entirely new. Workers in the field of nuclear geology will find this part of the book an extremely valuable source of information and reference, while the book as a whole represents a standard text on isotope geology.

T. W. B.

TAYLOR (H. F. W.), Editor. *The Chemistry of Cements. Vol. I.* London and New York (Academic Press), 460 pp. Price: 100*s*.

Cement production is a major branch of chemical industry and as such has been the subject of scientific study for many years in most countries of the world. Nevertheless much still needs to be done and the field of research is broad and rapidly changing. The present volume satisfies a need for a contemporary review of the position, sifting and condensing the views put forward at the periodic Symposia on the Chemistry of Cement, the last of which took place in Washington in 1960. Existing textbooks, excellent though they are, are addressed more to the practitioner and of necessity have to put forward an authoritative view, glossing over the more controversial topics. This volume will appeal not only to the practical man who wants to know why his material behaves as it does, but also to the research worker and to chemists and mineralogists generally.

Edited books are rarely easy to read because of the varying styles and viewpoints of the different contributors; this volume undoubtedly owes much to the personal influence of the editor, who has succeeded in welding it together into a coherent and easily digested whole. It deals with the general chemistry of calcium silicates and aluminates and its application to the manufacture and utilization of Portland cements. Other industrial cements and experimental methods are to be dealt with in a second volume.

The subject is approached from the viewpoints of crystal structure and solid-state chemistry and although many phase diagrams will be found in the book, it is recognized that equilibrium will rarely be obtained and that many of the important phase changes are governed by topochemical processes.

The book is well produced and indexed. R. W. NURSE

VAN OLPHEN (H.). *An Introduction to Clay Colloid Chemistry.* New York and London (Wiley), 1963. 301 pp. Price: 75*s*.

This book is addressed to clay technologists, geologists, and soil scientists, but in some respects is too specialized to appeal to so wide an audience. Nevertheless, the author begins with a fairly elementary

exposition of colloid chemistry and goes on to apply this to clay systems. It is when he comes to the question of the electric double layer that the pace of the book changes, and this is acknowledged by placing the detailed calculations in an appendix. An unusual feature is the lengthy synopsis of 28 pages, which could well have been placed at the beginning of the book instead of being sandwiched between the main text and the Appendixes. This summary will indeed appeal to the wide range of technologists mentioned, as will the numerous references to practical applications that occur throughout. Frequent references are made to the publications of the Clay Minerals Group and to those of the U.S. Annual Clay Conferences. Author and Subject indexes are provided.

R. W. NURSE

WILSON (A. J. C.). *Mathematical theory of X-ray powder diffractometry.* Philips Technical Library, 1963. 128 pp. Price: 30*s*.

This book is the first of a pair planned together by A. J. C. Wilson and W. Parrish. The second (W.P.) is to deal with experimental aspects of diffractometry, while the volume already published (A.J.C.W.) deals with the theoretical side.

The ideal of a perfectly sharp reflection occurring from a perfect crystal using a strictly monochromatic X-ray beam is never attained in practice. The intensity profile actually obtained is the net result of various aberrations, and these are discussed in turn by Wilson. Chapter 1 defines the terms by which an intensity distribution may be characterized (mean, mode, centroid, half width, integral breadth, &c.) and shows that the most amenable to simple handling are the ideas of centroid for peak location and variance for its profile. Chapters 2–5 deal with geometrical aberrations (e.g. slit widths, specimen displacements, &c.), and Chapter 6 with physical aberrations (e.g. refractions, absorption).

For anybody concerned with the measurement of profiles in a study of imperfections, or with obtaining high accuracy from diffractometer measurements of d-spacings, all of these matters are of great importance. For those interested in obtaining moderate accuracy of d-values, the details of this book are less important but even so an awareness of the main sources of error is obviously desirable. Tabulated summaries of the errors due to geometrical and physical aberrations and of the way the aberrations vary with angle are a very useful feature of Chapter 7 on spacing measurements and peak displacements. The mineralogist merely concerned with identification by diffractometry may not concern himself with sophisticated corrections, but even here the distinction