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December 10, 1947

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TO: Commissioners and Division Heads
 FROM: Carroll L. Wilson, General Manager
 SUBJECT: Meeting of the Advisory Committee for Biology and Medicine

The fourth meeting of the Advisory Committee for Biology and Medicine will be held December 12 and 13, 1947, at 9:30 A.M., at Oak Ridge, Tennessee.

Invitation is cordially extended to attend this meeting.

December 12, 1947

Inspection of Facilities -
 Dinner and Informal Discussion
 with Members of Staff

December 13, 1947

AGENDA

1. Consideration of Draft Minutes of November 7 meeting.
2. Changes in Minutes of Meeting of October 11, 1947:
 (Recommendation by Mr. Wilson and Mr. Marks)
 - a. On page 2, line 1, insert "and of its staff" after the word "Commission."
 - b. On page 4, revise last sentence of first paragraph to read:
 "Mr. Lillenthal stated that the Commission has under way a study of the feasibility of radiological warfare."
 - c. On page 8, revise the first half of the page (down to the new paragraph) to read:

"Mr. Volpe stated that there was little question that the Commission has rather broad authority under the Atomic Energy Act to provide for a training program related to the activities authorized by the Act.

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	GENERATION (ENGINE NUMBER(S))
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SINGLE REVIEW AUTHORIZED BY:	2. CLASSIFICATION CODE/ED TO:
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He added that there might be some details in the final training program which would raise legal questions, and that these questions could be considered when the program had been formulated. The Committee then discussed the training proposal in general and it was decided that the matter would be discussed at the afternoon session."

- d. Page 9, under paragraph 4: Change last sentence to read "based on a compensation at the rate of \$14,000 per year."

Note: AEC Directors of Divisions are all paid at the \$14,000 level.

3-A. THE PROBLEM: Consideration of Principal Recommendations of the Safety and Industrial Health Advisory Board:

On August 11, 1947, a Safety and Industrial Health Board was appointed by the General Manager in cooperation with the National Safety Council to cover broadly the policy and programs of the AEC in accident prevention, fire policy and prevention, industrial health and public safety. Subsequently, this Board visited the various laboratories and facilities of the AEC and the second tentative draft of their report was submitted on November 19, 1947. The principal recommendations of this Board are appended. The Division of Biology and Medicine has carefully considered these facts, especially as they concern the over-all program and policy of the Commission and the following coordinate recommendations are proposed:

- 2 -

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- RECOMMENDATIONS:
1. It is recommended that health protection be organized as a unit of the Division of Biology and Medicine

It is recommended that close liaison be maintained at all times with the Safety and Fire Protection units but that they do not belong naturally in this Division.
 2. It is recommended that recommendation 2 be approved in principle.
 3. It is recommended that the Advisory Committee for the Division of Biology and Medicine approve recommendation 3 insofar as it pertains to medical and health problems.
 4. It is recommended that the Advisory Committee for the Division of Biology and Medicine approve recommendation 4 insofar as it pertains to medical and health problems.
 5. It is recommended that the Advisory Committee for the Division of Biology and Medicine approve recommendation 5.
 6. It is recommended that the Advisory Committee for the Division of Biology and Medicine approve recommendation 6.
 7. It is recommended that a Health Code be promptly developed and enforced for each Atomic Energy Commission community consonant with the needs of the particular community. These codes shall be developed by the Medical Advisor of the region after consultation with the State Department of Health and with the concurrence of the Division of Biology and Medicine. Such codes shall be modeled after the outstanding State Health Codes and shall in all respects equal or surpass the health laws of the state in which the community exists. They shall be revised as circumstances dictate.

3-B. PROBLEM; 1. Policy on Environmental Health Problems:

- A. The Disposal of Radioactive and Toxic Wastes
 - a. Fluid and solid wastes - At present there is no satisfactory means of safe, long term disposal. Potential hazards exist at several localities.

