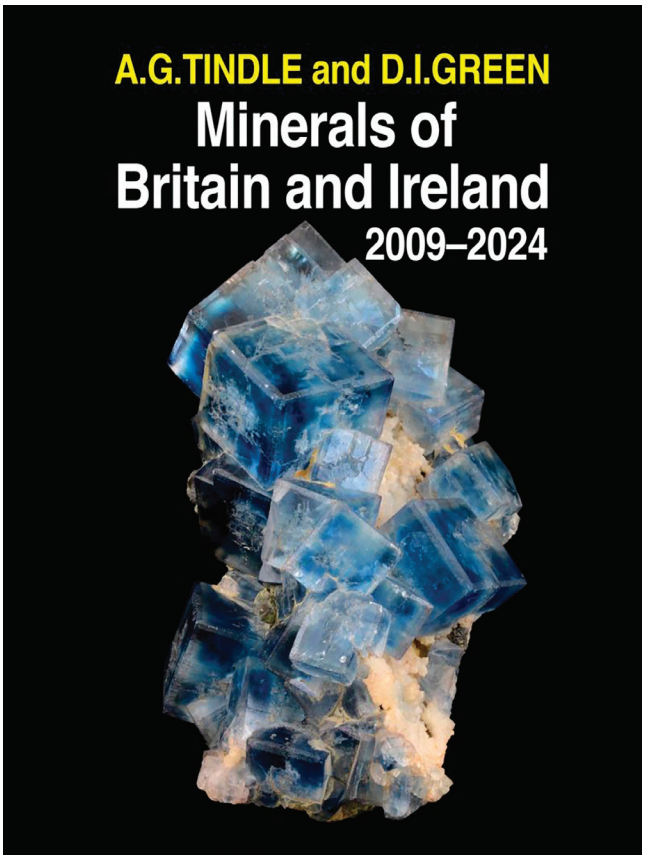
MINERALS OF BRITAIN AND IRELAND 2009–2024

by Andrew G. Tindle and David I. Green



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Landmark works on national or regional topographic mineralogy, written by experts in their field, and based on 15 years of unrelenting research, do not come along every day. The book under review, which I wholeheartedly recommend, is one such work.

Back in 2008, Andrew Tindle (Open University, UK; emeritus) authored the single most important work on topographical mineralogy for Britain and Ireland in 150 years: *Minerals of Britain and Ireland* (2008, Terra Publishing), hereafter 'MBI-1'. This magnificent book, which itself took about 15 years to write, was the true successor to Greg and Lettsom's legendary *Manual of the Mineralogy of Great Britain and Ireland* (1858, J. Van Voorst). Now, like Francis Ford Coppola and the *Godfather* films, Tindle and new co-author David Green have followed up MBI-1 with the equally dazzling, mineralogically virtuosic, and very readable update that is *Minerals of Britain and Ireland 2009–2024*, hereafter 'MBI-2'. This is not a second edition. This is a fresh work: MBI-2 updates, adds to, and refines MBI-1, but it does not repeat information from MBI-1. Both books now form an indispensable, indivisible, whole.

All the new mineral species and occurrences since 2008 from Britain (i.e., England, Wales, Scotland, and the offshore islands) and from the island of Ireland (both Republic and Northern Ireland) are documented. But this is just the starting point. The authors have also performed the Herculean task, since MBI-1, of keeping on top of the many changes in official mineralogical nomenclature and of applying these updates to *all* the previously reported mineral species' chemistries (not just the amphiboles!) by recalculating the compositional or structural changes and then making all the necessary species re-assignments. One consequence of this is a new listing of minerals that should no longer be considered valid, or as occurring, in Britain or Ireland. Many mineral entries in MBI-2 also come with an assessment by Tindle and Green on aspects such as validity, locality of occurrence, and so on, comments that derive from a lifetime of experience studying the chemical and structural data and the mineral specimens themselves (and their parageneses). There is a must-read eight-page Introduction that clarifies the concepts necessary to properly comprehend the book's main contents: these concepts include trends in mineralogy, conventions and terminology, type localities, species names and group hierarchies, error and uncertainty in determining either a species or a locality, the data sources used, etc. There are 33 pages of references, and no less than 12 appendixes covering such aspects as type localities, minerals named after British and Irish people and places, obsolete mineral names, and much more. There is, on average, one high-quality mineral photograph per page, making the book a visual feast also. The end result is phenomenal.

