

Cyril Stanley Smith (1903-1992)

Smith, Cyril Stanley (1903-1992), metallurgist and historian of technology, was born on 4 October 1903 in Birmingham, the third of the four children of Joseph Seymour Smith, a commercial traveller for Camp coffee, and his wife, Frances, *nee* Norton (1871-1949). He was brought up in a Methodist household. He was educated by avidly reading the Children's Encyclopaedia and also at Bishop Vesey's Grammar School in Sutton Coldfield; an excellent teacher of geometry was influential in forming some of his tastes, and his parents and an uncle provided home laboratory facilities, including a metallurgical microscope. His progress in mathematics was too slow to allow him to study physics, his first choice, and instead he read metallurgy at the University of Birmingham, from which he graduated with a second-class degree in 1924.

In 1923 a magazine article describing Bell Laboratories and other research establishments in the USA inspired Smith to emigrate to America, where he went in 1924. He secured admission to the Massachusetts Institute of Technology (MIT) and gained his metallurgical doctorate in only two years. From there, in 1926, he moved to the American Brass Company in Connecticut and spent sixteen contented years undertaking industrial research on alloy development. He obtained some twenty patents and published a number of excellent research papers, of which perhaps the most distinguished was a micrographic study of a phase transformation in the copper-aluminium system.

On 16 March 1931 Smith married Alice Marchant Kimball (1907-2001), then a student of English social history at Yale, from which she obtained her PhD in 1936; she was later a distinguished dean at Radcliffe College. (Her sister's reaction to her marriage was: 'If he didn't go to Oxford or Cambridge, isn't Church of England, and doesn't like sports, you might as well marry an American'; Radcliffe College Archives). Alice became Smith's devoted partner for sixty-one years. As Smith later said in his only (and fascinating) effort at intellectual autobiography: 'perhaps it was my unsuccessful attempt to turn her towards the history of science that helped spark my own interest in it'. He spent weekends in the history library of nearby Yale University, though he never had any formal training in historical techniques, and did not feel the lack of them; in fact, he had disliked history at school. It was during these years that he started (at small cost) his remarkable collection of antiquarian metallurgical texts, which on his death was left to the Burndy Library at the Dibner Institute in Cambridge, Massachusetts. He was naturalized an American in 1939.



In 1942 Smith moved for a short time to an uncongenial desk job in Washington, DC, until Robert Oppenheimer persuaded him to join his team at the Los Alamos laboratory in 1943. There he masterminded metallurgical research, especially on plutonium with its numerous phase transformations. 'We hardly knew ourselves what we had to do, except that at some time, approximately two years in the future, we would have to fabricate some excessively precious, highly radioactive metal of unknown metallurgical characteristics into completely unknown shapes'. His period at Los Alamos led to several years of high-level committeemanship for the American government and it also led his wife to write a renowned historical book about the atomic scientists' movement, *A Peril and a Hope* (1965).

In 1946 Smith was invited to create an institute for the study of metals at the University of Chicago. Just after he had agreed he was invited, too late, to become professor of metallurgy at Cambridge University. In fifteen years of effort he turned the institute into the leading laboratory of its kind in America with an impressive staff of metallurgists, physicists, and chemists. He himself did not take any students, but published a number of papers, the most important of which was 'Grain shapes and other metallurgical applications of topology' (1952). This provided a key rationalization of the development of metallic microstructures and is still frequently cited.

In 1960 Smith published his historical masterwork, *A History of Metallography*, a study ranging from medieval times to the nineteenth century, relating metallurgical achievements (for example, the Japanese samurai sword) to attempts to understand the scientific underpinnings. His interests were by now firmly historical, and in 1961 he left Chicago and moved to Cambridge, Massachusetts, to become institute professor at MIT, attached to both the metallurgy and humanities departments; there he spent the rest of his long life, devoting himself to a very varied study of the role of materials in history, especially in art. In his own words, 'MIT has been the environment admirably suited to ... the final development of my "philosophy" in which structural change-that is, physics and history combined-is seen as the common factor uniting all my previous interests'. Many of his best essays on this broad theme were collected in *A Search for Structure* (1981). In the apologia prefacing this book he asserted: 'One cannot hope to understand the nature of interaction between impinging areas without a firm knowledge of at least one of them,' which he amply displayed. Smith was a member of the American Philosophical Society as well as of the National Academy of Sciences. In 1945, working with an expert linguist, he translated Biringuccio's *Pirotechnia*, an



early (1540) classic metallurgical text, and over the next forty years he translated a number of other similar texts from Europe and Japan, a country whose art and crafts he venerated. Other key historical compilations which he edited included *The Sorby Centennial Symposium on the History of Metallurgy* (1965), commemorating the great Sheffield microscopist Henry Sorby, and *Sources for the History of the Science of Steel, 1532-1786* (1968).

Smith died at his home, 31 Madison Street, Cambridge, Massachusetts, of colonic cancer, on 25 August 1992. He was survived by his wife, son, and daughter.

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Alice Kimball Smith (1908-2001)

Alice Kimball Smith, a noted historian was the wife of Cyril Stanley Smith. Alice Smith accompanied Smith to Los Alamos where they and their two children, Anne and Stuart, lived until the end of World War II. When the Smiths came to Cambridge in the early 1960s, Alice was one of the first Scholars to be accepted to the newly established Radcliffe Institute at the famous Harvard University. From 1962 to 1964 she worked there to complete her major and highly acclaimed book *A Peril And A Hope: The Scientists Movement In America, 1945-1947* (1965), much of it based on her experiences at Los Alamos. In 1980 Alice Smith co-authored a second, much appreciated book, with Charles Weiner, *Robert Oppenheimer: Letters In Recollection*. From 1963 to 1973, when she retired, Alice Smith was director of the Radcliffe Seminars. She was Dean of the Radcliffe Institute from 1971 to 1973.

Alice Kimball Smith greatly influenced Cyril Stanley Smith's professional life and personal philosophy. For example, after the war, Smith spent the rest of his professional life at the University of Chicago and the Massachusetts Institute of Technology, where he divided his time between metallurgy and the history of science and technology.

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Cyril Stanley Smith
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