Science at bay

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Science Has No National Borders: Harry C. Kelly and the Reconstruction of Science in Postwar Japan. By Hideo Yoshikawa and Joanne Kauffman. *MIT Press: 1994. Pp. 133. $22.50, £19.95.*

IN November 1945, engineers from the US Sixth and Eighth Armies dismantled the two cyclotrons at Japan's élite national laboratory, the Physical and Chemical Research Institute (Riken), and dumped them in Tokyo Bay. Other cyclotrons at Kyoto and Osaka Universities were treated similarly.

The Occupation Forces justified the destruction on the grounds that the cyclotrons had been used during the Second World War to produce uranium isotopes, as part of Japanese efforts to develop an atomic weapon. But Japan never came close to this goal and by late 1945 Japanese scientists were keen to resume research that had been cut short by the war. For this they needed radioactive isotopes, and cyclotrons were then the most effective means of producing them.

From Science Has No National Borders

Caricature of Kelly by H. Tamiya, 1947.

The destruction of the cyclotrons was denounced by scientists elsewhere, most notably those at Oak Ridge and Los Alamos in the United States, who likened it to the burning of books. Within the Japanese research community, it produced a sense of dread. Which laboratory would be the next to fall victim to the whims of the Occupation Forces?

Scientists at Hokkaido University's Microwave Research Institute were particularly apprehensive. They had built an experimental 'death ray', equipment designed to melt aircraft metal using high-energy electromagnetic waves. Fearing that the apparatus would be destroyed, and that they would be charged with war crimes, the scientists hid their equipment in a schoolhouse in a nearby village.

Much to their surprise, the representative sent from General Headquarters, Tokyo, to investigate their work did not seem interested in reprisals. He was Harry C. Kelly, a 37-year-old American physicist who had been appointed deputy chief of the Scientific and Technical Division of the Economic and Scientific Section, a civilian branch of the Occupation Forces. It was one of his first assignments in Japan.

Having persuaded the Japanese scientists that it would be better for them to come clean and show him their gear, Kelly quickly decided that the prototype death ray, with a range of 20 feet at best, would never be of much military use. But the equipment could be useful for other, peaceful purposes, so, to forestall any further destruction by military personnel, Kelly hung a large sign over the apparatus, which read: "Property of Hokkaido University, Electronic Laboratory, inspected by H. C. Kelly, General Headquarters".

This enlightened and decisive action was characteristic of Kelly, as Yoshikawa and Kauffman make clear:

> Industrious, ambitious, and thoughtful, Kelly traveled throughout Japan, going well beyond the limited scope of the intelligence function he had been sent over to pursue. He believed that establishing an enduring democracy in Japan depended at least in part in the country's economic rehabilitation, and that science would necessarily play a key role in bringing about that rehabilitation. At the same time, he found Japan's scientific establishment deeply entrenched in research traditions that overemphasized basic science, with scant attention to the kind of applied research and development that the country needed to meet its immediate economic needs. Many of the young Japanese scientists Kelly met shared his assessment and his desire to reorganize Japan's scientific establishment.
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> By introducing a policy of mutual trust and by using his resourcefulness to break through bureaucratic barriers, Kelly helped save many scientists and laboratories from punitive action in the early years of the occupation, facilitated the reentry of the Japanese scientific community into the international arena, and helped reorganize Japan's scientific and technological base.

The Japanese were duly grateful to Kelly for his efforts. They awarded him the first honorary membership granted by the Physical Society of Japan and, in 1969, the Order of the Sacred Treasure, Second Class — the highest honour the Japanese government bestows on foreigners. Now, as a further tribute, some 18 years after Kelly's death, comes this excellent book. If there was ever a labour of love, this is it.

The book is the English-language edition of a work that originally appeared in Japanese. But it is no mere translation. Kauffman, who is in the Department of Political Science at the Massachusetts Institute of Technology, has done a marvellous job of restructuring the book for a non-Japanese readership, adding a considerable amount of necessary background information. This is especially welcome given the scant literature on this fascinating period (and indeed, on the history of twentieth-century Japanese science and technology in general).

Although a slim volume, it is densely packed and includes much incidental information of interest to students of the period. For example, it is often forgotten that while Americans predominated, the occupation also included representatives of the other Allied powers. Kelly's boss in the Scientific and Technical Division was an Australian, Brigadier John O'Brien. He and another Australian, Lieutenant Colonel Ted Allen, were responsible for important changes in the Japanese government's style of doing research. Most notable was the creation of the Agency for Industrial Science and Technology, the arm of the Ministry of International Trade and Industry that runs the ministry's (in)famous national research projects.

Kelly was instrumental in setting up key elements of the relationship between science and government in early postwar Japan. These included the Science Council, Japan's unique 'parliament of scientists', and the now defunct Scientific and Technical Administration Commission. Unfortunately, both organs failed to live up to their creators' ideals, as a result of politicization and competition with other, more powerful bureaucracies.

In 1950, after four hectic years, Kelly left Japan to take up a position as assistant director for scientific personnel and education at the newly formed National Science Foundation in Washington, DC. But he always kept his ties with Japan. In 1961 he became the first American co-chairman of the Japan–United States Committee on Scientific Cooperation, a body whose very existence indicates the extent to which Japanese science had recovered its vitality. And after Kelly's death, some of his ashes were brought to Japan for burial next to the grave of his friend Yoshio Nishina, the physicist whose cyclotrons had been dumped so unceremoniously in Tokyo Bay. □

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