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AGENDA

AD HOC COMMITTEE FOR BIOLOGIC TESTS

JUNE 7, 8, 9, 1949

1. The National Military Establishment, and eight of the Atomic Energy Commission's facilities were asked to submit proposals for biologic tests to be conducted in connection with future proof tests of atomic weapons at Eniwetok. Proposals have been received from seven of these groups. It is the purpose of this Committee to examine and evaluate these projects; and to prepare a protocol for the biologic tests which will be submitted by the Director of the Division of Biology and Medicine, to his Medical Advisory Board and to the Director of the tests, Alvin C. Graves, J-Division Leader, Los Alamos National Laboratory.

2. A proper evaluation of the proposed studies require a knowledge of the geographical features of the test site; the general plan of the tests; and the experience with similar atomic weapons tests in the past. Accordingly, I have asked that statements concerning these factors be made to you;

2.1 - Geographical features; Colonel Preuss

2.2 - Plan of the tests; Colonel Preuss

2.3 - Previous atomic weapons tests; Captain Draeger

3. For ease of consideration I have grouped the proposals submitted into categories; and have prepared excerpts of the various projects which are attached as appendixes. The classification of these proposals in the order in which they should be considered is as follows:

3.1 - Animal Breeding Colony (NME: See Project M-9, Page 4, also see Appendix)

3.2 - Weapons Effects Study - primarily, this group of projects is based on the use of the atomic explosion as a weapon; and on the need for further information concerning the nature of atomic bomb injury; and the course and treatment of severe radiation injury occurring in warfare, and in industrial accidents.

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3.2.1 - Casualty Studies - concerned with lethal dose related to the dose of ionizing radiations as the only casualty-agent.

3.2.1.1 - A study of acute lethality, LD_{50}, etc. in a variety of animal species, at varying distances from the bomb explosion; for comparison with known effects of 1,000 KV, and 2,000 KV X-rays in the same species. (NME: see Project M-2-C PP 1,2,3)

3.2.1.2 - Comparable studies, using a "calibrated" species of mice (ARG - see Appendix)

3.2.1.3 - Determination of lethal dose under short burst conditions, compared with lethal dose at normal dose rates (HANF - see Appendix)

3.2.2 - Toxicologic studies

3.2.2.1 - Particle size distribution of dust from bomb explosion (ROCH - see Appendix)

3.2.2.2 - Distribution of radioactive particles of various size in the pulmonary system (ROCH - see Appendix)

3.2.2.3 - Distribution and excretion of radioactive particles (ROCH - see Appendix)

3.2.2.4 - Deposition and subsequent fate of radioactive particles and the animals containing them. (HANF - see Appendix)

3.2.2.5 - Uptake of Radioactive Material by plants and animals (NME - see Project M-12, Page 5)

3.2.3 - Complications of Atom Bomb Injury

3.2.3.1 - Study of the relation of mortality to surface area, and degree of burn (NME - see Project M-2,b, pages 1,2; ROCH)

3.2.3.2 - Comparison of changes in skin produced by atomic bomb flash burns and by laboratory produced flash burns. (NME - see Project M-2,b; Page 1,2; ROCH)

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3.2.3.3 - Study of direct air blast injuries in several animal species with regard to peak pressure, duration of shock wave; and mechanism of injury. (NME - see Project M-2, a, P. 1, 2)

3.2.3.4 - Study of combined action of biological warfare agents and atomic bomb injury (NME - see Project M-4, p.3)

3.2.4 - Specific physiological disturbances due to atomic bomb radiations

3.2.4.1 - Study of early histologic changes after exposure (NME - see Project M-1, and Appendix)

3.2.4.2 - Study of early histochemical changes after exposure (NME - see Project M-1, and appendix)

3.2.4.3 - Study of early changes in tissue and body-fluid enzyme systems; on-the-spot studies (OAK - see Appendix)

3.2.4.4 - Study of early changes in tissue and body-fluid enzyme systems - utilizing quick frozen material transported to the United States for tests (NME - see Appendix)

3.2.4.5 - Study of the hemorrhagic phase of radiation illness (NME - see Project M-8, and Appendix)

3.2.4.6 - Study of effect of ionizing radiations from the bomb on dental structures (NME - see Project M-6, Page 4)

3.2.5 - Experimental therapy of atomic bomb radiation illness.

