

with secrecy (to protect priority) and the many requests from foreigners that English works be translated into Latin show the difficulties he faced. Through him one can follow, perhaps more clearly than in any other single source, the slow realization throughout Europe—in this generation before the *Principia*—that a new era in man's investigation of nature had arrived. One can sense the wonder and the exhilaration, and for this reason alone one must wish the Halls strength to complete a task that has begun in such exemplary fashion.

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Inventor of an Industry

Light for the World. Edison and the Power Industry. ROBERT SILVERBERG. Van Nostrand, Princeton, N.J., 1967. vi + 281 pp., illus. \$5.95.

The protean talents of Thomas Alva Edison continue to attract the attention of biographers. And with good reason. Edison's life was almost a paradigm of the American success story, and Edison himself became something of a folk hero. Few individuals can be accounted responsible for the growth of a major industry in the way that Edison can. He is a particularly attractive figure for the historian of technology because he dealt with a science and a technology readily comprehensible today by even the modestly educated layman. Nor was his life without drama: the struggles with the technology of electricity and his battles with financiers and promoters for the control of his inventions and of the industry they founded are all subjects ready-made for the pen of the narrative historian. If the scientific failures of Edison's later years did not lend a tragic note to his life, they at least provided an element of pathos.

Silverberg, a professional writer with particular experience with children's books, has provided a solid narrative account of Edison's career through the 1890's. His style is lively and consistently interesting, and he guides us with a sure hand through the labyrinthine corporate politics of the early years of the electrical industry. Four pages of illustrations, a satisfactory index, and a brief list of sources (though no footnotes) contribute to the attractiveness of Silverberg's account. All in all it is a

craftsmanlike job which will be of considerable interest to that mythic figure the "average reader."

It is not, however, a particularly original or analytical book. Silverberg rightly argues that Edison's major contribution to the industry was not the invention of the incandescent electric lamp but the development of a complete system of power production and distribution as well as illumination. But students of the early electrical industry pointed this out long ago. There is a paucity of clear, precise technological explanation. Indeed, the author is generally content with unanalytical narrative. When he does seek to explain large events he is sometimes on uncertain ground. Suggestions that Edison's innovative barrenness after 1884 was the result of the shattering effects of his first wife's death (pp. 200-01), for example, are largely unprovable speculations.

This volume can be recommended as a sound, interesting narrative account of Edison's role in the development of the electrical industry. But serious students of the history of that industry must still turn to Harold Passer's *The Electrical Manufacturers* (1953), and individuals interested in a comprehensive, authoritative biography should read Matthew Josephson's *Edison* (1959).

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Goals and Purposes

Science Is Not Enough. VANNEVAR BUSH. Morrow, New York, 1967. 192 pp. \$4.50.

The title of this book does not prepare the reader for the wealth and variety of its content. It is not an expression of disillusionment from one who has drunk the wine of scientific adventure to the dregs and found them bitter. It is, rather, an anthology of the mature reflections of a connoisseur who knows at first hand the products of many vineyards, who wishes to share his experiences with his friends, and whose imagination envisions even nobler vintages that may be in store for the generations to come.

Like the career of its illustrious author, the volume before us has a scope, a breadth, and a depth that are nothing short of prodigious. In a series of ten essays, Bush discourses on a wide range of human interests in a forthright style

that makes the reader oblivious to the passage of time as page after page unfolds a panorama of modern thought and action. Every page sparkles with some flash of humor, some gem of wisdom, some penetrating barb at human foibles, softened by a kindly phrase that reveals the author's sympathetic understanding of human nature. I shall try to summarize the scope of the book without losing its flavor by mentioning the title of each essay and adding a remark or two about its content.

The opening essay, entitled "The builders," describes in poetic prose the activities of those who build the organized structure of knowledge called science. The second essay, "Science pauses," covers the whole field of science from molecular biology to cosmology, even entering the realms of logic and philosophy. Important conclusions may best be described in the author's own words:

Science, too, has come a long way, in delineating the probable nature of the universe that surrounds us, of the physical world in which we live, of our own structure, our physical and chemical nature. It even enters into the mechanism by which the brain itself operates. Then it comes to the question of consciousness and free will—and there it stops.

Science proves nothing absolutely. On the most vital questions, it does not even produce evidence.

But is all the labor of science vain to the thinker, the seeker after a sure harbor, amid the mystery, evil, cruelty, majesty, that surrounds us? By no means. Science here does two things. It renders us humble. And it paints a universe in which the mysteries become highlighted, in which constraints on imagination and speculation have been removed. . . .

He calls on the philosopher for help, bidding him revive the mission of philosophy in the days of its glory, to dream and guide the dreams of men, "presenting its mission humbly and in the concepts that science offers."

Although every essay carries some message for youth, the third, entitled "The gentleman of culture," should have special appeal to those in the formative years of their lives. After admitting the possibility of adverse reactions to the nouns in the title, the author goes deeply into the modern connotations of both and their significance in the modern world. Let me give the author's idea of a gentleman of culture, adding that he is under no delusion about the obstacles that exist in this