# Book Reviews

**Advances in Protein Chemistry.** vol. IX. M. L. Anson, Kenneth Bailey, and John T. Edsall, Eds. Academic Press, New York, 1954. viii + 542 pp. Illus. $10.50.

The current volume of *Advances in Protein Chemistry* contains eight reviews that are a substantial addition to the excellent account of the proteins that this series has presented. The first two chapters are concerned with physiological aspects of proteins and amino acids. In these H. V. R. Arnstein discusses the metabolic relationships of glycine, and Chapman and Synge review the protein metabolism of ruminants. The following six chapters either consider the properties of proteins that can be related to their structure or deal with the chemistry of substances derived from proteins. They are thus more in keeping with what I expect from the *Advances* than the first two chapters are.

A diverse literature on the chemical and biological methods of resolving racemic amino acids has been usefully summarized by J. Greenstein. The survey of naturally occurring trypsin inhibitors by Laskowski and Laskowski brings out the dissimilarities in the nature of the protein substances responsible for this activity. In reviewing the keratins, Ward and Lundgren have considered the formation and morphological arrangement of keratinaceous structures as well as the chemical and physical properties of these proteins. The molecular structure of simple substances with peptide bonds and other similarities to proteins is discussed by Mizushima.

A comprehensive account of protein-protein interactions is presented by David Waugh. The discussion covers a survey of the forces responsible for molecular stability and interaction, the development of a model of the native protein, a summary of 15 specific cases of interaction and denaturation, and a discussion that relates some of the general aspects of these cases to the model. The chief feature of Waugh's model is a modern version of the nonpolar core or "internal volume" of the protein molecule. This assumption is interpreted in some detail in terms of the α-helix. The model is useful as an attempt to relate the α-helix to other characteristics of the structure of globular proteins and is helpful as a basis for discussing interaction and denaturation. It must be admitted, however, that the experimentally observable aspects of these phenomena do not provide as critical a test as might be wished of the details of the proposed model. The book is concluded by an excellent summary and discussion of the behavior of proteins at interfaces by Cheesman and Davies.

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**Marine Shells of the Western Coast of Florida.** Louise M. Perry and Jeanne S. Schwengel. Paleontological Research Institution, Ithaca, N.Y., 1955. 318 pp. Illus. Paper, $6; cloth, $7.

In 1940 Louise Perry provided the first serious attempt to monograph the mollusks of a small regional area anywhere south of New York. Her student, Jeanne S. Schwengel, has revised the earlier work, added several more species to the record and furnished further details on early life-histories of many species. There are 174 pages of systematic descriptions followed by 55 full-page plates. The illustrations are almost all from photographs of freshly collected material and in every instance indicate the natural size of the specimen. It will be a useful reference book for those who collect shells on Florida's Gulf Coast, but its binding is not likely to last long under field conditions.

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**Applied X-rays.** George L. Clark. International Series in Pure and Applied Physics, McGraw-Hill, New York–London, ed. 4, 1955. ix + 843 pp. Illus. $12.50.

Here is a book that will draw criticism from some specialists but will be praised by more educators. It covers a very wide range of topics, each one of which is so highly developed today that not less than a dozen experts could cover all with real authority. By way of illustration, perhaps a fifth of the pages are concerned with diffraction studies of polycrystalline materials. This phase of applied x-rays alone has recently been covered by a volume of more than 700 pages, issued by the British Institute of Physics, with three editors and 29 authors, all British [H. S. Peiser, H. P. Rooksby, A. J. C. Wilson, Eds., *X-ray Diffraction by Polycrystalline Materials,* Institute of Physics, London, 1955]. It can justifiably be said of the latter very useful book that not more than half of the chapters were written by men with the greatest experience and ability in the field concerned, because not all of these reside in Great Britain; and this fact is apparent to specialists. What, then, can be expected of a volume of roughly equivalent length, written by a single worker but with a scope at least 5 times as great?

It is clear, at the outset, that G. L. Clark's work is not intended for specialists or experts. For the latter, the author himself recommends "the clinical approach," of which the afore-mentioned British work is an example. A senior undergraduate, or a young graduate student, will find in this latest edition of *Applied X-rays* the same soundly enthusiastic incitement to interest in the manifold applications of x-rays in science and industry that characterized the earlier editions of the work. Clark is a pioneer enthusiast. I recall my own reading, as an undergraduate in 1931, of the first edition, published in 1927. I record with deep gratitude the fact that it was largely as a consequence of my reading of the 1932 edition, along with Meyer and Mark's 1930 volume on the structures of high polymers [K. H. Meyer and H. Mark, *Der Aufbau der hochpolymeren organischen Naturstoffe,* Akad. Verlag., Leipzig, 1930], that I decided to develop a deeper understanding of x-rays as a tool for the study of the atomic structures of materials. I gathered more than mere enthusiasm from Clark's writings; I learned a very great deal about what x-rays could reveal concerning the structure of matter and something of the problems that still awaited solution.

Here, in the fourth edition, is an in-the-main up-to-date comprehensive introduction to the present state of x-ray applications. Every chapter is a useful starting point for a student or other nonspecialist. The bibliographies in and at the end of each chapter cover the fundamentals and much of the special literature in the special fields concerned.

This is perhaps the last time that an author can attempt to include so much of the details of applied x-rays in a single volume. Information and experience are accumulating too fast. One is appalled