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Biology at Clinton Laboratory.

With the greatly renewed emphasis on nucleonic activities the past few days and the growing prospects that Clinton Laboratory will become an outstanding center for research in physics and chemistry, there is reason to consider whether an active program in biology should not also be promoted.

Speaking frankly, I have not until recently visualized a postwar program in biology at this laboratory that I would care to participate in. This no doubt has been due in part to the fact that our attention was so completely focused on problems of health and protection. Now that we can think beyond these phases and view the opportunities with greater perspective the picture is different. Indeed, if there is to be located at this site a galaxy of talent in physics and chemistry, I can think of no place better suited for certain fundamental research in biology, despite the few obvious objectionable features of the area. The following is an outline of some of the problems which might be undertaken with facilities equal to or better than those elsewhere obtainable.

First and uppermost is investigation in cancer. At least three approaches are indicated. (1) Studies on the mechanism of carcinogenesis. The agents available here are potent carcinogens. Beta rays such as already used, produce skin neoplasias never before possible with physical agents. By combining the transparent window and tissue culture techniques, one should be able to observe the malignant transformation under the microscope or at least under condition more rigidly controlled than ever before. (2) The tracer technique should make possible the identification and fate of various important radicles of the chemical carcinogens and at the same time reveal the mutational process in cells which leads to neoplasia. (3) The opportunities for study and development of radiotherapy are unsurpassed. Every conceivable type of needle, plaque, applicator, radioactive substance, etc, has suddenly become available. Through the activation of chemical carcinogens, for example, one may find unusual and unique methods of therapy.

Problems of growth and embryologic development can probably be undertaken with greater profit here than anywhere else. Special tracer techniques together with the advices of top physiologists and chemists, might easily lead to the discovery of the factors regulating cell proliferation and differentiation.

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For The Atomic Energy Commission

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Human Subjects Project

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Chief, Declassification Branch

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The problems of aging and of degenerative diseases generally can probably be studied with greatest profit in radiation laboratories than elsewhere. First, the personnel itself will be ideal test material, and experimentally, various degrees of aging or atrophy can be produced almost at will in a relatively short time.

These problems alone would furnish adequate objectives for an Institute of Nucleonic Biology, but along with such a development should be carried long term problems in irradiation injury. It is well enough to point out the fine health record of the project to date, but the watch dial pointers had an equally good record at a corresponding stage. Our workers are now asking about the conditions they may expect to find in themselves 5, 10 or 20 years hence.

A biology laboratory on the river, utilizing the water flow for embryological and other purposes combined with the present facilities should offer the most attractive conditions for biological researches.

To this kind of development I would be willing to devote my entire time and energy. Such a program of course would be predicated on the basis of biology for the sake of biology and not on the basis of a "must" in order to keep physics and chemistry going.

F. S. Henshaw

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