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because it is the wave form accompanying a transfer of energy between the two states, energy of motion and energy of position." About scintillation counter crystals it says: "Such crystals will produce one low-energy quantum per each absorbed high-energy quantum." The two paragraphs devoted to Compton scatter are clearly muddled. The second paragraph opens with: "Some crystals, such as those of zinc sulfide, absorb a quantum of x-ray energy and eject an electron; the recoil quantum has an energy which places it in the visible portion of the spectrum." One is led to believe that this so-called Compton process is the basis of fluoroscopy. The electromagnetic spectrum is defined as follows: "The frequencies of electromagnetic energy encountered vary from 10 000 c/sec through 10^{23} c/sec." The author has not yet encountered 60-cycle pick-up.

The chapter on statistics is irrelevant to the subject of biophysics, but is included because of "the basic ideas which must be understood in order to quantitate and assess the significance of magnitudes which are subject to the variabilities so characteristic of biology". The uninitiated reader may infer from this that there are no characteristic variabilities in physical research. Nevertheless, statistics is given the same kind of treatment as physics. The two-paragraph discussion of "Poisson Distribution" opens with: "When the probability of an event's happening is very small but there is a sufficient number of chances for the event to occur, the event will happen occasionally." This is the only statement in the text that seems to have a bearing on a random process; the rest is about standard error.

The preface opens with the statement that: "A universally acceptable definition of biophysics appears to be an impossibility at this writing." I think that this book is an example of what biophysics should not be. It is replete with careless definitions, outright confusions of physical facts, and improper presentations of basic principles.

Biographical Memoirs of Fellows of the Royal Society, Vol. 4. 359 pp. The Royal Society, London, England, 1958. 30s. *Reviewed by R. Bruce Lindsay, Brown University.*

NO one can hope really to understand science without an acquaintance with its history, and the history of science is a record of the ideas and accomplishments of great scientists. It is therefore gratifying to note that the Royal Society of London is continuing its series of biographical memoirs of recently deceased fellows. The present volume contains notices of twenty-seven fellows who died between 1956 and 1958. Each is written by an authority who had been personally acquainted with the subject of the memoir as well as with his field of work, and each is accompanied by a carefully compiled bibliography.

Physicists will find of particular interest the biographies of F. A. Lindemann (Viscount Cherwell) by G. P. Thomson, D. R. Hartree by C. G. Darwin,

Frank Horton by R. Whiddington, G. B. Jeffry by E. C. Titchmarsh, Irving Langmuir by Hugh Taylor, W. C. M. Lewis by C. E. H. Bawn, F. E. Simon by N. Kurti, and F. C. M. Störmer by S. Chapman. All these men made notable contributions to experimental and theoretical physics and chemistry and several of them, notably Hartree and Simon, had close associations with American scientists and made frequent visits to the United States. Langmuir, our own distinguished scientist, was of course a foreign member of the Royal Society, as was also Störmer, whose mathematical researches on the aurora made him internationally famous.

Each article is accompanied by a photograph of the subject, though unfortunately in most cases not dated. Some may find it of interest to note that the average age at death of the individuals described was 76 and that only four were under 65 when they died. What this proves about science as a healthy occupation must be left to the experts.

Stellar Populations: Conf. Proc. (Pontifical Academy of Science & the Vatican, May 1957). Edited by D. J. K. O'Connell, S.J. 544 pp. (North-Holland, Holland) Interscience Publishers, Inc., New York, 1958. \$10.00. Reviewed by E. J. Öpik, *Armagh Observatory, N. Ireland and University of Maryland.*

THE introductory section, with organizational and historical details, contains as its central part an address by His Holiness the Pope, outlining the astronomical and physical problems of stellar populations and evolution with their philosophical background. The address, delivered in French and provided with an English translation, constitutes a competent and stimulating setting of the subjects to be discussed by the conference.

The proceedings are presented in eight chapters, each consisting of several formal papers followed immediately by a discussion: I—Galaxies and their Stellar Populations; II—Star Clusters of Our Galaxy as Representatives of Stellar Populations; III—Young Population I Stars in the Spiral Arms of Our Galaxy; IV—Physical Variable Stars and Stellar Populations; V—Stellar Evolution and Element Abundances; VI—Stellar Populations in Our Own Galaxy; VII—Population Groups and Kinematic Behaviour in Our Galaxy; VIII—Summary of the Discussions (prepared by F. Hoyle and J. H. Oort). There are altogether 34 papers, presented by W. Baade (3), J. H. Oort (3), B. Lindblad (2), A. Sandage (4), A. D. Thackeray (2), D. J. K. O'Connell (1), A. Blaauw (2), G. H. Herbig (1), J. J. Nassau (2), M. Schwarzschild (1), F. Hoyle (4), E. E. Salpeter (1), B. Strömberg (2), W. A. Fowler (1), W. W. Morgan (2), D. Chalange (1), L. Spitzer (1), and G. Lemaître (1). They represent a most authoritative and complete review of the present-day state of our knowledge of the facts and causes of stellar evolution. Remarkable is the degree of agreement reached by this gathering in the interpretation

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