- 3 -

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- b. Gaseous wastes are potential and perhaps actual hazards at present.

- RECOMMENDATION:
- 1. It is proposed that the Advisory Committee for the Division of Biology and Medicine recommend the immediate institution of programmatic research in the field of waste disposal and the potential hazards related thereto.
 - 2. It is further proposed that the Advisory Committee for the Division of Biology and Medicine recommend adequate surveys to determine existing hazards and that the means of remedying these hazards be promptly executed.

PROBLEM 2: Potential catastrophic hazards exist in regard to major fires, explosions or floods.

RECOMMENDATION: It is proposed that the Advisory Committee for the Division of Biology and Medicine recommend that disaster bills be carefully reviewed with regard not only to personnel immediately involved but to potentially exposed populations.

- 4. Information as to Budget of Division of Biology and Medicine.

Brief oral report on Budget matters for 1948 and Future Years.

- 5. Research projects requesting support by the Atomic Energy Commission:
 - a. Sloan-Kettering Institute

PROBLEM: The Sloan-Kettering Institute has requested further support for its research projects in the amount of \$48,590 in addition to the \$139,000 which was previously allocated to them by this Division through the Office of Naval Research. These additional funds will be used to support a biophysical research program and to purchase equipment for a program in experimental pathology.

Dr. C. P. Rhoads is Director of the Memorial Hospital. Dr. Paul F. Hahn is an experimental pathologist training at the University of Rochester and recently at ^{Vanderbilt} the University of Tennessee. (See attachments)

RECOMMENDATION: It is recommended that the Office of Naval Research be notified that funds in the amount of \$48,590 are available to be allocated to the Sloan-Kettering Institute for support of research by Dr. C. P. Rhoads and Dr. Paul F. Hahn, chiefly with colloidal solutions of radioactive metallic isotopes, for the 19-month period from January 1, 1948 to June 30, 1949. ~~any unexpended balance at the end of this period to revert to the Atomic Energy Commission.~~

b. Jackson Memorial Laboratory

PROBLEM: This laboratory has not accepted the invitation to establish their activities at the Brookhaven National Laboratory. They have requested from the Atomic Energy Commission a contract of \$160,000 for construction and of \$200,000 per year for operation. This laboratory is headed by Dr. Clarence C. Little, well-known Geneticist.

The considerations which he proposes are as follows:

Colonies of control animals maintained at centers where atomic energy is being generated, liberated and used are necessarily more likely to be affected by such energy or to be confused with animals so affected than control colonies established where such energy is not generated, liberated and used.

By the use of similar methods of housing, care and feeding at centers of experimental work and at an isolated control colony, animals of similar strains can be directly compared as regards mutation rate and type, fertility, fecundity, growth pathology, physiology and in all major biological reactions.

- 5 -

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Differences in reaction of animals at Oak Ridge, Argonne and Brockhaven can be most successfully compared with a single control colony located elsewhere.

This would provide the Atomic Energy Commission with:

- a. Consultative and cooperative relations with a staff of approximately 20 trained geneticists and biochemists interested in genetics.
- b. An adequate supply of experimental mice of desired strains.
- c. An adequate and isolated control colony.
- d. Right of representation, by its own selection, of an agreed upon number of Trustees on the Board of the Jackson Memorial Laboratory.

RECOMMENDATION: It is recommended that the Advisory Committee for the Division of Biology and Medicine ~~approve the request~~ by the Roscoe B. Jackson Laboratory for a contract. The value of investment in a point as isolated as Bar Harbor is questionable. Competent workers are difficult to procure and retain in a remote region, and consultation with workers at the facilities of the Commission would be difficult. Equivalent investments at a nearer site would yield a greater return.

c. Harvard University - Dr. Moritz

PROBLEM: Request from Dr. A. R. Moritz and Dr. F. C. Henriques, Jr., of Harvard University.

