

which covers much of the same ground. Nonetheless, it represents an interesting approach to the problems of teaching thermodynamics to petrologists, and it deserves serious consideration by those involved in such teaching.

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Mason (R.). *Petrology of the Metamorphic Rocks*. London (George Allen and Unwin), 1978. xvi + 254 pp., 122 figs. Price £10.95 (boards), £5.95 (paperback).

This is the metamorphic counterpart of the well-known text *Petrology of the Igneous Rocks* by Hatch, Wells, and Wells; it aims to be comprehensible to geology students who are not necessarily petrology specialists. General principles are illustrated by selected suites of metamorphic rocks, the underlying theme being the recognition of equilibrium assemblages in metamorphism. The three parts of the book deal with metamorphic rocks in the field, under the microscope, and in the laboratory—the latter including useful chapters on the study of metamorphic reactions, isotope geology, and electron-probe microanalysis.

The part on metamorphic rocks under the microscope takes up more than half of the book and will be the section of most general use. It is illustrated by thin-section drawings keyed to the text and generally of rocks from Britain or Europe. This section deals with considerably more than petrography, ranging as it does from consideration of the phase rule and AFM and ACF diagrams to the conditions of formation of blueschists. Contact rocks, however, are dealt with rather summarily (Skiddaw, Comrie, Skye) and with virtually no descriptions of skarns or of the problems of metasomatism. For dynamic metamorphism we are taken to Turkey and to the Lochseiten mylonite, Switzerland, but also included are descriptions of progressive shock metamorphism at the Ries crater, Germany, and of metamorphism in Moon rocks.

Regional metamorphism is split into a consideration of metamorphic rocks of Precambrian shield areas, Palaeozoic orogenic belts, Cainozoic orogenic belts, the ocean floor, and the upper mantle. After consideration of the pyroxene gneisses of the Scourie area and Lewisian migmatites, progressive Barrovian regional metamorphism of pelitic and basic igneous rocks in orogenic belts is exemplified not by the Scottish Dalradian area but by the Furulund schist and Sulitjelma amphibolites of Norway. For this interesting departure the author is to be congratulated: in this area the two respective stratigraphical units can be traced continuously from low- to high-grade assemblages; the progressive changes are sketched in AFM diagrams

and the textural developments are integrated. A different type of regional metamorphic sequence is described from the Dalradian schists of Connemara, the later phases of which represent a Buchan-type assemblage, thus leading to consideration of variations in the conditions of metamorphism in space and time. A description of the Alpine orogenic belt includes descriptions of the progressive regional metamorphism of pelitic rocks above the Aar massif and of basic igneous rocks in the Pennine nappe, going on to a consideration of retrograde metamorphism. The Troodos basic-ultrabasic complex of Cyprus illustrates metamorphic rocks of the ocean floor, and the upper mantle is represented by the xenoliths of eclogite in the South African kimberlites. Throughout this section some of the pitfalls of nomenclature are carefully avoided; pelite and psammite are eschewed though their adjectival forms are used.

The chapter on metamorphic reactions comes in part III, though its contents need to be studied in conjunction with the rock descriptions of part II. The introduction of the concept of metamorphic facies at this stage is, however, well justified: as the author states, the assignment of a suite of metamorphic rocks should come at the end of an extensive programme of field and microscopic rocks not at the beginning. The uses of both unstable (radioactive) and stable isotopes are described, including the application of oxygen isotope geothermometry to progressive regional metamorphic sequences. The final chapter deals with metamorphic rocks and the evolution of the earth, with mention of paired metamorphic belts and introducing a model of the crust and upper mantle beneath an island arc.

Terms in the eight-page glossary are indicated in bold type when first introduced in the text. The printing and diagrams are clear and such oddities as Beinn an Duhaich being shorn of its final 'h' throughout the book will no doubt be rectified in succeeding editions which will assuredly be necessary. A book to be digested thoroughly by students before entering their final Honours petrology course.

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Rösslin (Eucharius) d. 1526. *Eucharius Rösslin The Younger on Minerals and Mineral Products. Chapters on Minerals from his 'Kreuterebuch'* (Critical text, English translation, and commentary by J. S. Belkin and E. R. Caley). Berlin and New York (Walter de Gruyter & Co.), 1978. xxxviii + 415 pp., 3 figs. Price DM 240.

The mineralogist interested in the curious lore of the late Middle Ages that surrounded minerals, especially in connection with the use of such