stitutions both in large and small degree depending upon the extent of advancement in the different branches of chemistry according to the author's preface.

The text shows most change in biochemistry, textile chemistry, and radiochemistry for the reason given by Dr. Meyer. These changes have been made without increasing the length of the sections. Certain pictures and diagrams have been omitted without apparent loss in the reviewer's opinion. The chemical structure of proteins and carbohydrates receives more emphasis. Some interesting applications have been added. The relationship is given between different blood groups and the heteropolysaccharides occurring on the surface of the red blood cells. In the textile field the information on detergents is expanded to include new ones of interest to home economics students. Moreover, solid bleaches and fabric softeners are new additions to this section.

Modernization has been effected by substituting more recent data in charts as well as by rearranging material, rewriting it, and adding exercises and problems. The section on atomic theory which includes radioactivity has been rearranged and rewritten in part.

Numerous small changes appear throughout the book reflecting a careful review of the material by the author in the light of chemical advancement as well as the reactions of students to the contents as noted above. The book should appeal to those who found the first edition useful. It should win new friends among teachers who have not tried the first one because it meets the needs of the students for whom it was written.

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Using Chemistry

Oscar E. Lanford, Dean, State University of New York, College for Teachers. Revised ed. McGraw-Hill Book Co., Inc., New York, 1959. xiii + 738 pp. Figs. and tables. 16.5 × 23.5 cm. $5.48.

It should be said at once that the revised edition of "Using Chemistry," copyright 1959, shows practically no change from the 1955 edition. Change in color of the cover, the introduction of several colorful pages which illustrate by means of a take-apart mechanism the structure of a nuclear power plant, and 250 additional questions appear to be the only real difference. This is not to say, however, that this text compares unfavorably with other "new" high school chemistry books.

This book is strong in several ways: the emphasis is on principles of science rather than on descriptive material; the language is direct and uncomplicated; the descriptive material is significant, and is presented in interesting fashion; there is an attempt made to look at the most recent

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developments of chemistry as applied science, and in general, the theory of chemistry is presented in an accurate and acceptable manner. The illustrations are, for the most part, good and easily understood line drawings. The photographs are recent and of reasonably good quality.

The book falls short as do all of the other chemistry texts in developing principles in a connected and integrated way. The question and problem material still leaves something to be desired, this in spite of the added section at the end of the book.

All in all, this book stands out in the reviewer's mind as being good among other high school texts which are notably poor.

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The Biological Replication of Macromolecules

Symposia of the Society for Experimental Biology, Number 12. Academic Press, Inc., New York, 1958. vi + 255 pp. 16 × 25.5 cm. $9.50.

The single property most generally regarded as characteristic of that difficultly defined state known as life, is the expressed ability of self-replication. By the time replication has occurred all aspects of the living cell, so far as we know, and except for mutational alteration of some, are replicated. The expert point of view is that macromolecules are most intimately involved in this process. The burden of self-replication may be carried by nucleic acid, nucleoprotein, or nucleic acid and protein. Insofar as we know, the mechanism of replication may vary from one organism to another or even within the same organism. In no case is the process sufficiently understood that anyone can aver successfully that it is.

At the present time the replication of macromolecules is a popular field of inquiry. Some of the speculation in this area is extremely vivid. Some of the experimentation (which is of course based also on speculation), is extremely ingenious. This book describes endeavor of each kind, particularly the latter.

The volume comprises 17 articles, each of which treats some aspect of the theme in a special way. The typical degree of complexity is quite involved. The book has much to recommend it to the moderately specialized reader but most of it is not particularly suitable for a general or casual reader. Four chapters which are exceptions are the introduction, Self-reproduction and All That by G. Pontecorvo; On Protein Synthesis by F. H. C. Crick; Protein Synthesis as Part of the Problem of Biological Replication, by J. L. Simkin and T. S. Work, and Processes Co-ordinating Intracellular Activity, by Alfred Marshak. More recently Crick has likened the process of transfer of information from nucleic acid to protein to that of a tape recorder in contrast to that of the more popular concept of a negative tem-

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