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7 July 1949

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Dr. Alvin J. Graves,

J - Division Leader, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Dear Al,

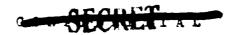
Enclosed is the summary on two pages, of the biological test program that we discussed last week. I hope that it arrives in time for your purposes.

Please excuse errors in typing, etc., since this was produced locally - namely by me - in the absence of my secretary.

I am planning to meet with you and Shields in Washington on the 13th, and hope that we will have all the data that was promised by Draegar and his associates.

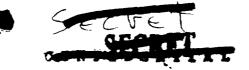
With kindest personal regards, I beg to remain,

Very sincerely yours,





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Biological Test Progress for J - Division, LANL

- A. Objective: The fundamental objective of the biological program is to provide information which can be used in planning effective madical care for the victims of atomic warfare, and for the victims of industrial accidents in nuclear energy plants. Such planning must necessarily depend on radiobiological studies which utilize the unique radiation of the atomic explosion. A satisfactory biological test program should provide data which can permit evaluation of atom bomb rediation injury in terms of the injurious action of rountgen, gamma and neutron radiations of a character that can be produced by conventional means in the laboratory. Adequate medical planning can not be anticipated until it is possible to translate laboratory conditions to field conditions with a high degree of certainty.
- B. The Programuhich has been approved by the Division of Biology and Hedicine, Atomic Emergy Commission, and J-Division, Los Alamos Scientific Laboratory:
 - 1.0 Animal Colony: This project will provide an adequate number of animals for use at shot time. These animals will have been born and reared on Japtan island, and should then be acclimatized to to the total local environment. Suitable control studies will be performed prior to the shots. The response of the animals will be tested with 250 KV x-ray after residence in the tropics. The plan should provide the following numbers of animals for the tester 12,000 mice of IAP; strain; 120 American for terrier dogs; and 180 Duror Theirless miss.
 - 2.0 Study of soute radiation injury: These studies will form a basis for a comparison of the biological response to short-burst radiation from the atom bosh with the response to ionizing radiation delivered at conventional rates.
 - 2.1 Study of soute lethality, IDeo, and survivial versus dose and distance. (all species)
 - 2.2 Study of histologie changes in tissues obtained by serial secrifice after exposure. (all species)
 - 2.3 Study of histochemical shanges in tissues, as in 2.2.
 - 2.4 Study of changes in compass systems in tissues, as in 2.2
 - 2.5 Study of protective agents on LDm. (mice)
 - 2.6 Study of effect of atom bomb radiation on longsvity and caroinogeness in survivors. (mice)





5.0 Study of thermal indury (pigs)

- 3.1 Study of time relationships of burn to atom bomb detonation.
- 5.2 Study of action of various components of thermal radiation and ionizing radiation in causation of burns.
- 3.3 Comparative study of changes in skin due to atom bomb burns and laboratory flash burns.
- 4.0 Study of hematologic changes due to atom bomb radiation (large animals)
 - 4.1 Routine homograms on all large animals
 - 4.2 Study of hemorrhagic tendency in lar penimals with acute radiation injury
- 5.0 Study of distribution of fission products: This study dillutilize animals exposed in project 0.0.
- 3.0 Biological dosimetry: The response of Tradescentin, Heuroscora, nice, Aspergillus and corn fill be studied to provide tchecks! with the physical dosimetry.
- 7.0 Study of genetical effects of atom bomb radiation: This study will utilize the Neurospore, Aspergillus and corn exposed in 6.0; and will extend previous observations of the same sort.
- 8.0 Observations of affects of atom bomb detomation on local fauma and flora by a qualified naturalist.
- C. Organization: The biological test program is planned to be a cooperative activity involving representatives of the Atomic Energy Commission and the National Military Establishment. The individual studies will be performed under contract with the AEC. It is contemplated that all the biological research groups will obtain their animals from the animal colony, and will share the facilities of the biological laboratory. As a corollary, they should also share in the cost of the biological test program. The design of the majority of the experiments is such that most of the studies on the experiments be performed in the United States.

Respectfully submitted.

Ceorge V. LeRoy, M. D. Chairman, ad hoc Committee.

7 July 1949, Chicago



