the description of the experiments for the production of artificial protoplastic formations.

It is to be said that this book of Dr. Fischer's comes most timely to aid the beginner, or the worker in other lines of investigation to orient the vast body of detail which has been presented in such confusion during the last decade, and it may also do much to put research upon the included subjects on a more rational basis.

D. T. MACDOUGAL.

NEW YORK BOTANICAL GARDEN.

A Class-book of (Elementary) Practical Physiology. By DE BURGH BIRCH, Professor of Physiology in the Yorkshire College of the Victoria University. Philadelphia, P. Blakiston's Son & Co., 1899. Pp. xii + 273.

This book is one of that considerable class of laboratory guides which are prepared for individual laboratories. While fairly good of its kind, it cannot readily be adapted to general use. This is more particularly true of the experimental section, where the directions to the student frequently have reference to specific appliances which, in the form here described, are not to be found in physiological laboratories generally. The course outlined is that which is so commonly denominated Physiology in the British colleges, and consists of histological, chemical and experimental sections. The first section comprises 117 pages, the second 61, and the third 87. The method employed is that of supplying the student with detailed directions, leaving comparatively little opportunity for the play of his ingenuity. This method, while making instruction easy for the instructor, does not develop the student. It is carried to its extreme in dealing with the direct method of using the ophthalmoscope: "First, with the apertures closed, endeavor to look into the eye through the lens, moving your eye and a light in all directions to do so. You will not succeed." If success is impossible, why deliberately guide the student in that direction?

Not a large amount of ground is covered by the book. The subjects and experiments that are presented are the conventional ones, and the work is intelligently done. The book, however, hardly seems to be called for outside the author's own laboratory. FREDERIC S. LEE.

COLUMBIA UNIVERSITY.

Elementary Physiology. By BENJAMIN MOORE, M.A., Professor of Physiology in the Medical Department of Yale University. New York, Longmans, Green & Co., 1899. Pp. viii + 295.

The majority of the briefer text-books of physiology are not written by physiologists. They are the work of men who rely upon larger text-books for their knowledge, and whose motive too often is the money to be obtained from the text-book mongers. Too many of these authors are willing, for a consideration, to prostitute the science for commercial purposes, and to write it down to the level of those who appear to believe that an account of the working of the human body, and a description of the awfulness of a drunkard's life, are synonymous. It is a relief and pleasure to turn from such machine-made books to such a one as Professor Moore's, and to feel the loving interest that every page of the book reveals. One can forgive the occasional lapses from strict rhetorical usage, the not infrequent long sentences, and the rather indiscriminate and often misleading use of commas, when one realizes that the author knows his subject and writes entertainingly of it.

The book is devoted to the physiology of man and those animals that are allied to man, and in less than three hundred pages there is given a concise and very readable outline of the subject, an appendix of practical exercises and a set of test questions. The trend of the author as a physiologist is evidenced by the fact that nearly one-half of the book is devoted to nutrition, including the blood and its circulation, digestion, absorption, metabolism, respiration, excretion and animal heat. In an unprejudiced division of the subject of human physiology, this seems too large a proportion, although it must be granted that the account of these processes is an admirable one. Forty-three pages seem also too large a share to give to the skeleton and its articulations. In general, the amount of anatomy may be criticised as excessive; but throughout this the author keeps in mind the subject of function and thus illuminates his descriptions of structure. Furthermore, one-sixth of the whole space is a small proportion to devote to the nervous sys-

tem and the special senses. It is to be hoped that before issuing a second edition, which will probably be called for, the author will re-apportion his space and develop more fully these latter subjects.

The book is fully up to date in its facts. As to point of view it represents, like nearly all text-books of the physiology of man, that of conventional or organ physiology, rather than that of the cell.

FREDERIC S. LEE.

COLUMBIA UNIVERSITY.

Analyses Electrolytiques. Par AD. MINET. Masson et Cie, Paris.

The first three pages of the first chapter of this little volume aim to be historical, but in the latter respect are so incomplete that they are really misleading. The subsequent pages, devoted to the sources of electricity, the measurement of current intensity, a description of the different apparatus used in electrolytic analysis and electrolytic constants, are much more satisfactory and really praiseworthy.

The second chapter pretends to consider electrolysis from a qualitative standpoint, but is so meager in its details that that feature of it would probably have better been omitted. The quantitative determination of non-metals (the halogens, nitrogen in nitrates and sulphur in sulphides) is also considered.

The third chapter relates to the quantitative determination of individual metals. In the main the procedures are similar to those already described in existing works upon electrochemical analysis. There is no good reason to omit the double cyanide of mercury and potassium in speaking of proper electrolytes for the determination of that metal. Under iron reference is made to the 'Procede de Drow,' meaning of course our own Dr. Drown. The author seems to have been careless in regard to the correctness of names, for there are numererous oversights of this character scattered throughout the entire book. At times there seems to have been an effort made to give due credit to the various workers in this particular field, but oftener there is an absolute neglect as to the origin of the methods.

Had M. Minet ever tried the separation of copper from silver electrolytically, the reviewer sincerely doubts whether he would have recommended the suggestion given on page 134. Those experienced in this direction know that to precipitate out the silver as oxalate, wash it, etc., is a vexing operation. Why not simply add an excess of alkaline cyanide to the solution of the two metals and electrolyze at 65°C? The separation is then complete and rapid. Other methods are not above criticism, but it is not the purpose of the reviewer to find fault. His sole desire is to see the best given to those who may undertake to do work in this field.

The fifth chapter gives in considerable detail the work of Hollard in the application of electrolytic methods to the analysis of alloys, and is very meritorious in every respect. One hundred and seventy-six pages comprise the entire volume, which no doubt will serve well to give one, not especially interested or conversant with this field of investigation, a very good idea of what is being done, but the writer questions whether more than that can be fairly claimed for this publication.

EDGAR F. SMITH.

BOOKS RECEIVED.

Observations taken at Dumraon Behar, India, during the Eclipse of the 22d of January, 1898. REV. V. DE CAMPIGNEULLES. New York, London and Bombay. 1899. Pp. xi + 194 and thirteen plates.

The North American Slime-Moulds. THOMAS H. MACBRIDE. New York and London, The Macmillan Company. 1899. Pp. xvii + 231 and eighteen plates. $2.25.

Social Laws, an Outline of Sociology. G. TARDE, translated by HOWARD C. WARREN. New York and London, The Macmillan Company. 1899. Pp. xi + 213.

Darwinism and Lamarckism. FREDERICK WOLLASTON HUTTON. New York and London, G. P. Putnam's Sons. 1899. Pp. x + 226.

SCIENTIFIC JOURNALS AND ARTICLES.

UNDER the administration of Dr. von Ihering, the Museum of Sao Paulo, Brazil, is accomplishing much scientific work while at the same time rapidly enlarging its study and exhibition collections. The third volume of its *Revista*, contains a posthumous paper by Dr. Fritz Mueller on the 'Marine Fauna of the Coast of Santa