

FRONDEL (JUDITH W.). *Lunar Mineralogy*. New York and London (John Wiley & Sons), 1975. x+323 pp., 100 figs. Price £11.75, \$23.50.

It is now about seven years since the first man landed on the moon in the Apollo programme. Nearly 400 kg of lunar rock has been brought to Earth and publications on a wide variety of physical and chemical properties of lunar specimens have appeared throughout the scientific literature and in the accounts of annual Lunar Science Conferences. Gradually, from this work, a better understanding of lunar history and processes is emerging, though many of the fundamental questions remain to be answered. Equally significant are the intensity with which lunar minerals have been studied, the potential importance of this to mineralogy in general, and the stimulus that has been given to the subject. Thus both for lunar and terrestrial mineralogy, Judith Frondel's book performs a very valuable service.

The book is a development from two editions of a Glossary of Lunar Minerals, compiled as an aid to Principal Investigators in the Apollo Programme. It now contains summaries of the occurrences and descriptions of all the minerals found in Apollo 11 to 17 and in the Soviet Luna 16 and 20 samples, and has a very comprehensive coverage of references to the literature. The mere collection of this work on about sixty or seventy mineral species is a difficult task, but the author has also managed to produce a narrative tying together scattered observations and distilling conclusions of mineralogical and petrological significance.

For each mineral species there are sections dealing with synonymy, occurrence and form, optics, chemical composition, and X-ray diffraction data. For many minerals the peculiar lunar environment has imposed rare features—extreme compositions, low oxidation states, unusual morphology, shock effects—and in some conditions, a completely new mineral has resulted. These are all described, as are also a number of minerals for which there is at least some probability that they are contaminants introduced during the investigations; since nobody can be quite sure, it is therefore entirely appropriate to list them. An introductory chapter gives a useful short account of the geology of the Moon and a comparison of lunar and terrestrial mineralogy. The book is liberally illustrated by the highly photogenic lunar specimens as seen by transmitted or reflected light or by transmission or scanning electron microscope.

This book comes at the right time and can be recommended to mineralogist and petrologist researchers whether or not they are involved with lunar samples.

J. ZUSSMAN

SHELLEY, D. *Manual of Optical Mineralogy*. Amsterdam, Oxford, and New York (Elsevier Sci. Publ. Co.), 1975. xiv+239 pp., 133 figs., 1 coloured pl., 25 tables. Price: cloth Dfl. 65.00 (\$26.95); hard Dfl. 85.00 (\$35.50).

Optical mineralogy very properly forms a major part of most university courses in geology and is a prerequisite for petrography. In this text the author has successfully combined data on the properties of minerals with descriptions of those aspects of crystallography, the polarizing microscope, the optics of anisotropic materials, and