

wider instructions for observing the sky and its portents. In these days when official meteorology is becoming so intensively developed, scarcely enough attention is being paid to open-air or landscape meteorology. We believe that even official forecasters will see the danger inherent in the growing attitude of mind typified by the countryman who, when asked what he thought about the weather, replied that he had not heard the 'wireless'. L. C. W. B.

Automatic Protection of A.C. Circuits. By G. W. Stubbings. Pp. viii+293. (London: Chapman and Hall, Ltd., 1934.) 15s. net.

THE subject of the automatic protection of electrical circuits and systems has grown to great importance, this being very largely due to the growth in size of transmission systems and distribution networks. The present book discusses at some length the theory of protective transformers, relays and their inter-connexion, and a great deal of useful information is given. The work is presented in a very clear, but not too mathematical a manner, plentifully illustrated with simple line diagrams.

The chapter on symmetrical components is extremely valuable. The introduction of a vector operator which imparts rotation through 120° is, of course, a development of the original Steinmetz notation. It is, however, necessary that the fundamental principles should be clearly presented, and in this connexion it is unfortunate that a loose statement should have crept in at the bottom of p. 81. It is there stated that "the phase voltages, between lines and neutral of a three phase system . . . form a closed triangle". This is not generally true, as can be seen at once if the case be considered where there is a short-circuit between one line and the neutral. With a little amplification the statement could be corrected.

Further chapters on protection of electrical machinery, cables and transmission lines, and the testing and maintenance of protective gear follow, and a useful bibliography and glossary of terms are given.

The work can be thoroughly recommended to all those whose work brings them into contact with the protection of A.C. circuits. P. K.

Reports of the Progress of Applied Chemistry. Issued by the Society of Chemical Industry. Vol. 19, 1934. Pp. 840. (London: Society of Chemical Industry, 1935.) 12s. 6d.; to Members, 7s. 6d.

THE publication of this annual volume of reports is an event which few chemists allow to pass unnoticed. Indeed, it marks an annual opportunity, particularly valuable to those whose duties prevent frequent contact with colleagues working in other spheres and whose close perusal of current literature is necessarily confined to their own vocational interests, to bring up to date their general knowledge of progress in the principal branches of chemical industry. The twenty-six chapters comprising the reports for 1934 have been entrusted to authors whose competence to assess relative values and to make informed comment is

unquestioned, and the abundance of references to original sources of information gives the book the status of a permanent work of reference. It is not easy to select any part as meriting exceptionally honourable mention; nevertheless, Dr. E. Stedman should be congratulated on his detailed discussion of the chemistry of the hormones and vitamins, whilst the chapter on intermediates and colouring matters, contributed by Dr. E. H. Rodd and Dr. S. Coffey, is a masterpiece of thoroughness and compression. The first report, entitled "General, Plant, and Machinery", is attractively written; the section on explosives covers the period 1933-34. A. A. E.

An Introduction to the Modern Theory of Valency. By Dr. J. C. Speakman. Pp. vi+157. (London: Edward Arnold and Co., 1935.) 4s. 6d. net.

DR. SPEAKMAN'S book is an unpretentious volume, in which he has been content to give his own impressions of modern valency theory, without necessarily indicating the sources of the views assimilated for this purpose. The resulting blend is, however, on the whole well-balanced and satisfactory, and is presented in a clear and attractive form. Special interest attaches to a chapter of twelve pages on "The Application of Wave Mechanics to Valency Problems", since these conceptions are fundamental to all modern theories of valency. The chapter is written in simple language and contains much that is suggestive. It is a matter of regret to the reviewer that the scope of the book did not justify an extension of this chapter to include the explanation of quantum numbers and the interpretation of Pauli's exclusion principle on the basis of wave-mechanics; but such an exposition demands an advanced knowledge of quantum theory, which very few chemists possess, and it is therefore probable that it must be left to a chemically-minded physicist to interpret these conceptions to them. T. M. L.

Birds of Great Britain and their Natural History. By W. P. Pycraft. Pp. 206+17 plates. (London: Williams and Norgate, Ltd., 1934.) 7s. 6d. net.

To the student who wishes to identify the birds of the British Isles, this book has no message; indeed it mentions by name only a very small proportion of the birds of Britain, and in this respect its title is misleading. But it brings together and classifies from a natural history point of view many odd items of information difficult of access to the majority of amateur ornithologists, yet needful for an intelligent interest in the structures and habits of our birds. The treatment of the facts is suggestive and speculative, and while speculation appears to the reviewer to be sometimes hasty and information occasionally inaccurate, there is great merit in the way in which unsolved problems are openly laid upon the table. Works of this type are much needed, since they may suggest to the amateur naturalist lines along which he may still make valuable contributions to science, at a time when the niceties of the racial discrimination of British birds have almost barred him from a field where once he held his own.