do the job without using any language unfamiliar to non-scientists. This hope has not been realized. Scientific terminology has been held to a minimum however. . . ."

Their book is not one for the half-hearted reader; the layman needs seriously to start at the beginning and work through it chapter by chapter. Given a serious interest, the reader should be able to master all parts of the presentation, for it is skillfully done. Molecular biology is introduced early and constitutes, by rough estimate, 45 percent of the book. The step-by-step explanations are accompanied by numerous clear diagrams and many telling analogies. The exposition is an admirable blend of the historical and the contemporary, the former being viewed in the perspective of our present position. Personal anecdotes enliven the account, many of them (I believe) published here for the first time.

The last five years have seen several books published with coverage similar to *The Language of Life*, but in my opinion it is the best of them all. I wholeheartedly recommend it to any serious layman who wants to know what modern genetics is all about.

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Mammals on Display

A Zoo Man's Notebook (University of Chicago Press, Chicago, 1966. 216 pp., $4.95), by Lee S. Crandall, is a popular abridgment of Crandall's recent, exhaustive monograph *The Management of Wild Mammals in Captivity*, which was hailed by reviewers and professionals as a zoo-keeper's bible. Omitted here are most of the minutiae of the zoo business—statistics, diets, techniques of maintenance and display, medication, and the like, Treated are selected species, representative of the whole array of zoo mammals, that are familiar to almost everyone, together with piquant accounts of some truly exotic, little-known animals. This skillful adaptation for the general reader has required careful selection and some additional writing provided by William Bridges, the author's associate at the New York Zoological Park for more than 30 years. The book is illustrated with 63 photographs, all of the highest caliber, depicting most of the types discussed. A convenient index is provided on the inside covers and flyleaves.

In a section devoted to bears, we get a brief review of their characteristics, the various kinds and their natural distribution; their winter dormancy, breeding habits, weights, and longevity, and their behavior in captivity. Further on we learn of the problems involved in breeding and rearing tigers in captivity, and how 28 of the offspring of Dacca and Rajpur were reared. Elsewhere we read of the procurement and transportation to New York of the giant panda from the bamboo thickets of western China, the mountain tapir from Ecuador, the platypus from Australia, the bongo and okapi from the forests of Kenya and the Congo, the takin from the mountains of southeastern Asia, and the oryx from the Arabian deserts. Interesting details are recounted of all these species and of many others.

Crandall writes in the fine tradition of his former colleagues Ditmars and Beebe, but his style is distinctly his own. Apparent throughout is his sympathy for and warm understanding of his subjects. The reader gains a new insight into the lives of these creatures, and an appreciation of the challenge and complexities of managing a zoo. Here and there are interspersed appropriate anecdotes and personal observations and experiences. In brief opening and closing sections bits of a biographical nature are delightfully presented. The book ends all too soon. It is sure to appeal strongly to all those with an interest in the animals on the other side of the bars and, indeed, to a far wider audience as well.

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A Russian Monograph in Translation

General Chemistry (Gordon and Breach, New York; Noordhoff, Groningen, 1965. 694 pp., $17.50) by N. Glinka is listed as a 1965 edition by the publishers, but it is a translation of a Russian text which was listed as being in its eighth edition in 1956. An Estonian translation was noted in 1960, but there is no indication that either that or the present volume is based on work any later than the 1956 edition. David Sobolev translated the volume from the Russian.

The book is offered in the publisher's catalog simply as a comprehensive introduction to inorganic and organic chemistry, recommended especially for self study. As such, the coverage of topics is reasonably good. There are 26 chapters, including chapters on atoms and molecules, the periodic law, atomic structure, the structure of molecules, the structure of solid substances, the development of the periodic law, chemical kinetics and equilibrium, solutions and their properties, the theory of electrolytic dissociation and of formation of complexes, and the atomic nucleus.

In comparison with the modern introductory textbooks used in this country, Glinka's volume would be classed as "descriptive." Principles are often treated as subheadings—catalysis, for example, appears under sulfuric acid; adsorption and thermochemistry, under the carbon group; and balancing of oxidation reduction equations, under the halogens rather than the section on oxidation and reduction. The treatment of kinetic molecular theory is weak, but there is reference to the expectation that the student will have covered this in his physics courses. The coverage of solutions and colligative properties is good, with the theory of electrolytic dissociation being carried through the concepts of interionic attraction and interaction with solvent. However, acids, bases, and salts are treated as such, with no mention of the proton concept of acids. The handling of chemical kinetics and equilibrium is surprisingly weak. The Periodic Table is presented essentially in the Mendeleyev (the translator's spelling) form, with iron, cobalt, and nickel, for example, being discussed under Group VIII. Discussion of molecular structure includes the concepts of ionic, metallic, and covalent bonding. The impact of quantum theory and wave mechanics is mentioned, but valence is interpreted essentially in terms of atoms acquiring stable electron shells, similar to those of the inert gases, by transfer or sharing of electrons.

