

June 27, 1962

To the Editor
The Washington Post
Washington, D. C.

Dear Sir:

In an article by Howard Simons in the June 18 Post, Prof. Harold Plough of Amherst College is reported to have stated that "the present fallout rate does not constitute a genetic hazard," that "the process of natural selection is taking care of the thousands of low grade mutations resulting from fallout," and having attributed much of today's confusion to Nobel prize-winner Herman J. Muller's statement that fallout would cause "genetic death." In support of his contentions Professor Plough is reported to have cited some studies on reactivation of radiation-killed viruses and to have stated that "it is...probable that a similar process goes on in sexually reproducing organisms."

I think it can fairly be stated that Professor Plough's opinions are not shared by the great majority of geneticists. The mutations produced by any doses of radiation are a real and measurable hazard. There is no self-repair of mutations produced by small or large doses of radiation; my own experiments on viruses, which are presumably the ones referred to by Professor Plough, rather indicated that damages by radiation were lethal, and that survival of the irradiated organism could occur only if the damaged genes were replaced by undamaged ones by a rare process of genetic exchange, which almost certainly does not take place in higher organisms.

Professor Muller's statements concerning "genetic death" refer to the fact that, contrary to Professor Plough's assertions, most radiation induced mutations may be transmitted from generation to generation several times. Once the mutations manifest themselves, the defects they produce may be major ones, eliminating an individual altogether, or minor ones, causing disease, reduced fertility, and ultimate elimination. This is the process by which natural selection takes care of radiation induced mutations, removing them through still birth, deformity, and other forms of human suffering. Professor Plough's reported statement that the effects of mutations won't appear in new generations is incorrect. His reported optimistic view of natural selection painlessly eliminating the effects of mutations, if correctly reported, is a surprising distortion of biological evidence.

The only point open to debate is one of moral judgment, whether the risk of damage by exposure to radiation is justified by the purposes of the exposure. For example, the slight risks of damage from chest x-rays are well justified by the diagnostic value of this procedure when recommended by a competent physician.

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The risks from fallout radiation are real. The decision as to whether to expose the people of this country and of other countries belongs to the Government, supported by a properly informed public opinion. It is the duty of scientists to inform public and Government about relevant scientific facts, without bias and without undue optimism.

Sincerely,

S. E. Luria
Professor of Biology

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