many years, changes will take place which could not be foreseen. The editors deserve credit for their alertness towards new developments, and for their tolerance in accommodating them in the general plan of the treatise.

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## Chemistry

**Molten Salt Chemistry**. Milton Blander, Ed. Interscience (Wiley), New York, 1964. x + 775 pp. Illus. $25.

During the past decade a resurgence of interest in molten salts was sparked by the increasing importance of high-temperature technology in general and by the needs of nuclear technology in particular. Although several short review articles and a couple of specialized monographs have been published, there is no general treatise comparable to this present volume.

Milton Blander, the editor, has successfully interwoven, within one volume, authoritative discussions of ten significant aspects of molten salt chemistry, presented by experts who themselves have made important contributions in the field. Throughout the book, emphasis is placed on the structure and thermodynamics of molten salt systems, as the following chapter titles indicate: "Equilibrium theory of pure fused salts," Frank H. Stillinger, Jr.; "Diffraction studies of the structure of molten salts," H. A. Levy and M. D. Danford; "Thermodynamic properties of molten salt solutions," Milton Blander; "Phase diagrams of fused salts," John E. Ricci; "Mixtures of metals with molten salts," M. A. Bredig; "Electronic absorption spectra of molten salts," G. Pedro Smith; "Vibrational spectra of molten salts," David W. James; and "Metal halide vapors: Structures and thermochemistry," S. H. Bauer and R. F. Porter. In addition, there is a fine chapter by Klemm on transport properties, including viscous flow, diffusion, and conductivity. The concluding chapter is a definitive exposition (by Liu, Johnson, and Laitinen) of electroanalytical chemistry in molten salts.

One might wish that there were a unified presentation of chemical reactions in molten salts and discussion of how they might be used for synthetic and other purposes. Of course, aspects of chemical reactivity are touched on in several chapters. Deviations from ideal behavior are discussed in some detail, and the question of whether nonideal behavior does or does not indicate the existence of complex ions is considered. This is not a source book of facts about molten salts but a broadly based exposition of fundamental concepts. In general, one will not find details about applications to various technological problems. However, there is much information about important specific chemical systems, especially in the chapters on phase diagrams, metals in melts, and electroanalytical chemistry.

*Molten Salt Chemistry* is certainly timely and a must in the library of every serious worker in the field of fused salts. This thought-provoking book, well documented with exhaustive reference lists, will suggest important future research and provide excellent collateral reading for advanced students of physical and inorganic chemistry. I warmly recommend it to libraries of chemistry and related technological areas.

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## Inorganic Chemistry

**Handbook of Preparative Inorganic Chemistry**. vol. 1. Georg Brauer, Ed. Translated from the German edition (Stuttgart, ed. 2, 1960) by Scripta Technica. Reed F. Riley, Ed. Academic Press, New York, 1963. xxviii + 1002 pp. Illus. $36.

This translation of volume 1 of Brauer's *Handbuch* is a welcome addition to the reference literature of the English-speaking inorganic chemist. The translators have Americanized the work by removing the references to German suppliers, trade names, and glass and ground-glass joint sizes and substituting the American equivalents. They have improved the nomenclature and revised or omitted certain brief sections. All references to "liquid air" have been changed to "liquid nitrogen." A precautionary note (p. 44) has been added regarding the hazards of using liquefied air or oxygen as laboratory coolants, but the fact that the condensation of atmospheric oxygen in any open container of liquid nitrogen effectively converts it into liquid air is not mentioned.

This work contains contributions by a group of experienced German chemists who have exercised great care in selecting only those synthetic procedures that have been tested and confirmed in the laboratory. Part 1, Preparative Methods, by P. W. Schenk and G. Brauer, provides an excellent description of special methods and devices for preparative inorganic chemistry. This part will be particularly valuable to the novice in inorganic laboratory work because it contains descriptions of many of the more subtle aspects of laboratory technique, aspects that often make the difference between a good result and a mediocre one.

Part 2, Elements and Compounds, is divided into 18 sections, each devoted to compounds for a particular element or group of related elements. The coverage includes most of the elements in the periodic table, exclusive of the transition series and the rare gases. Compounds of the transition elements along with special classes of substances are considered in volume 2, which is now being translated.

The translation is well done, and it is without significant errors. However, misprints are inevitable in a volume of this size. For example, on page 218, the boiling point and density of $PbF_2$ are listed as 129°C and 824, respectively, but they should be 1293°C and 8.24.

The book is clearly printed and will be easy to read. It is valuable because it brings together the methods for preparing several hundred inorganic compounds.

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## Nuclear Structure

**Nuclear Theory**. Pairing force correlations and collective motion. A. M. Lane. Benjamin, New York, 1964. xii + 250 pp. Illus. Paper, $4.95; cloth, $8.

Some 6 years ago Bohr, Mottelson, and Pines suggested a possible analogy between the energy gap displayed by superconducting metals and the ex-