

EIRBooks

A man who loved both the stars and great music

by Warren J. Hamerman

A Man Who Loved the Stars; The Autobiography of John A. Brashear

by John A. Brashear

University of Pittsburgh Press, Pittsburgh, 1988
\$19.95 cloth, \$9.95 paperbound, 190 pages.

This is the inspiring autobiography of John Brashear, an extraordinary millwright of Pittsburgh during the late 19th century, who, after full days in the iron mills, worked late into the night in his home workshop building telescopes, grinding astronomical lenses, and studying the heavens. Brashear so revolutionized the technology and precision in astrophysical instrumentation, that he became the world's foremost builder of astronomical instruments of his day. As his fame grew, he collaborated directly with most of the leading astronomers of America and Europe during the last decades of the 19th century and the first decades of this one.

Brashear lived from 1840 until 1920 and, by the end of his career, his precision telescopes, stellar spectroscopes, mirrors, and scientific optical instrumentation were the prized possessions of observatories, colleges, and other learning institutions throughout Europe and the United States. Before his astronomical avocation became his day's work as well, he typically rose at about 5:30 in the morning to get to the mill on time. He would arrive back home at 6:00 in the evening, and then, after supper, he would work with his devoted wife well past midnight, grinding lenses or observing the stars. Despite becoming a friend to all the leading astronomers of his time, he nonetheless always delighted in patiently giving ordinary laborers, children, and common

people their first look at the beauties of the skies through one of his telescopes.

Brashear wrote: "For not only did I desire the privilege of seeing the beauties of the heavens myself; I dreamed of a day when all mankind, every boy and girl, might have that privilege, too."

Music and morality

Besides his passion for astronomy, Brashear was an enthusiastic devotee of classical music. He was the choir-leader of his church chorus, the organizer of a citywide cantata society and composed several musical pieces himself. He was a tenor and his wife a soprano who sought out musical friends all their life.

Brashear emerged in a definite political context of cultural optimism. One of his grandfathers owned a tavern in Brownsville where he had entertained Lafayette on his 1825 tour. His other grandfather had a love for astronomy as well as great music. This grandfather played several instruments, including the piano, flute, violin, and pipe organ, and he often made his own musical instruments. Brashear was in his early twenties when Lincoln led the Union to victory in the Civil War. The industrial expansion of Pittsburgh in the decades that followed made it one of the epicenters of progress in the nation.

Brashear's autobiography is a work in the tradition of Benjamin Franklin's own classic autobiography because of the way in which it unifies the pursuit of scientific truth with a broad vision of morality that is based upon the joy of uplifting one's fellow men to a higher state of knowledge about the beauty of our universe. Were our nation to rededicate herself to a mission of space exploration again, men and women in this mold will not seem such a unique rarity.

Brashear wrote, "Perhaps some of the good people will read these reminiscences who have been fellow workers in the domain of our beautiful science of astronomy and astrophysics and who have helped me to 'push forward the frontiers of human knowledge'. . . . But, after all, my one big hope is that my humble effort in jotting down these items from life's memorandum book may help some struggling soul to master some of the problems of life and of the beautiful in science, which will contribute new chapters of discovery to the now unknown and help to make this old oblate spheroid move smoother on its axis."

Brashear's autobiography first appeared in 1924, four years after his death. Readers of this work will be richly rewarded by a man who makes your vision swell, and your hopes soar.

Modern aviation's debt to 'Kelly' Johnson

by Leo Scanlon

More Than My Share of It All

by Clarence L. "Kelly" Johnson

with Maggie Smith

Smithsonian Institution Press, Washington, D.C., 1985, 209 pages, clothbound, \$17.50.

Although the name Kelly Johnson may not be familiar to many people outside the aviation fraternity, his life's work stands behind the developments in modern aviation which have captivated the imaginations and spurred the optimism of several generations of Americans. This autobiography is a very human look into the life of the man who epitomizes the genius, and limitations of American industrial technology in the 20th century.

Kelly Johnson had a hand in almost every engineering feat of aircraft design in this century, from his work developing the Lockheed Electra, through a family of transport and fighter aircraft for World War II, and on, to the fabulous SR-71, which is the pioneer for future stealth and hypersonic aircraft.

A look at these accomplishments shows a man who is almost a stereotype of the American genius for engineering and production organization. For example, Johnson was leading the work on the P-38, the fastest of the subsonic fighters, when the problem of "compressibility"—unstable air flows at transsonic speeds—was found to plague the air-

craft at the edge of its performance envelope. This problem represented the barrier which made any further attempt to apply greater engine power, including existing jet engines, useless, because the airframe could not survive the speeds.

Kelly Johnson reports the admiration he had for the German engineers (working from classical Riemannian models of the shockwave effects, whose approach had been rejected by the Air Force, and Theodor von Karman in the United States) and their advanced solutions to these problems. Apparently unaware of the theoretical basis of the German accomplishments, Johnson was nonetheless able to direct the engineering and production departments at Lockheed, assimilating these breakthroughs, and organized the work in what we now term "Manhattan Project" fashion. The methods he used are directly responsible for the successes he achieved from then through the production of the SR-71.

This effort, under wartime conditions, impressed on Johnson the need to run research and engineering projects in a manner diametrically opposed to the bureaucratic methods which have come to characterize the moribund corporate and government structure of the 20th century. In this respect, Johnson stands with Adm. Hyman Rickover and Gen. Bruce Medaris as one of the giants of this century. These men, each in his own way, were characteristically opposed to the shallow, weak, and timid thinking that characterizes the modern "consensus process."

Johnson's approach to the problem was to form an organization within the Lockheed structure, under his direction, which was nicknamed the "Skunk Works" (after the famous production site of "Kickapoo joy juice" in the L'il Abner comic strip). The Skunk Works operated on principles which are captured in the humorous slogans of the management, "If you can't do it with brainpower you can't do it with manpower-overtime." "Be quick, be quiet, be on time." "Listen: You'll never learn anything by talking." "The measure of an intelligent person is his ability to change his mind." Kelly Johnson saw this as a "common sense" approach to solving complicated problems, and it is. He is continually amazed at the sad lack of this approach in the United States today.

The autobiography describes in shocking detail the devastation of U.S. scientific and industrial preeminence in the post-Robert McNamara era, and also the incredible damage that is being done to every area of basic industrial capacity by the policies which have dominated the country since McNamara was at the Pentagon. The list of the issues cited by Johnson is long, and should be studied by every American concerned about the ongoing collapse of our defense and industrial base.

Even more frightening is Johnson's account of his inability to reproduce his method among a younger generation of engineers and officers. When the Army began the project to develop the Cheyenne helicopter, Johnson and the Skunk Works crew were asked to set up a satellite shop and expedite the project. Within a very short time, the project's purchasing