



Thread of the Silkworm

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an American ideology to defeat an enemy America—through the call for an “Imperial Way of Efficiency,” which presented scientific management as indigenous rather than imported and drew on pseudoacademic materials generated by such organizations as the Japan Society for the Promotion of Science. After the war the public rhetoric of a new generation of managers emphasized professionalism as a tactical counterpoint to *zaibatsu*-style traditionalism. The crisis of capitalism was to be met by the antidote of a new socially responsible management ideology centered on the democratic organization of the firm. In applying this ideology the Japanese at times went far beyond the Occupation’s own antitrust legislation. In the 1950s they stressed the healing effects of productivity, and so once again Japanese business resonated with the language of Taylor, now clipped to fit within the formula of the high wage/low cost economy. Tsutsui’s overall judgment is that Japan’s subsequent high performance was stimulated by management ideologies shared by other nations and that the Japanese were simply able, in the words of one commentator, “to out-Taylor us all” (p. 187).

IAN INKSTER

Iris Chang. *Thread of the Silkworm*. x + 330 pp., illus., index. New York: Basic Books, 1995. \$27.50 (cloth); \$16 (paper).

Iris Chang’s book is a fascinating though admittedly incomplete biography of Tsien Hsue-shen, one of the most intriguing figures in the history of science and politics in the twentieth century. A prominent Chinese-American aerodynamic scientist, Tsien was forced out of the United States during the McCarthy era and went on to direct the Chinese space program, producing, among other weapons, the deadly antiship “Silkworm” missile (thus the title of the book) used against the United States during the Gulf War.

Tsien was born in 1911 in China and studied railroad engineering at Jiaotong University in Shanghai in the 1930s. There he witnessed the Japanese air-bombing of the city, which aroused his nationalism. He switched to the field of aviation in 1935 after he won a fellowship to study in the United States. MIT was his first stop, but he eventually ended up at the California Institute of Technology, where he found a great mentor in Theodor von Kármán and received his Ph.D. in 1939.

Tsien rose through the ranks quickly both at Cal Tech and in national defense circles in the

United States during World War II. He helped Kármán establish the Jet Propulsion Laboratory, directed its propulsion section, and played a key role in the making of the first American missiles. In 1945 Tsien, armed with top-secret clearance, helped the Air Force plan postwar research and development and assisted Kármán in investigating Nazi rocket research. Postwar publication of Tsien’s wartime research firmly established him as a leader in aeronautics, perhaps second only to Kármán. Tsien received accolades from the U.S. military and became a member of the influential Scientific Advisory Board of the Air Force despite his Chinese citizenship. Following another brief stint at MIT and a summer trip to China in 1947, Tsien returned to Cal Tech to take up the prestigious new Robert Goddard chair in aeronautics in 1949. That same year he applied for U.S. citizenship.

Tsien’s phenomenal ascent in the United States ended abruptly in June 1950, when the FBI suspected him of being a communist, claiming that he had attended Party meetings and that his name had appeared on a Party list. Although Tsien denied Party membership, the government nonetheless revoked his security clearance. Shocked and humiliated, Tsien decided to return to China but was ordered not to leave the country. The Immigration and Naturalization Service soon arrested him for hiding his alleged Party membership when reentering the United States in 1947 and wanted to deport him. The military and the State Department, however, insisted that Tsien was too valuable to be returned to communist China. All these events took place within a climate of increasing hostility against Chinese-American scientists such as Tsien in the United States. It was the time of the Korean War, McCarthyism, and persistent racial discrimination. Released from jail on bail, Tsien lived in limbo for the next four years until China and the United States exchanged Tsien and some Chinese students living in the States for American prisoners of war in China in 1955.

Not surprisingly, Tsien met with a hero’s welcome in China and soon began to direct its missile and satellite programs. Learning quickly to adapt to the new political environment, Tsien survived both the antirightist purge of 1957 and the violent Cultural Revolution of 1966 to 1976 by following the prevailing political wind. Joining the Communist Party in 1958, he wrote an article providing “scientific” support for Mao Zedong’s ultimately disastrous Great Leap Forward. Tsien’s loyalty and contributions were richly rewarded by the Communist Party. In both ideology and personality, Tsien became a Party

scientist par excellence. “The greatest tragedy of the Tsien story,” Chang correctly points out, “is the extent to which Tsien himself apparently betrayed his own principles and bought into the system once he returned to China” (p. 263).

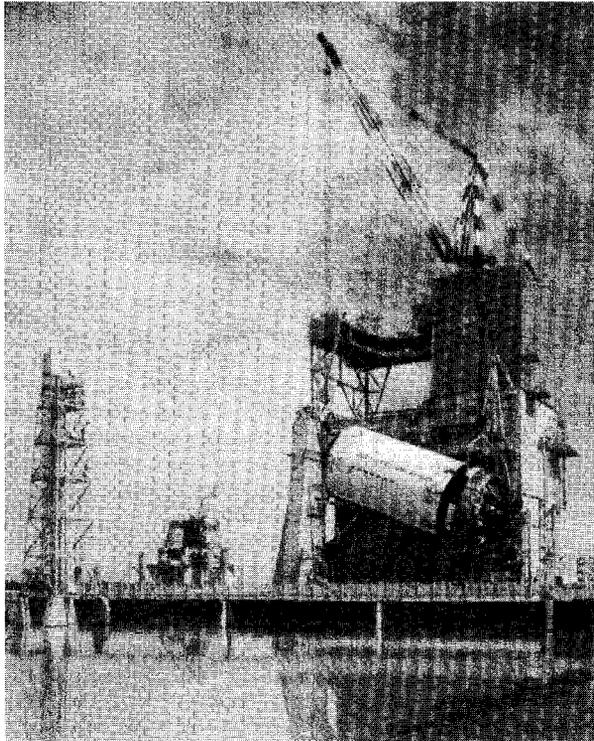
Drawing on interviews with American and Chinese scientists and on archival materials in the United States, Iris Chang, a freelance writer and author, more recently, of the best-selling *The Rape of Nanking* (Basic Books, 1997), deserves great credit for piecing together the story of a complicated scientist-politician as he operated in both the Chinese and American contexts and for presenting it in a narrative that is not only readable but elegant. As much of the material in the Chinese archives—and indeed Tsien himself—is inaccessible, many questions remain unanswered, and the details of his life after his return to China are still very sketchy. Nevertheless, this book is an excellent addition to the burgeoning literature on modern science and politics in China and the United States. I have used it, to-

gether with James Reardon-Anderson’s *The Study of Change* (Cambridge, 1991) and H. Lyman Miller’s *Science and Dissent in Post-Mao China* (Washington, 1996), with good results in a course on science in modern China.

ZUOYUE WANG

Mack R. Herring. *Way Station to Space: A History of the John C. Stennis Space Center.* Foreword by **Daniel S. Goldin.** (NASA History Series.) xviii + 484 pp., illus., figs., index. Washington, D.C.: NASA History Office, 1997. \$37 (cloth).

While NASA’s Johnson Space Center and Kennedy Space Center typically receive much of the public attention bestowed upon the space agency because of their roles in training, launching, and controlling manned spaceflight missions, Mack Herring’s *Way Station to Space* reminds readers that the other NASA centers also play critical



A crane hoists a section of the Saturn V rocket into place on its test stand at the Mississippi Test Facility (from the Stennis Space Center, SSC-67-701C, reprinted in Herring, Way Station to Space, p. 138).