

In memoriam

Cyril Stanley Smith

1903–1992

Cyril Stanley Smith died peacefully at his home in Cambridge, Massachusetts, on 25th August 1992, after a long illness. He was born on 4th October 1903, in Birmingham, England. He had an early interest in experimental science. He was allowed by his parents to have a home laboratory, and worked for a year as lab assistant at King Edward's Grammar School in Camp Hill before entering the University of Birmingham in 1921 with advanced standing. There he briefly considered studying philosophy before receiving the BSc degree in 1924.

An article in a French magazine extolling the Bell Telephone Laboratory inspired him to look for a job in the United States but immigration restrictions led instead to graduate study at the Massachusetts Institute of Technology, where in 1926 he was awarded the Doctor of Science degree. He remained at MIT as a research associate in the X-ray laboratory, working under John Norton of the Physics Department, before obtaining a summer job in 1927 with the American Brass Company in Waterbury, Connecticut. This became a permanent position, in which his main task was alloy development. He became head of the Copper Alloys Research Laboratory and received some 20 patents. He married Alice Kimball in 1931 and they had two children. He returned to England to spend a year at Cambridge (1933–34) and another in London (1955–56). The occasion of his last visit to England was the annual conference of the Historical Metallurgy Society in 1984, which met a few miles from his birthplace in Birmingham; he was a longstanding member of HMS.

When the war came he went to Washington to work with the War Metallurgy Committee, and in 1943 was invited to join the Manhattan Project at Los Alamos, New Mexico, to direct the preparation of fissionable metal for the atomic bomb. The decision to go to Los Alamos was not easy for him. He told me that he went that evening to the tranquil and inspiring surroundings of the Lincoln Memorial to think it through. The years at Los Alamos were recorded by Alice Kimball Smith, who had received her doctorate in history from Yale.¹ Professor Smith was awarded a Presidential Medal of Merit by President Truman for his work on the atomic bomb.

In January 1946 he founded and became first director of the Institute for the Study of Metals at the University of Chicago. This was the first academic interdisciplinary research organization in America dealing with materials. President Truman appointed him to the original nine-member General Advisory

Committee to the Atomic Energy Commission that was chaired by Robert Oppenheimer. He resigned from this committee in 1952.

He served on the President's Science Advisory Committee under Dr. James Killian and Professor George Kistiakowsky, on the Advisory Committee for the Oak Ridge National Laboratory, and was a member of the Committee on Science and Public Policy of the National Academy of Sciences. The ten years from 1966 to 1976 he served on the Council of the Smithsonian Institution.

He was the first chairman of the board of governors of *Acta Metallurgica*, a member of the founding board of editors of *Metallography*, the journal of the International Metallographic Society (now *Materials Characterization*), and a member of the editorial board of the *Bulletin of Atomic Scientists*. He was a founder and an early president of the Society for the History of Technology.

In 1961 he left Chicago to return to MIT, where he became Institute Professor with appointments in the departments of humanities and metallurgy, in order to "encourage the understanding of human history and human activity through the scientific investigation of the material record of the past." At MIT he established the Laboratory for Research on Archaeological Materials in 1967. Its success led to the founding with Professor Heather N. Lechtman ten years later of the Center for Materials Research in Archaeology and Ethnology (CMRAE), a consortium of eight Boston-area universities and museums devoted to research and graduate education in archaeometry.

Professor Smith was a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts and Sciences and the Académie Internationale d'Histoire des Sciences as well as holding honorary membership in the Institute of Metals, the Akademie der Wissenschaften, the Indian Institute of Metals and the Institute of Metals of Japan. He received two John Simon Guggenheim Memorial Foundation fellowships, one in 1955 for a historical study of the inter-relation between pure science, applied science, and technology using the development of metallurgy as a particular example. The subject of the second, in 1978, was "A structural metaphor for matter and history."

He received many honours such as the Francis J. Clamer Medal of the Franklin Institute in 1952, the

Pfizer Medal of the History of Science Society and the Gold Medal of the American Society of Metals in 1961, The Douglas Medal of the American Institute of Mining, Metallurgical, and Petroleum Engineers in 1963, the Leonardo da Vinci Medal of the Society for the History of Technology in 1966, the Platinum Medal of the Institute of Metals in 1970, the Sorby Medal of the International Metallographic Society in 1977, and in 1991 the Gemant Award from the American Institute of Physics for "pioneering the use of solid state physics in the study of ancient art and artifacts to reconstruct their cultural, historical, and technological significance."

Some of his papers on this subject were collected in a volume whose title, *A Search for Structure*, summarized the thrust of his work.² He wrote a number of books and monographs³ and edited an unprecedented series of technological treatises given reliable translation into English.⁴ All these are essential tools in the practice of archaeometallurgy.

He was a prolific and thought-provoking correspondent. Those fortunate enough to receive letters from Cyril have been known to frame rather than file them. He had a gift for inspiring people. He encouraged Theodore Wertime in the writing of *The Coming of the Age of Steel*;⁵ later Professor Smith joined the technological expeditions led by Wertime in 1962 and again in 1966 in search of traditional technology in Iran. Wertime with James Muhley organized a festschrift for Cyril's 80th birthday, *The Coming of the Age of Iron*.⁶ A student of his at Chicago, Radomir Pleiner, was inspired to found the Comité pour la Sidérurgie Ancienne under the UNESCO-sponsored International Union of Prehistoric and Protohistoric Sciences.

