

have been discovered. But its weakness and limitations are inherent in its foundation on a mechanical conception of valency and an almost exclusive theoretical development along similar lines, for surely in nature there are no forces more intimately and indissolubly connected with changes in energy than the chemical.

Largely for this reason, the structure theory fails to offer explanations for many of the simplest organic reactions and, for many years, it has failed in explaining and co-ordinating with theory much of the wonderful experimental progress that has been made in the science.

It is true that innumerable attempts have been made to amplify or change the idea of valency and the structure theory so as to remedy these deficiencies, but they have always been along mechanical lines and have led to such impossible theoretical conceptions as new brands of valencies, dissociated and partial valencies, oxonium and carbonium theories, steric hindrance due to size of the atoms, etc., etc.

All the forces in nature, whether mechanical or chemical, have the same goal in view, which is the realization of the maximum condition of entropy, and a scientific theory of chemistry must inevitably have this law as its basis. The present aim of organic theory is not to abandon the structure theory, but so to broaden and develop it that it becomes a consistent and harmonious part of nature.

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NEW BOOKS.

The Elements of the Science of Nutrition. By GRAHAM LUSK, Ph.D., M.A., F.R.S., (Edin). Second edition. W. B. Saunders Company; Philadelphia, 1910. 402 pages, illustrated. Cloth, \$3.00 net.

The science of nutrition attracts attention at the present time from the physiologist, the chemist and the practicing physician, but whatever his interest may be, the man who wishes to follow the developments of that science of to-day must have at his command a good knowledge of modern physiological chemistry. This truth is well illustrated in the book in question.

The science of nutrition, like many other sciences, goes back to Lavoisier for its beginning, and in an interesting introductory chapter Lusk traces the cardinal points in its growth down to the present time. The author is a well-known physiologist and has himself made valuable contributions to the field. He has condensed into some four hundred pages a very clear and interesting résumé of the noteworthy literature of the subject. The book is divided into fifteen chapters which discuss the uses and effects of various kinds of foods, the relations to temperature and to work, the products of metabolism and other questions which properly belong in such discussions. The treatment is much fuller and more satisfactory than is usually found in works on physiology which, in a way, cover the

same ground. Very good literature references add greatly to the value of the explanations. Three chapters, the 12th, 13th and 14th, are devoted to the discussion of our present views on metabolism in diabetes, metabolism in fever and the purine metabolism in its relations to gout and other conditions. It is pointed out by the author that the rapidly accumulating data bearing on these topics may soon make possible rational theories as to the origin of these diseases. The interesting relation of the purine chemistry to this field of study is pointed out at length.

This book can be heartily recommended to any one who wishes a textbook guide with which to work into an understanding of the present status of the science of nutrition.

J. H. LONG.

RECENT PUBLICATIONS.

ARHENNIUS, S.: *Lehrbuch der Electrochemie*. Deutsche Ausgabe von H. Euler. Neuer Abdruck. Leipzig: 8°, 313 pp., 8 M.

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