

drawn from the authors' long teaching experience in the subject, even down to reminding the student to have a sharp and suitable pencil ready for plotting the stereograms. Many useful graphical aids are incorporated in the handbook, including a large Wulff net and four charts for interpreting single crystal X-ray photographs printed on transparent plastic film.

The manual is a rigorous and authoritative guide to elementary crystallography but, being a laboratory manual, it does not concern itself with the theory of the subject. The student is assumed to already have a thorough understanding of such matters as symmetry, indexing, and the reciprocal lattice. For this reason the usefulness of the book will largely depend on whether it is used in conjunction with a course similarly structured to that for which it was originally written. Certainly many of the individual exercises could profitably be adopted by other crystallography instructors, but most courses taught in geology departments would probably place greater emphasis on the X-ray powder method than is done here. The instructions that accompany the X-ray assignments make it clear that the original students were provided with actual X-ray films to measure, but for cheapness of reproduction only xeroxed copies are given in the manual. A student without access to X-ray laboratory facilities could probably follow the exercises adequately using these reproductions, but hopefully any teacher adopting the handbook for class use would try to provide the student with appropriate crystals and access to X-ray equipment.

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Shams, F. A. ed. *Granites of Himalayas, Karakorum and Hindu Kush*. Lahore (Institute of Geology, Punjab University), 1983. xxviii+427 pp., 164 figs. Price Rs 400.00 (\$50).

This volume, commemorating the 100th anniversary of the University of the Punjab, contains twenty-four papers on the geology of the Himalayan mountain belt and especially its granites. There are contributions from both sides of the Himalayas and from Europe and Japan, so that the volume brings together the results of all the major research teams working in this fascinating but inaccessible region.

The granitic rocks of the Himalayas are very diverse in age (Precambrian to late Tertiary), petrography (peraluminous to peralkaline) and mode of occurrence (migmatites to high-level dykes and sills), as might be expected in such an extensive and complex mountain range. Notable characteristics are the frequent occurrence of tourmaline-

bearing granites and the apparently common sill-like form of the granite bodies in some areas. The papers in this volume cover all aspects of granite petrology from field relationships to chemical and isotopic composition. (Abstracts of each paper appear in the September issue of *Mineralogical Abstracts*: 85M/3361-3384.) It is remarkable that such a remote area as eastern Tibet should have been more vigorously subjected to isotopic age determination than some parts of the British Isles, but reliable age determinations have played a vital role in clarifying the geology of the Himalayan region. Because of their geologically recent development, the Himalayas may prove crucial in studying the origin of granites in orogenic collision zones, and this volume will be an essential source of information for future workers in the region.

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Harmon, R. S., and Barreiro, B. A., eds. *Andean Magmatism: Chemical and Isotopic Constraints*. Nantwich (Shiva Publications Ltd.), 1984. x+250 pp., 91 figs. Price £25.00 (hard), £12.50 (paper).

This book developed from an informal symposium at the Spring 1983 meeting of the American Geophysical Union held in Baltimore, Maryland. Ten papers are included on the volcanic rocks of the Andes, with six papers on the plutonic rocks of this area of South America [MA 85M/1684-1699] and should be read in conjunction with the recent thematic issue of the *Journal of the Geological Society* on Geology of the Andes [MA 85M/0906-0917]. The tectonic setting is outlined by R. S. Thorpe and this is followed by papers containing a wealth of isotope and trace-element data for rocks ranging from the Austral Volcanic Zone of the Andes (49°-55° S) to those of the Northern Volcanic Zone in southwestern Colombia. The Peruvian Andes are covered by a series of papers by W. S. Pitcher and M. P. Atherton (Liverpool), by S. B. Mukasa and G. R. Tilton (Santa Barbara) and D. J. Kontak, A. H. Clark, and E. Farrar (Queen's University, Kingston, Ontario). The geochemical characteristics of magmatism in the southern Andes are discussed in detail by D. S. Bartholomew and J. Tarney.

Altogether this is a highly pertinent series of papers representing a rapid and economical publication of this state-of-the-art symposium which all igneous geochemists and petrologists will want to have available.

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