

It is natural that different individuals, according to their training and circumstances, should feel differently about these matters, so also the same individual at different times. But one feels that some of the things done, such as the evacuation of the three great museums at San Diego, which would have contributed greatly to the education of the men in service, has resulted from a feeling of indifference to cultural values on the part of those in authority. Let us hope that in the days to come the better life which we now see through dark glasses may not only restore our civilization but make it far more interesting and serviceable to the average man.

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### DEVELOPMENTS IN SCIENCE

*Forward with Science.* By ROGERS D. RUSK. Alfred A. Knopf Company. 307 pp. \$3.50.

THIS book by Rogers D. Rusk, is intended as a guide to non-scientists, to keep them in touch with the present developments in science and to review for them some of the philosophical implications, as well as to describe the practical consequences of the thought of the past two decades. It is not intended to be a text and therefore fits into the category of the other books explaining science to the layman, such as the familiar ones by Jeans and Eddington.

Dr. Rusk sets forth for the average layman the points of view which have been developed by science in recent times and outlines some of the interesting results. He starts out by explaining the triumphs of modern physical science and discusses the structure of matter and the newly discovered fundamental particles. He then shows us immediately how these particles are used. He devotes one chapter to the electron microscope, another to x-rays, and still others to artificial radio-activity and atomic energy. Then Rusk describes cosmic rays and reviews the evidence for the age of the earth. The remainder of the book is devoted to a more philosophical view of the problems posed by modern science. The author explains the difficulties of the mechanistic view and the importance of the development of the wave and probability concepts which form the basic operational philosophy of modern physics. His later chapter headings are suggestive, as "Reaching for the Stars," "Does Nature

Make Sense?", "Man Outgrows Mechanism" and "Human Freedom and Destiny."

Finally, toward the end of the book Rusk also considers science and destruction. He attempts to set at ease the minds of those who worry about the destructive forces unleashed by science by reminding them that science provides power and tools for the use of mankind and that it is not the fault of science that some of these tools have been used by misguided persons for destructive purposes.

Dr. Rusk, being himself a physicist, is, of course, thoroughly conversant with his subject and cites extensively the original fundamental and significant experiments. He has clearly explained the rather complex ideas which have been formulated and developed by the leaders of present-day physical thought, such as Heisenberg, de Broglie, Schrodinger and Bohr. Since physics has grown during the past ten years to vast dimensions it is impossible to do justice to all phases of it in a book of this length. One is therefore left with the feeling at the end of many chapters that more should have been added about the subject and that the arguments and treatments are incomplete. Also, in reading the book a physicist would feel that in Dr. Rusk's development of the subject he departs from the classical order of presenting the material. This departure from the traditional presentation tends to give the impression that the author jumps around too much for so broad a field and does not always finish the ideas which he has started to explain. On the other hand, many of the facts in the book are excellent and certainly reflect the current thought in physics. Many of us have felt, as does Dr. Rusk, that the philosophical point of view developed by Jeans and Eddington had gone beyond the true province of science, particularly in Jeans' discussion of determinism and in his famous conclusion that since physics is mathematical, therefore God must be a mathematician. It is most encouraging therefore to hear a fellow physicist point out the difficulties with this point of view and to hear him explain the feelings which have been commonly shared by many of us in this field.

On the whole, Rusk has done a good job, and has presented the subject to the layman in a most interesting and readable book.

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## SPECIAL ARTICLES

### RETARDATION OF RANCIDITY BY SULFHYDRYL COMPOUNDS

BIOLOGICAL antioxidants, as food constituents, are attracting increasing attention. Apart from the to-

copherols, which Mattill and his associates first demonstrated as having antioxygenic potency,<sup>1,2</sup> crude

<sup>1</sup> H. S. Oleott and H. A. Mattill, *Chemical Reviews*, 29: 257, 1941.