If you are not a mineralogist, you will find some surprises that derive from current International Mineralogical Association (IMA) rules, all of which Tindle and Green have followed. Thus, 'anorthoclase' and 'tetrahedrite', species names that I grew up with, are no longer valid. I noted seemingly inconsistent use by the IMA of hyphens in mineral names. The authors themselves identify some looming difficulties, e.g., the IMA definition of 'wavellite' has troubling implications for what, historically, has been considered this mineral's type locality at High Down Quarry in Devon (UK). And I was surprised to learn that all the 'leucites' listed in MBI-1 are, in fact, pseudomorphs or misidentifications of analcime, meaning that there are now no leucite occurrences in Britain or Ireland. Analogously for chrysoberyl.

An important matter of science procedure rears its somewhat paradoxical head. There are many dozens of mineral species and occurrences, including some first occurrences for a country, that are given in MBI-2 either as a 'pers. comm.' or as 'unpublished data' by named (and evidently trusted) mineralogists. This is, on the one hand, a considerable strength of the volume: readers are made aware of mineral species that exist, and of localities in which they occur, that otherwise would only be known to a tiny handful of people. The authors have done an exceptional job in collating this 'hidden' information, which applies to all of Britain and Ireland. But, on the other hand, for these, at times revelations, to be published in the primary scientific literature, we need the actual data, a primary reference, and to know where the voucher specimens are. When researchers do not write up their discoveries, or properly curate their specimens, awkward situations arise in the secondary literature. For example, the only 'approved' single occurrence of the rare mineral 'pharmacolite' across all of Ireland and Britain derives from one unpublished, unidentified, sample from Lisheen Mine (Co. Tipperary, Ireland) and is in the form of a 'pers. comm.' Or that the entire MBI-2 entry for 'crocoite' tells of unreliable reports, fraudulent examples, previous errors, and only two locations from where crocoite has been confirmed. Yet all this is based on unpublished data and a 'pers. comm.' It's simultaneously enlightening, essential, and frustrating. Nevertheless, we should be immensely grateful to Tindle and Green for giving us the state of play.

One of the most exciting aspects of MBI-2 is the demonstrated potential to find new mineral species for Britain and Ireland and, possibly, new species to science. The authors have done much of the hard work to pinpoint various opportunities, and the alert mineralogist/geologist will find no difficulty in identifying others. So, cometh the hour, cometh the researcher, and will cometh the papers.

There are relatively few typos and other errors. Among these, I have spotted only one erroneous chemical formula: 'fluor-schorl' has the formula for bosiite. Overall, the book's production of hardback covers, printing, sewn binding, and paper quality is excellent.

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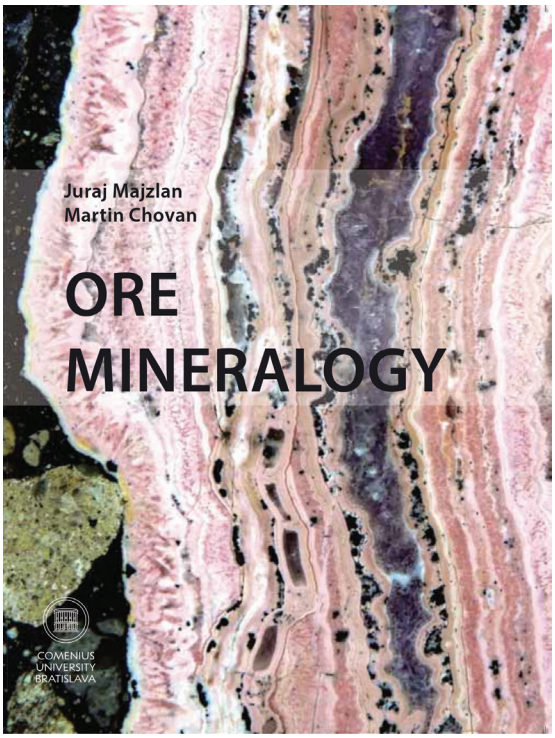
ORE MINERALOGY
by Juraj Majzlan and Martin Chovan



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Available from https://members.minersoc.org/Other-Pages/Shop.

