NEW BOOKS.

CHEMISTRY OF THE PROTEIDS. By GUSTAV MANN, M.D., B.Sc. (Oxon.), University Demonstrator of Physiology, Oxford. London and New York: Macmillan & Co. 1906. Price, $3.25.

This book is the most serious attempt yet made to give an account of our present knowledge of the proteins. It was the author's first intention to make a translation of the second edition of Cohnheim's "Chemie der Eiweisskoerper," but as so much new matter was added he decided to assume full responsibility for the work and acknowledge his indebtedness to Cohnheim.

Most of the new matter consists in theoretical explanations of the physical properties of the proteins, colloids being treated at great length, and the pseudoacid pseudobasic nature of the proteins is considered to be a matter of such importance that it is extensively discussed. The author places much confidence in many recent investigations by physical chemists which have been made with egg-white or with crude mixtures of protein with other and unknown substances. Such experiments manifestly cannot be used as a basis for generalizations until they have been confirmed by repetition with pure material of definite character, and extended to many of the widely differing forms of proteins. Mann, however, appears to accept such data as satisfactory, and explains the processes by which the supposed phenomena result, although it seems to the reviewer to be too early to attempt such generalizations and explanations.

The statement of the physical properties of the proteins both in this book and in that of Cohnheim will require very serious revision as soon as the vegetable proteins are taken into consideration.

It is remarkable that so little attention has been paid to the proteins of seeds, for these offer one of the best opportunities that we have for isolating and studying these substances under comparatively definite and simple conditions. Although Mann says of vegetable proteins, "The seeds, on the other hand, with their large amount of stored albumin, have been investigated very thoroughly. Starting with Liebig, a large number of papers have been published dealing with these readily accessible and economically very important bodies," nevertheless he devotes to this part of his subject only six pages out of the six hundred and more which the book contains. Furthermore, these six pages are

crowded with incorrect statements, which an examination of the literature would have made impossible. The treatment of this part of his subject is in the highest degree unsatisfactory, and had much better have been omitted entirely.

Many of the terms employed by Mann are unusual. Thus, although the title of the book is "Chemistry of the Proteids," these bodies in the text are collectively called albumins, a practice which brings the author into confusion when he undertakes to distinguish between globulins and the group of water-soluble proteins commonly known as albumins.

Coagulation is made synonymous with precipitation, and acid albumin and coagulated albumin appear to be regarded by the author as one and the same thing, although the product of heat coagulation and that product of the action of acid on native protein which is generally called acid albumin are certainly different substances.

In dealing with the decomposition products of the proteins those recently described by Skraup are given the same consideration as those which have been thoroughly established and studied, although the evidence of the identity of these products given by Skraup was extremely unsatisfactory, and he has since shown that most of them were mixtures of well-known substances, and are therefore to be no longer considered.

The reader will be surprised to find diaminopropionic acid in the list of protein decomposition products, together with the statement that this is the simplest diamino-acid found in the body. Meyer is cited as authority for this statement, but the author has overlooked the fact that the diaminopropionic acid which was obtained from rabbits Meyer himself had already introduced. Misapplications of quotations are to be found in this book, against two of which the reviewer must strongly protest. On page 297 he says that "Osborne has stated that the globulin precipitation is caused by the hydrogen ions of the water," a view which the reviewer not only never advanced, but considers to be absurd. Again on page 362 he repeats the same statement in connection with the conversion of globulin into insoluble products, which the reviewer showed to be due to the action of acids, but did not attribute to the hydrogen ions of water. On page 372 he makes the reviewer responsible for the statement that the Para-nut contains an albumin, "the lime

and magnesia salts of which crystallize in octahedra." So far as known, the lime or magnesium salts of this protein have never been prepared and probably cannot be crystallized if made.

His description of the properties of the individual proteins closely follows Cohnheim except in the case of the nucleoproteids and the haemoglobins, which are treated more extensively.

Throughout the volume, references are made to the original authorities, and this fact gives the book its chief value, for the entire literature of the subject is discussed, and few papers of consequence have been overlooked. The reader will therefore find this book very helpful in looking up the literature of any of the questions treated.

It is unfortunate that in the first work in the English language on this subject a more critical study of this great mass of undigested material was not undertaken, and an endeavor made to bring the conflicting statements into harmony and to eliminate those already disproved or rendered extremely improbable. As it is, we here have collected together, in addition to the definitely ascertained facts, a large number of very questionable observations and evident blunders which thus acquire an undeserved degree of recognition that will make it difficult to dispose of them for a long time to come. THOMAS B. OSBORNE.

ON CARBOHYDRATE METABOLISM. By F. W. PAVY, M.D., LL.D., F.R.S. Philadelphia: P. Blakiston's Son & Co. Price, $2.40.

This book contains a course of advanced lectures delivered by Dr. Pavy at the University of London in May, 1905. It is largely made up of the personal experiments and opinions of its author. It hardly seems credible that the subject of diabetes could have been treated without reference to Minkowski's work on the extirpation of the pancreas, yet this has been done. Much foreign work has been neglected or misquoted. Dr. Pavy (p. 50) considers that carbohydrate to the extent of 60 per cent. may enter into fixed chemical combination in the proteid molecule. This is an old view, now relegated to the group of fallen theories, since it has been shown that proteid yields sugar in metabolism through a synthetic reconstruction of the broken chains of its constituent amino acids. Dr. Pavy rightly protests that the "acidosis" question in diabetes should not engross the attention in preference to that of sugar. GRAHAM LUSK.