His lectures at MIT emphasized a sensual and aesthetic understanding of materials. He often brought an object to his class to be experienced and understood on many levels. He shared his own experiences of materials, as when he would tell the story of his going out into the desert outside Los Alamos, finding ore, and smelting copper on a bet with Enrico Fermi. He became Institute Professor emeritus in 1969, but continued to lecture on the history of materials and to inspire others.

His thought has had a penetrating influence on popular culture. The television series and book, *The Ascent of Man* by Jacob Bronowski, was influenced by his view of the history of metallurgy, as was the volume in the Time-Life series on The Emergence of Man, *The Metalsmiths*,⁷ for which he was the consultant.

The Cyril Stanley Smith Memorial Fund has been established at MIT to foster studies relating ancient and contemporary art and science in the materials field.

Martha Goodway
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Notes

1. Alice Kimball Smith, *A Peril and a Hope*, Chicago 1965.
Alice Kimball Smith and Charles Weiner, *Robert Oppenheimer, Letters and Recollections*, Cambridge USA 1980.
2. *A Search for Structure: Selected Essays on Science, Art, and History*, Cambridge USA and London (MIT Press) 1981. A bibliography of his publications to 1980 is given on pages 391–399. See also his "Retrospective Notes on a Changing Profession" in *Archeomaterials* 1 (1) Fall 1986, 3–11.
3. Professor Smith's books and monographs include:
Of Typecasting in the Sixteenth Century, New Haven (Carl Rollins for the Columbiad Club of Connecticut) 1941.
Robert Gomer and Cyril Stanley Smith, editors. *Structure and Properties of Solid Surfaces*, Chicago (University of Chicago Press) 1953.
A History of Metallography: The Development of Ideas on the Structure of Metals before 1890, Chicago (University of Chicago Press) 1960. Reprinted with additions, Cambridge USA and London (MIT Press) 1988.
Four Outstanding Researches in Metallurgical History, Philadelphia (American Society for Testing Materials) 1963.
(Editor) *The Sorby Centennial Symposium on the History of Metallurgy*, New York (Gordon and Breach) 1965.
From Art to Science: Seventy-two Objects Illustrating the Nature of Discovery, Cambridge USA (MIT Press) 1980.
4. Translations edited by Professor Smith include:
(With Martha Teach Gnudi) *The Pirotechnia of Vannoccio Biringuccio*, New York (American Institute of Mining and Metallurgical Engineers and Yale University Press) 1942. Reprinted Cambridge USA (MIT Press) 1966.
(With A. G. Sisco) *Bergwerck- und Probierrbüchlein*, New York (American Institute of Mining and Metallurgical Engineers) 1949.
(With A. G. Sisco) *Lazarus Ercker's Treatise on Ores and Assaying*, translated from the German edition of 1580, Chicago (University of Chicago Press) 1951.
(With A. G. Sisco) *Réaumur's Memoirs on Iron and Steel*, Chicago (University of Chicago Press) 1956.
(With John G. Hawthorne) *On Divers Arts: The Treatise of Theophilus*, Chicago (University of Chicago Press) 1963. Reprinted New York (Dover) 1979.
(Editor) *Sources for the History of the Science of Steel, 1532–1786*, Cambridge USA (Society for the History of Technology and The MIT Press) 1968.
(With John Hawthorne) *Mappae Clavicula, A Little Key to the World of Medieval Techniques*, Philadelphia (American Philosophical Society) 1974.
(Editor, with W. Rozanski) *Officina Ferraria, A Polish Poem of 1612 Describing the Noble Craft of Ironwork* by Walenty Rozdzienski, Cambridge USA

(Society for the History of Technology and MIT Press) 1976.

(Editor) *Kodo Zuroku, Illustrated Book on the Smelting of Copper* by Masuda Tsuna, Norwalk, Connecticut (Burndy Library) 1983.

5. Theodore A. Wertime, *The Coming of the Age of Steel*, Chicago (University of Chicago) 1962.

6. Theodore A. Wertime and James D. Muhley, *The Coming of the Age of Iron*, New Haven and London (Yale University Press) 1980.

7. Jacob Bronowski, *The Ascent of Man*, London (British Broadcasting Corporation) 1973; Boston (Little Brown) 1974.

Percy Knauth, *The Metalsmiths*, New York (Time-Life Books) 1974.

The Historical Metallurgy Society, what it is and how to join

Origins

The Historical Metallurgy Society was established in 1962, and now covers all aspects of metallurgical history and has an international membership of over 500. Currently about half of the membership is outside Great Britain and ferrous and non-ferrous interests are equally represented.

Publications

The Society publishes the results of its research at regular intervals. A Journal, is produced annually normally in two parts, and a news sheet is issued three times a year, with conference details, and excavations.

An index of publications is available and back copies of Journals and special publications are usually obtainable.

Conferences

The Society holds an Annual Weekend Conference each September, and a day of lectures and visits at the

AGM in the Spring. These meetings are held in different parts of the country. At each Conference there are lectures by metallurgical historians, and experts with local knowledge of the area. One day is spent in the field with coaches taking members to sites of interest.

The conference weekend also provides the opportunity for members to give short talks on their own particular interests.

Joining

The annual subscription is £15.00 sterling anywhere in the world for an ordinary member. There are alternatives for those who are already members of the Institute of Materials or who are full time students.

Payments of the subscription entitles you to receive the Journal each year. Newsletters, and details of the various activities of the Society.

If you are interested in joining please write to:

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Gloucestershire GL16 8DH, Great Britain