Mind and Hand: The Birth of MIT FREE

Roger L. Geiger

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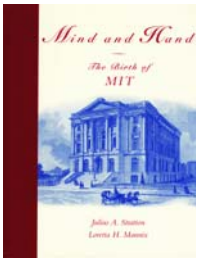


Julius A. Stratton and Loretta H. Mannix
MIT Press, Cambridge, MA, 2005. $55.00 (781 pp.).
ISBN 0-262-19524-0

Mind and Hand: The Birth of MIT, an unusual volume, began as a labor of love by Julius A. Stratton, whose long career at the institute stretched from student in the 1920s to institute president from 1959 to 1966. After his death in 1994, Stratton's longtime assistant Loretta H. Mannix continued working on the manuscript. Finally, more than three decades after its inception, the book was completed by late-recruit Philip N. Alexander of the MIT Program in Writing and Humanistic Studies. The result is a highly detailed depiction of not only the beginnings of MIT but also the entire social, scientific, political, and educational milieu from which the institute emerged. In the course of this lengthy book, MIT's incorporation arrives on page 220 and actual instruction begins on page 442. But readers ought not skip ahead. The value of the splendid narrative lies precisely in the detailed portraits of a time and an institution quite different from the present.

William Barton Rogers (1804–82), the guiding spirit behind MIT, came from a remarkable family of four brothers who all pursued careers in science and university teaching. Rogers was an accomplished geologist and professor at the University of Virginia. For years he and his brother Henry Darwin Rogers devised plans for practical scientific schooling, ultimately in Boston. William married into a prominent Boston family and permanently settled in the city in 1853, before Henry left for Scotland to become professor of natural history and geology at the University of Glasgow. The lofty status William achieved in science and in Boston society was crucial for his prolonged endeavor to advance what was then only beginning to be identified as "technology."

At the time, Harvard University dominated scientific education in and around Boston. It had the Rumford professorship for the application of math and science to the "useful arts" and the somewhat disorganized Lawrence Scientific School. Although Harvard spurned several opportunities for providing instruction in applied science, planning for MIT was intertwined with developments in Cambridge. That the institute was able to emerge as an independent entity was due largely to the Commonwealth of Massachusetts. Its legislature accorded MIT legal status in 1861 and granted it a parcel of the new land being reclaimed from the Back Bay. Then, in 1863, it awarded the prospective venture one-third of the proceeds from the Morrill Land-Grant Act, ensuring that teaching would become the institute's foremost activity in spite of Rogers's original plans.

Although the US harbored numerous initiatives in engineering education, Rogers originally looked almost exclusively to European models. He envisioned MIT as a multipronged center for promoting and advancing industrial technology: a society of arts promoting research and publication in industrial science; a museum of industrial science and art facilitating practical learning; and a school of industrial science and art advancing the work of the museum. In fact, Rogers was able to launch the society of arts almost immediately. Through the late 1860s it had more than 400 members, and its various sections met weekly to hear readings of papers on various aspects of applied science. The nature of the society and its relationship to the institute would be ambiguous for some time, but its establishment is clearly testament to the ability Rogers had to mobilize local scientific and industrial backing for his enterprise. The museum, in contrast, never secured the resources to get off the ground. Once the school of industrial science and art was opened in 1865, its insatiable needs took precedence over all else.

Ironically, the regular course of instruction in industrial science evolved from the least to the most favored activity of MIT. The institute's original incorporation had not included the authority to confer degrees, and as late as 1865, Rogers still expected the greatest demand to be for evening lectures for working men and women. But such courses, although popular, failed to form the engineers and practical scientists that the developing nation needed. In contrast, the distinctive feature of the regular MIT curriculum was a rigorous four-year course, consisting of two years of general scientific training followed by two years of professional studies in one of six fields: mechanical engineering, civil engineering, chemistry, geology

and mining, building and architecture, and general science.

The institute began as a regional venture: Nearly all the original students were from the area, most of the teachers were trained at the Lawrence School, only Massachusetts residents joined the society of arts, and local benefactors assured MIT's financial solvency. However, the success of the school soon changed the dynamic. After the first few years, increasing numbers of students came from other states, and MIT graduates spread across the country, helping to build railroads and new communities. From the outset, MIT became a distinctive and important component of US higher education.

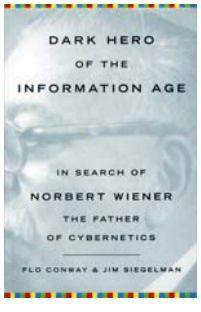
Stratton's 30-year project has yielded both an account of the birth of a unique American institution and a portrait of technology at the dawn of industrial America. This unhurried and uncritical history should be valued by historians, friends of MIT, and the simply curious.

Roger L. Geiger
Pennsylvania State University

Dark Hero of the Information Age: In Search of Norbert Wiener, the Father of Cybernetics

Flo Conway and Jim Siegelman
Basic Books, New York, 2005.
$27.50 (423 pp.).
ISBN 0-7382-0368-8

In *Dark Hero of the Information Age: In Search of Norbert Wiener, the Father of Cybernetics*, Flo Conway and Jim Siegelman have produced an extensively researched biography of Norbert Wiener, the self-described founding figure of cybernetics. Wiener (1894–1964) integrated control and communications engineering with the idea that the message is the basic unit of a complex system, and set up an ambitious research program that extended his integration concept to describe mechanical systems, the human nervous system, and even human cultures.



Wiener was a critical figure in the history of mid-20th-century science and technology. His life has already been documented in Steve Heims's *John von Neumann and Norbert Wiener: From Mathematics to the Technologies of Life and Death* (MIT Press, 1980), Pesi Masani's *Norbert Wiener: 1894–1964* (Birkhäuser, 1990), and in Wiener's own autobiographies, *Ex-Prodigy: My Childhood and Youth* (Simon and Schuster, 1953) and *I Am a Mathematician: The Later Life of a Prodigy* (Doubleday, 1956). The biographies treat Wiener's politics and science respectively, and all four books have had positive reviews in both the popular and academic presses.

What, then, can a new study of Wiener reveal? Conway and Siegelman's biography focuses primarily on Wiener the man rather than on Wiener the scientist. It draws on new material from Wiener's daughters, Peggy and Barbara, made public after the death of their estranged mother Margaret, a German immigrant whom Wiener married in 1926. The authors paint a picture of the private man and, in doing so, cast some light on his public persona and actions. They begin by recounting Wiener's Missouri childhood, which was shaped by his father's ambition to produce a child prodigy. Leo Wiener did indeed produce a prodigy, but a damaged one who would spend much of the remainder of his life combating the manic depression and psychological vulnerability induced in his youth. Wiener would earn his doctorate from Harvard University at age 18 and pursue the study of mathematics and philosophy at Cambridge and Göttingen universities in Europe before becoming a professor of mathematics at MIT.

The key presence that Conway and Siegelman introduce is Wiener's wife Margaret, who does not fare particularly well in this account. The authors suggest that her desire to take on the role of Frau Professor (that is, play the part of the socially-respected wife of an academic) caused her to become highly protective of Wiener—to the extent that she actively sabotaged his personal and professional relationships. Tragically, she felt the need to "protect" her husband from his own daughters, whom Margaret accused of sexual provocations aimed at their father and other men. Conway and Siegelman make a compelling argument that the split between Wiener and the McCulloch group at MIT in 1951 was actually precipitated by Wiener's wife. They argue that Margaret hated Warren McCulloch, a neurophysiologist also among the pioneering cyberneticians, for his freewheeling lifestyle, his liberal politics, and his drinking, and that she felt her husband would be in danger