The book contains too little theory and about three times too many examples. The work demands too much finger work and too little thought.

The algebras by Professor Schultze and by Messrs. Ashton and Marsh cover the material usually presented to high school pupils and college freshmen. Both works are well suited to prepare the student for the examinations held by the College Entrance Examination Board. Messrs. Ashton and Marsh's book begins with the theory of radicals, the preceding matter being presented for review by numerous well-chosen examples. Both works deal admirably with graphs, determinants and the theory of equations. Neither one aspires to the rigor of the superb work of Professor Fine, but both of them are likely to be regarded, whether correctly or not, as more teachable.

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Metabolism and Practical Medicine. By CARL VON NOORDEN; Anglo-American issue under the editorship of WALKER HALL. Vols. I. and II. Chicago, W. T. Keener & Company.

This work is a translation of the first volume of v. Noorden's "Handbuch der Pathologie des Staffwechsels," the most exhaustive treatise that has yet appeared on the subject of metabolism. The German original (two volumes) is the joint product of the following contributors: v. Noorden, A. Czerny, C. Dapper, Fr. Kraus, O. Loewi, Magnus-Levy, M. Mathes, L. Mohr, C. Neuberg, H. Solomon, Ad. Schmidt, Fr. Steinitz, H. Strauss, and W. Weintraud.

The original of the first volume of the translation comprises 479 pages written by Magnus-Levy. It treats of normal metabolism in all its different phases, and is a very readable piece of metabolism literature. In addition it is a veritable mine of numberless detailed facts and corresponding references to the original literature. It should prove exceedingly valuable to the investigator who wishes to look up definite facts with the minimum waste of time. In some important particulars, as, for example, with regard to the factors which determine the percentage composition of human urine the volume is already more or less obsolete. This is, however, not the fault of the author. His manuscript must have been finished in 1904, and as he says in another connection: "Die Fragen, deren Lösung wir dank der eifrigen Arbeit der verschiedenen Schulen in wohl nicht zu ferner zeit erhoffen dürfen, sind eigentlich zahlreicher, wie die bereits gewonnenen Aufschlüsse und Ergebnisse."

The second volume (of the translation) deals with metabolism in starvation, in overfeeding, in fevers, and in diseases of the digestive tract, respiration, the liver, the blood and the kidneys.

Three of these chapters, namely the first two and the last one, are v. Noorden's, and are written in his usual clear, critical, yet somewhat dogmatic style. These chapters constitute excellent résumés of what is yet known concerning the subjects treated. They abound in concrete instances drawn from the author's experience as a clinician—instances which show how a mastery of even the present limited knowledge of the laws of metabolism is indispensable for the correct diagnosis and the dietetic treatment of many cases coming under the care of every physician.

Of the other chapters in this volume those on fevers (Kraus) and on diseases of the liver (Weintraud) are the most interesting. A part of the matter here introduced, as, for example, Ehrlich's "parallelism" between the process of assimilation and the action of toxins, is perhaps of too hypothetical a nature to merit the extensive discussion it has received. Some of the data presented, notably with regard to the urinary constituents, are of very doubtful value. But taken as a whole these chapters are instructive and suggestive alike to physiologists and to pathologists who are interested in the problems of metabolism.

It is to be regretted that the scholarly character of this valuable work should have suffered at the hands of the translators. They have evidently done their part in great haste, with little regard for English style, and sometimes without even bringing out the correct

sense of the original. A few illustrations of errors which mar the two English volumes may be cited: (Vol. I., p. 3) "the fats and proteins are partly vegetable, partly mineral"; (p. 5) "the questions, the solution of which follow the energetic work of numerous laboratory workers, are really at present more numerous than the discoveries and results obtained";[1] (p. 126) "im Stoffwechsel fast unangreifbar" is rendered as "almost beyond assimilation"; (p. 178) for "genau" we find "minutely"; (p. 403) for "reichlich Getrank zuzuführen" we get "water should be exhibited freely"; (p. 408) for "Kot" we get "motion"; (Vol. II., p. 1) "die Fragen des Chlorumsatzes und der Acetonuria" is transformed into "the problem of the Chlorine changes in acetonuria"; (p. 62) in overfeeding "it is a matter of indifference whether the excess takes the form of albumen or of some oxidizable substance free from nitrogen"; (p. 105) "the nitrogen output during starvation usually exceeds the intake by a small amount.

The German edition was quite up to date when it went through the press (1904–5). A cursory glance at the Anglo-American edition gives the impression that it has carried the review of the literature up to the date of issue. To be sure, some additional data have been incorporated, but much recent literature, especially in the field of normal metabolism, has been omitted.

The translators have cut out a considerable number of references to original literature given in the German edition.

Otto Folin

Plant Physiology and Ecology. By Frederic Edward Clements, Ph.D., Professor of Botany in the University of Minnesota. With 125 illustrations. Pp. xvi + 315. 8vo. New York, Henry Holt and Company. 1907.

This book, the result of more than fifteen years of ecological work on the part of its author, constitutes a notable addition to the literature of botany in America. In 1897 the first edition of Pound and Clements's "Phytogeography of Nebraska" was published, and in it we find the germs of the book now before us. Three years later the second edition appeared with considerable emendations and corrections, and this was followed by various papers published in magazines, transactions of societies and university "studies," culminating in Clements's "Research Methods in Ecology" in 1905, a technical handbook for the advanced student and investigator of ecology. The book in hand is based upon that work, and is, in fact, a less technical presentation of the same matter, adapted to the needs and preparation of college and university students.

The author considers physiology and ecology as essentially the same, hence the treatment is in accord with this view. The author does not in any place give the plant an ecological consideration as distinct from one which is physiological. It makes no difference whether the plant is studied in the laboratory, or in its field or forest habitat, in any case the investigation is essentially the same, and we are no longer to call the first physiology and the second ecology.

The book is broken up into fifteen chapters, of which the first is a somewhat philosophical discussion of stimulus and response. And here we get the author's definition of plant physiology in this paragraph (page 1): "Physiology was originally understood to be an inquiry into the origin and nature of plants. This is the view that pervades the following pages, and in accordance with this the subject-matter of ecology is merged with that of physiology." The nature of stimuli and the nature of response are discussed—concisely and precisely—and adjustment and adaptation are defined and delimited. Then follow chapters on the water of the habitat, adjustment to water (including absorption, transport and transpiration), adjustment to light, adjustment to temperature, adjustment to gravity, contact and shock, adaptation to water, and adaptation to light. In these chapters, along with much discussion of the problems involved, the au-

[1] This sentence purports to be a translation of the German sentence of Magnus-Levy's quoted above.