

this is an invaluable source book for the economic geologist and with the comprehensive descriptions the student has an up-to-date précis of the essential details of the deposits. Although the price may discourage many from acquiring their own copy this is a book no library should be without.

R. J. L. COLVINE

Heimann (R. B.). *Auflösung von Kristallen: Theorie und technischen Anwendung* (Applied Mineralogy: Vol. 8). Vienna and New York (Springer-Verlag), 1975. xiv+270 pp., 172 figs. Price \$795.00; DM 115.00; \$47.20.

This book is a monograph on the dissolution of crystals in two different aspects. In the first and larger part, called 'micromorphology', the author gives a good survey of current and older theories on the formation and shape of etch pits and on the influence of 'poisons' and adsorption. Thereafter various etching techniques, methods of observation, and instrumentation are dealt with. Many applications in technical systems are given. This part ends with a chapter on etch figures and crystal symmetry, especially important for semiconductor research.

In the second part, called 'macromorphology', the irreversible dissolution of crystals is considered. It starts with a historical approach of the term 'Lösungskörper', now called 'L-form'. Since most experiments were carried out on spherical crystals, devices to form these are described. After a short review of earlier theories the author describes the theory developed by Franke, Lacmann, and himself. It starts from the concept of the equilibrium form (G-form) and then describes its transition to the L-form for four different models of the dissolution process. Computer simulations are presented and compared with experimental results on Ge, Si, MgO, spinel, quartz, and corundum.

Three appendices complete the book: a listing of results on 41 substances, a list of dislocation etching agents, and a list of polishing solutions. There are separate indexes for symbols, names, subjects, and substances, while the reference list has 681 entries.

The literature is almost exhaustively covered. The subject-matter has not always received the desirable critical attention, since sometimes rather speculative explanations of observed phenomena are recorded without comment. Although the etching theories are well presented, the systematics could have been better. Certain subjects are treated at unexpected places. Apart from these remarks it is the authors' merit to have given a detailed survey of our present knowledge about the very complicated phenomena of dissolution and etching, of which the latter is a very important characterization method for grown crystals.

The book is of interest not only for mineralogists, but for anyone working in the field of growth and morphology of crystals. It is a pity that the high price will be prohibitive for some potential buyers.

P. HARTMAN

O'Keefe (J. A.). *Tektites and their origins (Developments in Petrology, 4)*. Amsterdam, Oxford, and New York (Elsevier Sci. Publ. Co.), 1976. xii+254 pp., 44 figs., 21 pls. Price Dfl. 95.00 (approx. \$36.50).

The origin of tektites has been a subject of controversy for many years and the author of this book is well known for his preference for a lunar source over a terrestrial one. Indeed this book is, in part, a reply to an article by S. R. Taylor (Earth Science Reviews (9), 1973, pp. 101-25) in which it is suggested that the chemistry of the returned lunar samples excludes a lunar origin for tektites. Dr. O'Keefe is not convinced. In the first half of his book he reviews the

occurrence of tektites and their properties, both chemical and mechanical. This is a useful, well referenced, compilation of data from many sources.

In the second half of the book the chemistry of tektites is compared with that of terrestrial and lunar rocks and this is followed by chapters entitled 'Terrestrial origin; arguments in favour' and 'Terrestrial origin; arguments against'. The first of these is, in the main, a commentary on the chemical features enumerated by Taylor (*loc. cit.*) that distinguish tektites from lunar rocks. Some of these the author does not discuss sufficiently critically, particularly the Pb isotope systematics and the $^{39}\text{Ar}/^{40}\text{Ar}$ ages. The arguments against a terrestrial origin are principally mechanistic in nature. The author argues that it is less contrived to produce a tektite glass by lunar volcanism than by meteorite or cometary impact on Earth. He accepts that tektites can only come from the Earth-Moon system and states that if a terrestrial origin cannot be proved then a lunar origin is possible. From this the book concludes with a scenario in which tektites are produced by lunar volcanism originating deep within the Moon, and it is suggested that the similarity of tektites to some terrestrial rocks implies that the Moon must have formed by fission from the Earth. To this reviewer, the latter suggestion stretches the significance of tektite data too far and is tautological. In summary, the book is well produced and the first half is more objective than the second in which the author's preference for a lunar origin of tektites is obvious and occasionally biases the discussion.

A. L. GRAHAM

Roedder (E.), Editor. *Fluid Inclusion Research. Proceedings of C.O.F.F.I.* Volume 6 (1973). Ann Arbor, Michigan (Univ. Michigan Press), 1976. xii + 203 pp., 2 figs. Price \$6 (cheques should be made payable to University of Michigan Press and addressed to—Fluid Inclusion Research, University of Michigan Press, 615 E. University of Ann Arbor, MI 48106, USA).

In 1968 the publication of *Fluid Inclusion Research: Proceedings of COFFI*, was started as an offshoot of the Commission on Ore-Forming Fluids in Inclusions (COFFI), of the International Association on the Genesis of Ore Deposits (IAGOD). Although closely connected with COFFI and IAGOD, the publication of these volumes is independently arranged and separately financed, solely by subscriptions, on a non-profit basis.

The Proceedings of COFFI are now an established reference work for all fluid inclusion workers. The purpose of the publications is to provide English abstracts or annotated bibliographies of all items from the world literature that contain fluid inclusion data or are pertinent to some aspect of fluid inclusion work.

In addition to the 332 abstracts from the world literature, there are 144 translated abstracts of papers presented at the Fourth Regional Conference on Thermobarogeochemistry of Mineral Forming Processes, held in 1973, in Rostov-on-Don, U.S.S.R. Many of these abstracts were translated by the new associate editor, Dr. Andrzej Kozłowski, of the University of Warsaw.

Although by its very nature the volume is heavily biased towards fluid inclusion research, other topics, such as the physical parameters of natural geothermal systems, stable isotope and petrological studies, are included. The three indices (author, subject, deposit) enable the user to locate quickly the relevant material.

N. J. JACKSON

Newnham (R. E.). *Structure-Property Relations* (Crystal Chemistry of Non-Metallic Materials, Vol. 2). Berlin, Heidelberg, and New York (Springer-Verlag), 1975. ix + 234 pp., 92 figs. Price £16.00 (\$31.00).

This is the second volume of the series *Crystal Chemistry of Non-Metallic Materials* (general editor R. Roy) to be published, after vol. 4 and ahead of vols. 1 and 3. Unlike vol. 4 (O. Muller