. Swinnerton and Dr. P.E. Kent, appeared in 1949. The need for a revised edition has come about in no small measure as a result of the subsequent activities of Sir Peter Kent himself. During the intervening years he has added considerably to knowledge of Lincolnshire geology and we are grateful that he has found time also to update this useful little book.

At first glance this new edition is an improvement on the original. New features are the pleasing front cover colour photograph, a geological map and fifteen black and white plates. The general format and chapter headings are much as before but skilful recasting and concise writing have allowed much new information to be included without increasing the size of the book. Several chapters are devoted to the Mesozoic rocks from the Rhaetic through to the Upper Cretaceous. In most of these the extent of the revision is considerable with added refinement of detail and discussion of major changes, for example the recognition that the lower part of the Spilsby Sandstone belongs to the Jurassic. The number of text-figures in these chapters is not significantly increased but in general they adequately supplement the descriptive stratigraphy. Inevitably there are fossil names in profusion but regrettably no overall taxonomic revision has been attempted. One wishes also that room could have been found for a few more illustrations of common fossils.

Later chapters deal with the Tertiary Landscape, Structure, the Pleistocene, Post-Glacial History and Economic Geology. The Pleistocene chapters in particular have been extensively revised and contain some new figures and a useful chronological table. A short final chapter comments on Geological Conservation and provides a field-work code, a necessary inclusion nowadays.

The book is remarkably free from irksome printing errors but there are a number of inconsistencies due to a certain unevenness in the revision. On page 18 we read (with some relief) that the Rhaetic must now be accepted as belonging to the Trias; it is so placed in Table II but in the column accompanying the map (Fig 1) it is included in the Jurassic. On page 13, and again on page 27 there is confusion in the naming of the Lower Liassic ammonite *Schlotheimia angulata* and of the corresponding ammonite zone. On page 76 we read, surprisingly, that there was no life on the planet in Pre-Cambrian times. More seriously, it is to be regretted that the author chose to retain virtually unchanged certain of the introductory chapters originally written by Professor Swinnerton. In Chapter 3, on the Age and Arrangement of the Rocks, most of the ages given on the column (Table 1) differ considerably from current versions of the Phanerozoic time scale, and on page 7 the term formation is misleadingly referred to as the rocks laid down during any one period of time. Revision of this chapter and of Table II, to come into line with modern stratigraphical nomenclature, would have been timely. Chapter 5, on the Natural History of the Mesozoic, contains a brief outline of Professor Swinnerton's classic work on the evolution of *Gryphaea* without the addition of any reference to later quite different views about oyster evolution. Somehow its inclusion here seems less relevant than it was in 1949.

The out-of-dateness which thus pervades parts of the early chapters is unfortunate, but should detract little from the usefulness of this otherwise excellent book. It is attractively produced, very readable and remarkably comprehensive for its small size. Although not intended as an excursion guide it will undoubtedly be carried in many a pocket or rucksack and should be indispensable to all who pursue their geological activities anywhere between the Humber and the Wash.

A.M. Honeyman

FOSSIL COLLECTING by F.G. DIMES and R.V. MELVILLE, KTG Series

E P PUBLISHING LTD (WAKEFIELD) 1979 36 pages
WITH FIGS, DIAGRAMS AND MAPS PRICE 60p

This booklet has been written for the beginner of whatever age. The discernable theme throughout is that of reconciling the best interests of both the increasing number of people taking part in fossil collecting and the countryside itself which has suffered the depredations of unthinking collectors. The booklet has the imprimatur of the Palaeontographical Society and has been written by two veterans in the field of practical fossil collecting.

The result is a worthwhile distillate of practical advice from which both the novice and the advanced collector will benefit. An introductory eight pages define fossils and detail how and where they are to be found. A further five pages deal with how to extract the fossils from the host rock. Eighteen pages are devoted to identifying fossils to a level which will be adequate for most amateurs. The chosen representative samples of the fossils the collector is likely to meet are liberally illustrated with photographs and annotated line diagrams. The bulk of the excellent photographs are by the Institute of Geological Sciences.

The small bibliography will suffice for most purposes, but unusual finds are always worth bringing to the attention of the specialists.

A 'Code of Conduct' insisting on a responsible use of the countryside is inserted as a timely reminder at the end of the booklet. On the back cover is a useful coloured stratigraphical column listing the main fossil bearing rocks.

P.I. Manning