James Clerk Maxwell, F.R.S., 1831–1879

By Dr. R. L. Smith-Rose. (Science in Britain Series: Published for the British Council.) Pp. vi+34+7 plates.

Lord Kelvin

By A. P. Young. (Science in Britain Series: Published for the British Council.) Pp. vi+42+7 plates. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1948.) 1*s.* 6*d.* net each.

THESE are two welcome additions to the "Science in Britain" series, published by the British Council; for no survey of British science would be complete without some account of James Clerk Maxwell and Lord Kelvin, two of the great figures of the nineteenth century, and of the work which is associated with their names.

Maxwell's name is inseparably connected with his great achievement, the electro-magnetic theory of light, and many are familiar with the story of how, starting from the earlier, non-mathematical speculations of Faraday on the mechanism of propagation of magnetic disturbances, he reached the conclusion that the velocity of the impulses is the same as that of light. The prediction was afterwards verified experimentally by Hertz; and the practical consequences which have flowed from the application of Maxwell's theory of wave propagation are now widely appreciated. Dr. R. L. Smith-Rose has written an excellent short survey of the life and work of this great theoretical physicist, including also some account of his contributions to molecular physics and the kinetic theory of gases.

Kelvin was a man of a different stamp. Although he made theoretical advances in the field of thermodynamics, the importance of his work lay rather in the application of his wide knowledge of physical principles to invention. Besides his work on the fundamental electrical units and on the construction of precise electrical measuring instruments, which has proved to be of outstanding importance, he made valuable contributions in the field of instrument design to the art of navigation, among them the improvement of the mariner's compass; and he was one of the pioneers in the laying of the Atlantic cable. In his later years Kelvin as a physicist found difficulty in accepting the modern developments in physical theory; and Mr. A. P. Young's essay shows how his prejudices and limitations in this respect contrast with his outstanding achievements in the field of engineering in which he was supreme.

T. M.

Whitehead's Philosophy of Time

By William W. Hammerschmidt. Pp. ix+108. (New York: King's Crown Press; London: Oxford University Press, 1947.) 11*s.* 6*d.* net.

ONCE again, the King's Crown Press has done good service to scholarship in producing this monograph. Of all the great thinkers, Whitehead is one of the most difficult to read: this is not wholly because his thought is so profound, but partly it is on account of his use of a very special vocabulary. In addition, his views on Nature were undergoing continuous transformation, which resulted in some of his terms connoting different things at different periods of his life. Nowhere is this tendency more marked than in his philosophy of time, and for that reason alone Dr. W. W. Hammerschmidt's monograph would be welcome. As it is, on many other scores it should prove its worth, not least because we have here an attempt to bring some logical order into Whitehead's prodigious output. One would not desire, or indeed expect, regimentation to be characteristic of so sublime a creative artist; but his commentator has done well to stop short of organising the master's work more thoroughly than he seemed to intend.

So far as time is concerned, Whitehead throughout maintains something of an empirical basis, or, at least, he does for the fundamental properties of space-time. What undergoes progressive change is the place accorded to the nature of immediate experience. The present author keeps this dynamic aspect in true perspective as he unfolds the scene leading up to and through the Theory of Process.

Books *about* great men and their lives are apt to be disappointing; this one avoids that sensation, largely because it is impersonal and self-forgetful. It will help those who wish to study "experience dominated by emotion and experience under self-restraint" as time rolls onwards.

F. I. G. RAWLINS

The Chemistry of Organic Cyanogen Compounds

By Vartkes Migrdichian. (American Chemical Society, Monograph Series, No. 105.) Pp. ix+460. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1947.) 72*s.* net.

THE American Chemical Society was wise in devoting No. 105 in its monograph series to organic cyanogen compounds, for they find ever-increasing application, both in research and in technology. Indeed, the review may even be overdue, for Dr. V. Migrdichian has found it necessary to restrict himself rigidly to the *reactions* of organic cyanides. Thus, the physico-chemical attributes of the group find no mention, and preparative methods for even the most important nitriles are summarily dismissed, sometimes, unfortunately, with obsolete methods.

Within these limits the book is well conceived. Each typical reaction of the cyanogen group is selected and surveyed in turn to produce a condensed and comprehensive whole. Indeed, the amount of work reported is quite astonishing, and to some extent the review is correspondingly valuable. While the scope is satisfactory, the review, however, lacks an adequate critical approach to its material. This has resulted in errors, a certain irrationality within the chapters and at least one complete contradiction within the space of a few lines. The adoption, in part, of the *Chemical Abstracts* system of reproducing graphic formulæ has produced some surprising results without saving much space. Will many readers recognize the beautiful symmetry of the phthalocyanine molecule in the following guise:

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 _____________________________________
|  |  |     |     |     |     |  |  |
N:C.N:C.N:C.N.C:N.C:N.C:N.C.N.C.N.C
|  |  |  |  |  |  |  |  |  |  |  |
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Indexing is extensive and complete, but the irrationalities of the book are reflected and form a trap for the unwary. For example, there are a number of references to acrylonitrile and others quite separate and unco-ordinated to vinyl cyanide. The numerous errors of reproduction are more appropriate to a galley proof than to an expensive work of this nature.

STANLEY L. THOMAS

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