

the narrowest of such limits, they do more than impede the exchange of ideas and the advance of science and technology: they endanger national security itself. Once the scientist comes to be silent, to experiment or inquire only along orthodox lines, science itself will atrophy and at last fail the nation in which it is thus pursued. Without freedom for science, and by attempting to silence or intimidate original and creative minds, in the end we forfeit security itself.

Here, too, the scientist has a duty to speak, and what is required of him in this perplexed and anxious world to-day is not that he should refrain from pursuing his investigations and from seeking to extend the boundaries of knowledge, or that he should preoccupy himself with moral issues that are the responsibility of the whole community of nations. His immediate responsibility is rather with the way in which he can most speedily and effectively clarify public thinking about the scientific and technical aspects of the situation, and facilitate an understanding of the far-reaching military, economic and political decisions which are now imperative. He will be conscious that what he has to say as a scientist represents only one factor in a complex situation, and that this has to be compared with, and adjusted to, information from other fields, and evaluated with it in the formulation of policy. But it is important that the scientist and technologist should, through their professional associations, address themselves to this question of improving the means by which the technical or scientific expert makes his contribution to the formulation of policy and the task of government generally. The task of education to be undertaken must include that of the leaders of the community as well as of the general public. Above all, the extent to which the influence of the scientist is brought to bear on the formation of policy or the re-shaping of institutions will depend on the willingness of the individual scientist to attempt the prosaic task of improving the channels of communication. Much will depend upon the effectiveness and clarity with which he presents and interprets his results and ideas to the community, and the fidelity and courage with which he and his professional institutions defend the freedom of science, not simply for the advancement of science itself but also as an essential element in the preservation of a free society.

LIFE OF THOMAS YOUNG

Thomas Young

Natural Philosopher 1773-1829. By the late Dr. Alexander Wood; Completed by Frank Oldham. With a Memoir of Alexander Wood by Prof. Charles E. Raven. Pp. xx+355+4 plates. (Cambridge: At the University Press, 1954.) 30s. net.

IF the subject of this book did not make it immediately attractive, the authors' names would be sufficient recommendation in themselves. The late Alex Wood gathered material for it over more than forty years and completed ten chapters and notes on two more. It has been finished and seen

through the press by Frank Oldham, whose monograph, "Thomas Young, F.R.S., Philosopher and Physician" (London: Edward Arnold and Co., 1933), has, until now, been the standard authority.

In assessing the life and work of Thomas Young, the modern reader is torn between conflicting aspects of the man. If he had been always right we could unreservedly admire the precocious youth who gulped all knowledge of natural philosophy and of classical, European and oriental languages with full Quaker diligence and lack of conceit. We should have unstinted admiration for his mature work as a founder of the wave theory of light and for his solution of the hieroglyphic riddles of the Rosetta Stone, for his explanation of the mechanism of the human eye and for his numerous learned writings on medicine, physics and philology.

On the other hand, had he been less successful, we might condemn him as a quarrelsome man, ponderous and obscure in speech and in writing. His wide range of apparently unrelated interests might cause us to regard him as a butterfly mind rather than as a universal genius, and in his chosen career of medicine he was a failure in spite of much favourable opportunity.

Like most men, however, Young was neither wholly right nor wholly wrong. He was sufficiently right for most of his work to have stood the test of time and to be recognized now as a brilliant series of key contributions to the many fields which he studied. Unfortunately, he was also sufficiently wrong, particularly in his personal relations with other men of science, so as to be caught in the vicious web of priority claims and counter-claims which formed such a seamy side to the development of science in his period. The new material collected by Dr. Wood and Mr. Oldham does much to clarify Young's position and place him in a more favourable light.

It is very fitting that this book, which occupied so much of the leisure of Alex Wood's last years, should contain a sympathetic and eloquent memoir of him by Canon C. E. Raven. It will be appreciated by all those Cambridge men who owe so much to his great personality and teachings, and by all those who have found pleasure and profit in his writings.

DEREK J. PRICE

SCINTILLATION COUNTERS

Luminescence and the Scintillation Counter

By Dr. S. C. Curran. Pp. x+219. (London: Butterworths Scientific Publications, 1953.) 32s. 6d.

THE development of methods of scintillation counting has advanced at an almost prodigious pace since Kallmann's first paper became known to a larger public in 1947. Superior in many respects to the older particle detectors and immensely flexible, the scintillation counter has found a steadily growing range of applications, and to-day it is firmly established as an indispensable tool in medicine and industry as well as in physics. Dr. S. C. Curran—himself a pioneer in this field whose unpublished work antedates that of Kallmann—has now written a little volume in answer to the widespread need for a comprehensive guide to the subject.

Well illustrated throughout its twelve chapters by instructive diagrams, the book is centred around a description of the basic mechanisms operating in a scintillation counter: the interaction of radiations