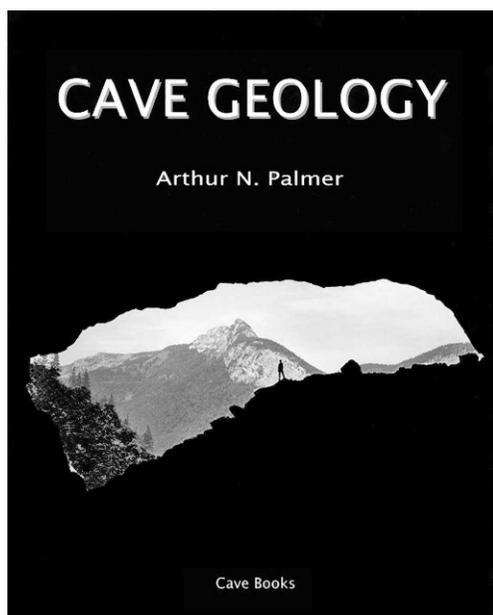


## BOOK REVIEW



### *Cave Geology*

Arthur N. Palmer, 2007. Dayton, Ohio, Cave Books ([www.cavebooks.com](http://www.cavebooks.com)), 454 P., 8.5 x 11 inches. ISBN -13: 978-0-939748-66-2 hardbound, \$38.

Arthur Palmer has produced an absolutely terrific book on cave geology, which necessarily includes substantial discussions on karst hydrology, water chemistry, geomorphology, and related areas, all for a remarkably affordable price of \$38. This is not a skimpy paperback, but a large book (454 pages), with old-style heavy glossy paper. In addition, it includes more than 500 high-quality black-and-white photographs and 250 diagrams and maps.

Recently retired from teaching at the State University of New York at Oneonta, Palmer hasn't retired from active cave exploration, cave and karst research, or publishing. He is world renowned for his research into speleogenesis over several decades with his wife Margaret (Peggy) Palmer. Together, they have explored caves and karst landscapes all over the world and this book reflects the experience gained over those long years of work.

The book begins with a basic introduction into the science of speleology and moves on to geomorphology, soluble rocks, hydrogeology, chemistry, characteristics of caves, speleogenesis and so on. Hardly a subject is left out. Caves in volcanic rocks are also not necessarily one of Palmer's specialties, but he includes quite a lot about the

subject anyway, which is helpful for those of us who have little experience with caves in volcanic rocks. Throughout, Palmer provides references to other readily available sources so that readers can explore the concepts in more detail.

Palmer's real training is hydrogeology, geochemistry, and geophysics, so many of the technical aspects of this book are found in these subject areas. However, he does not waste space addressing the investigative hydrogeological techniques typically applied to non-karstic terranes, as this information can be found in common hydrogeology textbooks. However, he does provide detailed discussions of methods more common to karst terranes, such as dye tracing. Palmer began conducting dye-tracing studies relatively late in his teaching career, but typical of his emphasis on really understanding a topic, he moved quickly to really learn the subject so as to be able to properly convey the subject to his students. His discussion of dye-tracing methods in this book is reasonably detailed, but also brief enough such that the reader won't lose interest while reading over the subject.

More significant are Palmer's discussion of such topics as cave patterns (chapters 8 and 9). Here, Palmer is clearly in his element. Any student interested in learning about cave patterns needs to read these two chapters (and other related sections of this book) because there are few other sources available anywhere that even come close to that which is presented in this book. Chapter 8 addresses cave patterns as a function of ground-water recharge, while chapter 9 addresses cave patterns as a function of geology. It is noted in chapter 8 how significant recharge is in the formation of cave patterns, but chapter 9 then emphasizes the local geology and landscape also have major impacts on cave patterns. An obvious geological effect is rock type, but geological structure is also evident and discussed in detail.

Throughout the book, Palmer includes good explanations of how studies in karstic terranes are typically conducted. Often these brief descriptions are provided in a boxed section to avoid disrupting the flow of the text in the book. In all instances Palmer achieves that which appears to most difficult for professional research scientists, conveying advanced complex topics to the reader in such a manner as to be very readable and understandable by the layman. In fact, this has got to be the most readable text on the subject of caves and karst that I have ever come across. Important mathematical concepts are included, but Palmer was careful to limit them to basic algebra so as not to overwhelm readers.

My overall opinion of this book? Every person with at least a passing interest in speleology should purchase a copy. For the remarkably low price of about \$38 (prices vary insignificantly from place to place) there is no better

buy anywhere, especially for the wealth of information contained. Do I have any complaints about the book? Well, it is a bit heavy because of the high-quality glossy paper used. And of the 760 figures/photos, none are in color. However, the high quality easily justifies the weight of the book and the lack of color figures/photos makes this

a very affordable book, so my complaints are really just observations.

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