

Sidney M. Edelstein (1912 - 1994)

Dr. Sidney Milton Edelstein was founder in 1945 of Dexter Chemical Corporation New York. Research chemist, inventor, industrialist and bibliophile, his interests extended well beyond his these fields. Jointly with his wife, Mildred, he supported numerous charitable projects in the United States and Israel. He believed, above all, that "success in business is only rewarding and meaningful if it gives one the means to take part in activities that enrich one's life and the life of one's fellow men."



Sidney Edelstein's greatest passion was for the history of science and technology. This enthusiasm found expression through a magnificent library, scholarly and popular articles, expeditions, and laboratory research. The zeal with which he pursued and supported these activities, and his desire to share the riches of his library with others, led to the establishment of the Sidney M. Edelstein Library and the Sidney M. Edelstein Center at the Hebrew University. Together they set standards for the promotion of excellence in scientific and historical research.

Sidney Edelstein was born in Chattanooga, Tennessee, and showed an early interest in chemistry at the Baylor school, where he was allowed to undertake independent experiments in the laboratory, until one day while making fireworks with some friends there was a massive explosion that sent him to hospital. Undaunted, and more enthusiastic than ever, he then gained admission, at the age of sixteen, to the Massachusetts Institute of Technology. There he developed expertise in the chemistry of cellulose and in textile microscopy. In the final year he attended a compulsory course on the history of chemistry, and married Mildred, his life-long companion.

Sidney and Mildred Edelstein returned to Chattanooga in 1932 at the height of the Depression. Sidney Edelstein went about the somewhat arduous and challenging task of finding employment. He soon convinced the local textile industry of the need for a more scientific approach to their chemistry-based processes, especially in advancing the use of microscopy in the study of textile fibres. He found work in the daytime at the Dixie Yarn Company. In the evenings he worked in a dyehouse in order to become familiar with characteristics of textile fibers and the finishing processes to which they were subjected. In particular, he reinvestigated the mid-19th century patents of the English colorist John Mercer, who had shown how treatment of cellulose with strong alkali improved the properties of cotton, providing lustre, and enhanced the uptake of dyes. Extending these studies, he modified the lustre of cotton to the extent that it could successfully compete with the new fibre

known as rayon. In 1935 his work on "mercerization" led to research for the American Association of Textile Chemists and Colorists, and the development of what later became the barium number test for mercerization, also known as the Edelstein number.

In 1939, the Edelsteins moved to New Jersey. It was not long before Sidney Edelstein was presented with new challenges. The Army Quartermaster store in Philadelphia was confronted with serious problems concerning shrinkage and colorfastness of mosquito and camouflage netting. Sidney Edelstein's expertise in mercerization and cellulose chemistry became critical to the resolution of these difficulties. The outcome of his research was Kopan, widely applied by the Allied armies during the Second World War. In addition, Sidney Edelstein developed a range of colorfast pigments that was well suited to the netting fabric. He took out over twenty US and foreign patents for his inventions, and published the results of chemical and textile-related research.

As a leisure pursuit, Sidney Edelstein collected books on the development of science and technology. The history of chemical sciences and alchemy took priority, until 1943 when Sidney Edelstein's professional interests led him to extend the collection with books and manuscripts dealing with dyeing and bleaching. For Sidney Edelstein these were far more than collections on chemistry and textile technology. They became the basis of his own in-depth historical research. The outcome was historical articles accessible to a wide audience, particularly science educators and practitioners in the dye industry, and scholarly papers read before international gatherings of scientists and historians. Knowledge about ancient dyes encouraged other types of investigations, including site examinations and reconstructions. Notable was a 1956 expedition to Mexico to study the use of the cochineal insect as a red colorant.

For eighteen years Sidney Edelstein was secretary of the history and chemistry division (HIST) of the American Chemical Society. He joined the editorial board of the history of chemistry journal *Chymia*, and gave encouragement to Melvin Kranzberg in the early years of the Society for the History of Technology (SHOT). To encourage scholarly study, and provide wider public exposure, Sidney Edelstein inaugurated the Dexter Award for achievements in the history of chemistry (1956), and the Dexter Prize for outstanding books in the history of technology (1968).