3.2.5.1 - Specific therapy of the hemorrhagic state (NME - see Project M-7, Page 4)

3.2.5.2 - Specific therapy of bacterial complications (NME - see project M-7, Page 4) (ROCH - see Appendix)

3.2.5.3 - Specific therapy with dietary factors, vitamins, etc. (NME - see Project M-7, Page 4; see also Appendix)

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3.3 - Biological Studies: primarily, these projects are genetical in character; and are proposed to take advantage of the very great radiation flux, and the very short exposure-time which is only possible with atomic explosions. The projects are directed to a study of the modifying effect of time-intensity on the response of organisms "calibrated" by "ordinary" radiations.

3.3.1 - Mouse genetic studies (ARG - see Appendix)

3.3.2 - Drosophila genetic studies (ARG - see Appendix; also see NME - Project M-11, Page 5)

3.3.3 - Tradescantia genetic studies (See Appendix, OAK, ARG; also NME - Project M-11, Page 5)

3.3.4 - Zea genetic studies (see Appendix, ARG - NME, Project M-11, Page 5)

3.3.5 - Aspergillus genetic studies (see Appendix, OAK - NME Project M-11, Page 5)

3.3.6 - Neurospora genetic studies (see Appendix, Oak - NME - Project M-11, Page 5)

3.3.7 - Effect of atomic bomb radiation on biological warfare agents; and on simulated biological warfare agents (NME - Projects M-3, P.3 - M-5, P. 3)

3.3.8 - Uptake of fission products by local fauna and flora (NME - Project M-12, P. 5)

3.3.9 - Biological monitoring of mixed radiation from an atomic explosion.

3.3.9.1 - Determination of biological effectiveness of the mixed radiation, expressed in terms of 250 KV X-ray (L.A. - see Appendix)

3.3.9.2 - Determination of relative amounts of gamma and neutron radiation at varying distances in terms of 250 KV (L.A. - see Appendix)

3.3.9.3 – Observations on the possible increasing effectiveness of radiation with shorter time periods of administration. (L.A. – See Appendix)

3.3.9.4 – To monitor radiation received by flying through an atomic cloud, and to express the radiation in terms of 250 KV X-ray.

3.4 – Miscellaneous Studies

3.4.1 – Effect of atomic bomb thermal radiation on local fauna and flora (NME – Project M-10, P. 5)

3.4.2 – Physical measurements, involving use of radiation-sensitive crystals, etc. (NME – see Appendix)

3.5 – Laboratory Facilities: Recommendations are desired concerning the following: (see Appendix)

3.5.1 – Individual laboratories for each of the project proposers.

3.5.2 – A laboratory for the NME activities; and one for the AEC activities.

3.5.3 – A cooperative laboratory for all groups, with unified administration, etc. If so – who shall administer?

3.5.4 – Isolation laboratory for biological warfare agents studies.

3.6 – General Comment: Discussion is invited concerning the following matters of general principle:

3.6.1 – Biological testing in the tropics.

3.6.2 – Minimum number of experiments of various sorts, for statistical evaluation.

3.6.3 – Additional studies which seem desirable for recommendation to AEC and NME.

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1) Memorandum - Ref. SD-156, from Alvin C. Graves (Attached)

APPENDIXES:

2) Proposed NME Biology and Medicine Atomic Bomb Test Projects. (Attached)

3) Excerpts from AEC proposals and notes. (Attached)

/s/ George V. LeRoy,
Chairman

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