have become increasingly recognised as important agents in the formation and diagenesis of rocks, especially the finer-grained sediments, including some important mineral deposits. Applied topics of increasing significance such as bioremediation are also well covered. There are few competing books and most of these are unsuitable for undergraduate courses, as they are largely in the form of conference proceedings. The recent advances in microbial biochemistry and genetics provide a wealth of new information on microbial activity with many new opportunities to understand the influence of microbes on geological processes. Kurt Konhauser's new book goes a long way in providing a concise review of this expanding topic. The first two chapters provide a well-illustrated introduction to microbial structure and metabolism. Students with some basic knowledge of chemistry and biology will have no problem understanding the principles involved. Processes such as membrane ion transport and redox reactions, so important to geomicrobiology, are particularly well explained and references to more detailed work are provided. I find his approach to the subject uncluttered. It is presented as a logical progression from the basic biology to the processes of sediment microbial ecology and biomineralization.

The book is well written for the most part, allowing newcomers to the subject to quickly grasp the relevant geomicrobial concepts. Although some of the diagrams have typographic errors, and in the tables and formulae there are occasional mistakes in the chemical symbols, they are for the most part clear and directly relevant to the text. Konhauser concludes with a chapter on Early Microbial Life. While it contains many references to geomicrobial processes, it is slightly at odds with the rest of the book and is a topic which is perhaps best considered in a wider context. Nevertheless, with its extensive references and lucid writing, this book is certainly one for the library shelf.

Allan Pentecost

PABIAN, R., JACKSON, B., TANDY, P. & CROMARTIE, J. 2006. *Agates. Treasures of the Earth*. 184 pp. London: The Natural History Museum. Price £16.99 (hard covers). ISBN 0 565 09195 6.
doi:10.1017/S0016756807003706

Agates are a fascinating and beautiful form of cryptocrystalline quartz and are very popular with gem and mineral collectors and indeed with the general public. This book is aimed at this popular market and is lavishly illustrated, but also contains something for the professional interested in the formation of silica. The volume gives an introduction to agates and then covers the major collecting regions with some emphasis on deposits in Britain and the United States of America.

The volume starts with a very brief introduction and a section on nomenclature that covers a plethora of variety and trade names applied to agates. Agate itself is of course merely a variety name for banded cryptocrystalline quartz. In the section entitled 'What is an agate?' Roger Pabian and his co-authors try to explain in simple terms the formation of agate. This is a complex subject and many aspects remain unresolved. What is clear is that agates crystallize from a gel and generally crystallization occurs a low temperature of 40 to 50 °C. The general process of formation of the banding is well explained by a set of excellent schematic diagrams. This section is followed by an illustrated guide to the different types of agate with some beautiful examples, including a photograph of an iris agate, a type of agate in which the banding is so fine and regular that the microstructure acts as an optical diffraction grating. The remainder of the book is largely devoted to information about the localities of agate deposits. Again this section is illustrated with some excellent specimens.

My only reservation is the inclusion of photographs of samples for which there are no locality data. The lack of accurate locality data for samples is the bane of museum curators' lives. A sample without accurate locality data is largely worthless and it sets a bad example for collectors to include photographs of material without proper data.

Overall this is a nice little book, the design and layout is excellent, and although aimed at the popular market, the authors are to be congratulated for including a fairly extensive bibliography. I am sure that this book with be popular with collectors and the general public.

Allan Pring

KENNEDY, B. A. 2006. *Inventing the Earth. Ideas on Landscape Development Since 1740*. xi + 160 pp. Malden, Oxford, Carlton: Blackwell Publishing. Price £50.00 (hard covers), £19.99 (paperback). ISBN 1 4051 0187 3; 1 4051 0188 1 (pb).
doi:10.1017/S0016756807003731

This book provides a commentary into how the science of geomorphology has developed since the 18th Century. The emphasis is on key episodes and individual scientists who are perceived to have contributed to the understanding of Earth surface processes and the resultant morphology of planet Earth.

The book begins with a succinct account of how scientific explanations (paradigms) are invented and some of the problems that are inherent with paradigm shifts. References are made to key natural philosophers (e.g. Kuhn/Popper) and the scientific principles/methodologies to which Earth scientists typically adhere. These philosophical and scientific principles are well illustrated with numerous examples of major geoscience paradigms (e.g. continental drift) and in my opinion make this chapter one of the more accessible introductions to the scientific methodology of geosciences around.

Early chapters of the book try to tackle some of the important questions that early geoscientists in the 18th and 19th centuries grappled with. For example, the uncertainties concerning the age and origin of the Earth are eloquently presented, outlining the initial influence and conflict with religious beliefs and their contrasts with the physical and natural scientific approaches of scientists such as Buffon, Hutton, Lyell and Kelvin (Chapter 2). Material is written with a balanced perspective and the reader certainly gets a feel for a time of scientific debate littered with claims, dismissals and counter claims. Hutton and Lyell receive a fairly detailed treatment (Chapter 3), outlining the geomorphological context of their theories and principles that are now perceived to be the birth of modern Earth sciences. The role of ice and its associated climate changes for sculpting landscapes is highlighted using the work of Louis Aggasiz (Chapter 4). The contributions of Charles Darwin to geomorphology (Chapter 5) are stated as 'genius' based upon his numerous observations of the forces of glacial, fluvial and marine agents for landscape erosion and not just his work on evolution.

The middle part of the book documents the advances that took place during the late 19th and early 20th centuries, most