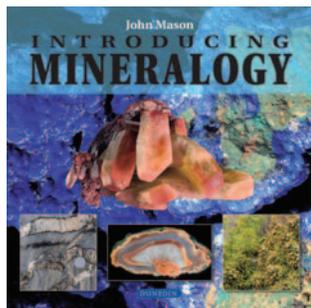


## INTRODUCING MINERALOGY<sup>1</sup>

*Introducing Mineralogy* is aimed at the amateur collector and anyone interested in minerals. It would also be appropriate for an introductory mineralogy class for nonscience majors. The author, John Mason, has done an outstanding job of presenting complex notions in simple terms,



providing many examples to which the reader can relate. The book is divided into seven chapters, and throughout, terms defined in the exhaustive glossary are highlighted. The book is also well illustrated, with over 100 color photographs mostly illustrating examples from the UK.

The first chapter presents the basics of mineralogy and crystallography. It can serve as a quick refresher if your notions of mineralogy are dusty. Chapter 2, Typical Mineral Occurrences, introduces

the main rock-forming minerals in the context of the three great rock classes. In chapter 3, Atypical Concentrations of Minerals, the processes leading to the formation of ore deposits are explained. Chapter 4, for the would-be collector, introduces this wonderful hobby and gives many tips on how to start. I found it interesting to read about the UK situation as regards mineral collecting. In chapter 5, Studying Mineral Assemblage and Parageneses, the minerals are discussed under different scales of magnification, starting with hand sample observations and passing to thin section characteristics and scanning electron microscope images. The uses of minerals are outlined in chapter 6. The book closes with a discussion of minerals and the environment. In this chapter, the author illustrates how minerals can both cause and cure pollution.

This book would have benefited from rigorous copyediting to reduce many long-winded sentences. The peculiar usage of hyphens (ore-deposits, magma-chambers, heat-engine, fracture-plane, fracture-systems, etc. versus platinum group metals, hand-in hand, fracture walls) and capitals was also distracting to this reader. But all in all, the book is a good introduction to the science of mineralogy.

The publisher, Dunedin Academic Press ([www.dunedinacademicpress.co.uk](http://www.dunedinacademicpress.co.uk)), offers many Earth science titles, including a series on classic European localities and an introductory series on aspects of Earth sciences (volcanology, sedimentology, tectonics, etc.).

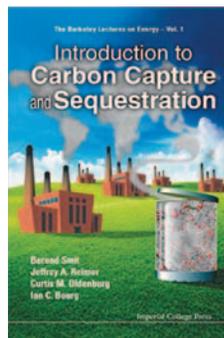
**Pierrette Tremblay**, Lévis, Canada

1 Mason J (2015) *Introducing Mineralogy*. Dunedin Academic Press Ltd, Edinburgh, ISBN 9781780460284, 118 pages



## INTRODUCTION TO CARBON CAPTURE AND SEQUESTRATION<sup>2</sup>

*Introduction to Carbon Capture and Sequestration* is the first volume of the Berkeley Lectures on Energy series and is published by Imperial College Press. The book has a very appealing visual format, one that captures the attention of the reader without creating unnecessary distraction.



The US-based authors, Berend Smit, Jeffrey A. Reimer, Curtis M. Oldenburg and Ian C. Bourg, are well-known researchers of carbon capture and sequestration (CCS).

The book is organised such that the reader, whether familiar or new in the field, can build up their knowledge of the main questions regarding energy production and usage and what the consequences of each are in terms of carbon emissions. Following the introductory chapter on energy and electricity, there follows a very good description of current atmospheric and climatic models and a discussion of their associated uncertainties (chapter 2). In this

chapter, the authors venture into the realm of philosophy to discuss the “Truth” behind climate models and how scientists approach these very complex systems that are fraught with uncertainties.

Chapter 4 provides an excellent mix of describing the current technological solutions to carbon capture and explaining the thermodynamic laws that control gas separation. A graph showing the dependence of separation work on molar content of CO<sub>2</sub> is most informative and the discussion on parasitic energy of the carbon capture process makes very good teaching material. In the following chapters (5–7), the authors get inside the main carbon capture process and discuss absorption, adsorption and membrane techniques. Again, the mix of technological descriptions with thermodynamic basis and insights into molecular design is very pedagogic and nicely illustrates the different research areas involved in these carbon separation processes. There are also some simplistic cost analyses relating to the absorption and adsorption CCS technologies that might give the reader an idea of the complexity of investment decisions regarding this expensive technology. The chapter on membranes (chapter 7) is more front-edge and research-oriented and provides insights into the potential routes for carbon-capture efficiency.

In chapter 8, the authors provide a basic introduction to geological sequestration. Here, they illustrate the main CO<sub>2</sub> trapping mechanisms involved and the various geological settings that are favourable to carbon-dioxide storage. The mechanisms and their associated scientific challenges are discussed in chapter 9, called “Fluids and Rocks”: a deceptively generic title that hides a thorough description of the various trapping processes. Chapter 10 is a discussion of the consequences and challenges of large-scale CO<sub>2</sub> geological sequestration (storage); the final chapter (chapter 11) discusses the difficult issue of geo-engineering as a mitigation route for CO<sub>2</sub> emissions.

Overall, I highly recommend this book for any scientist wishing to understand CCS from different perspectives: the culprits, the global consequences, the potential solutions for mitigation of carbon emissions, the technologies involved in carbon capture, and the science behind the processes controlling carbon capture and storage. Everything is written in a clear and rigorous fashion with plenty of illustrations and associated web support. My only negative comment is that the authors do not use the international metric system in their work. This is somewhat surprising for a book that touches on a global issue. Nevertheless, I wish that this excellent book had been available when I started working on CCS some 15 years ago.

**Jordi Bruno**, Barcelona, Spain

2 Smit B, Reimer JA, Oldenburg CM, Bourg IC (2015) *Introduction to Carbon Capture and Sequestration*. Imperial College Press, London, ISBN 978-1783263288, 596 pages