Dr. A. R. Moritz is Professor of Legal Medicine at Harvard University. He is a thoroughly competent Pathologist and has done active research work on skin burns. Dr. F. C. Henriques, Jr., is a sound physicist who is a member of the Tracer lab. organization. He has available

- 6 -

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numerous contacts with the Department of Physics of Massachusetts Institute of Technology. Dr. A. R. Moritz and Dr. F. C. Henriques have requested from the O.N.R. a supplement in the sum of \$13,279.20 to Contract #5041-76, Project #7 for the purpose of studying "Localized Burning of Skin by External Beta Ray Emitters." It is anticipated that aside from the importance of such knowledge and the basic problem of biological reaction to radiant energy it should have an immediate practical use in establishing safe and dangerous dosage for the many workers in the radioactive field now handling beta ray emitters. Through proper choice it is possible to select a particular isotope with a view to irradiating a predetermined thickness of skin. The basic data would be derived from experiments performed on the pig for previous investigations have disclosed remarkable similarity in the reactions and injury thresholds of porcine and human animals. It is expected that a significant amount of data will be obtained within a year. It is likely that the desirability of expanding these data and of exploring further the biological effects of beta radiation will cause the investigators to request a renewal of the grant for a second and possibly a third year.

RECOMMENDATION: It is recommended that the Office of Naval Research be notified that funds in the amount of \$27,920 are available to be allocated to Harvard University for support of research by Dr. A. R. Moritz and F. C. Henriques, Jr., for the two-year period from January 1, 1948 to January 1, 1950, any unexpended balance at the end of the period to revert to the Atomic Energy Commission.

- 7 -

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d. Request for Supplemental Support for the Harvard University Research Program in Biophysics.

Postpone until Jan. 1948

PROBLEM: In addition to the sum of \$110,466 recommended at the last meeting for the Biophysics Research Program at Harvard University, a supplemental sum of \$54,592 is necessary to maintain the research at its present level. The initial grant was for two years and expenditures for the first year were relatively low because of the difficulties entailed in initiating a program of this complexity.

RECOMMENDATION: It is recommended that the Office of Naval Research be notified that funds in the amount of \$54,592 are available to be allocated to Harvard University for support of the Biophysics Research Program for the two-year period from January 1, 1948 to January 1, 1950, any unexpended balance at the end of the period to revert to the Atomic Energy Commission.

e. Ohio State University Request for Support of Research Project.

PROBLEM: Studies at these laboratories are projected along several different lines including:

1. Average energy determination of beta emitters.
2. To sharpen radio-autographs by use of a very strong field.
3. The manufacture of D₁-neutrons by bombarding numerous elements with H₃.

The total funds required for these three projects are \$41,000

RECOMMENDATION: It is recommended that the request for support of the problem on average energy determination of beta emitters be referred to the Division of Research as this problem does not involve biological or medical technique. It is recommended that the Office of Naval Research be notified that funds in the amount of \$33,000 are available to be allocated to Ohio State University for support of research in sharpening of radioautographs and the manufacture of

dineutrons by Dr. M. L. Pool for a two-year period from January 1, 1948 to January 1, 1950, any unexpended balance at the end of the period to revert to the Atomic Energy Commission. Dr. Pool is Professor of Physics at Ohio State University. He has worked extensively on metastable states; fluorescent radiation and nuclear disintegration.

f. Navy Polaroid Project

PROBLEM: The U. S. Navy in conjunction with the Polaroid Company has initiated a project for the construction of "an image type of ultraviolet microscope (a microspectrophotometer) to present a magnified ^{True} dichromatic visible image. This instrument is expected to give an immediate quantitative picture of the ultraviolet absorption characteristics of any material and, as such, should be a valuable new tool in the examination of tissue." The Navy has undertaken to underwrite the project until June 1949 at the rate of \$7,500 per month or about one-half the current rate of expenditures.

