Max Swerdlow
1915-1989

Max Swerdlow died on 18 February 1989 in Washington, DC, after a six- year struggle against cancer. As a result of his illness, he had retired from his 27-year position as a program manager for the Air Force Office of Scientific Research at the end of 1984. Previously he had been employed by the National Bureau of Standards for 17 years. Swerdlow received his BA in physics from Brooklyn College in 1938. In 1940 he entered government service with the National Bureau of Standards, as a ceramics engineer in the optical glass section. He soon was made the general night supervisor of a critical 500-person operation to produce optical components for gun sights. After World War II Swerdlow was able to devote himself fully to the electron microscope. He was a moving force in bringing one to NBS for the first time in 1946. He was placed in charge of the NBS laboratory for electron microscopy and electron diffraction, a position he held until leaving for the Air Force Office of Scientific Research in 1957. Swerdlow's invention of a new method for sectioning materials into extremely thin specimens suitable for examination by an electron microscope is considered a landmark in the study of tissue and bone. Using this method he probed the microstructure of wool and other fibers and of polymeric materials. His work contributed significantly to the understanding of the behavior of all these substances in end-use applications. Swerdlow's research on clay minerals and on the hydration of Portland cement illuminated the fundamental physics and chemistry of these essential building materials. In 1946 Swerdlow joined the Electron Microscopy Society of America. He was the society's treasurer from 1950 to 1957, and its president in 1958. On joining AFOSR Swerdlow began a new career seeking and supporting basic research that might have long term benefits for the Air Force. In the late 1950s, recognizing that the fledgling US space program would ultimately require a better understanding of materials, he advocated the formation of a number of university based materials research laboratories, to be administered by the Defense Department's Advanced Projects Research Agency (now known as DARPA). Such a

program was begun in 1960 and continues to operate today, with funding now provided by the National Science Foundation. During a 1957 visit to MIT, Swerdlow concluded that the US should establish a national magnet laboratory, built upon the existing facilities in Francis Bitter's lab. Swerdlow promoted this idea to those at MIT (particularly Benjamin Lax) and to his counterparts at other agencies. His efforts were rewarded when, on 1 July 1960, the Francis Bitter National Magnet Laboratory (as it is now known) was formed, with Swerdlow as its very active program manager. After more than a decade in this capacity, he transferred his funding and management responsibilities to the NSF. Swerdlow is probably best known to the current generation of condensed matter physicists as a strong supporter of research on superconducting materials. Although he could take pride in his early promotion of research on lasers and on such optically important materials as mercury-cadmium-telluride, when he joined AFOSR he was seeking some new materials-science challenge that held long term potential. At a meeting in Washington in 1958, during a two hour walk in the rain with Bernd Matthias and John Hulm, Swerdlow became convinced that superconductivity would provide the challenge he was looking for. A few years later he made major funding commitments to the University of California, San Diego, when Matthias started working there, and in the late 1960s he supported Theodore Geballe's new program at Stanford University. The students and postdocs from those two programs form the backbone of the current US effort in high temperature superconductivity. When another agency decided to drop all superconductivity research in 1972, Swerdlow provided funding on a 1:1 matching basis to the program at the Westinghouse R&D Center that agency had been supporting. Five months later, John Gavaler, working at Westinghouse, discovered superconductivity at 23 K in Nb:3Sn, a record that stood for 13 years. Paul Chu, while a graduate student of Matthias's, received all his research funds from AFOSR, and Swerdlow's support of Philip Anderson's research at Cambridge University in the early 1960s influenced the graduate work of Brian Josephson. Swerdlow was also instrumental in the initiation in 1966 of a series of meetings that evolved into the biennial Applied Superconductivity Conferences. Max Swerdlow had a strong sense of what made good science and good scientists, and an instinct for identifying projects that would produce meaningful results. He understood well the partnership between researchers and funders of research, and carried out his end of that partnership in a most exemplary way, earning a reputation as the dean of DOD program managers. In fact his career helped redefine the role of scientific program managers. At Swerdlow's swearing in, then Secretary of Commerce Henry A. Wallace asked him if he was going to be another one of those "90-day wonders" who leave the government after a very brief period. In looking back, one can say that Swerdlow turned out to be a "44-year wonder," whose impact on science will be felt for many more years to come.

HAROLD WEINSTOCK
Air Force Office of Scientific Research
Washington, DC