

history), theology was the queen of sciences and philosophy her serving-maid. The result was that, however misguided the physical and experimental structure might be (and indeed it was lamentably adrift), mankind was provided with a spiritual and intellectual unity which is sadly lacking to-day. The need now is for constructive thought on scientific lines designed to recapture reality in a contemporary perennial philosophy.

Something like this is what one imagines Lord Samuel desires, and in truth he is abundantly right. His generous but rather latitudinarian approach to man's basic needs is understandable, but might have been more compelling if it had demanded a greater degree of sacrifice, both in concept and study. It was Athenagoras who once spoke of the need for putting ourselves to school, and never was the precept more necessary than at the present time.

The author's long experience of affairs enables him to bring to a fine point the effect of modern conditions upon private and public life. "They shall be simple in their homes and splendid in their public ways" is an apt quotation. But is it necessarily applicable? It might have been in Plato's Republic, but how are citizens to learn splendour if circumstances almost inhibit its practice off-stage? It would be a pity if we were to become more of a nation of spectators than we are already.

In more strictly academic matters, Lord Samuel is stimulating if nevertheless not always convincing. He is, for example, a keen advocate of an ether and perhaps of two kinds of ether activation, one relating to lines of force, and the other to the pattern of radiation waves. In other words, he is reluctant to take 'no' for an answer from the celebrated Michelson-Morley experiment.

One wishes that some of the thoughts in this constructive book could have been presented in mathematical terms. It is charmingly written, but the 'impetus' (the author's favourite word) will only be fully effective, one may guess, if it is carried along by a more rigid system of symbolism.

F. I. G. RAWLINS

STELLAR EXPLOSIONS

The Galactic Novae

By Prof. Cecilia Payne-Gaposchkin. (Series in Astrophysics.) Pp. x+336. (Amsterdam: North-Holland Publishing Company, 1957.) 30.50 guilders.

IT has been realized for some time that the stars in the post-main sequence stage are likely to pass through a period of unrest when an ageing configuration is impelled to make the spectacular gesture by indulging in a series of recurrent explosions; and, for historical reasons, the stars in this act have been labelled as 'novae'. So far as the structure of the star as a whole is concerned, the 'nova-itis' is only a skin-deep affliction which a star can undergo many times before eventually coming to grief; but while it lasts, it affords an unparalleled insight into stellar behaviour under a particular type of stress. The accompanying changes in intensity of radiation emitted are, moreover, sufficiently spectacular to attract attention to several such explosions every year in our galaxy alone; as a result, the amount of observational evidence we now possess on this phenomenon is truly impressive.

The principal aim of Prof. Cecilia Payne-Gaposchkin, in the book under review, has been to collect such evidence and to present it to the reader in a volume of moderate size. This was indeed a timely task; for (apart from occasional survey articles in various compendia) no comprehensive treatment of this subject has appeared for some time in any language. The nearest comparison that comes to mind is the Italian monograph by Cecchini and Gratton of the past decade; Prof. Gaposchkin has now brought the monographic treatment of her subject up to date. The presentation of her data is comprehensive, well illustrated, and provided with ample bibliographical references; anybody working in this field should find her book a useful source in this respect.

The main use of the observations should, of course, be to provide a basis for a rational interpretation of the nova phenomenon in terms of appropriate physical causes. This fundamental aspect of the nova problem, unfortunately, receives insufficient attention in the present volume. Indeed, Prof. Gaposchkin's whole approach to her subject has remained almost throughout descriptive rather than explanatory—with astronomy and physics divorced to an extent which must be considered a drawback—and those parts where physical explanations are attempted could easily have been omitted without diminishing appreciably the value (or size) of the book.

The book is as well written as we are accustomed to expect from its author; though the hand of the editors may be felt in the absence of poetical quotations which have adorned most of Prof. Gaposchkin's earlier writings. Last, but not least, the publishers deserve our best wishes on the launching of a new series of astrophysical monographs (of which Prof. Gaposchkin's present book constitutes the first), and our appreciation for having produced this useful volume attractively and at a reasonable price.

ZDENĚK KOPAL

ELECTRONICS IN GEOPHYSICAL RESEARCH

Advances In Electronics and Electron Physics

Vol. 9. Edited by L. Marton. Pp. x+347. (New York: Academic Press, Inc.; London: Academic Books, Ltd., 1957.) 9 dollars.

THIS is the ninth in a now well-established series of annual volumes. In the preface the editor states that the present volume is, in a sense, an experiment since the contents are grouped around one main theme, instead of representing a cross-section of various aspects of electronics and electron physics. The theme is in fact geophysical, the reason being the current interest in the International Geophysical Year; and it is intended that the book should not only inform geophysicists of some of the modern experimental techniques at their disposal, but that it should also acquaint workers in electronics with the very interesting problems which emerge from geophysical research.

There are seven chapters in the volume. The aurora borealis is discussed by C. T. E. Elvey with reference to radio and spectroscopic studies: an account is also given of observations made by rockets. Negative ions is the topic of the chapter by L. M. Branscomb, attention being directed to the great stimulation which has come to this subject from