suchungen über die Entwicklungsarbeit und den Stoffumsatz im bebrüteten Hünerei," *Arch. ges. Physiol.*, **121**, 437–58; (1909), "VII. Embryonale Entwicklung u. Metamorphose vom energetischen Standpunkte aus betrachtet," *Arch. ges. Physiol.*, **130**, 55–89.

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Tichmiroff (1885), "Chemische Studien über die Entwicklung der Insecteneier," *Z. Physiol. Chem.*, **9**, 518–32.

Van Slyke (1911), (*a*) "The Analysis of Proteins by Determination of the Chemical Groups Characteristic of the Different Amino-acids," *J. Biol. Chem.*, **10**, 15–55; (1911), (*b*) "The Quantitative Determination of Aliphatic Amino Groups, *J. Biol. Chem.*, **9**, 185–204; (1912), "The Quantitative Determination of Aliphatic Amino Groups. II," *J. Biol. Chem.*, **12**, 275–84.

NEW BOOKS.

The Freezing-Point, Boiling-Point and Conductivity Methods. Second edition, completely revised. By HARRY C. JONES, Professor of Physical Chemistry in the Johns Hopkins University. Easton, Pa.: The Chemical Publishing Co. 1912. 14 × 20 cm., vii + 75 pp. Cloth, $1.00.

In view of the wider range of laboratory manuals of physical chemistry that have become available since 1897, the date of the first edition of this little work, it is probable that this second edition, with a field limited to three methods, will fill a want felt hardly so strongly as formerly. It may be recalled that the author aims to give, not only an account of the mechanical operations involved in carrying out these methods in the laboratory, but also enough of the theoretical ground on which each of them rests to enable the student to work with them intelligently and to see clearly their scientific significance and use. In a volume so small, however, there is not always enough space to deal adequately with the theoretical side; for example, one cannot but feel that, to the uninitiated, the thermodynamic deduction on p. 7 must savor of hocus pocus, especially in the absence of any mention of possible reversibility.

Most of the text remains the same, but the numerical data have been amplified, a roller bridge is figured and described, as also is a newer type of thermostat. Nothing is said of any of the Landsberger types of boiling-point apparatus. ALAN W. C. MENZIES.

Conférences sur Quelques Thèmes Choisis de la Chimie Physique, Pure et Appliquée. By SVANTE ARRHENIUS, Directeur de l'Institut Nobel scientifique, à Stockholm. Paris: Libraire Scientifique, A. Hermann & Fils. 1912. 14 × 23 cm., 113 pp. Paper covers, 3 fr.

This series of five lectures was given by Arrhenius at the University of Paris in March, 1911. The titles are: "La Théorie Moleculaire;" "Les Suspensions et les Phénomènes d'Adsorption;" "L'Energie Libre;" "Les Atmosphères des Planètes" (issued separately, and reviewed in THIS JOURNAL, **34**, 1740 (1912)); and "Les Conditions Physiques sur La Planète Mars."

Anything from the pen of the versatile Arrhenius is welcome, even were the subjects not those on the forefront of our advancing knowledge. Some of the material, indeed, would even now require revising to bring it to date—in the first lecture, for example, in view of the later work of Millikan and others. As it stands, however, everything, especially as it appears in French, is beautifully lucid, and the book is stimulating and altogether delightful. ALAN W. C. MENZIES.

Achievements of Chemical Science. By JAMES C. PHILIP, M. A., D.Sc., Ph.D. London: Macmillan and Co. Price, $0.60 net.

This little volume is one of a series published under the general caption "Readable Books in Natural Knowledge." There are three questions which at once suggest themselves to the reviewer of such a volume: (1) Is it accurate? (2) Is it up-to-date? (3) Is it interesting? In the writer's opinion, the first two questions may be answered unhesitatingly in the affirmative, and probably also the third one. On the other hand, a chemical friend, who read the book, was quite positive that it was not interesting!

Some passages in the book are not clear. For instance (p. 29), the following names are used in the course of six consecutive lines: "chalk," "calcium carbonate," "carbonate of magnesia," "sulphates and chlorides both of lime and magnesia." These last two terms are quite incorrect, because it is obvious that calcium and magnesium chlorides are referred to. The presence of nitrogen in "after-damp" (p. 91) is ignored. The later sections of the book contain much needless repetition.

The objects of the book are undoubtedly worthy and, on the whole, are fairly well attained. J. BISHOP TINGLE.

Review Questions and Problems in Chemistry. By M. S. H. UNGER, Headmaster, St. Johns School, Manlius, New York. New York: Ginn and Co. Pp. v + 106. Price, $0.50.

This is a most exhaustive and satisfactory set of questions and problems in Elementary Chemistry, planned as a basis for study and the preparation for college entrance examinations, and will surely, as the author claims, "be found more than sufficient to prepare a student for the entrance examinations for any college." It would even prove a most useful set of questions and problems for the first year college courses in Chemistry. The questions are grouped in 27 chapters covering in the order named: Definitions, Laws and Theories, Periodic Classification, The Elements, Calculations of Per cent. Composition, Atomic and Molecular Weights, Formulas, Physical Measurements, and a satisfactory appendix of Physical Constants. H. ISHAM MATTILL.

