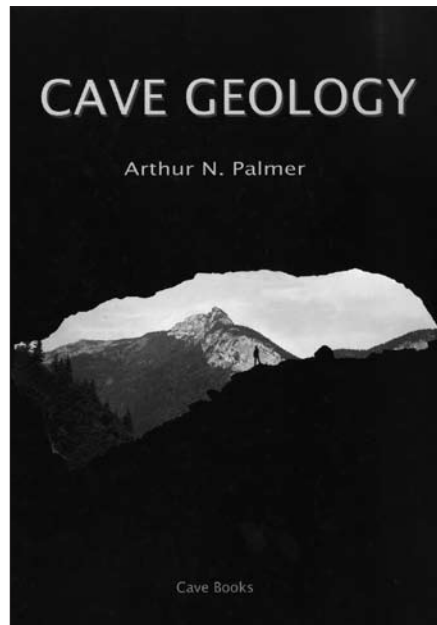


## CAVE GEOLOGY

Arthur N. Palmer, Cave Books, 2007, 454 pp, Letter, Hardback  
 ISBN-13:978-0-939748-66-2, ISBN-10:0-939748-66-5



The book by Art Palmer, one of the main player in speleology and karst science during last few decades, came to me as a surprise. But its contest is far from that; the book is probably the best story about caves as modern karst science sees them. It covers almost all important aspects of (physical) speleology. Therefore, "Geology" in the title has to be understood in its widest context.

Writing of Art Palmer is addictive. Even complex topics are clearly presented without losing the exactness. Reading the book, one almost feels like being in a cave and listening to Palmer's explanations about its features, origin and relation to geology.

The book is graphically nice and uniform. Layout, graphics and most pictures were made by Palmer himself, which is an incredible job and a gift to a reader. It surely enabled the really low price of the book.

The content follows a logical line, starting from the explanations of what caves and karst are, describing and explaining the origin of caves and their geometry in relation to hydrology and geology, and concluding with chapters dealing with various important aspects of caves.

Chapter 1 introduces a reader to speleology. What are caves, how do they look like and how do we explore them? Chapter 2, »Cave country«, presents landscape development, surface karst features, paleo and pseudokarst, and the worldwide distribution of caves and

karst. An excellent and concise text supported by many photographs and figures. Chapter 3 describes the properties, origin and structure of different karst rocks. It serves as a brief and concise introduction to different rock types in karst areas. Chapters 4 and 5 deal with flow and chemistry of groundwater in karst areas. They are a perfect introduction to these topics and a jump board to the special literature on groundwater flow and geochemistry.

Chapters 6 - 9 are a sole of the book. They include a lot of author's original work. Chapter 6 describes how caves look like, chapter 7 how they evolve and chapter 8 how recharge conditions define the geometry of caves. Palmer uses clear and logical line of arguments to demonstrate the relation between dissolution, groundwater flow and geometry of caves as we see them. Even a non-specialist can understand the importance of basic principles of flow and dissolution in karst rocks to understand caves. Chapter 9 presents the influence of geology (i.e. lithology, structure and the relations of caves to landscape evolution etc.) on cave patterns.

Chapter 10 presents a concise review of cave minerals. Without an intention to list them all, it gives basic concepts of (cave) mineralogy and describes important groups of minerals found in caves, their growth and environment.

Chapter 11 deals with the caves in volcanic rocks. In some way this chapter is a condensed version of the whole book, but on volcanic caves. It starts with basic facts on volcanoes, describes the “cave country”, i.e. volcanic landforms, the characteristics and origin of volcanic caves and finally minerals found in them. A perfect introduction to volcanospeleology with many examples. Chapter 12 presents a cave climate and processes related to it. Chapter 13 discusses caves in the context of time. It also gives a nice review of basic dating methods. Chapter 14 is a practical introduction to cave studies. It introduces basic research and surveying techniques, as well as the interpretation of data and typical pitfalls in cave research.

The knowledge of cave geology can add a lot to other fields of geosciences. Some examples of using cave geology in areas such as water supply, engineering applications, land use, petroleum geology, interpretation of geological processes and mining are given in Chapter 15.

Book ends with a glossary, a very extensive and up-to-date reference list and an index.

Bonus features of the book are “grey boxes”, where important topics which do not fit directly into the main line of text, are presented. They give a first hand practical experience and instructions. How to make a cave

map? How to take photographs underground? How to identify rocks in karst? How to measure flow rate in cave streams? How to use flow equations to interpret caves? What chemical analyses can be done in the field? Which units are used in water chemistry and how much rock is dissolved in karst waters? What can be read from the scallops? Which animals live in caves? How can we interpret cave origin from observations in caves? What causes the growth of cave minerals? How to calibrate survey instruments?

The book fills a gap between special books on particular topics and broad reference books presenting the cumulative knowledge on caves & karst. It will definitely widespread the knowledge on caves to all of the interested public. If you are a caver, an earth science student, a researcher or anyhow interested in caves, buy this book. I am sure that you will enjoy reading it all the way through and it will make you feel much more confident when discussing caves with others.

The book contains 561 photos, 760 figures, 250 maps and diagrams on 454 printed pages. It can be ordered at Cave books (<http://www.cavebooks.com/>) for \$38.95.

*Franci Gabrovšek*