

## OUR BOOK SHELF.

*The Planning and Fitting-up of Chemical and Physical Laboratories.* By T. H. Russell, M.A. Pp. xx+178. (London: B. T. Batsford, 1903.) Price 7s. 6d. net.

THE young college graduate at the present time frequently finds himself confronted with the problem of installing a science laboratory in the school which he may have chosen as the scene of his first teaching experience. The laboratory in which he has been working has, it may be, developed through various stages of incompleteness into an institution capable of supplying his every want, whether in the form of apparatus or of other equipment. The student has, however, in most cases taken but little part in this gradual evolution, and in general feels greatly at a loss if compelled afterwards to work in some institution less elaborately equipped. Still more difficult is his task if called upon to equip a new laboratory, and perchance in a building which the architect has most satisfactorily designed for any purpose but that of a science laboratory. Much assistance can be gained by those placed in such a position from the excellent little book before us, which deals in a practical manner with the general design and equipment of an elementary, chemical, or physical laboratory. Dimensioned drawings are provided of suitable working benches and other fittings, and in addition, useful notes as to the best manner in which to apportion the space available.

For the satisfactory planning of a university or college laboratory, considerably more experience than can be gained from a book of this kind is, of course, necessary. The author seems to have noted carefully the best practice in some of our own more recently equipped institutions, but has made some rather curious omissions which one would be glad to see remedied in future editions of the book. What physical or even chemical laboratory at the present day is complete without a satisfactory electrical equipment? The design of the most suitable and convenient system of distributing the electric current to different parts of the laboratory is one of the most difficult problems which have to be faced. Yet the author makes absolutely no mention of such fittings, neither does he give even general hints which would be of guidance in this matter.

It is, moreover, to be regretted that no use is made of Continental experience, which, in the matter of laboratory equipment, is really very valuable. Since, in Germany, it is the custom to publish full descriptions of any new and important laboratory, it would have been a very simple matter to at least refer to such literature. The new chemical laboratory of Prof. Emil Fischer in Berlin makes a particularly valuable study to anyone dealing with laboratory design, the completeness and elegance of the installation being probably unique so far as a teaching institution is concerned.

However, so much that is good can be found in the book that it is almost ungrateful to point out such omissions. R. S. H.

*The Highlands of Bukhara.* Part ii. Hissar, the Range of Peter the Great, and the Alai. St. Petersburg, 1902. By V. I. Lipskiy. Pp. 220; with 18 plates (Russian).

THIS is a new volume of the fine series of works on Central Asia published by the Russian Geographical Society. M. Lipskiy describes in it his journey across the western portion of the beautiful snow-clad Hissar Range, then the valley of Kafirnagan and the Surkh-ob, which flows at the southern foot of this range, and finally the range of Peter the Great, which runs parallel to the former, south of the Surkh-ob. This last range M. Lipskiy crossed four times, follow-

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ing three different passes, and he explored in more detail the picturesque region of glaciers, in the eastern portion of the range, east of the Gardán-i-kaftár Pass. Three great glaciers, to which the traveller gave the names of Borolmáz (from a peak of the same name). Peter the Great's, and Oshánin's (from the first explorer of this range), are described in detail, and the descriptions are accompanied by excellent photographs. It is sufficient for the glacialist to cast a glance at some of these photographs in order to say that the present glaciers must be but small remains of a much greater glaciation, and that the valleys they now occupy must have once been filled deeply with ice. This is also the opinion of M. Lipskiy, who has discovered immense moraines across the upper valleys and other traces of a wide glaciation. The altitude of the range of Peter the Great seems to be less than it was supposed to be, namely, about 17,000 feet. That the Alai Range is a continuation of the Hissar Range can now be taken as certain, and consequently the range of Peter the Great must be a continuation of the Trans-Alai, a border-range of the western, Bukhara portion of the Pamir plateau. Traces of upheavals in a direction N.W. to S.E. seem also to exist. Throughout, in describing his mountaineering, M. Lipskiy gives lists of the plants he saw. P. A. K.

*The British Journal Photographic Almanac, 1904.* Edited by Thomas Bedding. Pp. 1604. (London: Henry Greenwood and Co.) Price 1s. net.

LIKE its predecessors, this volume is of considerable thickness, containing no less than 1604 pages. It is the forty-third yearly issue, and as usual contains a veritable mine of useful information which should appeal to every photographer. When so much matter is involved, it is difficult to refer to one subject more than another; attention, however, may be directed to the "epitome of progress," compiled by the editor, which contains an excellent *résumé* of the more important papers published throughout the past year. The main portion of the text matter is devoted to numerous short articles on miscellaneous photographic topics, tables of all descriptions, and a most complete collection of photographic formulæ and recipes. A great number of illustrations are scattered among the text, and the volume contains a mass of advertisements handy for reference. The fact that the 25,000 copies forming the edition were fully ordered several weeks before publication speaks volumes for the popularity of this book.

*Erdmagnetismus, Erdstrom und Polarlicht.* By Dr. A. Nippoldt, jun. Pp. 136. (Leipzig: G. J. Göschen, 1903.) Price 80 pf.

THIS volume, which is No. 175 in the excellent "Sammlung Göschen," well maintains the high standard of the series. It is difficult, indeed, to see in what way these tiny volumes could be improved. Most careful pruning must have been exercised by each author, and the result is a concise, compact summary of present-day knowledge. The subjects of the chapters are the magnetic elements, the permanent magnetism of the earth, the variations of the earth's magnetism, earth currents, and the aurora. The variations are illustrated by diagrams, and include secular, daily and annual variations and their theory, magnetic storms, the eleven-year period, and influence of the sun, moon and planets.

There are three plates showing magnetic distributions.

For mathematical theory reference is made chiefly to vol. lxxviii., "Theoretische Physik," in the same series. There is a sufficient literary summary provided.