circumstances, such as salt lakes and caverns, are presented in an attractive way. Vapour growth is also described for the case of snow formation in clouds. This part ends with some information about the crystals brought back from the moon.

The third part deals with artificial conditions of crystal growth. Hydrothermal and solution growth, melt growth and vapour growth are presented and illustrated with many examples, such as syntheses of quarz, ruby and diamond. Various applications of these crystals are also indicated. In this part, interesting descriptions are presented of the growing of single-crystal devices with desired shapes (often very sophisticated shapes) – such that they do not have to be cut or polished afterwards. This section is particularly instructive in illustrating the variety of applications of crystals in modern techniques.

The book is clearly written and combines simple and practical information on crystal growth and on the applications of single crystals with information on the development of this branch of science. The contribution of Russian scientists in the field is emphasized and the examples of natural sources of minerals are taken from the territory of the USSR; therefore the book is addressed mainly to Russian readers.

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Chemical physics of solids and their surfaces. Vol. 7. Senior reporters M. W. ROBERTS and J. M. THOMAS. Pp. viii + 184, Figs. 75, Tables 7. London: The Chemical Society, 1978. Price £22.50, $55.00.

This volume of the series of *Specialist Periodical Reports* is made up of a number of topics in some specialized areas of solid-state chemistry and physics.

In the first chapter *Defects and microstructures in feldspars* (A. C. McLaren), the nature and the crystal structure of the feldspars are briefly reported. The use of the electron microscope and of conventional optical techniques for the detection of defects, microstructures and solid-state precipitations in feldspars is also discussed.

The article *The use of atom–atom potentials in interpreting the behaviour of organic molecular crystals* (S. Ramdas and J. M. Thomas) describes the method for the determination of some parameters from the experimental data on a homogeneous class of compounds (hydrocarbons). In the same class the method of atom–atom potentials is shown to be very useful in the study of molecular conformations in perfect crystals, where the description is particularly complete. But it is also successful for other applications such as the study of polymorphic transitions and disorder in molecular crystals.

The report on *The characterization and properties of small metal particles* (Y. Takasu and A. M. Bradshaw) treats an argument of very recent interest. After considering the new interesting properties of the metallic particles (clusters) and their surface reactivity, the reporters briefly discuss the 'catalyst models' prepared *in situ*. The cluster approach to solid-state physics is broached, correlating the bulk and surface properties of single crystals with those of the model. This approach can be tackled by means of many computational methods, *e.g.* HF, MO, SCEP, CNDO and *ab initio*. The interconnections of small metal particle research with solid-state physics and chemistry and with nucleation theory are made evident.

Neutron scattering from adsorbed molecules, surfaces and intercalates (P. G. Hall and C. J. Wright) reports a brief description of neutron (inelastic) powder diffractometers and compares them with X-ray powder diffractometers. Comparisons with data obtainable by means of IR and NMR techniques are also reported for diffusion measurements. The most recent studies on the two-dimensional structures of physisorbed and chemisorbed gases on graphite, metal and oxide surfaces are reported. Furthermore, a paragraph is devoted to the topical subject of the structural investigation of new intercalated phases.

The article *Photo-induced reactivity at oxide surfaces* (R. I. Bickley) summarizes in a complete way the mechanism in photoelectronic and photoelectrochemical processes. The most recent developments in this area may improve the knowledge of, for example, storage of information, control of light intensities and energetically favoured methods to decompose water into its constituents.

The final chapter *Reflection–absorption infrared spectroscopy* (J. Pritchard) describes the physical basis of the new powerful technique which allows the observation of characteristic spectra from monolayers of substrates. Some examples of detection of inorganic and organic gases adsorbed on metal surfaces are given.

All the reports summarize the recent literature up to 1977 and the total coverage amounts to over 600 references. The print is quite accurate and the misprints are very few (the most evident is in equation (1) of chapter 5, where a mathematical symbol 'exp' is missing).

The price seems too high for a book of 179 pages of text, although a lot of material is summarized and some theories and techniques concerning solid-state materials science are expertly treated.

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Book Received

The following book has been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

The molten state of matter. By A. R. UBBELOHDE. Pp. xvi + 454. Chichester, John Wiley, 1978. Price £23.50. A review of this book, by J. L. Atwood, has been published in the November 1979 issue of *Acta Crystallographica*, Section B, page 2828.