Methods of preparing the chlorates of sodium and potassium, of purifying aluminium sulphate, of manufacturing persulphates, alkali bichromates, potassium permanganate, sodium hyposulphite, white lead, vermilion, etc., in the electrolytic way, are placed before the reader in a most attractive manner, so that as we proceed we are inspired with a desire to repeat these experiments, but having previously carried out similar schemes for most of the substances mentioned we find pleasure in corroborating the statements of the author, with an invitation to others to embark in this field of investigation.

The second section considers the application of the current to organic substances. The author credits Davy with having been the first chemist to venture into the field, but adds that Kolbe, Wurtz, Bourgoin, Walker, Miller, Weems, Berthelot and others made researches in this direction. Your reviewer would include the name of Mulliken in this list. The efforts of these men, bestowed upon the aliphatic acids and their salts, have been most fruitful, but the author of the work before us is content, and naturally enough, to give certain generalizations and deductions from the pen of Bourgoin, and then branches forth upon the synthesis of alcohol by Lapeyriere in 1880, with brief mention of that of Eisenmann, the decolorization of bark liquors, electrolytic tanning, etc. This section may be said to be entirely technical, but it, as well as the first section, merits the attention of chemists generally, for both contain much valuable matter, concisely expressed and highly suggestive.

EDGAR F. SMITH.

Electro-Metallurgie. Voie humide et voie sèche. Par AD. MINET. Paris, Boulevard St. Germain, 120, Masson et Cie.

The author first defines electro-metallurgy, describes different types of electrical apparatus, and reviews the various laws relating to electrolytes, then outlines the precipitation of copper, lead, silver, bismuth, cadmium, mercury, gold, platinum, iridium, tin, antimony, iron, nickel, cobalt and zinc, giving with each the most suitable composition of bath, the proper current density, the regeneration of the liquors and other data valuable to those engaged in electroplating.

The second section of the book, devoted to electro-metallurgy in the dry way, is most interesting. The metals considered are aluminium, magnesium, sodium, potassium, lithium, calcium, strontium, barium and zinc. A short historical sketch precedes the working conditions laid down for each metal. Taking aluminium as an example, there first appears a general outline for its isolation from the double fluoride of aluminium and sodium; then follow a description of the methods proposed by Minet, Heroult and Hall, with directions as to choice of electrolyte, including its physical properties, as well as the mode of regeneration, and also the electromotive force necessary for the decomposition of the various salts, and hints as to the nature and shape of the vessel intended to carry the electrolyte.

Students of chemistry will read this section with pleasure and profit, and lay aside the volume with the conviction that it brings little which can be criticised and a very great deal which will be helpful to all who wish to pursue this line of study further.

EDGAR F. SMITH.

A Manual of Quantitative Chemical Analysis. By E. F. LADD, B.S., Professor of Chemistry in the North Dakota Agricultural College, and Chemist to the Government Experiment Station, Fargo, N. D. New York, John Wiley & Sons. 1898.

"This little manual is intended for the use of beginners in quantitative analysis. The methods have been selected to advance the student from the simple analysis to the more complex and difficult, and when he has completed the course as laid down here he will be in a position to intelligently use and interpret the advanced works of Fresenius, Crookes and the Encyclopædias." A book which will give a few simple examples illustrating the principles of analytical chemistry can be used with advantage by those who only wish a general idea of chemistry; but it is doubtful whether such a book is useful to one who expects to go more deeply into the subject. He would either have a very slight knowledge of the subject or would have to repeat the work in a more thorough manner.

The first part of this book is given up to analyses of single constituents, while farther on the the student is given methods of analyzing food, water, urine and soils. It is impossible to treat these subjects satisfactorily in a few pages, and the mere mechanical analysis of a few of these products would prove of little value to one who might have to deal with related substances. The chief objection to the book might be summed up in the statement that it is too mechanical.

J. E. G.

The Study of Man. By Alfred C. Haddon, M. A., D. Sc., etc. New York, G. P. Putnam's Sons. 1898. Illustrated. Pp. 410. (The Science Series; Edited by J. McKeen Cattell and F. E. Beddard.)

In examining Dr. Haddon's work it is just to bear in mind that he does not present it as 'a treatise on anthropology or its methods, but merely a collection of samples of the way in which parts of the subject are studied.' It is 'not intended for scientific students,' but for the amateur and the general reader.

It may be pardoned in a reviewer who has followed with admiration Dr. Haddon's thorough ethnographical work to express a sense of regret that the author did not choose a severer model and a higher intention than he has acknowledged in these words. What the 'study of man' needs more than anything else just now is a series of comprehensive text-books, setting forth the methods pursued, the results attained, and the fields of future investigation adopted by and included in the general term Anthropology. It would be possible to write these in a form not repellent to the general reader and yet meeting fully the requirements of the student. It was the error of the series commenced publication by the Appletons that it drifted into small monographs, well enough in their way, but of slight educational value; and education in anthropological matters is what is most lacking at the present epoch.

Returning to Dr. Haddon's 'samples,' the inventory of them includes specimens mainly from two departments of anthropology, somatology and folk-lore. They are the two extremes of the anthropological curriculum, and perhaps for that very reason were chosen. In the former he discusses in a pleasant way the principal measurements in anthropometry, Bertillon's methods, skull-indices, the color-scale in hair and eyes, and the form of the nose. A chapter is devoted to Dr. Collignon's admirable monograph on the ethnography of the Dordogne district. Others take up the evolution of the cart and the origin of the Irish jaunting car.

The latter half of the book is devoted to games and toys, those of children, savages and grown-up people. This is a comparatively recent field of research, and its fruitage promises to be of much greater value than was imagined by the earlier writers. Games are frequently the survivals of sacred ceremonies, and are peculiarly tenacious of early forms and expressions. Of the subjects under this head considered by Dr. Haddon the more important are kites, tops, the bull-roarer, and singing, courting and funeral games. Concerning all of them he collects interesting material and adds to it from his personal observations.

In his last chapter the author reprints the directions of the committee 'to conduct an ethnographical survey of the United Kingdom' appointed by the British Association in 1892, with additional practical suggestions of his own. A thorough index closes the volume.

The illustrations are sufficiently numerous, and include ethnographic maps of England and France, types of skulls, noses, etc., illustrations of vehicles, and of various cards and toys. They are well printed, and the manufacture of the book in general may be commended. As the first number of the 'Science Series' it will be welcomed as a promising contribution to the higher department of popular literature.

D. G. Brinton.

SCIENTIFIC JOURNALS.

The Astrophysical Journal for June, which opens the eighth volume, contains as usual a series of important articles. In the first of these by Professor T. N. Thiele, of the Copenhagen Observatory, discusses the resolution into series of the third band of the carbon band-spectrum. Professor Michelson contributes a further account of his Echelon spectroscope, to which we have already called attention. Notes on the