

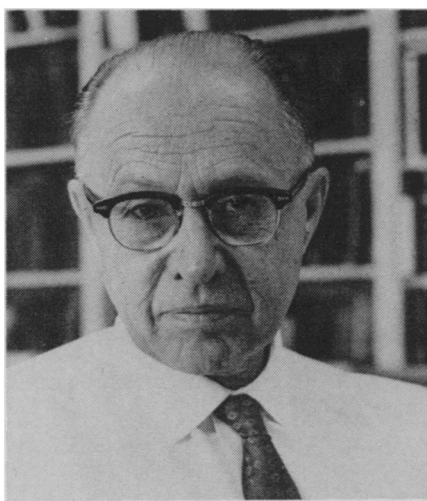
## Chemists and society: A call for involvement

Spring brings new things. Among them are the most recent advances in science, communicated at the annual spring round of scientific conventions. This week more than 6,000 chemists came to Boston for the 163rd annual meeting of the American Chemical Society. They listened to and delivered about 1,500 scientific papers. But more than a forum to exchange scientific data, these meetings allow scientists to exchange ideas and debate new trends.

For example, one contingent of the ACS discussed moving away from the traditional educational and scientific aspects of the Society's original charter toward a more professional outlook like that of the American Medical Association. This movement to have the ACS become more aggressive in speaking out on behalf of the interests of its members has been gaining momentum in the past year and has caused much controversy. Another growing movement in the ACS was represented by the presence of the Scientists and Engineers for Social and Political Action (SESPA). This was the first time the Science for the People group attended a national ACS meeting. Their number was small and their activities low-keyed compared with what they have done at other meetings (SN: 1/1/72, p. 5), but their basic attitude was well represented at the meeting. The movement toward social involvement by scientists is growing among the chemists.

This was evident in the number of papers devoted to the environment, consumer affairs, medical and nutritional advances. It was more evident when the chemists presented their highest award, the Priestley Medal, to Harvard chemist George B. Kistiakowsky. He discussed "this extraordinary change in the attitude of scientists" and said he hopes to give it a boost.

"The exalted status of science has disappeared," said Kistiakowsky. "The social upheaval around us and the



Harvard Univ.

*Kistiakowsky: Involvement is a must.*

changing role of science in society make our involvement imperative," he said. Among the problems he noted were population growth, depletion of natural resources, degradation of the environment and poverty.

He especially attacked science's heavy emphasis on military and private gain. An authority on explosives, Kistiakowsky himself is his own best example. "As a stooge of the military," as he puts it, he helped design the trigger device of the first atomic bomb. But as a special assistant to President Eisenhower for science and technology, and chairman of Eisenhower's Science Advisory Committee, he started thinking about the role of technology versus hu-

manity. These ideas developed out of private conversations with Eisenhower and discussions of the danger of a military-industrial complex. Kistiakowsky came to the conclusion that "we as scientists cannot continue on the same scale without being of service to society . . . especially in an involvement in converting new scientific knowledge into practical uses for mankind. We must join with nonscientists to fight the evil and support the good uses of science."

Kistiakowsky is against classified research in universities, but he said scientists must continue to accept such military contracts. If they do not accept, someone else will, and it is increasingly important that the scientists know what the military is doing. Scientists must, however, be selective in their research for the military, discuss their findings and possible applications with colleagues and insist on the right to publish. "It would be too simplistic," he said, "to just stop taking military money." The military needs the input of the rest of society in order that it not grow too strong and not become totally self-contained.

"The most dangerous possible development for our free society is the growth of a totally self-contained 'military-industrial complex' that comprises all elements of the technological arms race," he said.

Kistiakowsky says he hopes to help change the role of science in society. "I hope this is not just rhetoric. I am preaching evolution not revolution." □

## Argonne aims at a superconducting accelerator

Particle accelerators dissipate much of their power in the form of heat. In linear accelerators most of the loss occurs because of electrical resistance in the waveguides that generate the radio-frequency waves that accelerate the particles. Most of this power loss could be avoided if the waveguides could be made to be superconducting, or resistanceless.

Physicists and engineers in several parts of the world have been trying to build superconducting accelerators, but they have run into severe difficulties because of instability in the metal of choice, niobium. Experimental waveguide sections built of niobium perform well at first but over time the Q, the ratio of power delivered to the accelerated particles to power lost, deteriorates to unacceptable levels.

This week Argonne National Laboratory announced that a group working there and also some workers at the nuclear physics institute in Karlsruhe, Germany, have discovered a fairly simple way to prevent the deterioration of niobium waveguides. It consists of anodizing them so that their surfaces are



Argonne

*An anodized niobium waveguide coil.*

covered with a layer of niobium pentoxide.

According to Lowell M. Bollinger of Argonne, no one yet knows why the anodizing works, any more than they know why the bare niobium breaks down. "We don't know what the physics is," he says.