

REVIEWS

TRUDGILL, Stephen T.: *Limestone geomorphology*. London & New York, Longman. 1985. 196pp. ISBN 0 582 30011 8. Price £12.95. (reviewed by T. C. Atkinson)

Any book on limestone geomorphology is of interest to speleologists, but Stephen Trudgill's is of special significance to the U.B.S.S. The author was one of a group of post-graduate members who took Ph.D.s in karst studies under Dingle Smith's supervision in the Bristol University Geography Department, during the late 1960s and early 1970s. Many of the examples in the book draw on work by this group, and there are frequent references to U.B.S.S. stamping grounds in Britain and Eire. The geographical scope of the book is far from parochial, however, with photographs and examples cited world-wide, including many from Stephen Trudgill's own travels.

The book is primarily intended for advanced geomorphology students, in the context of a physical geography degree course. The approach it takes is a modern one of describing and analysing in detail the erosion processes which are important in karst terrains, and using this analysis to try to explain the evolution of karst scenery. It must be admitted, however, that this 'process-response' approach has yet to bear fruit in karst geomorphology, compared with the progress which has been achieved in the study of, say, slopes and rivers. Part of the difficulty is in identifying the parts of the landscape which are actually in equilibrium with present day processes, as distinct from those parts which are largely relict from earlier, different, processes. The huge climatic oscillations of the Quaternary have drastically changed the balance of erosion processes, so that many features of limestone landscapes in the temperate zone were in fact produced under glacial or periglacial conditions, not the mild temperate climate of the present day. In our familiar karst terrains of Yorkshire and Eire, for example, only the active cave streamways and solutional sculpturing of limestone pavements are in equilibrium with the present climate, while the pavements themselves and the major valleys were scoured out by former glaciers and are essentially relict forms. Scree slopes reflect former cold climates at the end of the last glacial, while the overall drainage pattern of the Yorkshire Dales was laid out by river erosion before the earliest glaciation.

Stephen Trudgill provides a framework of terms and concepts which can be used to discuss these historical aspects of landscape erosion, and relate them to the speed and effectiveness of different erosion processes. As he points out, we seem to be on the verge of a new phase in the development of our understanding, as the recent application of uranium-series dating to cave deposits allows us to unravel the history and actual timescales of cave development and, by inference, the parallel changes taking place on the surface. Speleological studies will play a fundamental role in this new development which promises to be of great significance in the mainstream of geomorphology.

One drawback of *Limestone Geomorphology* is that it is too short to contain more than a brief description of the many types of karst landform. For classification and description of individual features, readers are still best referred to Jo Jennings's book, *Karst*, or *Karst Landforms* by Marjorie Sweeting. But Trudgill updates these 15 year old textbooks, and provides a fresh conceptual approach in summarizing the process studies and geomorphological pre-occupations of the last fifteen years.

DREW, David P.: *Karst processes and landforms*. Basingstoke, Macmillan Education. 1985. 63pp. ISBN 0 333 38361 3. Price £1.95. (reviewed by P. L. Smart)

This short book (just over 60 A5 pages with a relatively large print size) can be read without difficulty in an evening. The style is relaxed, the sectioning and layout good, and the figures bold, well-drawn, and not over-reduced (as has been the case in some other recent texts). The contents range through the major areas of karst geomorphology, including definitions of karst areas, limestone rocks, the solution process, karst landforms, and caves. In general, the text manages to balance well the explanation of basic principles with their wider application to landform development. The solution process, for example, is explained with commendable clarity, while the summary table of factors controlling limestone solution and erosion leads naturally to further questions and projects. This approach should work well, as the intended market is 'the enquiring A-level student and his teacher'. With this market in mind, the examples tend to be drawn primarily from the British Isles, although why T. D. Ford's *Limestones and Caves of Derbyshire* is not included in the further reading section is a mystery.

In fact, relatively little help is given to readers wishing to delve deeper into the more specialist literature, and more advanced students may also find the lack of development somewhat limiting. For example, the distribution of erosion on limestone coasts is discussed almost solely with reference to solutional processes, and the contribution of direct biological erosion is minimized, being covered in a single sentence unfortunately separated from the remainder of the section by another figure. Advanced students will, I am sure, be better served by the more comprehensive and better balanced account in the new text by Trudgill (which is of course also much longer).

Inevitably, there are minor criticisms: the charges are missing from the equation on p. 60, pocket valleys are mentioned as a landform in summary, Table 3, but not described in the text. The use of 'sediments' to describe the non-carbonate rocks flooring the Fatnicko polje in Figure 31 is misleading, and the differences between Figure 35(c) and (d) are rather too subtle to be comprehended by a non-specialist. I also wonder why no mention has been made of uranium series dating of cave deposits, surely one of the most interesting and significant recent developments in karst geomorphology.

Nevertheless, the next time I am approached by someone asking for a simple guide to karst geomorphology for use in schools, I will recommend this excellent overview without hesitation.