

Way. Or he may want facts concerning cosmic rays, dwarf stars, the density of space, the mysteries of life and sex, the fertilization of flowers by snails, bats and birds, and a hundred other topics that come to the eye as one turns the pages of this little book. It is a marvellous florin's worth, and well deserves continued success.

The same author's new book, "The Origin of the Kiss: and other Scientific Diversions", is a still more determined effort to help the layman, but with direct reference to the harassing times in which we live. Mental as well as physical relaxation was never more needed than now. People, says the author in effect, want, and rightly want, to be "taken out of themselves", to find means of "escape". Tales of adventure, detective stories and thrillers all serve this beneficent purpose, but for many people they begin to pall, and a craving is felt for something more sustaining. Here Admiral Beadnell comes to the rescue. He seeks to "arouse interest in the 'brass tacks' of the universe, in the way in which so many of man's inventions, not excluding guns and projectiles, camouflage and smoke-clouds, have been forestalled by lower animals, and in the deep significance underlying such apparently trivial matters as kissing, dancing, laughing and flying into a temper". In his twenty chapters the author gives the reader twenty exhilarating excursions into the realms of biology and anthropology, and will probably leave him asking for more.

T. RAYMONT.

## CHEMISTRY AND LIGHT

### The Chemical Aspects of Light

By E. J. Bowen. Pp. vii+192. (Oxford: Clarendon Press; London: Oxford University Press, 1942.) 12s. 6d. net.

ALTHOUGH a number of treatises suitable for specialists have recently appeared, there has hitherto been no English text-book on photochemistry and allied subjects which meets the needs of first- and second-year students. Lecturers and students will be grateful to Mr. Bowen for writing a book of which the need has been apparent for so long. In presenting a complete outline of the present state of our knowledge of the interaction of light and matter, the book will also be valuable to the non-specialist and the advanced student, whose sense of perspective is liable to be obscured by detailed study of parts of the subject.

The book opens with an account of the general properties of wave motion and the interaction of electromagnetic waves and matter in classical terms. Chapter 2 deals mainly with practical matters—light sources, units of intensity, etc., and photometry, but includes a short account of black body radiation, with the Stefan and Planck laws, although these are not mentioned by name. This is followed by a comprehensive chapter on the absorption and emission of light. In the main this is a summary of the conclusions of wave mechanics about atomic and molecular energy-levels, transition probabilities and molecular structure. Features of this chapter are the admirable description of the photochemistry of hydrogen, oxygen, chlorine and hydrogen iodide in terms of the familiar potential energy diagrams, and the sections on light absorption by polyatomic molecules, and condensed states. Chapter 4 discusses the important question as to what is the fate of light

energy absorbed by a molecule. External and internal deactivation are elegantly explained, and there are discussions of the nature of collisional processes, fluorescence and resonance radiation, and the Raman effect.

In my opinion the arrangement of the book would have been improved if this had been followed at once with Chapters 6 (photochemical reactions) and 11 (chemiluminescence), instead of the chapter on luminescence of solids. The section on photochemical reactions includes practical details, and an account of the collision and transition state theories of reaction, relevant to the discussion of secondary reactions. It is rather surprising that no reference is made, either in this or earlier chapters, to Einstein's law of photochemical equivalence, which was of fundamental importance in the understanding of the process of light absorption. The author points out the uncertainties of bond energies in polyatomic molecules; it might have been mentioned that the carbon arc method is not the only one available for determining the heat of sublimation of carbon. Examples of photoreactions given include the  $H_2-Br_2$ ,  $H_2-O_2$  reactions, and the photodissociation of  $NH_3$  and the carbonyl compounds.

The remaining chapters of the book give interesting accounts of subjects which do not appear to have been collected together before: photosynthesis in plants, the photographic process, the reactions of the eye to light, and photo cells. In addition, there are appendixes on the preparation of light filters for isolation of lines of discharge lamps, the practical determination of quantum efficiency and the preparation of phosphors. The collected data on light filters should prove extremely useful to the practical photochemist. References to summaries of earlier work are also given.

It will be seen that Mr. Bowen has compressed an enormous amount of material into 186 pages. Throughout the treatment is descriptive and non-mathematical, and maintains a nice balance between theory and practice.

C. H. BAMFORD.

## A BOOK OF VISIONS

### Primitive Scenes and Festivals

By Sacheverell Sitwell. Pp. xii+283+16 plates. (London: Faber and Faber, Ltd., 1942.) 21s. net.

IF any reader should take this for a book of anthropology or archæology, aiming at completeness of treatment and full references to authorities, and feel himself rather upset by the general discursiveness of the whole, the author is not to blame. He tells us very plainly that he writes of what he has studied "with the eyes of the poet or the artist;" the matter of the book is "a subject for a composition, to be judged by intrinsic, not by literal truth". We have in fact a book in which a poet has set down the reactions he has had from his reading and one suspects from his travels, and the reader has only to ask himself if this aim of beauty has been achieved. The appeal is personal: to me it seems that Mr. Sitwell has here scored a fresh success in this very individual kind of writing which he had tried in several other of his books: the series, I think, began with "The Gothick North" in 1929. These "Primitive Scenes and Festivals" are culled over the widest range possible: in time from the days of Stonehenge to the present; in space we are led by our guide from our own islands to Greece and North