
AT THE HARRIMAN INSTITUTE

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Politics, Nuclear Energy and Chernobyl

Paul Josephson gave a presentation at the Harriman Institute October 22 on politics, nuclear energy and Chernobyl. Josephson is an Assistant Professor at Sarah Lawrence College. He outlined the politics of nuclear power from the 1950's to the present and discussed the ideological and philosophical environment in which the poorly designed and inadequately supervised experiment was conducted which resulted in disaster at Chernobyl. Josephson noted that since the 1950's Soviet scientists have contributed to and benefited from a "cult of science" based upon post-war successes in the development of nuclear weapons, atomic power -- the Soviets built the first nuclear power reactor to generate electricity in 1954 -- and space exploration, as well as the environment of de-Stalinization. As a result, scientists were able to create a nuclear power program with substantial institutional and technological momentum, and little external control.

History of Soviet Nuclear Power

At the historic 20th Party Congress in 1956, Igor Kurchatov, the "father" of the Soviet atomic bomb project, put atomic energy on the political agenda with "almost fantasy-like projections -- nuclear powered locomotives, rockets, airplanes and automobiles." General Secretary Nikita Khrushchev also "had a major role in the development of nuclear power and other large scale technological projects." Khrushchev took a personal interest in nuclear energy and accompanied Kurchatov to Harwell, the major British nuclear research facility, in 1956. By the 21st Party Congress in 1959, the Soviet leadership included a nuclear energy program in the Sixth Five-Year Plan. Except for the use of isotopes in agriculture and industry, however, the Soviets did not meet any of their early nuclear power goals.

"In the 1960's the development of fossil fuels still took first place in the Soviet national energy program. Nuclear power remained on the back-burner," Josephson said. But since most fuel resources are in Siberia and most of their population in the European part of the U.S.S.R., the Soviets understood that energy extraction and transporta-

tion costs would rise, making nuclear power economically feasible. The program of the 22nd Party Congress in 1961 dictated that atomic energy should become a back-up to fossil fuels only when this occurred. There was also resistance over safety issues at this time, especially in areas where reactors were planned. Scientists dismissed these concerns, but the opposition had some effect and the nuclear program "did not take off until the late sixties, when fossil fuels became harder to get and more expensive."

Authorities took several steps to cut down costs in producing nuclear energy. Soviet scientists believed that larger, mass-produced reactors would lower costs, and set out to build them on a serial basis. Reactors were planned at 1000 to 2400 megawatts -- "a size that would never be licensed in the United States." The Soviets began to use standardized forms and prefabricated components, with less steel, less hardened concrete, and little if any containment. The Soviets also planned to build a network of breeder, or fast reactors for fuel cycle considerations; several of these are in operation now. In the late seventies and eighties, "reactor construction began in earnest."

The Causes of Chernobyl

How could Chernobyl occur? Josephson explained that the immediate cause of the accident was a badly designed experiment gone awry. In the United States such an experiment would have to be granted permission from an outside review panel. But in the Soviet Union one bureaucracy, the State Committee for the Utilization of Atomic Energy, is in charge of administration and promotion *and* regulation of reactors. Josephson suggested that "the State Committee was captured by the industry it was supposed to regulate." Additionally, "typically shoddy Soviet workmanship may have contributed to Chernobyl." One Soviet factory that built reactors was so badly designed that its main foundry collapsed. In fact, "in the late 1970's, Chernobyl was seen as a blueprint for future efforts at serial production of nuclear power." There was even talk then of building up to six reactors in addition to the four already planned for Chernobyl.

The Soviet power authorities stressed speed of construction over quality of work. They held the typical Soviet "belief in mass production as the highest virtue of technology... with an emphasis on faster production." Josephson posited that this belief is rooted in Marxism itself. The Soviets consider science "a direct, productive force" and "see it as a panacea for social, economic and political problems." Many countries share this fascination with technology, but in the Soviet Union it plays an oversized role since it is reinforced by ideology and propaganda. Arrogance has resulted as "scientists are

viewed, in large part, as infallible, and the fruits of their work are as well."

Ignoring the Warnings

A lax view toward safety was part of this arrogance. Josephson noted that there is some question whether the Soviets subscribe to "depth in defense" in reactor design as is common practice in the West. Until quite recently they built little containment and did not use reinforced concrete. They also put several reactors at the same location, sharing certain vital equipment. So great was the faith in these plants that the authorities "liked to place reactors in scenic areas and parks, a sort of 'machine in the garden,' combining technology and nature." The Chernobyl reactors are located in a nature reserve. While

some engineers have urged greater caution -- a 1979 *Kommunist* article by two scientists, Koriakin and Dollezhal', criticized placing multiple reactors near cities -- the effect on the Soviet nuclear program has not been great.

Josephson concluded by noting that "all of these factors helped to create an environment in which the shortcomings of the nuclear power industry were ignored. Soviet attitudes toward technology as a panacea and symbol of national achievement explain why the U.S.S.R. pursued nuclear energy so aggressively, with disastrous results at Chernobyl."

Reported by Paul Lerner with assistance from Rob Monyak

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