come of complex biochemical events in an internal environment that adjusts in order to remain stabilized in spite of naturally or experimentally fluctuating external environmental conditions. A more subtle approach than our present attempts must be made to reach and control these events without killing the cell or organism. It is not too much to hope that success along these lines will come sooner than the 100 or 1000 years hence when, it is said, the human race will reap, in lesser or greater measure, the results of our present-day ignorance and shortsightedness. Such success will make it possible not only to ameliorate the effects of deleterious mutations but also to direct mutations back to wild type or to the production of even more advantageous phenotypes. Exploration of the implications of such knowledge is not the burden of this paper.

The greatest cause for alarm, however, is not the magnitude of the responsibility that we face for the fate of future generations. If the human race survives its present crisis it will stand an excellent chance of forestalling or even reversing what harm, if any, we may have visited upon the future. The greatest reason for concern is the damage we may be doing to the present generations, young and old. The question of maximum tolerance dose of radiation for man has not been satisfactorily determined. There has been a downward revision of this value over the years (*8*), and it may well turn out that the value is zero; that there is "no clearly safe dosage—all high energy radiation, even of low intensity and brief duration must be considered as potentially dangerous to the exposed individual" (*9*). This would not be unexpected if radiation is a "monkey-wrench" in the biochemical "works" rather than a causative agent of orderly processes. The evidence also appears to support the view that the effects of radiation damage are cumulative (*2*). At a time when we are facing an era of expanding use of atomic energy we can ill afford to pile up cumulative harmful effects. Moreover, the survival of individuals accidentally subjected to a high radiation dose (an event of increasing probability) will depend, among other things, on the magnitude of the existing cumulative effects.

In many ways, the greatest danger from poorly controlled and unnecessary sources of radiation—experimental, diagnostic or therapeutic—is to the present living generations. The lack of sufficient knowledge of the forces unleashed, the manner of their control, the safe and adequate disposal of increasingly large amounts of radioactive waste, and the methods of counteracting the harmful effects on the organism, these and many other associated problems, as yet unsolved, all should give pause to a headlong rush into any activity that has a tendency to increase the amount of radiation to which any individual is exposed. It is a matter that concerns all of us and hence all of us should be concerned about it.

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Oscar Orias, Physiologist

Oscar Orias, one of the leading physiologists of South America and well known to many in the universities of the United States, died suddenly 4 June at the age of 49. His early training was with B. A. Houssay of Buenos Aires; later he studied with Carl J. Wiggers of Western Reserve University and Walter B. Cannon of Harvard University.

After graduation from the School of Medicine of the University of Buenos Aires in 1928, Orias began his scientific career by publishing papers on hemoglobin content of blood of Argentinian men. In 1939 in collaboration with E. Braun-Menendez, he published a monograph *Heart Sounds in Normal and Pathological Conditions,* which has become a classic in the field. *Cytology of Human Vagina* by L. C. de Allende and Orias, the section on circulation in the textbook *Human Physiology* by B. A. Houssay and associates, and a monograph on *Excitability of the Heart* by Brooks, Hoffman, Suckling, and Orias (to be published in 1955) are among his contributions. He worked in many fields, and his publications revealed his high quality as an investigator.

Orias had outstanding ability as a teacher. In 1935 he was appointed professor of physiology of the Medical School of the University of Córdoba. In 1943 he was dismissed from this chair because he signed a manifesto asking for effective democratic action and American solidarity. For a brief period he again held the professorship at Córdoba but resigned in 1946 following dismissal of Houssay from the University of Buenos Aires. His courageous actions stand as a monument to the spirit of freedom.

In 1947 Orias became director of the Instituto de Investigación Médica-Mercedes y Martin Ferreyra, a post that he held until his untimely death. The trustees of this institute released him to serve as visiting professor of physiology at the State University of New York, College of Medicine at New York City on two occasions. Thus Orias made contributions to medical education in his own country and in the United States. Those who were fortunate enough to have met him will remember his clarity of perception, his gentle sense of humor, his courtesy, and his great desire to be of service to his fellow-men.

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The word 'impossible' is not in my dictionary.—RÖNTGEN.