Nonfuel Minerals Study

A Nonfuel Minerals Policy Coordinating Committee has just been established by President Carter with instructions to submit its policy recommendations and options to the White House within 15 months. Secretary of the Interior Cecil D. Andrus, who will head this major interagency policy review, says that "rapid changes in the availability and use of critical nonfuel minerals make it imperative that we analyze current policies bearing on the supply and demand picture, as well as the domestic and international implications of changing those policies."

The major focus of the study will be on those minerals regarded as most critical to the U.S. economy, such as copper, aluminum, iron, zinc, manganese, chromium, lead, nickel, and tungsten. The undertaking of such a nonfuel minerals policy review was first proposed (*Science*, 25 November) by a group of congressmen led by Representative Jim Santini, a Democrat from the big mining state of Nevada and a prominent member of the House Interior Subcommittee on Mines and Mining.—L.J.C.

tained . . . impassive and almost antagonistic," toward the arriving Americans. "He seemed to wear a heavy administrative burden." On the other hand, many other Japanese physicists seemed to welcome the Americans with "rueful pleasure," Morrison told *Science*. Morrison recalls that the feelings of internationalism, of a bond among physicists, seemed to reestablish itself between the Americans and the Japanese—with the exception of Nishina. And as for whether Japan had been developing an atomic weapon, he recalls, "they didn't talk about it and we didn't ask about it much."

The Riken buildings and laboratories "looked frayed, unrenovated, starved of attention." In places, work had just stopped and people had gone away. Morrison recalls a single scientist at the Riken named Kimura, who was measuring radiation with two small electroscopes and some chemical equipment. "He cooked and ate and worked in the same room in the laboratory, and was growing some potatoes in the yard. . . . He was doing work that we had done in America with a whole panoply of people. So, as we looked around we concluded this could not have been the site of a Japanese Manhattan Project."

It is not surprising that U.S. scientists visiting Japan, who knew firsthand the "panoply" of installations and people that was the American Manhattan Project, concluded that the Japanese could not have had a comparable project. Arthur H. Compton and E. L. Moreland, who visited the Japanese scientists later in 1945, likewise recommended that the occupation forces "treat them gently," according to a later letter by Vannevar Bush.

So it went in the fall of 1945. Visiting American scientists were sympathetic to Japanese "colleagues" and tended to find no evidence of a bomb project. The Japanese were silent to their American military interrogators; thus the military, by and large, also found no evidence of such a project.

Officially, therefore, the scientists were indeed to be treated gently. The Joint Chiefs of Staff ordered on 30 October that all research facilities and equipment "on atomic energy and related subjects be seized." "No research . . . on atomic energy shall be permitted in Japan."

But a second order authorized on 7 November 1945 by someone in General Groves' office ordered that the two cyclotrons at the Riken, the two at Osaka Imperial University, and the one at Kyoto be destroyed. The order went through channels to MacArthur's headquarters in Tokyo, and was duly executed on 24 to 26 November 1945. American military teams visited each location and proceeded to hack the cyclotrons to pieces. They took the remains, and dumped them into the sea.

The brutality of the act can be seen in the cold words of the American press in Japan which was accustomed to chronicling American victories against the crafty Japanese foe. Wrote the *Nippon Times*:

> Nishina was heartbroken when American officers told him today at 8:30 a.m. that his huge cyclotron was going to be demolished. His secretary broke down and cried.
>
> But secretary Sumiko Yokoyama, composed, was brought in to talk to correspondents before the potential atom smasher. . . .
>
> American officers and scientists talked to her for two days through an interpreter and then found her reading an English book "The Citadel."

The paper added that the "smashed" instruments would be taken "well beyond the 100 fathom mark" in Tokyo Bay "to be sure they are lost in the sea." As though the Americans feared that the Japanese might collect up the broken instruments and glue them back together, *Stars and Stripes* reported, "When the job is finished five cyclotrons and related equipment will have been blown to bits or sunk in the ocean."

The significance of the incident is hard to underestimate. In the furor which arose in the United States, scientists' and citizens' groups, from Oak Ridge to the University of Michigan Medical School, protested to the Secretary of War. For the most part they were told that the destruction order had been a mistake. But this confession of error only whetted the appetites of many of the scientists, who had become embroiled in the weeks since Hiroshima in a fight for future civilian control of atomic energy. The destruction of the cyclotrons was used, in congressional testimony and elsewhere, to show how insensitive the military would be to the special needs of science and scientists.

Admiral Nakamura "Talks"

But was the destruction completely mindless? Did Groves' office—to which flowed all Allied intelligence on atomic energy matters—know of the wartime use to which the cyclotrons had been put? The curtain of silence may have at one point lifted.

A document in the collection of M.I.T.'s Weiner is by Colonel Manson of General Headquarters in Tokyo and dated 10 October 1945—that is, after Hiroshima but before the Groves order to destroy the cyclotrons. In it a certain Rear Admiral Nakamura reports in detail on atomic bomb research conducted during the war at Kyoto University. Among other things, it says that the project included the construction of a cyclotron.

Weiner notes that so far there is no evidence that the report was forwarded to Washington and reached Groves' office. But its existence suggests that some Americans learned of the wartime atomic research and concluded that the cyclotrons should be destroyed.

Moreover, documents in the U.S. National Archives show that the military repeatedly hinted that the fate of the Japanese cyclotrons might have been justified. In separate questions from two reporters, for instance, both the Secretary of War and Groves were asked what they would have done if they had had a chance to review the order before it was sent. They both replied in identical lan-