Sidney Edelstein's works on the history of textile technology include two outstanding volumes: *Plichto of Gioaventura Rosetti. Instruction in the Art of the Dyers Which Teaches the Dyeing of Woolen Cloths, Linens, Cottons, and Silk by the Great Art as well as the Common* (MIT Press, 1969) a translation, with extensive commentary, undertaken jointly with Hector C. Borghetty, of the first edition (1548) of Rosetti's *Plichto de larte de tentori che insegna tenger pan[n]l telle banbasi et sede si per larthe maggiore come per la comvne*. This was the first printed book devoted exclusively to dyeing. Second, in 1972, Sidney Edelstein published *Historical Notes on the Wet-processing industry*, in which were reprinted thirty-one of his original articles. These conveyed the

excitement of the long history of dyes, both technical and cultural, through the role of many individuals.

Sidney Edelstein's research into the past was motivated by his interest in modern problems. These included static electricity in which "[h]e himself has written much on the subject, applying his love of historical research to link past studies of static electricity with current efforts to lick this abstruse and elusive phenomenon." This appreciation appeared in *Modern Textiles Magazine* in 1956, during which year the centenary of William Perkin's discovery of mauve was celebrated. At a special convocation held at the then Lowell Technological Institute (Lowell, Massachusetts) in September 1956, Sidney Edelstein was awarded the honorary degree of Doctor of Science in recognition of his pioneering work in history of, and research for, the textile industry. Sidney Edelstein continued to promote and encourage the history of science and technology, notably with assistance to the History of Science Society, and the International Committee of the History of Technology. In 1988, in recognition of his long service and contributions to the history of technology, Sidney Edelstein received the Leonardo da Vinci Medal, the most prestigious award of the Society for the History of Technology.

Sidney Edelstein always remembered his mother's fervent belief in a home for the Jewish people, and in 1959 he and Mildred began a connection with Israel that would continue and flourish during the following decades. Their earlier assistance to community programmes in the United States now extended halfway across the world. Together they supported educational, scientific, health care, day care and community projects in all parts of Israel. History of technology, and in particular of dyes, took on a new dimension when the leading Israeli archeologist Yigael Yadin asked Sidney Edelstein to examine textile fabrics from the Dead Sea caves. This led to a new technique for the analysis of ancient textiles, and the remarkable discovery that the ancient Israelites were using dyeing techniques that were not bettered in Europe until the end of the 18th century. In particular they had mastered the use of the madder dye, obtained from the root of the plant, and from which it was possible to obtain various shades and colours, as well as natural red.

In 1976, Sidney Edelstein presented his now world-renowned collection of books and manuscripts dealing with the history of science and technology to the Jewish National and University Library, and four years later established the Sidney M. Edelstein Center at the Hebrew University. Among other ventures and projects, this stimulated further research into biblical dyes, notably Argaman (purple) and the Tekhelet (blue). An extended study, in collaboration with laboratories at the University of Haifa, and Shenkar College of Textile Technology and Fashion, resulted in a definitive volume on dyes from the murex sea snail, *The Royal Purple and the Biblical Blue. Argaman and Tekhelet. The Study of chief Rabbi Dr. Isaac Herzog on the Dye Industries in Ancient Israel and Recent Scientific Contributions* (Jerusalem, Keter, 1987).

The Edelstein Center at The Hebrew University provides the means by which scholars from Israel and abroad are enabled to study major collections held at the National Library, including, in addition to the Edelstein Library, the Albert Einstein Archive and the Theological Papers of Isaac Newton, and engage in fruitful discussions through international workshops.

Sidney Edelstein received an honorary doctorate from the Hebrew University in 1988. At that time he also established the Edelstein International Fellowship programme in the history of chemistry and chemical technology, jointly administered by Chemical Heritage Foundation (Philadelphia) and the Sidney M. Edelstein Center at The Hebrew University. In 1991, there followed the founding of the Edelstein Center for the Analysis of Ancient Textiles and Related Artifacts at Shenkar College, where the studies on Argaman, Tekhelet and madder dyes initiated by Sidney Edelstein continue. Through these institutions and their programmes, Sidney Edelstein's great love of the past, and his commitment to share that love with others, will endure for future generations. He was a model for his generosity and support of younger scholars; to all he is remembered for his vision and understanding of the multiple relationships that exist between science and industry.