The American Cancer Society is interested in possible collaboration between the Atomic Energy Commission, the National Cancer Institute, and the American Cancer Society. The total expenditure for the AEC to share half the support until June 1949 would be \$135,000.

RECOMMENDED: It is recommended that the request be ^{declined} ~~refused~~ on the basis that the ~~probable gains are not commensurate with the expense entailed.~~

6. Medico-Legal Aspects of Special Hazards

a. Disposition of Medical Records of Employees.

PROBLEM: The question has arisen as to how long medical records of

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employees should be retained. Since there is no determination as to when claims for injury or illness arising from AEC employment may occur, and since the records offer the only reliable medical data to protect the interests of the Commission it is important that these records be safeguarded indefinitely.

RECOMMENDATION: It is recommended that Contractors be required to safeguard medical records indefinitely and that a micro-film duplicate of all medical records be prepared and be kept at the headquarters of the AEC.

b. Procedure in case of illness or death allegedly due to special hazards.

PROBLEM: To formulate a standard procedure to be used in handling Medico-Legal Claims against the Commission.

RECOMMENDATION: It is proposed that the Advisory Committee for the Division of Biology and Medicine recommend that a standard procedure be established for handling all cases of a medico-legal nature. In view of the regional organization of the Atomic Energy Commission it is advisable to have this procedure function on a regional basis under the immediate supervision of the Manager of the Directed Operation concerned, with prompt and adequate information to the Division of Biology and Medicine.

The following is a recommended procedure to be employed:

- a. Immediate notification of the Manager of Directed Operations concerned, either by the Washington Office, other Managers or their representative, by members of the Manager's Staff and immediate notification of the Division of Biology and Medicine, if not already cognizant.
- b. Rapid relay of information to:
 - 1. Medical Advisors, Office of the Directed Operations concerned.
 - 2. Atomic Energy Commission Insurance Branch.
- c. The AEC Insurance Branch will immediately obtain the following information for transmittal to the proper Medical Advisors Office:

1. Place of employment with dates.
 2. Type of work performed.
 3. Identification of known exposures and material involved.
 4. Records of all previous reports of injury or claims filed and action taken.
 5. Copy or photostat of all plant medical records pertaining to the individual.
- d. The Medical Advisor concerned will contact by the quickest means available the claimant and his private physician.
- e. The Medical Advisor, his Medical Assistant or the approved medical consultant in the region will investigate the case. Whenever it is deemed necessary they will visit the claimant or his next-of-kin, with adequate consultation with a Health Physicist.
- f. The following information should be obtained ~~when~~
~~practicable~~:
1. Transcripts of all pertinent clinical records including complete history, physical examination and all laboratory examinations.
 2. An accurate clinical appraisal of the case.
 3. Attend the necropsy if such is performed and obtain a copy of the formal report, ~~when possible~~.
 4. Obtain the proper tissue specimens in sufficient quantity for whatever qualitative and quantitative spectroscopic or chemical analyses may be indicated, as well as for detailed pathological study.
 5. Obtain an accurate detailed radiation survey of the body and/or tissues obtained at necropsy.
 6. Every effort should be made to emphasize the sincere desire of the Atomic Energy Commission to determine the actual facts and to see that full justice is done.
 7. As soon as possible, a comprehensive report of the case will be forwarded to the Division of Biology and Medicine. Further information will be forwarded as received.

7. Request for approval of collaborative work on air blast injury by Dr. Stafford L. Warren.

PROBLEM: A cooperative study on air blast injury was undertaken, prior to the Bikini Tests, by Dr. Stafford Warren, a group from the Pasadena Physics Section, and representatives of the Bureau of Ordnance. A follow-up conference was held this summer and it was felt that further collaborative effort in this field was advisable. Dr. Stafford Warren has requested that the AEC approve this ~~work~~ ^{collaboration} so that the most effective use of personnel and facilities may be made. No funds are requested.

