"to classes of young men who intend to become farmers, and who desire information that will be of assistance to them in their profession." It aims to give "the principles of chemistry which have a bearing upon the conservation of soil fertility and the economic use of manures." The author has performed his task in a very satisfactory manner. He has treated the subject logically and systematically, giving first the scientific principles, and then laying stress on their practical application, but not to such a degree as to make the work a hand-book instead of a text-book. The historical development of the subject has not been neglected, though naturally the treatment has been very condensed.

Notwithstanding the general excellence of the work, there are certain errors and defects which cannot be overlooked. The language is, at times, too condensed for clearness, as, for example, in the description of the analysis of soils on page 74. The writer has a habit of leaving out the comma in sentences like these, 'that produced from cellulose bodies as sawdust,' 'produced by each material as green clover, oat straw.' It is stated on page 42 that "the additional amount of water in the humus soil may cause the soil temperature to be lower than that of the sandy soil. While the humus soil absorbs more heat than the sandy soil, the heat is used up in evaporating water." The heat is used up in warming the water, more than in evaporating it; the specific heat of soils being from 0.2 to 0.4, as stated in the next paragraph. On page 93 the statement is made that, "the non-nitrogenous compounds as cellulose, starch and sugar undergo a fermentation but seem to possess little, if any, power to form humates in the soil." And the third sentence reads, "straw, sawdust and sugar, materials rich in cellulose and other carbohydrates, yield a humus characteristically rich in carbon and poor in nitrogen." These statements appear inconsistent. The table on page 94 is not correctly arranged. On page 115 the statement is made, "like the nitrates and nitrites, the ammonium compounds are all soluble and hence cannot accumulate in soils which receive an average amount of rainfall." This leaves a false impression, for ammonium compounds are fixed by soils almost as readily as potash, becoming soluble with difficulty (1 part in 10,000 of water), while the nitrate and nitrites are not fixed, but wash out with great readiness. The fact that ammonium salts are fixed by the soils is not mentioned in the chapter on fixation.

This book is, on the whole a very good one; it is cordially recommended to the attention of all instructors in agricultural chemistry, and, while not written with this end in view, it is recommended to those agricultural chemists who desire to obtain a survey of the rapidly widening field of research relating to soils and fertilizers.

G. S. FRAPS.

A Short History of the Progress of Scientific Chemistry in our own Times. By WILLIAM A. TILDEN, D.Sc., F.R.S. Longmans, Green & Co., London, New York, and Bombay. Pp. x + 276.

The task which Dr. Tilden set before himself in the preparation of this book was to give in broad outline a sketch of the development of chemistry during the period of the Victorian era. The subject has been treated topically rather than chronologically, and the method of treatment chosen is abundantly justified in the result. The topics selected are: Matter and Energy; The Chemical Elements; Atomic Weights; Classification of the Elements; Valency and the linking of Atoms; Synthetical Chemistry; Stereo-chemistry; Electricity and Chemical Affinity; Liquefaction of Gases. An exhaustive historical treatment of these topics does not, of course, lie within the scope of the work. Indeed, its value depends very greatly on the fact that the author has known so well what to select, and because the topics selected have been treated with sufficient fullness to be interesting and intelligible to any one possessing an elementary knowledge of the subject. The book should find a large field of usefulness.

W. A. NOYES.

Outlines of Industrial Chemistry. By FRANK HALL THORP, Ph.D., Instructor in Industrial Chemistry in the Massachusetts Institute of Technology. A text-book for students. New Edition revised. New York, The Macmillan Company. 1899. Pp. xvii + 541. Price, $3.50.

The excellence of Dr. Thorp's book is evidenced by the appearance of a second edition within one year after the printing of the first. The first edition was reviewed in SCIENCE, Vol. 9, p. 150. Very few changes, further than the correction of a few errors which have been brought to the author's notice, have been made. The book well deserves the success it has achieved.

W. A. NOYES.

GENERAL.

IT is proposed to publish, under the editorship of Mr. W. L. Sclater, director of the South African Museum, a series of volumes dealing with the fauna of Africa south of the Zambesi. The northern limits of South Africa, as treated in this work, will be a line drawn from the Cunéné River on the west to the Zambesi at the Victoria Falls, and thence along that river to its mouth. Within it will, therefore, be enclosed the British colonies of the Cape and Natal, the two republics of the Transvaal and the Orange Free State, the southern half of the Chartered Company's territory, German Southwest Africa, and that portion of Portuguese East Africa which lies south of the Zambesi. The first volume, by Arthur C. Stark, M.B., containing Part I. of the birds, will shortly appear, and it is hoped that that relating to the mammals, by Mr. Sclater, will be ready for publication during the course of the present year. The work is published by R. H. Porter, 7 Princes St., London.

IN *The Indians of Southern Mexico* Frederick Starr, of the University of Chicago, presents some of the results of his several expeditions to Mexico. The chief objects of these expeditions was the study of the physical types of South Mexican Indians. Three methods of work have been followed—measurement, photography and bust making. The tribes studied live among the mountains, and some of them—as the Triquis, Chontals and Juaves—are almost unknown to students. In the photographic work Professor Starr has secured portraits, groups, scenes in daily life, views of houses and towns and of scenery. For portraits plates 5x7 inches were used and front and profile views made of each subject; for full figures and occupations 5x8 inch plates were used; for large groups, architectural subjects, villages and landscapes 8x10 inch plates were employed. Hundreds of negatives have been made representing the tribes of the States of Michoacan, Mexico, Flaxcala, Puebla and Oaxaca. From this series a selection has been made for publication. The book contains one hundred and forty-one beautiful photogravure plates, 11x14 inches in size, printed on heavy plate paper and well bound. They are accompanied by thirty-two pages of descriptive text. On account of its great cost the work is a limited edition, but it will have permanent value.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of Geology*, Vol. 8, No. 2, February–March, 1900. Besides the reviews and notes on recent publications, this interesting number contains: 'The Nomenclature of the Feldspathic Granulites' by H. W. Turner. The author advocates the naming of the rocks in accordance with their mineral molecular composition and in the case of the feldspathic granulites, to abandon the term plagioclase, which expresses a mixture of two or more kinds of molecules, and substitute the more descriptive terms for the rocks which contain the larger per cent. of the single molecules such as orthosite, anorthosite, albitite, oligosite, andesinite, labradite, and anorthitite. When quartz is abundant then the terms should be compounded as quartz-orthosite. If an accessory mineral term is introduced into the name it should take the adjective form as quartziferous syenite. 'The Geology of the White Sands of New Mexico'; with three plates, by C. L. Herrick. The geological features of the regions east of the San Andreas and Orange Mountains of New Mexico and those bordering the great white sand plains are discussed, and the opinion is expressed that the white sands are derived from the weathering of the ridges of gypsum and are entirely dune sands, that the alkaline and saline deposits of the region are derived from the red beds (Permian and Triassic) and the associated saline and gypsiferous members. The copper deposits are thought to have a similar origin also. The suggestion is offered