Ore microscopy and ore mineralogy have a long-standing tradition and played a foundational role in studying ore deposits before the implementation of advanced analytical techniques. Even with modern technological developments, ore microscopy remains essential for understanding ore deposits. However, contemporary textbooks on these subjects are scarce. The book *Ore Mineralogy* by Juraj Majzlan and Martin Chovan is, therefore, a highly valuable addition, as it not only introduces the fundamentals of ore microscopy but also integrates crucial aspects of ore textures, crystal chemistry of simple and complex ore minerals, as well as modern chemical and spectroscopic methods for ore analysis.

This book presents an excellent and highly accessible resource for undergraduate geoscience students, researchers, and professionals seeking a foundational understanding of ore mineralogy and its applications. The book combines theoretical insights with practical knowledge, fostering a deep appreciation of the role ore mineralogy plays in both academia and industry.

One of the key strengths of the book lies in its clear focus on the practical skills essential for geoscience students. Rather than overwhelming readers with excessive technical detail, the book begins with a concise chapter on the basics of ore microscopy. This chapter emphasizes the broader conceptual framework that underpins ore mineralogy, making it ideal for beginners or those seeking a refresher.

A distinctive feature of the book is its special emphasis on ore textures and the optical properties of ore minerals in reflected light. These aspects are crucial for understanding mineral formation processes and identifying ore minerals in hand samples and thin sections. The text guides readers through a detailed yet accessible overview of typical ore minerals, outlining their key properties and significance in various geological settings. Many high-quality microphotographs effectively illustrate the characteristic properties of ore minerals and textures in reflected light.

In addition, the book presents a structured discussion on ore textures commonly associated with different ore deposit types. Various examples are used throughout to contextualize theoretical concepts, making the material engaging and relatable. These examples are enhanced with high-quality macro- and microphotographs that vividly document ore textures and the optical features of minerals under reflected light and in hand specimens. These visual aids are instrumental in helping readers develop the observational skills needed for microscopy studies and field work. An important strength of the book is that it goes beyond microscopic analysis of ore minerals and textures, also incorporating hand specimens and outcrop observations, which are crucial elements for understanding the genesis of ore deposits.

The text goes further by incorporating important principles of crystal chemistry, linking the physical and optical properties of minerals to their internal structures. This connection deepens the reader's understanding of why minerals behave the way they do, reinforcing the conceptual foundation required for more advanced study or professional work. Complementing this is a practical section on mineral formula calculation, providing students with essential tools for interpreting mineralogical data from electron microprobe analyses and other techniques.

A valuable feature of the textbook is its detailed overview of analytical tools used in the classification of ore deposits. These include micro-X-ray fluorescence, electron microprobe analysis, cathodoluminescence, automated scanning electron microscopy, laser ablation inductively coupled plasma mass spectrometry, laser-induced breakdown spectroscopy, hyperspectral techniques, and Raman spectroscopy. Notably, the integration of these modern methods with traditional reflected light microscopy highlights the book's comprehensive and contemporary approach to ore mineralogy.

Importantly, the book positions ore mineralogy not only as an academic discipline but as a field with strong practical relevance to exploration, mining, and ore processing. By highlighting the role of mineralogical skills in locating and evaluating ore deposits, the book underscores its value beyond the classroom.

In conclusion, this book is an excellent resource that delivers both depth and clarity, making it ideal for a diverse audience. Whether used as a textbook for geoscience courses (not only for reflected-light microscopy courses) or as a reference for professionals in mineral exploration and processing, it offers a solid foundation in ore mineralogy and promotes the development of skills critical to the geosciences.

Malte Junge
Natural History Museum Bern
Switzerland

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The deeper one reads MBI-2 (using cross references within MBI-2, referencing back to MBI-1, exploring asides, using the appendixes, and re-reading the invaluable eight-page Introduction), the richer the book becomes and the more one appreciates the magnitude of what the authors have accomplished. With its immense wealth of information mixed with plot twists and surprises, I now read the book almost as I would a thriller. This is essential reading for every amateur and professional mineralogist, no matter where they come from. Contact the Russell Society and get a copy before it goes out of print.

Patrick Roycroft
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