

offered for the six thousand or so non-minerals catalogued by crystallographers. Although the kings and queens of the crystallographic pack may be minerals, there are surely not a few useful cards among the laboratory products the constitutions of which are known—not to speak of the embarrassing number of aces in the four hundred orthorhombic, monoclinic, and anorthic crystals, the symmetry classes of which are *a priori* fixed by the Pasteur principle. The extensive application of the etch method to such first-rate material would seem to be bound up with any serious attempt to define its standards.

T. V. B.

Our Bookshelf.

Kostychev's Plant Respiration. Authorised edition in English with editorial notes. By Dr. S. Kostychev. Translated and edited by Prof. Charles J. Lyon. Pp. xi + 163. (Philadelphia: P. Blakiston's Son and Co.; London: Arthur F. Bird; American Book Supply Co., 1927.) 2.50 dollars.

THIS book seeks to do what has not previously been attempted, namely, to outline the main features of plant respiration. There is no student of this subject better qualified to write on it than Prof. Kostychev. Trained by Palladin, among others, and long an active worker on the chemical problems associated with fermentation and respiration, he is in a position to present a balanced and authoritative discussion of a subject in which Russian workers have long been leaders.

As might be expected from the author's researches, attention is focused principally upon the biochemistry of respiration, and particularly upon the establishment of the theory of the connexion between the intermediate products of alcoholic fermentation and 'normal' respiration in the presence of oxygen. While the author expressly states that this is only a working hypothesis, he marshals his facts ably and presents a most attractive case in its support. Kostychev undoubtedly lays very great stress upon his discoveries that partly fermented sugar solutions not only greatly increase the rate of respiration in oxygen, but will also liberate carbon dioxide in quantity when acted upon by an oxidase system. He clearly regards the former fact as good evidence for the view that oxygen respiration starts with the intermediate products of alcoholic fermentation, and the second fact accounts for his preference for the Bach-Engler theory of oxidation. He states very clearly alternative explanations and theories.

It is in this broad statement of Kostychev's point of view that the great interest of the book will be found. It should not be assumed, however, that other aspects of respiration are ignored. Adequate space is given to the relation between external conditions and respiration, including fermentation, and there are valuable outlines of methods used in measuring the products of these processes. The

translator and editor has judiciously amplified these, and has added many references which serve to bring the extensive bibliography up-to-date. The author has also added an account of Warburg's theory of respiration which was absent from the original German edition. There is, finally, an interesting attempt to co-ordinate the various processes in the respiration of different types of plants, on the basis of the ratios of oxidising to fermenting enzymes which are present.

W. H. P.

Air Ministry: Meteorological Office. The Observatories' Year Book, 1924: comprising the Meteorological and Geophysical Results obtained from Autographic Records and Eye Observations at the Observatories at Lerwick, Aberdeen, Eskdalemuir, Cahirciveen (Valencia Observatory), and Richmond (Kew Observatory), and the Results of Soundings of the Upper Atmosphere by Means of Registering Balloons. (M.O. 289.) Pp. 366. 57s. 6d. net. *Year Book, 1925.* (M.O. 229.) Pp. 372. 63s. net. Published by the Authority of the Meteorological Committee. (London: H.M. Stationery Office, 1927.)

THE appearance during 1927 of two issues, for 1924 and 1925, of the "Observatories' Year Book" of the Meteorological Office indicates notable progress in overtaking arrears of printing due to post-War causes; it may be hoped and expected that a continuance of this acceleration of printing will soon lead to the attainment of the ideal practice of publishing each year's observations before the close of the following year. The volumes include an immense amount of standard observational data for meteorology, terrestrial magnetism, and seismology, made efficiently by good observers and published in concise, economical form. The period in question was marked by the retirement from Kew Observatory of Dr. C. Chree, who had been superintendent for thirty-two years; he was succeeded by Mr. F. J. W. Whipple. At the same time, 1925, the Kew magnetographs were discontinued, and their place was taken by Galitzin seismographs brought from Eskdalemuir; Kew thus succeeds Eskdalemuir as the official seismological station in the British Isles. The last-established observatory under the Meteorological Office is that at Lerwick, in the Shetlands; its work is almost wholly confined to atmospheric electricity, terrestrial magnetism, and auroræ; many experimental difficulties, not wholly overcome by the end of 1925, have been experienced with the instruments installed there.

Meteorology. By David Brunt. (The World's Manuals.) Pp. 112 + 8 plates. (London: Oxford University Press, 1928.) 2s. 6d. net.

THE aim of this book is, in the author's words, to give "a brief sketch of the physical principles underlying the phenomena which constitute 'weather,' in so far as this is possible without mathematical analysis."

The absence of mathematical formulæ and the small size of the book, together with a certain