

kornerupine. It is followed by information on pearls, including the method of valuation, which rivals the calculation of the date of Easter. The chapter incidentally contains an account of the establishment and development of the formidably named Gem Testing Laboratory of the Diamond, Pearl and Precious Stone Trade Section of the London Chamber of Commerce and Industry. A useful glossary, an alphabetical list of gemstones and their main physical constants, together with a nomenclatural list completes this very useful book.

One has to scrape the barrel somewhat to criticize the author's achievement of what he intended to do. I find commas before conjunctions irritating. In biological nomenclature, generic names (of pearl-producing oysters, for instance) should commence with a capital letter. The largest beryl crystal of gem quality weighs 110.5 kg and, as the author informs us, weighs more than 1 cwt. He might have mentioned that it also weighs more than 2 cwt.

But 'sniffings and girdings' seem ungenerous after having derived so much pleasure from this fine book in which the author has done so well for his public. At £15 a copy the publishers evidently hope to do well for themselves.

F. HODSON

Raguin (E.). *Géologie du granite*. 3rd edition. Paris, New York, Barcelona, and Milan (Masson), 1976. xi+276 pp., 65 figs. Price 96F.

Readers will recall the now discredited hypothesis of granitization, on which so much discussion was fruitlessly expended in the decades up to 20 years ago. Some veterans of this debate, reluctant no doubt to acknowledge the error of their ways, now extend the term granitization to describe even the formation of granite magma by melting. Professor Raguin, in the latest edition of his well-known book, uses the term to mean any process at all by which granite is formed. He acknowledges a substantial role for magmatic processes in the formation of at least some granitic intrusions, but his text is permeated by the nomenclature and pre-occupations of the granitization era, and he still believes that many granites were formed from pre-existing solid material in place.

Never mind, everyone is entitled to his own point of view. The real faults of this book are in its omissions. The chemical and mineralogical compositions of granites are not discussed. Experimental studies of the relevant synthetic systems are passed over in half a page. Isotopic evidence on the origin of granites is hardly mentioned at all. Indeed, one looks in vain for a quantitative treatment of any aspect of the subject. There are very few references to recent publications except those of French authors, and there is no proper index. In short, whatever your opinion of granitization, you will not be able to obtain an up-to-date picture of the geology of granite by reading this book.

A. HALL

Strens (R. G. J.), Editor. *The Physics and Chemistry of Minerals and Rocks*. London and New York (John Wiley—Interscience), 1976. xvi+697 pp., 241 figs. Price £19.50.

This book is based upon what was clearly a very successful NATO Advanced Study Institute on 'Petrophysics' held at the University of Newcastle-upon-Tyne in April 1974, under the direction of Professor S. K. Runcorn. The title of the book is more cumbersome but more accurately represents the subject-matter of the symposium. Forty-one papers are published dealing with three main themes summarized in the editor's preface as: transport properties including electrical and thermal properties and convection; the dependence of the macroscopic properties of rocks and minerals on their microstructures; and the reactions, properties, and structures of minerals, particularly those containing transition metal ions, at high pressure.

The two parts of the book are respectively mainly physical and mainly chemical. In Part I several papers deal with experimental deformation studies and one of them constitutes an intriguingly fresh look at the subject of microcracks in natural rocks. A number of contributions deal with elastic and others with electrical and electromagnetic properties.

The papers of Part II are concerned with the crystal chemistry of minerals with special attention to the way this is affected by high temperatures and pressures. Techniques for obtaining crystal structural information at high P , T are described and the results of such experiments are discussed. One paper, of which the editor is a co-author, describes progress with the new technique of modelling crystal structures by which variations with pressure, temperature, and composition are predicted on the basis of prescribed interatomic distances (Distance Least Squares). A group of papers deals specifically with special features of iron- and other transition-metal-bearing minerals, particularly at high pressure.

While the above topics cover a wide variety of concepts and methods, coherence is provided in that each takes a further step towards a better understanding of the static and dynamic properties of rocks under crustal, upper mantle, and even lower mantle, conditions. The symposium and book reflects the increasing interaction between geologists, geophysicists, physicists, and chemists, and should therefore appeal to a wide range of scientists concerned with the Earth and Planets. Text and figures (with a few exceptions) are well-produced, and a useful subject index is provided.

J. ZUSSMAN

Wyllie (P. J.). *The way the Earth works: An introduction to the new Global Geology and its revolutionary development*. New York and London (John Wiley & Sons), 1976. viii + 296 pp., 134 figs. Price: cloth £7.95 (\$15.90), paper £4.00 (\$8.00).

As his title implies the author sets out to provide a new type of introductory textbook to geology, based on the plate tectonics concept. Specifically the text is intended to accompany a first-year university course in geology for students who may or may not propose to continue the subject beyond this level. It is the author's contention that the time has now arrived when newcomers to geology should start with plate tectonics, on the principle that all Earth Science is based on this unifying concept.

After an introductory chapter the author begins with the history of the development of the plate tectonics hypothesis. Subsequent chapters discuss the Earth's surface features, earthquakes and their relationship to plate tectonics, the geological cycle, earthquake waves and the interior of the Earth, the Earth's magnetic field and its history as preserved in rocks, polarity reversals and magnetic anomalies, sea-floor spreading, continental drift, and palaeomagnetism.

In an interesting chapter the author recounts the circumstances which led to the general acceptance of the plate tectonics hypothesis in 1966–7. He includes the salutary tale for Earth Science editors and reviewers of the rejection of L. W. Morley's paper relating magnetic anomaly patterns to polarity reversals as 'unfounded speculation', some time before the publication of the Vine–Matthews article. Throughout this section the author is at pains to give a fair summary of the basis of objections to the plate tectonics hypothesis by its major opponents.

Other major discoveries of recent years are treated in an anecdotal fashion, including the evidence for desiccation of the Mediterranean during the Miocene, and the identification of Minoan Crete as 'lost Atlantis', destroyed by the eruption of the island of Santorini. The serious theme of the book is further lightened by the humour the plate tectonics hypothesis seems to have inspired among Earth Scientists, including the plate tectonics version of the Nicene Creed. Also the unlikely tale of the migrations of the sooty hoodwink (*Oceanites*