

given showing the diurnal variation of temperature at Mollendo, Arequipa, Vincocaya and the Chosica station; the diurnal variation of pressure for the Chosica station, and the annual range of the afternoon oscillation of pressure at the Chosica station. Beyond some general remarks in explanation of the tables, there is no discussion of the observations.

Besides the meteorological portion proper, this volume contains a very attractive account, by Professor Bailey, with some excellent illustrations, of the volcano El Misti (19,200 feet), and of the establishment of the now famous Misti meteorological station on its summit. There is also a carefully compiled account of *The Configuration and Heights of the Andes*, which will be of distinct value to geographers.

We presume that Professor Pickering may receive some rather severe criticism in certain quarters for the publication of meteorological data which are so incomplete and which, doubtless, have very many inaccuracies. But we agree with him in believing that, considering the interest of the region in which these observations were made, and the lack of information concerning its meteorology, such results deserve publication, provided careful statement is made in regard to the circumstances under which the data were collected. Professor Pickering and Professor Bailey have both made these conditions perfectly clear, and we believe that the results, when viewed in the light of these statements, will prove not only of great interest, but also of great value.

R. DEC. WARD.

The Elements of Physical Chemistry. By J. LIVINGSTON R. MORGAN, PH.D., of the Department of Physical Chemistry, Columbia University. First edition, first thousand. New York, John Wiley & Sons; London, Chapman & Hall, Limited. 1899. Pp. 299.

This little book deals with the gaseous state, the liquid state, the solid state, solution, the rôle of the ions in analytical chemistry, thermochemistry, chemical change, including equilibrium and chemical kinetics, phases and electrochemistry.

The aim of the author is to present the elements of physical chemistry in brief form to

those who do not have the time or opportunity to go more extensively into the subject. An examination of the work will bring out much that is of interest and importance, and a careful study of it will help a beginner to obtain an insight into the subject. But the objection might be raised to the work as a whole that it seems to deal rather with conclusions and generalizations than with the evidence upon which such are based. Further, there are many omissions which it is difficult to account for. Thus, under liquids no mention is made of Kopp's work on atomic volumes; of the work of Pulfrich, Landolt, Gladstone, Brühl and others, on the refractivity of liquids; of the rotation of the plane of polarized light and the Le Bel-Van't Hoff hypothesis; of the work of Perkins, and of Rodger and Watson on magnetic rotation; of Thorpe and Rodger on viscosity; of Ramsay and Shields on the surface-tension of liquids as applied to the determination of molecular weights. It would seem that such important work as the above ought to be referred to briefly even in an elementary treatise designed to cover the whole field of physical chemistry. An examination of the book will show, further that much of the more recent experimental work has not been taken into account, indicating that text-books which have been published several years, rather than the original literature, have been drawn upon as the source of material. As in most text-books, so here, an occasional statement is not quite accurate. But what book is perfectly logical, thoroughly comprehensive and rigidly exact throughout?

HARRY C. JONES.

BOOKS RECEIVED.

The Anatomy of the Central Nervous System of Man and of Vertebrates in General. LUDWIG EDINGER. Translated from the fifth German edition by WINFIELD S. HALL, assisted by P. L. HOLLAND and E. P. CARLTON. Philadelphia, F. A. Davis Company. 1899. Pp. xi + 446.

Marriages of the Deaf in America. EDWARD ALLEN FAY. Washington, Gibson Bros. 1898. Pp. vii + 527.

A Century of Vaccination. W. SCOTT TEBB. London, Swan, Sonnenschein & Co. 1899. Second Edition. Pp. 452.