scribes the properties of the individual reactions. While several questions and hypotheses are presented, the accomplishments of the last three years, especially those of the authors, Bloch, Lynen and their asssociates in describing the reactions of mevalonic acid, the isoprenyl pyrophosphates and squalene, justify the optimism of the authors in predicting rapid progress in revealing the obscure portions of the picture.

Koshland's discussion of the active site of enzymes is necessarily preliminary and speculative. The justification for reviewing this subject is contained in the summary, which metaphorically proclaims the availability of methods for elucidating enzyme structure and function. The compilation of suggestive information about numerous enzymes is organized to show systematically the sorts of information that can be obtained by a large variety of techniques. Since no single enzyme has been analyzed sufficiently to permit a description of its catalytic properties in terms of its structure, it is to be hoped that future work will combine and extend the approaches outlined and that subsequent reviews may describe how specific enzymes do work.

Coenzyme binding, an essential component of studies on reactive sites for a prominent group of enzymes, is described in comprehensive detail by Shifrin and Kaplan, but no generalizations are drawn and little attempt is made to evaluate critically various findings. This article reports the properties of many individual enzymes, primarily those that use pyridine nucleotides, but also those that use flavines, pyridoxal phosphate and thiamine pyrophosphate.

The synthesis of nucleotide coenzymes defines the principles involved in forming phosphate derivatives. Essentially all of the naturally occurring small nucleotides have been synthesized, along with many analogs. The properties of acid anhydrides, carbodiimides and phosphoramidates are discussed, and numerous examples of their uses are described. Column chromatography of enzymes is discussed in an article that makes a gallant attempt to produce a theory without mathematics. Unfortunately, our dependence on incompletely understood resins and completely undefined proteins would seem to offer little hope at this time for a useful theory even with mathematics. A large number of examples of chromatograms of various enzymes is included, but the prospect seems unfortunately clear that the separation of individual enzymes from other proteins will remain empirical.

There are many functions to be served by review articles. All of those included in this volume will be valuable to those seeking a compilation of literature on the topics included. Of the articles on enzymatic subjects three are especially noteworthy in that they do more for the reader. The review on cholesterol biosynthesis presents a coherent picture that orients those outside the field and clearly indicates the problems of current interest. The two articles on genetics and enzyme induction similarly make the questions being investigated today not only comprehensible, but exciting to the general reader as well as the expert. These articles and the optimistic approach to the question of active sites are certain to provoke experiments, which alone would justify the publication of this interesting volume.

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Annual Review of Physical Chemistry. Volume 11. H. EYRING, Editor, University of Utah, C. J. CHRISTENSEN, Associate Editor, University of Utah, and H. S. JOHNSTON, Associate Editor, University of California. Annual Reviews, Inc., Palo Alto, California. 1960. vii + 588 pp. 16 × 22.5 cm. Price, $7.00 (U.S.A.); $7.50 (elsewhere).

Volume 11 of this valuable series includes 21 chapters contributed by 31 authors. Almost uniformly the authors have reviewed articles available to them through some time in December, 1959. The *Annual Review of Physical Chemistry* is truly annual. Sixteen of the chapters deal with topics or some phase of topics which have been reviewed annually in this series for four to ten years. Of 4201 references only some 830 were published prior to 1958, and over 60% of these occur in the remaining 5 chapters. Two of these cover subjects never before reviewed in this series, namely, dielectric polarization and fused salts. The topics of the other three chapters, the statistical theory of transport, combustion and flames, and photosynthesis, have not been covered for a number of years. The chapters on fused salts and combustion and flames reflect the current lively interest in high temperature chemistry. The chapter on aspects of the statistical theory of transport, dedicated to the late John G. Kirkwood, is a short monograph.

It is no reflection on the importance of the subject, or the competence of the survey of such subjects as are reviewed annually, to say that one finds the chapters dealing with initial treatments and less frequent treatment of subjects more rewarding. While the rather strictly 'annual" reviews of fields in which the number of contributions is large may serve the specialist already at home in the field largely as a check against careless oversight, they are valuable to the many others who have only secondary interests in these fields, and to the young research worker beginning his special interest.

The authors are generally very helpful in pointing out other reviews and monographs, as well as limitations on coverage under which their chapters have been written.

A special feature of the current volume is the cumulative index by author and by chapter title of the first eleven volumes of the series. The 237 articles are listed by chapter titles under 42 subjects. Though there are significant variations in the areas covered by articles under the same subject, it may be noted that 20 of the subjects have been reviewed 6 to 11 times. This index is extremely valuable, for with it one may make much more efficient use of the set as a whole. The editors, the late Gerhard K. Rollefson and Henry Eyring, and their editoral boards deserve our thanks and praise for the skill and devotion with which they have nurtured this well-planned and useful project.

The price is reasonable and should encourage those who have an interest in physical chemistry to become regular purchasers.

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Inorganic Syntheses. Volume VI. Editor-in-Chief, EUGENE G. ROCHOW, Harvard University. McGraw-Hill Book Co., Inc., 330 West 42nd Street, New York 36, N. Y. 1960 xi + 272 pp. 16 × 23.5 cm. Price, $7.75.

Volume VI of "Inorganic Syntheses" follows the same general pattern as previous volumes. Each synthesis is an individual entity including a brief historical introduction, the procedure, a general description of the properties of the compound and a bibliography. All procedures have been independently checked in a laboratory other than the one from which submitted.

There are several novel features in this volume which are worthy of mention. There is an increase in the number of contributors from abroad indicating increased international prestige for this series. All foreign articles have been translated into English. Articles on the synthesis of sulfur nitrogen compounds by Professor Goehring, and dibenzenechromium by Professor E. O. Fischer are included. In addition, there are contributors from India, Poland, Austria, England, Australia, etc.

A most welcomed inovation are the procedures submitted by F. P. Dwyer, *et al.*, on the resolution of several optically active complexes. A partial asymmetric synthesis also is included.

The syntheses of deuterio compounds have been included for the first time and it is hoped that more isotopic syntheses will be forthcoming in view of the many research applications of these materials.

A general discussion on the syntheses of halomethyl derivatives of silicon, germanium and tin by using diazomethane is very well written and quite informative. Several procedures for synthesizing compounds which are currently popular are also included, *e.g.*, S_4N_4, $Ni(PCl_3)_4$, $[PNCl_2]_3$, $[PNCl_2]_4$, $TiCl_3$, dibenzenechromium and magnesium cyclopentadienide.

As in past volumes, there also appear in Volume VI several procedures in the area of metal ion complexes that are obvious. What is needed in this area is a set of general procedures applicable to the synthesis of most complexes.