

end Mr. Muybridge's electro-photographic analysis of the movement of animals is excellent, and his results have been reproduced with great clearness of detail.

F. J. J.-S.

*Sanatoria for Consumptives in various Parts of the World.* By F. Rufenacht Walters, M.D., M.R.C.P. With an Introduction by Sir Richard Douglas Powell, Bart. Pp. 374; Illustrations 41. (London: Swan Sonnenschein and Co., Ltd., 1899.)

THIS book represents the result of a most painstaking inquiry on the part of the author into the institutions for the treatment of consumptive patients. The various sanatoria are described with a great amount of detail, more especially with regard to situation, charges, access, &c. The actual information with regard to the details of treatment is, however, scanty. Phthical patients differ so widely *inter se* that of course anything approaching a sanatorium diary, even had it been given by Dr. Walters, would only have been of general interest. Presumably the book is intended for the professional and lay reader—both these may confidently rely upon getting much information from it with regard to the possible places for treatment; but the practitioner who intends initiating a so-called open-air treatment, of which we have heard so much and seen so little, will find considerable difficulty in getting the practical information he wants from Dr. Walters' book. He will do better to consult the earlier works of Brehmer and Jaruntowsky. Those, however, who want to build a sanatorium will do well to thoroughly master Dr. Walters' book, and especially the plates which he gives of the most known sanatoria abroad.

The book will doubtless be a surprise to many English professional readers, who probably have no idea to what an extent the sanatorium treatment has progressed abroad, and especially in Germany. It will probably also have a very wide sphere of usefulness in showing the physician where he can have his patient treated at most moderate cost in the most enlightened manner. No one can doubt that the best advice which at present could possibly be given to many phthical patients only scantily endowed with this world's goods would be to go to such a place, for instance, as Görbersdorf, where, for from 2*l.* to 4*l.* per week they can have everything they can possibly want—a skilled and patient doctor, suitable food, climate, and accommodation. By indicating clearly the relative merits of such institutions, Dr. Walters has performed a service for which the medical profession ought to be grateful.

F. W. T.

*Measurement and Weighing.* By E. Edser, A.R.C.S. Pp. vi + 111. (London: Chapman and Hall, 1899.)

THIS small manual is intended as a guide for teachers engaged in instructing classes of young students in the first principles of practical physics. As the author states in the preface, only a limited field has been chosen for consideration, and this has been intentionally treated with more than the usual amount of detail. This has been done with the object of showing, from more than one point of view, the applications of the various principles involved.

In Chapter i., "Linear and Angular Measurements," the pupil is led from the actual copying of a standard scale to the different uses of it in determining the dimensions of various objects, first approximately, then as accurately as possible. Most of the experiments in this chapter are original and, although simple, are evidently calculated to induce thought in their working out. Chapter ii. deals with "Superficial and Solid Measurements," introducing the usual problems of mensuration in a practical manner.

In Chapter iii., after describing the trigonometrical functions and ratios, the author gives a very ingenious

and novel method of graphically determining the logarithms of numbers, by means of which the student can make himself independent of tables.

The concluding chapter consists of a very clear and detailed experimental exposition of the principles relating to "Mass and Density."

The system adopted has been actually followed in class teaching, and will no doubt be helpful to others in the arrangement of their experimental courses.

*Die physikalischen Erscheinungen und Kräfte.* By Prof. Dr. Leo Grunmach. Pp. viii + 442. (Leipzig: Otto Spamer, 1899.)

IN this volume the author brings before the reader a popular and accurate account of the greater number of physical phenomena and forces which are more or less commonly met with in every-day life. The book is intended for those readers who wish to gain a general insight into common physical matters and phenomena without being troubled with a too detailed account which would necessitate a more minute study.

Commencing with the definitions and means of determining mass and measurements, the author successively deals with the principles involved in and phenomena connected with sound, light, heat, magnetism, electricity, &c., concluding with most of the more recent discoveries, such as Röntgen rays and Marconi's system of telegraphy.

The contents of the book are far too numerous for us to deal with in a few words, so we must be content to point out that the text is profusely illustrated with well-chosen woodcuts, a special feature being a set of portraits of notable scientific men. We may mention here that on p. 143, in the chapter on spectrum analysis, it was intended to give the portrait of Sir Norman Lockyer; but although the illustration is coupled with his name, the portrait is that of Sir William Flower.

Not only should the book be read by those who wish to know something about natural phenomena and forces, but it should be useful to students who desire to make themselves acquainted with the German language.

*Practical Plane and Solid Geometry (Test Papers).* By George Grace, B.Sc., A.R.C.S. (London: Macmillan and Co., 1899.)

THIS publication consists of a series of twenty-four graduated test papers selected chiefly from the annual examination questions in the elementary stage of geometry of the Science and Art Department. Each exercise contains six problems, and being printed on cartridge paper the solutions may be worked out directly on the sheets under their respective headings. This feature should be specially commendable to teachers of large classes, as the uniformity of the arrangement of the questions and the size of the sheets will be found of considerable help from an examiner's point of view.

*Practical Dictionary of Electrical Engineering and Chemistry in German, English and Spanish.* By Paul Heyne, assisted by Dr. E. Sanchez-Rosal. Vol. II. English-Spanish-German. Pp. vii + 209. (Dresden: Gerhard Kühtmann. London: H. Grevel and Co., 1899.)

THE difficult task of preparing a technical trilingual dictionary has been accomplished in the present case with commendable accuracy. The Spanish and German equivalents are given of a large number of technical terms used in engineering, modern machine industry, metallurgy, electricity and chemistry, and other applied sciences. To the engineer, the student of physical science, and the commercial man, the dictionary should prove of great service.