a large extent the research interests of the author. Fortunately these interests are very broad indeed. Thus the structures and labilities of hydrated ions, inner- and outer-sphere activated complexes, the effects of inorganic and organic bridging groups, induced electron transfer, and detailed electron transfer mechanisms are all discussed. Not surprisingly, the monograph is dominated by work recently completed and currently in progress in the author's laboratory. However, contributions made by others are also discussed, placed in perspective, and criticized where appropriate.

There may be a theoretical equation in this book, but I did not find it. Instead the reader is treated to a refreshingly clear account of clever, often ingenious, experiments designed to answer difficult questions. In my opinion the experimentalist-author is at his best in the last chapter. Here he treats reactions in which one equivalent of an external oxidizing agent and one of an internal oxidant are consumed in the two-electron oxidation of a group coordinated to the internal oxidant. The experiments with these reactions are fascinating, and the author avoids the pitfalls with aplomb (and a cobalt).

Taube's style and the current status of much of the electron transfer field are aptly epitomized by the closing sentence of the booklet: "At this stage, it would be premature to attribute the difference to effects of the kind we are searching for, but it would be equally premature to give up the search at this stage." This monograph is a personal and very readable account by one who not only has pioneered but still continues as a leader in the field.

NORMAN SUTIN
Chemistry Department,
Brookhaven National Laboratory,
Upton, New York

Valesek's Discovery

The Second International Meeting on Ferroelectricity. Kyoto, Japan, Sept. 1969. Physical Society of Japan, Tokyo, 1970. xii, 464 pp., illus. $20. Supplement to the Journal of the Physical Society of Japan, vol. 28.

On the eve of the 50th anniversary of Valesek's discovery of ferroelectricity in Rochelle salt, one is impressed by the breadth of appeal the subject has. Scientists whose interests range from switching and display devices to the statistical mechanics of the ferroelectric phase transition itself are actively engaged in this field today. This entire spectrum of viewpoints is represented in this collection of 158 papers.

Arranged according to the topical session in which they were presented at the meeting, the papers combine to give one an overall impression as to where the field now stands and where it might be headed. One might usefully divide the researchers in ferroelectricity into "hunters" and "transitionists," the former being concerned primarily with finding new and improving known ferroelectric materials and properties, and the latter with the phase transitions that connect the ferroelectric state to its nonferroelectric neighbors.

Among the five invited papers which set the tone of this volume, the transitionists are represented by the group theoretical discussions of E. Ascher and of L. A. Shuvalov, who review and catalog the relations imposed by symmetry on various electric and magnetic properties of crystal structures on either side of ferroelectric transitions. G. Shirane is perhaps most aptly named a transitionist. His paper on inelastic neutron scattering studies of soft modes brings into focus one of the most useful unifying concepts applicable to ferroelectric transitions: the soft or unstable normal mode whose frequency and symmetry serve to unite the static and dynamic aspects of these phase transitions. Numerous contributed papers in the sections that follow on Lattice Dynamics, Phase Transition, and Critical Phenomena develop and extend concepts discussed by Shirane.

The hunters dominate the proceedings, in a variety of papers dealing with improved characterization and production of the familiar ferroelectrics like the perovskites, KH_2PO_4 and its neighbors, and even Rochelle salt—the "original" ferroelectric—as well as with several new materials. Of particular interest among the new ferroelectrics are the diatomic crystals, represented on the one hand by the hydrogen halides and on the other by semiconductors like SnTe and GeTe. Also likely to be increasingly important are the very complicated systems such as the ferromagnetic-ferroelectrics (boracites) and the ferroelastic-ferroelectrics (molybdates) in which just about any kind of field can interact with just about any other—presenting challenge to the theorist and temptation to the device engineer.

Several papers on the optical properties of both new and old materials appear, epitomized by R. C. Miller's excellent review of the nonlinear optical properties of ferroelectrics.

The overall quality of the papers is high, and several deserve mention here. G. Samara's review of the effects of hydrostatic pressure on ferroelectric properties demonstrates the power of such experiments in suggesting how to improve materials and in testing theoretical models of ferroelectricity. T. Sakudo and Y. Fujii have observed electric-field-induced second harmonic generation in paraelectric $SrTiO_3$. V. Janovic attempts to relate ferroelectric transition to critical phenomena, including mention of the scaling law hypothesis that has been so successful in describing magnetic and liquid-gas transitions. This area deserves much more attention in the future. Rather underrepresented at this conference is the powerful technique of inelastic light scattering. T. G. Davis's paper on Raman scattering from soft modes in mixed perovskites is the best of a small lot, which contains no treatment of Brillouin scattering at all. Many other excellent contributions deserve the interested reader's attention, but he will have to wait for it until he reads the volume itself.

Like all such anthologies, these proceedings will be of most use to scientists already in the field who require detailed information on specific topics and to those entering the field who wish to gain quickly an impression of where it now stands. Those who are unfamiliar with basic ideas in ferroelectricity will not learn them here. Despite the generally high quality of the papers and the volume's organization, there are two omissions likely to cause considerable inconvenience: the book has no subject index and the papers have no abstracts. Both of these could have been provided easily, and their absence will be sorely felt by those who want to use the book for quick reference. On balance the conference committee deserves congratulations on the quality of the papers, the organization of the conference, and the rapidity of publication, and for demonstrating that ferroelectricity is alive and well as it enters its second half-century.

P. A. FLEURY
Bell Laboratories,
Murray Hill, New Jersey