

Statement
by
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During the past two weeks there has been, as you know, a considerable public discussion about radioactivity and the effects on health caused by the presence of radioactive elements in air, milk, water, and other foods.

Some of the discussion has resulted from the release of the Public Health Service of its reports on radioactivity in milk.

I think it is desirable to emphasize several points.

1. Radiation is not new in our environment, but the production of radiation in the nuclear age are undoubtedly growing and will be with us from now on. These problems cannot and should not be minimized.

2. There are many sources of radiation, including cosmic rays ~~from the sun~~ and medical X-rays, none of which contribute more than fall out to the total radiation to which the population is exposed.

3. Many scientists are seriously concerned with the effects on human beings of repeated small exposures, and additional research is being done by the Public Health Service, the Atomic Energy Commission, and others to ascertain these effects. We are also planning to enable the Food and Drug Administration to help us in this area.

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4. Our scientific information at this time is not sufficient to evaluate precisely the long term health effects of the ingestion of radioactivity now contained in water, air, milk and other food stuffs. ~~When we are asked, for example, whether the current situation is contributing to an increase in leukemia, the only answer we can give is that we do not know.~~ Continuing and expanding efforts will be made to put ourselves in a position to make precise evaluations.

5. The Public Health Service has repeatedly emphasized that the amount of radioactivity found in milk is well within the safe limits as established by the National Committee on Radiation Protection and Measurement. These limits are the long benchmarks for public health. (Attached is a brief statement about this committee and the role of its members of its executive committee.)

6. Some of the figures in the milk studies have been misunderstood and need further explanation.

7. The Public Health Service has proposed a further major stepup in its expanding radiological health activities.

You will note in the attached statements that both the Public Health Service and the Food and Drug Administration are heavily engaged and have responsibilities in this area. It is apparent that the activities carried on in connection with these responsibilities will continue to be substantially strengthened ~~in the years ahead~~ in order to cope with the health problems which radiations are increasingly presenting.

With respect to the hazards of radiation, we should remember that according to present theory, any radiation may be hazardous to health. The degree of hazard may be great or negligible depending on many factors--strength, duration of the exposure, the part of the body exposed, previous exposure, and so on.

Surgeon General Burney advises us some of the harmful effects that can result from radiation, and about which there is concern, are genetic mutations, the shortening of the life span, and increased incidence of certain types of cancer, including leukemia.

The Atomic Energy Commission has been conducting studies on a broad basis for five years, including studies of radioactive elements in water, air, and soil as well as human bone and some food stuffs. Studies which have been undertaken more recently by the Public Health Service supplement some of the studies by the Atomic Energy Commission.

With respect to the Public Health Service's milk sampling and the reports on it, we need to take into account a number of factors.

Milk was chosen for our initial study among the foods for several reasons. One of the radioactive isotopes of most concern is strontium-90, because this element has a much longer life than the isotopes, because in the biochemical processes of the body, strontium-90 is deposited in the bones, and because strontium-90 is present in milk. Since milk and milk products properly prepared are a large part of our national diet, it is likely that a considerable portion of the strontium-90 that stays in the body comes from milk and its products.

In addition, of course, milk is produced in all parts of the country all year and is thus readily available for an extended period of study.

As published reports of the Food and Drug Commission, the Public Health Service, and other studies show, strontium-90 is not only an active element but is also present in wheat, soy beans, water, milk, grass, and in the soil itself.

With respect to possible misunderstandings about the figures contained in the Public Health Service monthly reports on radioactivity in milk, it is important to remember that they should be considered in relation to other figures. The National Committee on Radiation Protection and Measurement, on the basis of the scientific criteria available to it, has set maximum permissible limits for lifetime exposure of the individual to specific radiation and radioactive materials.

These limits were adapted from safety standards for persons working in close proximity to sources of radiation, such as radiotherapy technicians. The occupational permissible limits were divided by 10 to produce permissible limits for the general population.

