



Journal of Sedimentary Research

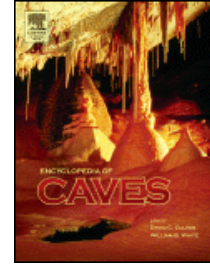
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Encyclopedia of Caves, edited by David Culver & William White, 2004. Elsevier, P.O. Box 211, 1000 AE Amsterdam, The Netherlands. Hardbound, 680 pages. Price USD 99.95; EUR 94.95; GBP 64.95. ISBN 0-12-198651-9.



Caves, caves and more caves! This book is for anyone and everyone with an interest in caves, and also for the uninitiated. This encyclopedia brings the mystique and science of caves to life and covers all types of caves, including those you might not have known existed such as underwater caves, glacier caves, gypsum caves, hydrothermal caves, sulphuric acid caves, lava caves, not to mention entranceless caves!

Throughout history people have had a fascination with caves; for what lies hidden in their murky depths, and for the opportunities for exploration and scientific knowledge. Since they are voids in rock, caves have traditionally been considered geological features but this encyclopedia illustrates well that caves are far more than their geology because of their interaction with humans and with many specialised organisms that live there.

This huge compendium brings together 107 wide-ranging articles from leading scholars and explorers in 15 different countries. Several subjects are covered from biology to biogeography, from geology to hydrogeology, and from exploration to history and archaeology. Although each entry is detailed and scientifically sound, the editors, Culver and White, have intended this book not only for scientists but for a diverse readership. Indeed, there are many useful “how to” practical entries on topics such as equipment and exploration techniques, underground camping, discovery of entranceless caves, rescues, cave stewardship, flood hazards and planning. The entries are complete with numerous examples, anecdotes and advice such as that for recreational caving that people “should not take ... guns for shooting bears or outlaws”!!

For the sedimentologist, the book covers the main types and well-known processes of geogenic sedimentation in karstic caves: roof breakdown, fluvial activity, and mineral deposits such as speleothems. There is also a fantastic wealth of information on biogenic sedimentation, e.g. guano, and the high potential for bioturbation of such deposits from the numerous cave fauna further up the food chain. Particularly welcome is the inclusion of Goldberg and Bar-Yosef’s “Cave Dwellers in the Middle East”, which gives a fascinating and well-illustrated insight into the less well-known site formation processes of prehistoric caves and the deposition of sediments, often as a result of human activities. Human activity is also well-described from the entry on the Mammoth Cave System with fossil footprints, pictographs, petroglyphs and mud glyphs by some of the earliest cave explorers around 4,000 years ago, although unfortunately there are no pictures to illustrate these amazing finds.

The encyclopedic format has its advantages and its drawbacks. For the general reader it creates a sense of intrigue as to what will be the next interesting insight into cave diversity, rather like exploring a cave itself. The more scientific-minded readers among us, however, may become a little frustrated with the seeming lack of order and, for example, having to wait until page 81 for a definition of caves. As a result, there are several entries on similar subjects that are sometimes widely separated in the book. The alphabetical constraints of an encyclopedia are also reflected in the sometimes unorthodox chapter titles such as “Myth and Legend, Caves in” and “Entranceless Caves, Geophysics of”. The editors have endeavoured to overcome these problems through the inclusion of two tables of contents (one alphabetical and the other by subject) and an index at the end. In addition there are cross-references between related chapters, suggestions for further reading, plus a full glossary.

This large reference book is greatly enhanced with hundreds of colour and black & white photographs, maps, charts and illustrations, which often provide unique images of the underground environment. In particular there are wonderful colour photographs of cave fauna such as bats, fish, beetles, spiders, crustaceans, salamanders and crickets, and impressive speleothems as typical of show caves.

Some of the figures are of poor reproduction quality, however, and very few images have indicators of scale. There are also a few spelling and punctuation mistakes and a lack of internationalism in some of the terms used. Inconsistencies are also found between chapters; for example, some articles include citations within the text whilst other do not and some chapters start with a subheading e.g. "Introduction" whereas others do not, and some entries have no subheadings at all to help break up the text. Furthermore, not all chapters appear to be as thoroughly cross-referenced as they should; for example, there are two entries on Mammoth Cave but there is no reference made to each other.

Criticism could also be made for the lack of a chapter on palaeoclimatology through stable-isotope analysis of speleothem and midden shells; a technique that is of great interest today. Useful entries occur on cosmogenic isotopes and the palaeomagnetic record for dating cave sediments but other commonly used techniques—such as OSL and U-series—dating are not covered. These are, however, all minor points and overall the editors are to be commended for bringing together such a wealth of useful and interesting material in a single reference book and for its appealing presentation, which invites the reader to browse.

The *Encyclopedia of Caves* is not unrivalled, however, since a similar book, *Encyclopedia of Caves and Karst Science*, edited by John Gunn, was published in 2004 and it is inevitable that comparisons are made between the two. The great advantage of the Culver and White encyclopedia is that it has been edited by both a cave biologist and a cave geochemist and so provides a wider synthesis of contemporary cave science. The Culver and White encyclopedia covers fewer topics but has longer entries, sometimes more than 10 pages in length. As a result, the Gunn encyclopedia is more encyclopaedic and contains wider coverage of the geosciences. In addition, the Gunn encyclopedia describes a much wider range of karst from all around the world, whereas there is an undoubted US bias in the Culver and White encyclopedia in its authorship and case studies.

The Culver and White encyclopedia is marginally shorter in length but much less expensive at £ 65 (compared with £ 112 for the Gunn encyclopedia, list prices February 2007). In summary, both encyclopedias are great achievements and, although there is some inevitable overlap, both contain valuable contributions to cave literature, and both make essential interdisciplinary resources for scientists, students, and caving enthusiasts alike.

Reference

Gunn, J., ed., 2004, *Encyclopedia of Caves and Karst Science*: New York, Fitzroy Dearborn, 902 p.

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