

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

TO THE

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March 23, 1967

BOX No. 2FOLDER 6

Dear Dr. Seaborg:

The Advisory Committee for Biology and Medicine met on March 9-11, 1967, at the Lawrence Radiation Laboratory of the University of California, to review the research programs in Medical Physics and Chemical Biodynamics. All members except Drs. Russell and Wyngaarden were present. Our impressions of the research program and of various problems put before us in our executive session follow:

Research Program. The research program reflects the scientific interests of the small handful of brilliant scientists who have lent intellectual distinction to the LRL for many years. The fields of hematology, molecular biology, and radiation biophysics are represented by sophisticated research activities supported by excellent physical, chemical, and mathematical expertise and instrumentation. There is evidence, not unexpected, that the younger men are steadily pushing into new areas. On the whole, the ACBM was favorably impressed by the quality of the research and the caliber of the scientists it met and heard. It believes the AEC is receiving an excellent return on its investment in LRL. Among the problems to be faced in the next few years are those of leadership as the present leaders must be replaced by new men with, perhaps, new interests; of space as more programs are taken up, especially those using the Omnitron when it becomes available; and of budget to meet the costs of an expanding program.

Omnitron. The LRL staff gave the ACBM a special presentation on the prospective uses of the Omnitron, when and if it becomes a reality. The ACBM was glad to learn of the variety of possible biomedical applications of a heavy particle accelerator, realizing that some significant uses may not yet have been thought of.

Karyotyping. In executive session, the ACBM considered the question of how far the DBM should go at this time in supporting studies of methods of measuring the lengths of arms and other characteristics of mitotic chromosomes of cells of human beings and other organisms by means of electron scanning techniques. The ACBM's impression was that the solution to the "hardware" side of this problem is further advanced than the "software" side. The present techniques of preparing cells for observation allow much variation which is not part of the true

biological variation. The electron scanning techniques appear, therefore, sometimes to give measures of chromosomal artifacts appearing during their preparation. The ACBM thinks that DBM might continue to give assistance to groups trying to solve these problems while holding back for the time being on a large-scale all-out effort of karyotyping human and other cells by electron scanning techniques.

Electron Microscopes. Also in executive session, the ACBM heard of the developments in high voltage, high resolution electron microscopy sponsored by the AEC and supports the idea of continuing efforts in this direction. It also learned of the development, in part at LRL, of techniques of scanning electron microscopy which create images with impressions of depth. For certain purposes these images are vastly superior to the flat, single plane images of transmission electron microscopes.

Next Meeting. The ACBM will next meet on May 12 and 13, 1967, at the University of Rochester to review the biomedical aspects of the University of Rochester Atomic Energy Project. The following meeting is scheduled for June 8 and 9, 1967, in Washington.

Sincerely yours,

Earl L. Green, Chairman
Advisory Committee for Biology
and Medicine

Dr. Glenn T. Seaborg
Chairman
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