along with some others as "best man" theories, and discusses them separately from the tangled bank. The distortion at this stage is clear, but it does not become damaging until the two resurface as competitors in Chapter 4. To make the sib competition (best man) model into an opponent, he strips it of spatial variation, of temporal variation in all but physical factors, and demands that if sex is an adaptation to changing environments then the organism ought to reproduce sexually *in* the changed environment. The sickly resultant theory he then bullies with "as rigorous a comparative scrutiny as we can devise" (p.359). Its tongue thus cut out he then scolds it for silence: he "receives no explanation" for one fact after another, and the rhetoric of refutation resounds through the chapter. At the extreme he finds "incompatible with the lottery version of the best man" (p.368) a study which seems to me to fit it rather well: "Hebert has concluded . . . that most populations are founded by only one or a very few ephippia [of *Daphnia*]", which looks very like the sib competition model with a single survivor in each patch. Yet Bell concludes that "this offers little scope for the lottery principle".

Bell has deceived himself by his dichotomy between tangled bank and sib competition (best man) theories. But let him not deceive us as well. We can sap him by colouring back in the caricatured "best man". Then we won't be fooled by all the remorseless "refutation" and "rejection". We can watch Bell's fascinating advocacy of his tangled bank, all the time seeing him make the strongest case ever that some kind of sib competition is the best explanation of the patterns of sex in nature. □

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By any other name

Keith Bell

The Cambridge Encyclopedia of Earth Sciences. Edited by David G. Smith. Pp.496. US ISBN 0-517-54370-2; UK ISBN 0-521-23900-1. (Crown/Cambridge University Press: 1982.) $34.95, £19.95.

THE word "encyclopaedia" is one of the most awesome in our language, conjuring up visions of dull, pedantic prose, intimidating collections of facts and a morass of unconnected topics. To me, such volumes were always best left alone. Therefore, it was with some trepidation that I started thumbing through the contents of *The Cambridge Encyclopedia of Earth Sciences* expecting the worse. This was not to be.

Between the covers rests an extensive collection of topics, clearly written, beautifully illustrated and surprisingly up to date. Do not be fooled by the title — the only encyclopaedic feature of this book is its breadth and scope. An encyclopaedia it is not. The book is sub-divided into six fairly broad, distinct parts covering 27 topics that start with the history of the earth sciences and end with the geology of the Solar System. Included are accounts of such diverse fields as remote sensing, the development of life on land and seismic reflection profiling. There are no snappy definitions or thumb-nail sketches of your favourite topic here — this volume is definitely not of the "let's see what it says about such and such a subject" variety. Presented instead is a carefully planned, well-thought-out, overview of the earth sciences. Written primarily by members of the Open University, the book seems to be a much modified and markedly improved version of the popular Open University textbook *Understanding the Earth,* first published in 1971.

Its unfortunate billing as an encyclopaedia implies that information can be readily extracted from the book, but neither its format nor content allow this; it may take some time and a little effort to pull together information relevant to one particular topic. This is especially true of mineral deposits; information on the subject is scattered throughout many sections of the book.

As an introduction to the earth sciences this volume is one of the most exciting publications to emerge in the past few years, one worth having for the diagrams alone — many in colour. It is a text that will probably include among its audience scientists outside the field, interested laymen and introductory geology students. Although not aimed at the professional geologist, so much useful information abounds in this one volume that even those actively working in the earth sciences will find something of interest. I would relish recommending this book as a first-year textbook in the earth sciences, but I can already hear the groans as the title is written up on the blackboard.

Nevertheless, someone has had the verve and imagination to pull together a great deal of information about an area of science that is changing at a dazzling speed. Such a massive undertaking must have appeared formidable to any editor, but to plan and create a volume like this in the short span of three years is really quite remarkable. Its welcoming clarity and freshness should do much to intrigue a host of readers about the earth sciences, in addition to providing a quick refresher course to those geologists who, for one reason or another, have fallen behind. But, remember, it is a book that flies under a false flag. □

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Ideas of desert life

J.L. Cloudsley-Thompson

Biology of Desert Invertebrates. By Clifford S. Crawford. Pp.314. ISBN 0-387-10807-6. (Springer-Verlag: 1982.) DM89, $41.50.

DURING the present century, the study of desert biology has passed through at least three phases. An initial expansion of interest led to an enhanced understanding of the desert biome (exemplified by the late Professor P.A. Buxton's pioneering work, *Animal Life in Deserts,* first published as early as 1923). This was followed in the years after the Second World War by a considerable amount of research on the adaptations, physiology and phenology of desert animals. The third phase began with an awakening of interest in ecosystems, and the establishment of the International Biological Programme in 1964. Less than ten years later, interest in the environment had grown to a point at which another generation of biologists was viewing desert biology from the perspective of the community and the ecosystem. The impetus for this approach came partly from the intellectual and financial backing of the IBP, and partly from major advances taking place in ecological theory and physiological methodology.

Cliff Crawford's valuable statement not only brings together much of the work of past and present investigators, but reflects his own conceptual bias — probing into what desert invertebrates do and how they do it — in dealing with a topic not easily manipulated. His book is organized in five parts: Deserts and Desert Invertebrates; Adaptations to Xeric Environments; Life-History Patterns; Invertebrate Communities; Invertebrates in Desert Ecosystems: Summary Remarks. An idea of the detail included in this synthetic treatment is indicated by the fact that there are no less than 33 pages of references. In the last analysis, despite the recent surge of facts and interpretations, so evident in the book under review, we are plainly still far from a comprehensive understanding of the roles of desert invertebrates. Are not some of their patterns of adaptation, life history and community interactions more apparent than real? Continued study will doubtless reveal the truth in such matters.

Only to the uninitiated do arid regions appear dull and lifeless. Their inhabitants may, indeed, be secretive and few in number, but the biological problems posed by their very existence in such harsh and inhospitable surroundings makes the desert an exciting environment for research. Crawford's vivid text and striking photographs will undoubtedly stimulate the interest of the ininitiated, and serve as a reference and source of new ideas for research workers. □

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