phenols are produced from kerogen during burial and control the pH of subsurface environments over the temperature range 80 to 120°C. It is argued that in kerogen these oxygen-bearing organic compounds surround a core of hydrocarbons, and this sheath of oxygenated compounds must be shed before hydrocarbons can be generated from kerogen. The intriguing suggestion is made that the production of carboxylic acids and phenols from kerogens is intimately linked to oxidation–reduction reactions that occur during clay diagenesis and the consequent loss of iron from clay minerals. These kerogen-derived organic acids are themselves linked to the generation of secondary porosity through the dissolution of carbonate and aluminosilicate minerals, and to the enhanced mobility of aluminum ions by the formation of soluble complexes. The fact that, contrary to dogma, an increase in pCO_2 may lead to carbonate precipitation rather than dissolution at depths where the pH is buffered by organic acids is well brought out. All of the various aspects of this chapter are synthesized into a convincing conceptual model involving maturation of organic material, mineral diagenesis and porosity changes.

The volume suffers slightly from the lack of a consistent format for equations, and inappropriate symbols are sometimes used, such as the use of parentheses in place of equal signs. In one place, two figure captions have been transposed. Apart from these minor editorial problems, the volume has two main shortcomings. The first, already alluded to, concerns the lack of emphasis on mineral diagenesis. Nowhere has mineral diagenesis been given the emphasis that has been accorded to the chemistry of subsurface solutions. Consequently the title of the volume is a bit of a misnomer. Secondly, some recent relevant studies on clay mineralogy and diagenesis (in Canada) and on early burial diagenesis (in Europe) have been ignored. Nevertheless, this volume represents an excellent summary of the results of modern research into the interaction of organic matter and the host sediments during burial and, at a price of $17 (US), it is a bargain.

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FLUID INCLUSIONS. By Edwin Roedder. Reviews in Mineralogy 12, Mineralogical Society of America, 2000 Florida Avenue, N.W. Washington D.C. 20009. 1984. $14.00 (US).

This book must be the best buy in the specialized textbook field. The 19 chapters include discussion of the origin and preservation of fluid inclusions, techniques for finding and studying them, and applications to interpreting sedimentary, metamorphic and igneous petrogenesis, ore deposition, and extraterrestrial environments.

The newcomer to research in fluid inclusions should not pick up the book in the expectation of easily learning how to study fluid inclusions and how to "avoid many of the pitfalls and blind alleys that beset anyone starting in a new field of research" (preface, p.*v.*). After the commitment is made to study fluid inclusions, and some data have been obtained, then Roedder's book will be found useful, and increasingly so as the research progresses. Particularly impressive are the high-quality reproductions of photographs of fluid inclusions, especially those that clearly illustrate progressions of phase changes with temperature. These are invaluable aids for interpreting phase behavior observed in inclusions during cooling and heating. The book is organized so one can quickly and easily find an answer to most questions through combined use of the subject and locality indices and table of contents at the beginning of each chapter. An innovation is that references in the extensive bibliography include the page numbers where the references are used in the text. Would that other writers follow this example! The geological community owes a large debt of gratitude to Roedder for this innovation.

It is extremely difficult to read large sections of the book page-by-page. The lack of coherence is due mainly to many paragraphs that have no obvious relevance to preceding or subsequent paragraphs, or have little relevance to the subject of fluid inclusions. Had these been deleted, the present 425,000 words could have been reduced to a more manageable length; for comparison, the next largest MSA volume has only 220,000 words.

"Fluid Inclusions" is not, as is printed on the front jacket, "an introduction . . .". It is an encyclopedia on the subject and related topics in the style of an annotated bibliography organized under chapter headings. Not to be overlooked or minimized, however, is the fact that Roedder has spent the last 30 years meticulously and relentlessly pursuing answers to hundreds of fascinating petrological problems. His thoughts on each can be found in the book. All petrologists, whether or not interested in a serious study of fluid inclusions, will therefore find "Fluid Inclusions" a useful reference to have on their bookshelves.

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