For strontium-90, for instance, the Committee's calculation indicates for a maximum permissible concentration of 20 micromicrocuries per liter of water or milk. This means that on the basis of present knowledge, the average concentration of strontium-90 in all items of the diet--water, meats, vegetables, bread, etc.--could be 20 micromicrocuries per liter (or per kilogram--2.2 pounds) for a lifetime without exceeding the maximum permissible concentration.

(A curie is the amount of radioactivity in one gram of radium. A micromicrocurie is one millionth of a curie.)

Average yearly levels of radioactivity in milk are far more significant than monthly levels because they are averaged over a year and are more accurately comparable with lifetime permissible limits. For example, in St. Louis, Missouri, the level of radioactivity in milk dropped from 20.5 micromicrocuries in October 1958 to 15.6 in November 1958 (which then dropped back to 15.6 in December). The average level for the year ended October 1958 was 11.4 compared with 12.8 as the average level for the year ended November 1958. This yearly average rate is 12.8 compared with the 80 micromicrocuries currently used as the lifetime permissible limit rate.

I am advised--and it should be emphasized--that these lifetime permissible limits are only calculated estimates. They will be expected to change as more and better scientific data are developed on the active elements and their effect on the human body.

For example, I understand that already there have been proposals to consider lowering the recommended levels for some elements such as strontium-90. Further consideration should be given to strontium-90 which is distributed and retained in the body. A great deal more research is needed to provide data for a more definite correlation between the amount of strontium-90 in food stuffs and their retention in the body.

For the time being the current maximum permissible level represents the most informed scientific opinion available to us.

However, when the total amount of radiation to which a person is exposed is increased, measures should be taken to reduce the level of exposure.

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which we have some control. It is for the Public Health Service to advocate several years ago the abolition of X-ray machines and shoe stores for fitting shoes, and a year ago the substitution of X-ray tests for mass X-ray surveys as the first step in detecting cancer.

Last September I discussed at a press conference the general activities conducted by the Department in the field of radiation.

We are now working with the Food and Drug Administration to determine what can be done to enlarge its capabilities for carrying out its statutory responsibilities as they relate to the field of radiation.

With respect to the Public Health Service program, the President's budget for 1960 calls for slightly more than a doubling of the activities of the Public Health Service in the field of radiation. The request is for an appropriation of \$1,438,100, an increase of \$808,800, the largest single increase in the Public Health Service. This is in addition to about \$2 million being devoted to the study of radiation in the National Institutes of Health through grants in-aid and in the several Institutes. The expanded Public Health Service effort would be made available for research, technical assistance to States and communities, and training of personnel.

Dr. Burney advises me that this research will have as its objective the development of better knowledge concerning the effects of radiation on the human body. To obtain more knowledge in this respect on the problem, studies will be made in a few types of populations, including those exposed to radiation in industry and individuals exposed to radiation for medical diagnosis and therapy.

In addition, the research would see to simplify and standardize tests used to measure those radiation levels which affect people. With such standardized methods, a national system could be developed with the help of State and Territorial public health agencies. For analyzing and exchanging information on radiation.

Technical assistance to the States and communities would include the assignment of trained Public Health Service personnel to selected State, local, and regional offices. It would also include a request to identify and assess nationwide radiological health research. One aspect of this survey would be to identify personnel who might be easily trained for work in radiological health.

The training activity would cover expansion of the available number of professionally trained persons responsible for direct field national and State program activities in radiological health. The experience gained in these training activities would be applied in the training programs conducted by State and local health agencies.

I feel that these steps are essential in facing the radiation problem that, if taken, they can provide fruitful results on which to build additional knowledge and measures for health protection against radiation.

It is quite clear that the problem of radiation in our environment is one we must learn to live with. In fact, it has already been with us. It has national and international implications of a most complex nature. As I have indicated, we need, as a first objective, to know much more than we know now about the whole subject. The type of help this Department is to aid in this effort is every way possible.