SCIENCE

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE PERCEPTION OF HORIZONTAL AND OF VERTICAL LINES.

ALMOST every person is occasionally called on to decide 'by the eye' whether some straight line is horizontal or some other line vertical. It usually happens, as, for instance, when one has to set a picture straight on the wall of a room, that the judgment is helped by the presence, in the neighborhood, of other lines, known to be nearly horizontal or vertical, but sometimes all standards are lacking and then the decision is a little more difficult to make.

In order to find out whether such training as a student of physics gets from several years of laboratory work is likely to improve his judgment in such matters as these, and whether astigmatism affects the results materially, I have experimented in the Jefferson Physical Laboratory upon forty persons who kindly consented to make observations for me.

We used two very simple pieces of apparatus. One of these is a fixed horizontal telescope, the eye piece of which can turn freely in its tube. The eye piece carries a single cross hair within, and a large sheet brass disc coaxial with the telescope without. This disc serves as an eye screen, and carries, on the side away from the observer, a divided circle which has a fixed reading microscope. The observer, sitting in a chair before the instrument, with eyes screened from a view of extraneous objects, turns the disc while

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