Die Neure Entwicklung der Kolloidchemie. By DR. WO. OSTWALD, Privatdozent an der Universität Leipzig. THEODOR STEINKOPFF, Dresden and Leipzig. 1912. Pp. 23. Price, 1 Mark. A reprint from Kolloidechemische Beihefte, IV, No. 1.

This review was read before the 84th "Versammlung Deutscher Naturforscher und Aerzte," 1912, which is sufficient explanation for both its comprehensive character and its brevity. It is a most interesting summary of what one of the foremost colloid chemists of the day considers the most important advances in that science in the last six years, treating the subject in the three sections: Theory of the Colloidal Condition, Experimental Progress, and Industrial Applications. H. ISHAM MATTILL.

The Chemical Constitution of the Proteins. By R. H. A. PLIMMER, D.Sc., University Reader and Assistant Professor of Physiological Chemistry, University College, London. Part II, Second Edition. London: Longmans, Green and Co. 1913. Pp. xii + 107. Price, $1.20 net.

Reference to Part I of the second edition of this useful monograph will be found in THIS JOURNAL for October, 1912. The part dealing with synthesis, now revised after an interval of five years, has been increased by the addition of a number of items of historical interest; by an extension of the consideration of the applications which have been made of the synthetical polypeptides to the detection and differentiation of enzymes; by the introduction of a brief reference to the effects of the injection of proteins and their derivatives into the circulation upon the development of plasma enzymes; by a consideration of the hydrolysis of proteins after treatment with alkali, nitric acid, nitrous acid, etc.

Evidence of the progressive attitude assumed by the author is shown in the shifting of the emphasis given to various topics in the two editions already issued. The synthetic polypeptides properly claim a large share of attention in 1913. We are reminded that no definit theory of the mode of combination of the amino acids in a protein seems to have been enunciated before the beginning of the twentieth century. In view of this the author's venture at a structural formula of a protein (p. 10) so imagined as to bring out the possible difference in the action of pepsin and trypsin in addition to other known chemical peculiarities of albuminous complexes is decidedly novel and interesting. Contrasting this with the earlier condensation products obtained from amino acids with their limited relations to protein one recalls von Fürth's remark that it is scarcely more likely that real protein should be obtained in this haphazard way than if anyone were to mix up a mass of letters in a bag, then pour them upon a table, and expect to find them grouped into a beautiful poem.

The new edition of Part II is brought up-to-date, even in minor details, and justifies the comments already made in regard to the earlier portion of the monograph. LAFAYETTE B. MENDEL.

Die Methoden der exacten quantitativen Bestimmung der Alkaloide. Zusammengestellt. VON PROFESSOR Dr. ANTON RITTER VON KORCZYŃSKI, Privatdozent an der Universität Krakau. Berlin: Gebrüder Borntträger. 1913. Large 8vo, iv + 82 pp.

The author presents in this little book a condensed résumé of quantitative methods, gravimetric, volumetric, refractometric and polariscopic, for the analytical determination of about a score of the more important alkaloids. Processes for the isolation of the alkaloids are not comprised in the plan and are only incidentally touched upon.

This monograph is very clear, in spite of its brevity. It contains a sufficiently full and carefully selected bibliography of the subject and is in every respect a thorough piece of work, which can not fail to be of value to workers in the field of which it treats. It will be doubly so, when the author fulfils his implied promise to supplement it by the publication of a monograph on methods of separation of the alkaloids. An appendix is devoted to a review of the methods for determining alkaloids in pharmaceutical preparations prescribed by the 5th ed. of the "Deutsches Arzeneibuch." LAUNCELOT ANDREWS.

The Fitness of the Environment: An Inquiry into the Biological Significance of the Properties of Matter. By LAWRENCE J. HENDERSON, Assistant Professor of Biological Chemistry in Harvard University. The Macmillan Co. 1913. xi + 317 pp. Price, $1.50 net.

This book, as its title indicates, deals with the connection between the physical and chemical properties of simple substances and the organic functions which they serve. The author states in his preface that "..... it has been deemed necessary to explain every subject as it has arisen, for many of the readers of this volume will perhaps be unfamiliar even with the rudiments of all the departments of science which have necessarily been touched upon." The book is, therefore, written in language suited to the general reader.

Water and carbon dioxide receive special treatment, and the chapters dealing with these and that on the ocean possess an interest apart from the rest of the book, which is philosophical. The author has selected the evidence from cosmology, chemistry and physics, and presents the arguments for and against vitalism and mechanism. The author's convictions are well summed up in the following quotation from page 288: "Meanwhile for most men physiology has become merely biochemistry and biophysics, and mechanism is undoubtedly firmly established throughout every department of the science." E. V. MCCOLLUM.