STATEMENT

By Arthur S. Flemming, Secretary of Health, Education, and Welfare, at press conference on March 16, 1959

Public Exposure to Radiation

DURING the past 2 weeks there has been, as you know, considerable public discussion about radioactivity and the effect upon health caused by the presence of radioactive elements in wheat, milk, water, and other foods.

Some of the discussion has resulted from the release by 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 problems of radiation in the nuclear age are obviously growing and will be with us from now on. These problems cannot—and should not—be minimized.

2. There are many sources and kinds of radiation, such as cosmic rays and medical X-rays, some of which contribute more than fallout to the total radiation to which the population is exposed.

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

4. Our scientific information at this time is not sufficient to evaluate precisely the long-term health effects of the small amounts of radioactivity now contained in water, air, milk, and other foodstuffs. 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 tolerable limits as established by the National Committee on Radiation Protection and Measurement. These limits are the only benchmarks now available.

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 step-up in its expanding radiological health activities.

Both the Public Health Service and the Food and Drug Administration of this Department have responsibilities in this area. It is apparent that the activities carried on in connection with these responsibilities will need to be substantially strengthened in order to deal with the health problems which radiation increasingly presents.

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 me that some of the harmful effects that can result from radiation, and about which there is concern, are genetic mutations, the shortening of the lifespan, and increased incidence of certain types of cancer, including leukemia.

The Atomic Energy Commission has been conducting studies on a broad basis for 5 years, including studies of radioactive elements in water, air, and soil as well as human bone and some foodstuffs. Studies which have been un-

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dertaken 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 study 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 most isotopes, because in the biochemical processes of the body some strontium-90 is deposited in the bones, and because strontium-90 is present in milk. Since milk and milk products properly represent such a large part of our national diet, it is likely that a sizable proportion 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 uniform scientific study.

As published reports of the Atomic Energy Commission, Public Health Service, and other studies show, strontium-90 and other radioactive elements are also present in wheat, soybeans, water, air, 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 opinion 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 medical X-ray technicians. The occupational permissible limits were divided by 10 to provide permissible limits for the general population.

For strontium-90, for instance, the committee's current recommendation for a maximum permissible concentration is 80 micromicrocuries per liter of water or milk. This means that on the basis of present knowledge the average concentration of strontium-90 among all items of the diet—water, meats, vegetables, bread, and so on—could be 80 micromicrocuries per liter (or per kilogram—2.2 pounds) for a lifetime without exceeding the current maximum permissible concentration.

(A curie is the amount of radioactivity in 1 gram of radium. A micromicrocurie is one millionth of a millionth of a curie.)

Average yearly levels of radioactivity in milk are far more significant than monthly levels because the yearly averages are more accurately comparable with lifetime permissible limits. For strontium-90, for example, there was an increase in St. Louis, Mo., from 12.2 micromicrocuries in October 1958 to 20.1 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 12.5 as the average level of the year ended November 1958. This yearly average is to be compared with the 80 micromicrocuries per liter currently used as the lifetime permissible concentration.

I am advised—and it should be emphasized—that these so-called permissible limits are only calculated estimates. They will be subject to change as more and better scientific data are developed about radioactive elements and their effect on the human body.

For example, there has already been some public discussion related to lowering the recommended levels for some elements, such as strontium-90. Further consideration should be given to the amount of strontium-90 which is distributed and retained in the body. A great deal more research is needed to provide data for a more accurate correlation between the amounts found in foodstuffs and their lodgment in the body.

For the time being the current maximum permissible limits represent the most informed scientific opinion available to us.

However, when the total amount of radiation to which people are exposed is increased, measures should be taken to reduce radiation over which we have some control. This led the Public Health Service to advocate several years ago the abolition of X-ray machines used in some stores for fitting shoes, and a year ago the substitution of skin tests for mass X-ray surveys as the first step in detecting tuberculosis.

Last September I discussed at a press con-

ference the range of 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 Department's budget for 1960 calls for slightly more than a doubling of the capabilities of the Public Health Service in the field of radiation. The request is for an appropriation of $1,439,100, an increase of $805,000 and the largest single increase in the Public Health Service. This is in addition to about $2 million being devoted to the study of radiation by the National Institutes of Health through grants-in-aid and in its own laboratories. The expanded Public Health Service effort would be made in three categories—research, technical assistance to States and communities, and training of personnel.

Dr. Burney advises me that this research will have as its aim the development of better knowledge concerning the effects of radiation on the human body. To obtain more knowledge in this aspect of the problem, studies will be made in two types of population groups—individuals exposed to radiation in industry and individuals exposed in the course of medical diagnosis and therapy.

In addition, the research would seek to simplify and standardize tests used to measure those radiation levels which affect people. With such standardized methods, a national system could be devised, 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 survey to identify and assess nationwide radiological health resources. One aspect of this survey would be to identify personnel who might be most readily trained for work in radiological health.

The training activity would cover expansion of the existing number of professionally trained persons responsible for direction of national and State program activities in radiological health. The experience gained in these training activities would be applied to the training programs conducted by State and local health agencies. I feel that these steps are essential in the fiscal year 1960, and 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 always 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 learn much more than we know now about the whole subject. Our objective in this Department is to aid in this effort in every way possible.

Human Genetics Research Training

A 5-year program to train research scientists in human genetics will begin September 1959 at the University of Pittsburgh Graduate School of Public Health. The university has received a $16,000 grant from the Public Health Service for the first year.

Designed for students of biology with a master's degree, the course covers the hereditary aspects of various diseases, particularly those important to public health. The plan of study will be tailored to the background and research interest of the individual student. Dr. Ching Chun Li, associate professor of biostatistics and president-elect of the Society of Human Genetics, will direct the training.