

THURSDAY, JULY 3, 1913.

AN EPITOME OF GEOMETRICAL  
CRYSTALLOGRAPHY.

*Statische und kinetische Kristalltheorien.* By Dr. J. Beckenkamp. Erster Teil. Pp. viii+206. (Berlin: Gebrüder Borntraeger, 1913.) Price 9.60 marks.

THE style of this book recalls that of parts of the "Encyclopädie d. math. Wissenschaften." A summary is given of practically the whole of geometrical crystallography, both experimental and theoretical. There is included, for instance, an account of crystalline symmetry and structure theory, together with a description of the common types of twinning, habit, &c. Physical crystallography, including the optical, elastic, and electrical behaviour of crystalline media, lies outside the scope of the book.

It will be readily realised that so large a field cannot be adequately covered in 206 pages. The author confines himself almost entirely to the quoting of results. For example, formulæ are given to obtain the most probable values of the true angles between four crystal-faces from the observed angles, and also formulæ for calculating the angles between these four faces and the remaining faces; but no indication is given of the method of arriving at these results. Again, though the thirty-two crystal classes are described in detail, no proof is given of the fact that there are exactly thirty-two classes—and similarly throughout the treatise.

Dr. Beckenkamp is evidently interested in the history of crystallography; and he begins each section with a historical summary of work done on the subject-matter of that section from the earliest days of the science, with quotations from various authors and valuable references.

The book is illustrated by 303 excellent diagrams, well drawn, and easy to follow except for those illustrating the author's theory of molecular groups, which are on rather too small a scale to be clearly visible.

The style of the work is clear and interesting, and the book is divided into sections of a convenient length, so that the reader is not tired by over-concentration on a particular theme.

The book will be a useful addition to the literature of the subject, especially as a work of reference; but even the beginner will find it attractive, though he will require to supplement it by some work which goes into more detail. Perhaps the least satisfactory part is that dealing with the author's own structure theory. He has scarcely

succeeded in making his point of view clear; and, in fact, the task of explaining a new structure theory of crystals in six pages without the assistance of a single mathematical formula would lie beyond the powers of any writer. But doubtless this will be remedied when part ii. appears.

HAROLD HILTON.

## A HISTORY OF CHEMISTRY.

*A History of Chemistry from the Earliest Times till the Present Day.* By the late Prof. J. C. Brown. Pp. xxx+543. (London: J. and A. Churchill, 1913.) Price 10s. 6d. net.

THE late Prof. Campbell Brown, of the Liverpool University, was in the habit of delivering annually a series of lectures on the history of chemistry to his senior students as part of their degree course, and he had the intention, on his retirement, of preparing these lectures for publication. His sudden and unexpected death while still in the occupation of his chair prevented him from personally realising his wish. Mrs. Campbell Brown, with the assistance of Mr. Henry H. Brown, and Prof. Brown's late chief assistant, Mr. W. H. Roberts, has, however, sought to give effect to his intention, and the present handsome volume is the result of their labours. Its compilation has obviously been a labour of love, and forms a fitting memorial to a singularly earnest, conscientious, and high-principled man who played a notable part in the educational history of Liverpool, and particularly in the creation and development of its University. Its preparation for press must have been a matter of no little difficulty, and the form in which it is now presented reflects great credit upon Mr. H. H. Brown and his coadjutor.

The original matter was largely in the form of notes, more or less complete, which the lecturer was accustomed to amplify and comment upon at the moment, and there is little doubt that, had Dr. Brown lived to complete the work, much additional matter would have been included. Possibly, also, some omissions and corrections would have been made in the light of more exact knowledge. The book makes no pretensions to research among original authorities, and it is obvious that the lecturer had been content to take his facts and interpretations from well-known sources, such as Thomson, Hofer, Kopp, Meyer, Ladenburg, Berthelot, and others that might be named. In many cases the illustrations, as well as the phraseology, afford the key to the source of the statements. The book is eminently readable, and may be recommended to the student who