

of radiation, let me say that radiation—among more than a thousand other agents, *can* cause cancer. But exposure to radiation does not necessarily—or even often—*result* in cancer.

Our best and most detailed knowledge about radiation-produced cancer is derived from large acute exposures of 100 to 400 rads to the whole body, such as resulted from the Japanese bombings, and from the much larger

therapeutic exposures to limited portions of the body. An exposure of 100 rads is 1,000 times greater than the annual exposure from natural radiation which we all receive.

Below 100 rads, injurious effects are rarely detectable when received in one short exposure, and even more rarely detectable if spread over a year. Ill-defined exceptions may be leukemia, cancer of the thyroid, or breast cancer. Only sophisticated statistical

studies of large numbers of people not exposed (other than to natural radiation), can allow for detection of injurious effects caused by low exposure.

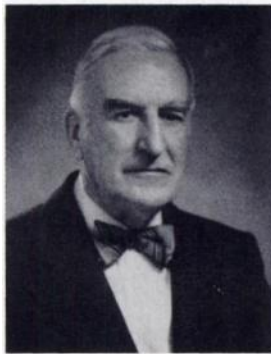
In a large group of people exposed acutely, that is about 450 rads all at once, half will die within a month. Acute exposures of 800 rads are lethal. Some people use the results of these high exposures to try to deter-

(continued on page 120)

COMMENTARY:

EXPERTS MUST EDUCATE THE PUBLIC

Ever since the nuclear weapons testing programs in the mid-1950s, there has been an acute public concern over the hazards of ionizing radiation. The concern has been enhanced by a variety of causes, mostly self-serving to those who wish to exploit some position of their own or of some larger group of which they are a part. Some of these exploitations are aimed at acceptable purposes, but are carried out under a cloud of ignorance or



misunderstanding of the fundamental facts about ionizing radiation and its potential hazards. Other exploitations are clearly carried out with malicious intent and justified by whatever "righteous" cause the promoter may be supporting. Still other exploitations are through individuals seeking personal financial gain, publicity or public approbation, or votes. Whatever the reason, the end result is a public fear where there is no valid reason for one. The main purveyors of this "disease of fear" are the news media.

On the other hand, advocates of education and of understanding the radiation problem are found today, as they have been in the United States for the past five decades, in such public, nongovernmental groups as the National Council on Radiation Protection and Measurements (55 years) or

the National Academy of Sciences (25 years). At the international level there are the International Commission on Radiological Protection (55 years) and the United Nations Scientific Committee on the Effects of Atomic Radiation (25 years). Collectively these bodies are made up of thousands of the world's leaders involved in matters of protection against ionizing radiation, yet collectively they are not succeeding in overcoming the pernicious influence of the world's news media.

The reason is not hard to find. Their studies, findings, and recommendations are fully available, but not without a small cost to the user. Although they are as scientifically flawless as scientists know how to make them, as far as the general public is concerned, these studies, findings, and recommendations make for very dull reading, as only scientists know how to make them. The problem is that the facts are primarily technical and, hence, are difficult to explain to the nonscientifically trained general public. Some of the efforts of the NCRP are an attempt to promote a public understanding of ionizing radiation and protection from it. It is the only one of the above organizations that has seriously tried to educate the public. And so far it has not fully succeeded. It is high time that people be given information that enables them to judge for themselves the hazards of radiation—without fears engendered by the news media.

—Lauriston S. Taylor