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January 15, 1969

Dr. Glenn T. Seaborg
 Chairman, U. S. Atomic Energy Commission
 Washington, D. C. 20545

Dear Dr. Seaborg:

The Advisory Committee for Biology and Medicine held its 128th meeting on January 10-11, 1969, at the AEC Headquarters in Germantown, and at the "H" Street Office in Washington. Five members were present, including one new member, Dr. E. A. Stead, Jr. Drs. Cohen, Russell and McGee were absent. The following are the principal issues we should like to call to your attention.

Pulmonary Radiotoxicology as Related to SNAP and Other Problems. The ACBM was impressed by data presented at this meeting by a staff member of the Division of Biology and Medicine regarding highly radioactive particulates releasable to the atmosphere by some types of SNAP devices. Alpha radiation from individual particles that can lodge in the human respiratory tract is such that total permissible body burden levels for large populations can be exceeded severalfold by individual particles. It seems evident that if uses of these SNAP devices are to continue, investigations are imperative concerning the carcinogenic properties of such particles. This problem also requires fundamental investigations of dosimetric relationships of discrete versus diffuse alpha emitters in order to provide a scientific basis for setting maximum permissible limits. This would require a long term animal experiment.

Meson Facility. The ACBM wishes to add its support to the early implementation of the biological and medical portion of the π -meson facility. While the omnitron and π -meson facility were different and non-competing concepts, both had significant implications for experimental cancer therapy as well as for biological investigations. The extension of time for the development of omnitron-type capability makes it even more urgent to properly phase and implement the π -meson biological and medical facility.

Artificial Heart. The development of a heat source capable of driving a pump for an artificial heart has progressed to the point where more intensive work is needed on the engine (energy converter) to which the

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heat source will be coupled. While the development of the engine can be done by another agency such as the National Heart Institute, there are advantages in the same agency developing both the heat source and the engine. The ACBM recognizes the importance of more intensive work on the engine and is concerned that it not fall into a crevasse between various agencies.

Long Term Animal Experiments. Certain effects of radiation and other physical, chemical and biological agents and treatments can be analyzed only in long term animal experiments.

The ACBM is concerned that the recent upsurge of interest in results of direct use in human medicine may have the effect of blunting the attacks on some problems in the only way now open to investigators, namely, long term animal experiments. Such experiments always appear to be costly and interminable to those who feel the pressure for prompt applications for scientific knowledge. The ACBM believes that applications to human medicine should be the ever-present goal of animal experimentation, but stresses that only by animal experimentation can we estimate the carcinogenic, teratogenic, toxic, and mutagenic effects of radiation and other agents.

E. O. Lawrence Memorial Award. The ACBM also reviewed the nominations for the Lawrence Award for 1969 and will transmit its recommendations in a letter to the General Advisory Committee.

Sincerely,

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

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