

scientific community into affordable, workable space experiments. His stature eased the tensions between NASA and outside scientists that resulted from the agency's practice of making scientific decisions internally, not by the customary process of peer review. The practice was adopted partly because of its use in NASA's predecessor, the National Advisory Committee on Aeronautics, and partly because of the technical difficulties involved in integrating experiments into viable spacecraft.

ROBERT C. SEAMANS JR
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Charles Donald Shane

Charles Donald Shane, distinguished astronomer and director of the Lick Observatory from 1945 until 1958, died 19 March at the age of 87.

Shane was born on 6 September 1895; he graduated from the University of California, Berkeley, in 1915; served in World War I, and received his PhD at Berkeley in 1920. Shane and Mary Lea Heger were married during their joint tenures as graduate students in astronomy in Berkeley. Charles Shane joined the Berkeley faculty in 1920, became chairman of the astronomy department and served on several of the more important faculty committees. During World War II, he became assistant director of the Radiation Laboratory at Berkeley, and later personnel director at the Los Alamos Laboratory, where he reported directly to General Leslie Groves.

Shane was appointed director of the Lick Observatory in 1945. Those of us who returned to the isolation of Mt. Hamilton immediately after the war found a dreary, disorganized institution. Under Shane's firm administration, the Mt. Hamilton "inmates," as he called the population, grew from the traditional 50 or so to 105, the 120-inch Shane telescope was built, and a new, young staff of astronomers was gathered. New buildings appeared; two old ones were removed. The Lick Observatory had run down; but Shane rewound it and then provided the momentum that still abides.

Although most of Shane's days on Mt. Hamilton were occupied by administration, with the assistance of Carl Wirtanen he managed to find time to employ the 20-inch Carnegie astrographic telescope to photograph the entire sky observable from Mt. Hamilton. Concurrently, he used the plates for the famous Shane-Wirtanen galaxy counts. These counts, which cover a magnitude range to 19.5, are still the most complete and most carefully unified example of this type of information available to astronomers.



Charles Donald Shane and Mary Lea Shane in a photograph taken by Donald E. Osterbrock in July 1982 at Scotts Valley, California (courtesy Lick Observatory, University of California).

Shane's genius as an administrator was tapped by the Associated Universities for Research in Astronomy when he served as its first president from 1958 to 1962. During that time, he established the Kitt Peak National Observatory and the southern hemisphere branch, the Cerro Tololo Inter-American Observatory. Kitt Peak has subsequently become one of the largest, best equipped, most active and most respected observatories in the world.

Shane was a generous, modest and kindly man, with a fine, robust sense of humor. He is greatly missed by his colleagues, but his important accomplishments ensure that he will be remembered by future generations of astronomers.

GERALD E. KRON
Pinecrest Observatory

Mary Lea Shane

Mary Lea Shane, born Mary Lea Heger, 13 July 1897, died at the age of 86 on her birthday in 1983.

Shane received from the University of California in Berkeley her BA in astronomy in 1919 and her PhD in 1925. She married Charles Donald Shane in 1920, starting an association that benefited astronomers and their science for the next 63 years.

As a graduate student, she discovered that the spectra of some stars contained sharp sodium D lines that did not share the radial velocity shift of the star. Her interpretation of the phenomenon followed soon after—the lines originated in interstellar clouds of a material that contained neutral sodium—and contributed in an important way to the understanding of interstellar material. After her marriage, though, she decided to devote herself to her family and her husband's career.

By the time Shane became a resident

of Mt. Hamilton, the Lick Observatory had had 57 years of colorful history. During this period, almost all documentation, even the most trivial, had been saved and stored in a growing collection of redwood boxes deposited in the lower level of the 36-inch refractor dome. A diary dated just after the 12-inch telescope had come into service in 1881 recorded: "Arrived today—two loads of sand—one king." The king was King Kalakaua of Hawaii, who was interested enough to take the awful 26-mile trip to Mt. Hamilton and who became one of the first persons to look through the 12-inch telescope. Mary Shane realized what a treasury of information was contained in those boxes, conceived the idea of the Lick Archives, and undertook the task of organizing them. The Archives were given a permanent site at the library of the University of California, Santa Cruz, and renamed The Mary Lea Shane Archives in 1982.

GERALD E. KRON
Pinecrest Observatory

John C. Jamieson

John C. Jamieson of the University of Chicago died on 26 June 1983 in Chicago after an extended illness. He was born in 1924 in Missouri and entered the University of Chicago as an undergraduate in 1940. He returned there after the War, finishing his undergraduate work and continuing as a graduate student in the geology department. He received his doctorate in 1952 and later joined the staff of the department (now the department of geophysical sciences). He became a full professor in 1965.

Jamieson's experimental research centered on the determination of the crystal structure and elastic moduli of minerals and metals under high pres-