

Pegmatites. DAVID LONDON. 368 Pp. The Canadian Mineralogist, Special Publication 10. Mineralogical Association of Canada, Québec, QC G1K 9A9. ISBN 978-0-921294-47-4. 2008. Price US \$125.00, MAC Members US \$100.00.

If asked to name a type of unaltered igneous rock with economic potential, many geologists would respond “pegmatite”. And, if they didn’t know already, the economic geologists among them would be gratified to learn that a commonly used classification system of pegmatites is a chemical one (LCT for Li-Cs-Ta pegmatites, and NYF for Nb-Y-F pegmatites), and that pegmatites concentrate more elements of the periodic table to mineable grade than any other igneous rock, not to mention their additional considerable gem (tourmaline, beryl, topaz, garnet) and ceramic (feldspar, quartz, muscovite) potential. Economically attractive, certainly, but with their bewilderingly large range of chemical compositions, minerals, textures, and relations to granites, pegmatites also present an almost intractable petrogenetic challenge.

David London has crystallized his considerable knowledge of pegmatites into a single attractive gem of a book. **Pegmatites** is part coffee table book (with its wealth of high-quality color photographs and effective line drawings), part igneous petrology textbook (with good explanations of all the necessary concepts, and its raising of the pedagogical standard), and part pegmatite polemic (with its strong, but controversial, advancement of the London model for the origin of pegmatites).

Pegmatites is an outstanding example of expository writing. Part I is the descriptive section that presents all the background information and observational data (definitions, history of investigation, anatomy of pegmatites, classification, mineralogy, and many examples of pegmatite types) one needs to know to grasp the magnitude of the petrogenetic problem. In particular, the mineralogy chapter is better than a day spent in the mineral gallery of a good museum, but all these descriptive chapters are systematic and comprehensive in their coverage, and allow all readers from novice to professional to get up to pegmatite speed before tackling the second part. Part II is the analytical section that provides all the arguments (field geology, mineralogy, texture, chemistry, diffusion, rheology, pressure-temperature, and experiments) necessary to support the London model for the origin of pegmatites. London notes in several places that the intuition/evidence ratio was rather high in the famous Jahns-Burnham model for the origin of pegmatites (published forty years ago right here in *Economic Geology* 64, 843-864, 1969), and successfully sets about to reduce that ratio in the London model.

Part of what makes this book so attractive is its less-than-formal style of writing. Most pleasing is London’s common use of the first-person pronoun “I”. It avoids the cowardly passive voice (e.g., “it is believed that”), and unmistakably makes clear that this is David London’s view of pegmatites. Also laudable is London’s unabashed use of exclamation marks! With them, he reveals that he is not able to contain his enthusiasm for this subject.

Some other aspects of the use of language fall a bit short of full grammatical rigor (e.g. vague pronouns, misplaced modifiers, “this is because”, “this is what”, “none are”), but because the writing style occupies an intermediate position in the solid solution series between colloquial and fully formal, these grammatical departures seem to matter less.

Two additional challenges of good scientific writing are to find the right balance between text and graphics (photographs, line drawings, and tables), and then to ensure that the graphics are of high quality and effectiveness. The field and hand-sample photographs in this book are stunning, and the (mostly) original line drawings are especially well thought-out for those whose mode of learning is more visual-spatial than textual. Just as one example, Figure 17-3 clearly illustrates, on an atomic level, the differences among various styles of crystal growth involving a boundary layer melt that is so essential to the London model. With this figure alone, students will be able to understand this concept immediately. One figure, which is missing but would have been consistent with the otherwise high standard of expository writing, is a summary graphic of the London model. **Pegmatites** also contains many tables of data (e.g., modal abundances, chemical analyses, distribution coefficients, viscosities, etc.) essential to the quantitative understanding of the London model. One table, which is also missing but would have been consistent with the otherwise high standard of expository writing, is a summary comparison of the Jahns-Burnham and London models under every possible category so that the reader could see the stark differences between them at a glance. Next edition, perhaps.

The reference list is extensive. The inclusion of a CD with a copy of the 1982 Mineralogical Association of Canada (MAC) Short Course on Pegmatites, and all of the illustrations from **Pegmatites** for teaching purposes, is a great gift to the reader and to future generations of students. However, given the high quality of everything else in the book, the omission of an index to its contents is difficult to understand. Accessibility is also an important element of scientific style, and an index is essential for anyone wanting to retrieve information from the book (e.g. where does the book deal with tourmalines, or with REEs, or with cooling rates?). Retroactively placing such an index on the MAC website and on future copies of the CD, would be a significant improvement to a book that is already outstanding.

So, how would you like your pegmatites served? The menu choices are now clear. Pegmatites are prepared either simmeringly hot, steamed, and slow à la Jahns-Burnham (complete recipe in Chapter 13) or strongly undercooled, *sec*, and fast à la David London (complete recipe in Chapter 17). Either way, though, London’s informative, systematic, entertaining, and provocative book is a superb resource for virtually everything one might want to know and understand about pegmatites. It presents a comprehensive and forthright statement of the London model (whether one accepts it or not), complete with the supporting evidence. **Pegmatites** will be an indispensable reference point, a major inspiration, and probably even a prominent target, for all pegmatite investigators for at least the next forty years.

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