Cernunnos, on the Gundestrup silver bowl, which he calls Celto-Buddhist. To this the critic might reply that the bowl is neither Celtic nor Buddhist, though on the face of it it appears to show Buddhist as well as other influences. Further, is this horned deity distinctively Celtic? His cult existed in remoter Germany, in Charlemagne's day, and goes back to palæolithic times. In dealing with the 'Isles of the Blest,' Mr. Mackenzie does not mention the persistent tradition of an early settlement of Irishmen in Middle America.

Elements of Optical Mineralogy: an Introduction to Microscopic Petrography. By N. H. Winchell and A. N. Winchell. Entirely rewritten and much enlarged by Prof. Alexander N. Winchell. Second edition. Part 2: *Descriptions of Minerals, with Special Reference to their Optic and Microscopic Characters.* Pp. xvi+424. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1927.) 27*s.* 6*d.* net.

THE descriptive part of Winchell's "Optical Mineralogy" has been completely rewritten and much enlarged to form the second edition. With the exception of a few of the commoner opaque minerals, there are included only natural species the optical properties of which are sufficiently well known to permit their identification microscopically. The arrangement of the minerals has been changed, and the system now adopted is the familiar scientific classification of Dana, modified to some extent by advancing knowledge. Certain of the names used are rendered unfamiliar by the adoption of the termination '-ite'; for example, chrysotilite for chrysotile. No difficulties arise through such changes, however, owing to an adequate index, which includes synonyms.

An excellent feature of the work is the large number of diagrams, 333 in number, used in explaining the optical and chemical properties of the minerals. The description of very many mineral species is accompanied by a simple diagram to illustrate their optical orientation. In addition, there are many more complex figures showing the variation in chemical composition, and the relation between chemical composition and optical properties in different mineral series. Most of the new information is expressed by means of these diagrams, and a useful introductory chapter is devoted to an explanation of their mode of construction and uses. A small number of rather poorly reproduced photomicrographs of thin slices of minerals is included. The treatment of the more important rock-forming minerals is very full, that of the felspars, for example, occupying 64 pages.

The comprehensive and up-to-date nature of the work is indicated by the many references to original sources of information. The European and American literature appropriate to the subject appears to have been very thoroughly, if not quite exhaustively, searched. No determinative tables are included, but the book can be recommended as a work of reference for advanced students and research workers in petrography and mineralogy.

V. A. E.

Steel and its Heat Treatment. By D. K. Bullens. Third edition, rewritten and reset. Pp. xii+564. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1927.) 25*s.* net.

THE third edition of this well-known treatise has been greatly improved, and it is now almost indispensable to the steel metallurgist, on account of the detailed records of the heat treatment and properties of a very wide range of industrial steels which it contains. The specifications under which the steels are grouped are mainly those of the American Society of Automotive Engineers, but it is not difficult to correlate them with the corresponding specifications used in Great Britain. English readers will find a greater obstacle in the fact that all stresses are expressed in pounds (instead of tons) per square inch and all temperatures on the Fahrenheit scale, and it could be wished that an English edition might be prepared in conformity with metallurgical practice in Britain. However, a table of equivalents can always be kept at hand when the book is consulted, which is likely to be frequently. A new chapter on electric furnaces for heat treatment is included, and will prove of special interest, as it is not generally known that such furnaces have come extensively into use in the United States, in spite of the increased cost of operation. This section, which is fully illustrated, is very valuable. The theoretical side of the subject receives much less attention than the practical, but the microscopic structure is fully discussed, the photographs being good and in some instances excellent. It may be remarked that the wonderful properties of zirconium steel, of which much was heard during the War, have proved to be mythical, and the paragraphs which the author quotes from two cautious investigators, proving a certain effect in removing impurities, represent the truth concerning this element much more closely than the exaggerated statements which have sometimes appeared.

Glasgow: Sketches by Various Authors. Edited by J. Graham Kerr. General Handbook of the British Association for the Advancement of Science, Glasgow Meeting, 1928. Pp. x+357+12 plates. (Glasgow: Local Committee of the British Association, 1928.)

THE handbook for this year's meeting of the British Association is a modest volume compared with that issued on the occasion of the last meeting at Glasgow twenty-seven years ago. It consists of a series of essays by various authors on different aspects of the city, among which education has considerable space. The chapters on the city and on the harbour have particular value in tracing the growth of Glasgow and its activities. There are essays on the geology, fauna, and flora, but no attempt is made to deal exhaustively with these subjects. The absence of the floristic and faunistic lists, which used to be a feature of British Association handbooks in the past, is welcome, but an introductory chapter from the geographical point of view might well have been added. Topographical and geological maps are given in a separate cover. These are on a scale of one inch to a mile.