

method does not appear to give satisfactory results with dried forage plants.

2. The ratio of iron to phosphorus in determinations of phytin phosphorus as ascertained by titrations of purified salts of inosite pentaphosphoric acid obtained from kafir, cottonseed meal, wheat bran, rice bran, corn, and rice polish, was found to average 1.207. Heptaferriic inosite pentaphosphate would have the ratio 1.191.

3. Of the plant products examined, the largest amounts of phytin phosphorus were found in wheat bran, cottonseed meal, wheat shorts, rice bran, rice polish, and the smallest amounts on corn, oats, soy bean, clover seed and kafir. The phytin phosphorus in the plant products examined constituted on an average 73% of the total phosphorus and 86% of the 1.2% hydrochloric acid-soluble phosphorus.

FAYETTEVILLE, ARK.

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### NEW BOOKS.

**Laboratory Manual of General Chemistry** (with Exercises in the Preparation of Inorganic Substances). By ARTHUR B. LAMB. First Edition. Cambridge: Harvard University Press. 1916.

In the first part of this volume (about 100 pages) the author presents the more advanced experiments of General Chemistry. This presentation is replete with many new experiments which cannot fail to impress the student with the fundamental principles of the science. The experiments upon the effect of dissolved substances in solution deserve especial mention for clearness of discussion. In fact the outstanding feature of the manual is this attempt to give the student some idea of each experiment before the experiment itself is begun. These discussions are condensed, to the point, and exceedingly clear. Manuals which eliminate this feature encourage all too easily the mechanical process and rarely open the mind of the student to larger interpretations.

In the second part (about 50 pages) the author considers a number of inorganic preparations, all of which are interpreted from modern standpoints. The study of equilibrium constants, in particular, is so well brought out that the attention of all advanced students in General Chemistry might well be called to this presentation in connection with whatsoever laboratory courses they may be following.

There are a number of small errors which it is hoped will be eliminated in the future edition. The use of the hybrids "divalent," "tetravalent," etc., is not in keeping with proper word formation. Latin stems demand Latin prefixes, and thus bivalent, quadrivalent, etc., constitute the correctly formed adjectives. In the best usage the Greek prefixes have found distinct positions in the nouns, "diad," "tetrad," etc. It is well to keep the two ideas apart. Again the indiscriminate use of "chlorine"

ion and "chloride" ion is confusing. Anions are named from the names of acids, bases and salts, as characterized in the latter of the two names above. The use of aluminum for aluminium is undesirable. The latter is adopted as the correct form by the American Chemical Society and by other chemical societies, whereas the former applies particularly to the impure metal, as found in "aluminum ware."

In the make-up of the book, the size of the page,  $20 \times 26.5$  cm., is the only unattractive feature. In this respect it cannot fail to be unwieldy in the hands of a laboratory student. The sheets for data, which are to be removed when filled out, might just as well have been arranged for records on both sides and thus it would have been possible to reduce the page to one-half the present size. Throughout the volume many valuable suggestions are offered, and many questions submitted which will serve admirably in the training of the student of General Chemistry. The treatment is highly practical and abounds in sound and systematic deductions.

WILLIAM J. HALE.

**The Elements of the Science of Nutrition.** By GRAHAM LUSK, PH.D., SC.D., F.R.S. (Edin.), Professor of Physiology at Cornell Medical School, New York. Third Edition Revised. Octavo of 641 pages, illustrated, W. B. Saunders Company, 1917. Philadelphia and London. Cloth, \$4.50 net.

The third edition of this deservedly successful Science of Nutrition carries out in a splendid manner the aim of the previous editions, namely, "to review the scientific substratum upon which rests present-day knowledge of nutrition both in health and disease."

Since the former edition of the book very important investigations have changed current views with respect to many aspects of nutrition. This is especially true of the chemistry of intermediary metabolism, problems relative to growth, the significance of the accessory foodstuffs, the metabolism of carbohydrate in health and disease, acidosis, and metabolism in fever. These topics are fully and adequately treated in the present volume.

In view of the world war a chapter is given to Food Economics.

Finally, the author gives notice that he has no intention of again revising this book and prophesies that "in another decade the development of scientific knowledge will probably permit the formation of the subject from the standpoint of physical chemistry."

FRANK P. UNDERHILL.