Very few quantitative relations are used. An occasional calculation is included in the text, but there are no problems or exercises. (Glinka does have in print a separate problems book, but that volume is not mentioned here.)

Like any translated text, this one offers some interesting sidelights in its notation and wording—for example, the quotation in which F. Engels refers to Mendeleyev's work as an unconscious application of Hegel's law of transformation of quantity into quality. There are also a number of capsule biographies that are interesting for the information given and for the list of individuals chosen.

The basis for evaluating a book such as this one is not clear. The volume could be of interest to many as an example of Russian texts, but none of the background information about its purpose and usage, which are needed for comparison with American texts, is supplied. Much of the material on chemical theory seems out-of-date, but this is also true for most American texts of 1956 to 1959.

An individual studying this book would, it is true, receive some sound grounding in fundamental terminology, ideas, and practice in chemistry. However, the actual printing and reproduction are poor, and the cost of the volume is high. Anyone who wants to study chemistry on his own can get better books at lower cost elsewhere.

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Peptide Synthesis

In the rapidly developing field of peptide synthesis the need for a thoroughly up-to-date reference book has been evident. Volume 1 of **The Peptides, Methods of Peptide Synthesis** (Academic Press, New York, 1965. 511 pp., $18), by Eberhard Schröder and Klaus Lübke, meets the current requirement and will be welcomed by all who are actively engaged in the synthesis of peptides. It will also be valuable for those who wish to become acquainted with the field for the first time. The authors have presented in a small space a very complete survey of the methods of peptide synthesis. The emphasis is on the practical, but virtually every known method has been dealt with to some degree. In a systematic way each of the protecting groups for the α-amino and α-carboxyl groups is described. The basic principles are discussed, and extensive references to the development and application of the procedures are given. Similarly, the methods of forming the peptide bond are discussed, and this is followed by a consideration of the specific application of methods to the individual amino acids, with special emphasis on the polyfunctional amino acids. Presentation of the general techniques of peptide synthesis precedes treatment (in the last six chapters) of several of the more specialized areas. The latter chapters include good accounts of the cyclic peptides, the depsipeptides, the plasteins, and the group of peptides known as peptoids. Solid-phase peptide synthesis is discussed in a short section. Schröder and Lübke have made an effort to evaluate and compare the many alternate procedures and combinations of procedures which are now available for almost any particular purpose, although the decision about the best approach is necessarily left to the reader. The book contains valuable sections on nomenclature and on the crucial problem of racemization, as well as several useful tables on the stability of protecting groups and the preparation of amino acid derivatives. The excellent translation into English, by Erhard Gross, deserves special mention.

The few criticisms that can be made are largely related to the obvious space limitations. Thus, the fascinating historical development of the field is not stressed and predictions about its future are left to others. Experimental data are used sparingly and detailed procedures are not given, although ample references to the original work are always made. In fact, one of the striking features of the volume is that such a large proportion (approximately 30 percent) of it is devoted to a 2700-entry bibliography and author index. This valuable monograph is certain to be found on the desk of every peptide chemist.

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Collagen Diseases

Occasionally, during the pursuit of a busy career, a man takes time to sift through and consider a segment of his experience with a view to sharing what he has learned with others who may be interested. This is what radiologist Charles M. Nice, Jr., seems to have done in **Clinical Roentgenology of Collagen Diseases** (Thomas, Springfield, Ill., 1966. 205 pp., $10.75).

As a background for the presentation and discussion of his excellent collection of radiographic films, the author provided a brief record of the basic clinical and laboratory features of the collagen diseases, including systemic lupus erythematosus, polyarteritis and Wegner's granulomatosis, systemic scleroderma, dermatomyositis, and rheumatic pneumonitis. In most instances he has also briefly discussed pathology and treatment. The author has been generous with references (283 references for 183 pages of text), and the book has some aspects of a review.

The purpose of the book, and clearly its most valuable contribution, is the presentation of the superbly reproduced radiographic films. Both common and unusual pulmonary lesions of lupus are liberally illustrated. The bowel lesions of scleroderma and dermatomyositis, as they appear to the radiologist, have been lucidly discussed and illustrated. Many photographs showing subcutaneous calcification in collagen diseases have been included.

This book is of primary value to the medical student, general physician, internist, and perhaps the radiologist. Most rheumatologists are familiar with the material presented.

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Fermi's Molecole e Cristalli

Molecules, Crystals, and Quantum Statistics (Benjamin, New York, 1966. 314 pp., $12.50), by Enrico Fermi, is a translation (with several addenda by Lloyd Motz) of Fermi's 1934 textbook *Molecole e Cristalli*. The volume was translated by M. Ferro-Luzzi and edited by Lloyd Motz.

There is considerable presumption and also danger of heresy in attempting to give anything like an objective review of any of Fermi's work. It seems to me doubtful, however, that anyone would have undertaken the translation and publication of this work if it had not borne Fermi's name. It is not that it isn't well written and lucid. Again and again one finds passages where the famous Fermi ability to say things simply and directly is very much in evidence. This is especially true in parts relating to the structure of diatomic molecules. It is rather that for the