

## BOOK REVIEWS

Mackenzie, W. S., Donaldson, C. H., and Guildford, C. *Atlas of Igneous Rocks and their Textures*. Longman Group Ltd., 1982. vii + 148 pp., 293 colour photographs, 12 figs., 2 tables. Price £9.95.

In the production of this book, the authors have displayed not only their belief in the scientific value, but also a measure of simple delight in the beauty and variety of the textures of igneous rocks when viewed in thin section with the polarizing microscope. They have done this through the medium of coloured photomicrographs, following the pattern in the companion volume *Atlas of Rock-forming Minerals in Thin Section* (M.M. 43-1075). The photographs are of good quality and generously displayed on glossy pages of large size (approximately 22 × 28 cm). The result is an attractive book which will appeal not only to formal students in earth sciences (and, I suspect, to many teachers), but also to the growing numbers of those who are interested in collecting and studying rocks and minerals at home or as an extra-mural and possibly museum-linked activity. Amongst this readership there will be some with the necessary enthusiasm and dexterity to make their own thin sections following the methods described in a two-page appendix. It is good to be reminded that thin sections, which are so critical in any scientific study of rocks, can be produced, given time, and skill, with simple equipment and at low cost.

Part I (pp. 1-74) deals with textures, and Part II (pp. 75-141) illustrates the features shown by sixty-three selected examples of igneous rock types. Illustration of most of the textures and each of the major rock types is by matched pairs of photomicrographs of a selected field, the first with plane polarized light (PPL) and the second between crossed polars (XPL).

The wealth of illustration is effective and necessary for the book to be as valuable as it undoubtedly is in extending the range of experience of igneous rocks and their textures beyond the limitations set for most users by availability of collections, laboratory time, and expert tuition. Even having the combination of PPL and XPL photographs, and with fields of view large enough to be representative for most rocks, there still remain significant gaps in the information that can be read from 'static' illustrations which experienced teachers will recognize: is this black area seen in the XPL photograph volcanic glass, an isotropic grain, an anisotropic one in extinction, or a hole in the rock-slice? In addition, there are a few kinds of rock—commendably few with the quality of illustration

provided—that defy adequate representation by the means chosen. It is no reflection on the quality of production to say that some illustrations of coarse-grained quartz-feldspathic or feldspathoidal rocks appear very uninformative with both PPL and XPL, and the same is true of some of the poorly crystalline to glassy volcanic rocks, particularly when, as is commonly the case, they have been affected by devitrification or alteration, giving a fuzziness that could only be resolved in practice under the microscope. These would be serious criticisms if the authors claimed this to be an instructional textbook of petrography. They very consciously do not do this and indicate clearly that learning the subject requires dedicated practical work with the microscope, preferably with guidance from an experienced teacher. Adequate grounding in the principles and practice of mineral identification is a necessary preliminary.

Only this, accompanied by reference to relevant texts, will give a student the confidence, manipulative skill and three-dimensional feel for the subject which microscopic petrography needs if it is to be of scientific value as well as general interest.

The authors have used traditional and descriptive terminology as far as possible, and avoided rock names and textural terms that offer particular genetic implications. This seems wise on several counts. First, as stressed by the authors, readers will hopefully be less constrained by prejudice in interpreting evidence from the photographs. Secondly, the rate of advance of theoretical knowledge and laboratory techniques relating to the behaviour of melts, glasses and crystallizing phases is too rapid at present for dogmatic interpretation and thirdly, geological factors which are often critical in the interpretation of textures are not considered in a book such as this Atlas.

I view the Atlas as a welcome companion to the literature, and one that will stimulate interest in the practical development and application of microscopic petrography.

M. K. WELLS

Williams, H., Turner, F. J., and Gilbert, C. M. *Petrography: an Introduction to the Study of Rocks in Thin Sections* (Second Edition). San Francisco and Oxford (W. H. Freeman), 1982. xiv + 626 pp., 162 figs. Price £20.95.

This book is best reviewed by comparison with the First Edition published in 1954 as a relatively slim volume of about 400 pages. It has been widely