

AEC Spending Many Millions in Worldwide Survey To Check on Whole Radiation Field

BY JOSEPH L. MYLER
United Press Staff Correspondent
 Washington, D.P.—The Atomic Energy Commission is spending many millions of dollars in a continuing worldwide survey called Project Sunshine.

Other agencies studying the whole radiation field are the National Academy of Sciences, the British Medical Research Council, and a 15-nation scientific committee of the United Nations. Project Sunshine—now about three years old—is particularly interested in radioactive strontium-90, by far the most serious global menace of nuclear explosions.

Sunshine collects radioactive fallout from bomb tests at more than 90 stations in some 35 countries and territories. It tests soils in all of the Earth's major geographical regions for their Sr-90 content. It also samples milk in Mississippi, England, Japan, and many other widely separated places.

Practically all of the sciences are involved in Project Sunshine. Research on the processes by which Sr-90 gets from the bomb to the person. The AEC's Merrill Eisenbud has described the operation's scope this way: "From the standpoint of its vast geographical dimensions and the variety of scientific mechanisms involved in the investigation, Project Sunshine rivals the most comprehensive scientific studies ever undertaken."

No Secrets
 Project Sunshine's data are not secret. But it does take technical competence to understand and translate them. They are pouring in and being updated all the time.

The great bulk of Sr-90 flung into the stratosphere resulted from explosions in 1954, 1955, and this year. These explosions totaled 30 megatons of fission energy. Atomic Commissioner William F. Libby estimates that at least 7,500 megatons could be added before the world's human inhabitants would receive one safe MPC occupational.

Reduce the occupational MPC 10- or 100 times, as variously proposed by critics of the test program, and you get correspondingly lower figures for the safe megaton total. You get 750 or 75 megatons.

When you consider that the 1954 U.S. Castle tests alone contributed 24 megatons, you can understand why both the government and scientists are concerned.

The rate fell off sharply in 1955 and 1956 to an average of three megatons a year. Libby says that if tests continued for a century at this rate, mankind would get only about six-five-hundredths of an occupational MPC.

At the Castle rate, however, it would be a different story. "If we tested indefinitely, year after year at the rate of Castle and with bombs as dirty as Castle's we'd get in trouble," Libby says, "and we wouldn't do it."

So this country has turned to smaller, "cleaner" test weapons exploded at or near the surface to keep fallout as local as possible.

One fact that has worried scientists is that Sr-90 is a worse hazard in areas where the soil is low in calcium. The amounts of radio-strontium taken into plants is higher in such areas than elsewhere. Wales is such an area. Its soil has 50 times less calcium than the average for other regions.

But Project Sunshine research indicates that Sr-90 acquisition by human beings is by no means directly proportional to the amount of calcium in the soil. According to official estimates, Welshman should have no more than double the world average of radiostrontium.

In October, Libby estimated this world average would be about four-thousandths of an occupational MPC when all Sr-90 from tests to date had completed its slow descent and humans had taken up all they were going to. Libby said recently that new Project Sunshine data indicate this figure probably is too high and that the actual world dose will be lower.

People always have been bombarded by nuclear radiations—from naturally unstable atoms like radium or potassium, and from cosmic rays. Libby says cosmic rays penetrating the body leave "tracks" similar to radiostrontium's.

Cosmic radiation intensity increases with altitude. According to Libby, the effect of Sr-90 on people up to now has been about the same as if everybody on Earth

moved 30 feet higher. And when all of it now suspended comes down and man gets his share, the effect will be as though everybody had moved up 3,000 feet.

Or, as Libby says, "as though everybody had moved from Washington to Denver." Tests aren't the only producers of Sr-90. Peacetime atomic reactors also produce it. The Na-

tional Academy of Sciences says that by the time a worldwide nuclear power industry is developed, if it ever is, its accumulated wastes "might represent more radiation than would be released in atomic war."

Such wastes are not, of course, broadcast around the world. But their existence creates a disposal problem of tremendous magnitude which isn't even close to

solution now. It is the menace of Sr-90 from the big fission explosions, however, that worries the scientists, inside and outside the government. Suppose the nuclear arms race gets hotter. Suppose other nations, in addition to the United States, Russia, and Great Britain, get into the competition, and test mushroom. Suppose other nations do not

follow this country's example, and do not abandon testing of bombs both big and dirty. Dr. Ralph E. Lapp, writer on nuclear affairs, sees no reason to believe the test rate will be stationary.

Deadline Nears
 Suppose, as Dr. Lapp believes, that the "upward arc of bomb testing is proceeding out of control." By 1962, Lapp fears,

enough Sr-90 may have been "committed to the stratosphere" to give every person on the planet his occupational MPC. These possibilities may or may not be probabilities. The experts weigh them differently. And there has been much scientific and political controversy over how best to seek a world curb on nuclear explosions. But there is no disagreement

that eventually there must be such controls and that, in any event, without nuclear war must never be allowed to happen if man wants to maintain his residence on this planet. Some of the control problems seem at times to be almost insoluble. So also do the problems of atomic power waste disposal. But the time approaches when they must be solved—when, as

the National Academy of Sciences says, "We had better be ready with the answers."

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