excerpts from 97 test reviews published elsewhere. Also included are the titles of 527 books related to measurement and 377 excerpts from reviews of 193 of these books. Valuable indexes are the periodical directory and index, the publishers directory and index, the index of titles, the index of names, and the classified index of tests.

The yearbooks, which successively supplement previous ones, can be used most completely in conjunction with *Tests in Print* (also by Buros). This volume, which is a classified index, is useful in its own right and supplements the yearbook series through cross-referencing.

A reviewer of the *Fifth Yearbook* was critical of its cost, $22.50, and suggested economies in later volumes. Subscription to the entire series, however, would have cost about $4 per year. In relation to general price increases, the *Yearbooks* are still "best buys."

An evaluation of this last volume can be couched, with palpable redundancy, in terms applied by the reviewers of previous volumes in the series: This remarkable, monumental, colossal, and elaborate book, representing gargantuan and heroic efforts applied compulsively and with missionary zeal, is certain to become a "must"—perhaps even the indispensable "bible"—for the increasing numbers of test users.

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Biophysics

Nonequilibrium thermodynamics is that relatively new extension of classical equilibrium thermodynamics into the domain of irreversible processes, valid for linear systems near equilibrium. The foundations for this extension are to be credited to Onsager who, in 1931, explicitly called attention to a new principle, that of microscopic reversibility. This principle, implicitly assumed by many since the time of Gibbs and his classic presentation of heterogeneous equilibria and Lord Rayleigh and his principle of least dissipation, is often compared to the other principles of thermodynamics, although it is of less general validity.

In the past 20 years nonequilibrium thermodynamics has succeeded in providing a systematic phenomenological explanation of a large number of observations in physical and chemical systems. Prigogine, in particular, has noted its importance in relation to biological systems, and it is in this regard that A. Katchalsky and his colleagues have made notable contributions. With his clarity of thought, eloquence of expression, and ability to develop a physical live picture of complex phenomena, he has brought the merits of this developing science to the more biologically oriented. Thus **Nonequilibrium Thermodynamics in Biophysics** (Harvard University Press, Cambridge, Mass., 1965. 258 pp., $9.75) by A. Katchalsky and Peter E. Curran, is not only timely but a long needed volume.

Following an excellent review of the principles and mathematical structure of classical thermodynamics, Katchalsky and Curran present a systematic, intuitively logical, and explicitly clear development of the theory of irreversible processes. Reference is frequent to systems of inherent interest and concern to the biophysicist. Diffusion and transport receive a great deal of emphasis. Membrane systems play a central role and are developed both in the context of the continuous and the discontinuous. Electrokinetic phenomena, interpreted in terms of frictional coefficients, are rationally presented. Chemical reactions are discussed especially in their relation to diffusion processes. This provides the basis of consideration of transport by chemical association, both "active" and "passive."

A characteristic feature of much of the development in this book is that theory is directed toward the experimentalist. Derivations identify parameters and coefficients which are the practical observables in the laboratory. The authors also nicely avoid much of the mathematical complexity by considering theory only in relation to relatively simple systems that possess only two or three forces and fluxes. This approach does not result in the loss of too much generality but does lead to a presentation that should be substantially more palatable to the nontheoretically inclined.

This volume will undoubtedly stimulate greater application of nonequilibrium thermodynamics to many important problems in biology.

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Analytical Chemistry

Until recently, gas chromatography was rarely used for the separation and analysis of inorganic systems, mainly because it was thought that there were no suitable and stable volatile compounds of the metallic elements. It has now become obvious that this is not true. For example, the volatile halides of metals can be handled in gas chromatographic apparatus if suitable precautions against hydrolysis are taken. More important, volatile chelate complexes such as acetylacetonates, trifluoroacetylacetonates, and hexafluoroacetylacetonates of the metals have been prepared in a systematic way, and the chelates of different metals have been shown to be easily separable by gas chromatography. Much of the pioneering work in this field was done by Ross W. Moshier and Robert E. Sievers, the authors of this book, **Gas Chromatography of Metal Chelates** (Pergamon, New York, 1965. 171 pp., $5.50).

Their book is a short research monograph intended to present the advantages of the technique and to give sufficient information to enable those who have had no experience with gas chromatography to use the technique for inorganic analysis. The necessary part of the technique of gas chromatography is described in a clear and simple manner. Methods are given for the preparation of volatile chelate complexes, and there are many examples given of analyses and separations using them. In a short final chapter, the authors discuss the scope of gas chromatography as another technique in the general study of coordination compounds, for example in studying stereochemistry, kinetics and equilibria among complexes. The book is well documented, with references to all of the published research papers on the subject up to the middle of 1965. Since the publication date is also 1965, the authors and the publisher deserve credit for producing the book so quickly, and without any signs of carelessness or haste.

I agree with the authors that gas chromatography can play a very useful and a much bigger part in inorganic analysis than hitherto, and the authors present their case well. This book can be recommended to all those interested in inorganic analysis or in the chemistry of inorganic complexes.

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