RECOMMENDATION: It is proposed that the Advisory Committee for the Division of Biology and Medicine recommend ~~that these collaborative experiments be carried out with the permission of the AEC.~~ ^{this}

8. Status report of various programs of the Division of Biology and Medicine:

- a. Fellowships - Approval of Rochester construction.
- b. Cancer Program
- c. Atomic Casualty Commission

9. Organization of Isotopes Distribution Program

PROBLEM: The resignation of the Interim Isotopes Distribution Committee is effective as of December 31, 1947. It is necessary that a permanent organization be established and a report has been submitted recommending the pattern for such an organization.

RECOMMENDATION: It is proposed that the Advisory Committee for the Division of Biology and Medicine recommend approval of the biological and medical personnel nominated to

the Isotope Distribution Committee and its subcommittee with the following exceptions: It is felt that a biologist should serve on the Central Committee and the name of Dr. Leslie F. Nims is hereby proposed for membership. It is further recommended that Dr. Joseph Hamilton replace Dr. Failla on the Subcommittee on Human Application and that Dr. Holland should be named chairman of this subcommittee. Dr. Leslie F. Nims is a physiologist and physical chemist, Director of Biology at the Brookhaven National Laboratories and formerly in the Department of Physiology, Yale University. Appropriate letters have been composed to be forwarded to the members of the Isotope Distribution Committee expressing the gratitude of the AEC and its Division of Biology and Medicine.

10. Sabbatical leaves for staff members ^(Senior Scientists) at the various institutions.

PROBLEM: The natural isolation of many of the important research facilities of the AEC causes a lack of communication between scientists. It is felt that for the benefit of the research workers, as well as for the good of the Atomic Energy Commission, it would be advisable to institute a program for sabbatical leaves whereby the various workers will be allowed to spend an adequate period of time in work at the other institutions.

RECOMMENDATION: It is recommended that sabbatical leaves be granted in the amount of six months every three years to research workers in Biology and Medicine for the furthering of their research in universities or other institutions approved by the Division of Biology and Medicine.

11. Proposed Research Program for the Clinton Laboratories of the Monsanto Chemical Company (to be discussed by Dr. Hollander).

PROBLEM: The attached explanatory sheet lists the various projects which are proposed for support in these laboratories.

RECOMMENDATION: It is recommended that the program in bio-organic chemistry including the synthesis of labeled

organic compounds be held in abeyance until further study. It is also recommended that the mouse genetic program be disapproved in light of work in this field being carried on elsewhere. It is recommended that the program for the animal farm be reconsidered in view of the disapproval of the mouse genetic program.

12. Medical Director at Oak Ridge

PROBLEM: At the present time Dr. Albert Holland is functioning as Acting Medical Director at Oak Ridge. (See appropriate biographical data.)

RECOMMENDATION: It is recommended that Dr. A. H. Holland, Jr., be appointed Medical Director at Oak Ridge, Tennessee.

13. Non-specialized Education in the Field of Atomic Energy.

PROBLEM: a. Dr. T. J. LeBlanc of the University of Cincinnati, College of Medicine, has written at some length in regard to the desirability of this Division's furnishing to the various facilities on preventive medicine adequate data to form the basis for a long-term teaching program. It is felt that this is an important suggestion and reflects the wide range of activity into which this Division is entering. Tentative arrangements have been made for such an outline to be presented in a paper by a representative of the Division of Biology and Medicine at the forthcoming meeting of the American Public Health Association.

b. The National Research Council's Committee on Atomic Casualties, by virtue of its continuing studies of the radiation effects at Hiroshima and Nagasaki, seems to us to be the proper agency to take the lead

in the preparation of authoritative educational materials, suitably presented for wide public distribution and adapted to the needs of the principal media of public intelligence.

The above is an excerpt from a letter dated December 5, 1947 addressed to Dr. Lewis H. Weed of the National Research Council from Mr. Carroll L. Wilson.

14. Other Problems.