News of Science

Visit to Moscow

The American physicists who recently spent 10 days in Moscow [**123,** 834 (11 May)] report that they were permitted to visit any physics experimental facilities and laboratories they desired.

"They asked us to tell them what we wanted to see," one scientist said. "We saw everything we wanted. They answered every question. We were permitted to bring our cameras right into their experimental laboratories and take pictures of everything we wanted."

Members of the group also learned of the difficulties that many Soviet scientists encountered during the Stalin era. Some of the most brilliant physicists were kept under surveillance, arrested, or exiled during the years between the end of World War II and Stalin's death. Victor F. Weisskopf of the Massachusetts Institute of Technology, who speaks Russian, said Soviet research was already benefiting from the return to universities and institutes of scientists who had been held in labor camps. He commented that the release of prisoners, both scientists and ordinary citizens, had gone far to eliminate the atmosphere of fear in the country.

One American who had extensive private conversations with one of the most distinguished Soviet research men said that he was amazed to find that "Russia had its own versions of the Oppenheimer case. . . . I learned of Russian scientists who were subjected to similar treatment —or worse—by the Soviet Government because they refused to engage in certain lines of weapons research which the Government demanded."

Jack Steinberger of Columbia University said that the Soviets had already virtually assured a world lead in high-energy physics for the next decade. He commented that the U.S.S.R. had achieved this position by winning an equipment and construction edge over the United States. Steinberger described the new physical research center, the Institute for Nuclear Problems and the Electro-Technical Institute, that is being built at Bolshoya Volga, near the junction of the Moscow-Volga canal and the upper Volga River.

The center has a 680-Mev cyclotron that Steinberger said was superior to similar American machines. The visitors also saw a new 10-Bev accelerator that is virtually complete but has not yet gone into operation. This machine is almost twice the size of the largest comparable American facility, the 6-Bev accelerator at Berkeley, Calif.

Steinberger said that the Soviet apparatus weighs about 4 times more than the Berkeley apparatus, cost well over $100 million, and was built in about half the time it would have taken in the United States. However, despite the excellence of Soviet equipment, Steinberger felt that the level of Soviet experimental work was no higher than in the United States and in some respects possibly inferior.

An editorial in a recent issue of the Washington D.C., *Evening Star* made the following comment about the Moscow visit.

"Such information is well worth having, and it points up the value of exchanging visits with the Soviet Union along the lines advocated by President Eisenhower. This two-way street to knowledge can be traveled without endangering our security; indeed, it may actually help us in that sense. There is no monopoly in the field of abstract or applied science. We can learn from the Russians just as they can learn from us. It would be narrow-visioned of us, and self-denying, if we insisted upon maintaining a wall of intellectual censorship between our two countries.

Biological Effects of Atomic Radiations

Summary reports of a year-long study of the biological effects of atomic radiations were released 13 June by the National Academy of Sciences. The reports, which are the first in a series of continuing studies, were prepared by committees of scientists in each of the following fields: genetics, pathology, meteorology, oceanography and fisheries, agriculture and food supplies, and disposal and dispersal of radioactive wastes. The chairmen of the respective committees were Warren Weaver, vice president for the natural and medical sciences of the Rockefeller Foundation; Shields Warren, director of the New England Deaconess Hospital, Boston, Mass.; Harry Wexler, director of meteorological research of the U.S. Weather Bureau; Roger Revelle, director of Scripps Institution of Oceanography; A. Geoffrey Norman, professor of botany at the University of Michigan; and Abel Wolman, professor of sanitary engineering at Johns Hopkins University. The committees were appointed by Detlev W. Bronk, president of the NAS, and the work was supported by a grant from the Rockefeller Foundation.

The reports summarize present knowledge in the six fields and point out areas in which further research is most needed. The full report of each committee is to be published in monograph form by the NAS at a later date. The texts of the summary reports are available now from the NAS; they will also be published in subsequent issues of *Science*. A brief summary of some of the findings and recommendations follows.

Atomic weapons testing has not raised world-wide radiation to levels significantly greater than those resulting from natural radioactivity and dental and medical use of x-rays. Since all radiation is harmful, the dose should be kept as low as possible. Records should be kept of every individual's exposure to x-rays and other gamma radiation. Medical experts should initiate a vigorous movement to reduce exposure to x-rays to the lowest limit that is consistent with medical necessity. Humanly controllable sources of radiation should be restricted so that the general population shall not receive from such sources more than 10 roentgens, in addition to background, as a total accumulated dose from conception to age 30.

Improved techniques for monitoring world-wide fallout should be developed. Any large increase in the release of strontium-90 might be a matter for serious concern.

One of the pathological effects of radiation is a general increase in the rate of aging and a consequent shortening of life. Dose levels such as those the geneticists believe reasonable, or as have been established for persons working with radiation, have not been shown to have this effect.

Radiation from fallout inevitably contaminates the food supply. At present, the contamination is negligible, but the maximum tolerable level of radioactivity in food is not known.

Research through the use of radioactive tracer materials offers promise in the study of biochemical reactions, in the charting of ocean and air currents, and in the study of interrelationships among marine animals. However, such investigations may be possible only within the next 10 to 20 years, for in-