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MINUTES

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

THIRTY-NINTH MEETING

Held in

Washington, D. C.

September 11 and 12, 1953

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
SINGLE REVIEW AUTHORIZED BY: <i>Pennington 5/23/94</i>	DETERMINATION (CIRCLE NUMBER(S))
REVIEWER (NAME) <i>H. P. Schmidt</i>	1. CLASSIFICATION RETAINED
NAME: <i>H. P. Schmidt</i>	2. CLASSIFICATION CHANGED TO:
DATE: <i>5/23/94</i>	3. CONTAINS NO DOE CLASSIFIED INFO
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	5. CLASSIFICATION CANCELLED
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ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

MINUTES

The thirty-ninth meeting of the Advisory Committee for Biology and Medicine was held at the Atomic Energy Commission in Washington, D. C., on Friday and Saturday, September 11 and 12, 1953.

ATTENDANCE

Committee Members

Dr. Elvin C. Stakman, Chairman  
Dr. Charles H. Burnett  
Dr. Edward A. Doisy  
Dr. Gioacchino Failla  
Dr. Curt Stern  
Dr. Shields Warren

Staff of AEC and  
Division of Biology  
and Medicine

Dr. Henry D. Smyth  
Dr. John C. Bugher  
Dr. Charles L. Dunham  
Dr. B. R. Nebel  
Dr. Paul B. Pearson  
Dr. Joseph S. Butts  
Dr. Harold H. Plough  
Dr. Willis R. Boss  
Dr. Forrest Western  
Dr. Earl L. Green  
Mr. James Haggerty  
Mr. Robert L. Corsbie  
Mr. H. C. Brown, Jr.  
Mr. R. L. Butenhoff  
Mr. L. Joe Deal  
Mr. Beverly Thompson  
Mr. Merril Eisenbud  
Mr. Richard W. Johnston  
Mr. Herbert W. Talkin  
Mr. Ward Miller, Jr.  
Mrs. Frances R. Montgomery  
Dr. Gordon Dunning

Visitors

Major S. E. Lifton (A.F. Surgeon  
General's Office)  
Major John A. Peterson (SGO)  
Major Thurman Bouse (Chief, Chemical and  
Biological Liaison Office)  
Major Mark Terrel

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Col. Carl F. Tessmer (Office of Surgeon  
General of the Army)  
Lt. Col. Morris L. Shoss (MLC)  
Lt. Col. Louis E. Browning (AFSWP)  
Cmdr. Richard B. Laning (Office of Chief  
of Naval Operations)

Dr. Charles H. Burnett

The Chairman opened the meeting by welcoming the visitors and by asking Dr. Bugher to present Dr. Burnett, and the new members of the staff of the Division of Biology and Medicine

Dr. Bugher introduced Dr. Burnett and stated that he joins the Committee as a professor of medicine from the University of North Carolina and brings to the Committee the point of view of the internist and will add very substantially to the resources which the staff as a whole is privileged to enjoy. Dr. Burnett was formerly associated with the medical activities at both the Harvard Medical School and Boston University Medical School.

New Staff Members

Dr. Earl L. Green  
Dr. Willis R. Boss  
Dr. Robert A. Dudley

Dr. Bugher spoke of the changes in the staff of the Division and expressed regrets that Dr. Plough, after two years' service with the Division, is returning to his professorial duties at Amherst College. Dr. Bugher introduced Dr. Green, who is replacing Dr. Plough and who will follow through with the genetics programs. Dr. Green is on leave from Ohio State University as Associate Professor, Genetics and Biometry.

Dr. Bugher also spoke with regret of Dr. Wilbur's completion of his tour of duty with the Division and his return to Duke University. Dr. Boss is replacing Dr. Wilbur and is coming to the Division from Syracuse

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University where he is professor of Endocrinology and Microscopic Technique.

Dr. Dudley, who has joined the Biophysics Branch for a special research assignment, was presented by Dr. Bugher. Dr. Dudley comes to the Division direct from England, where he was a Fulbright scholar. He received his Ph.D. from Massachusetts Institute of Technology for his work on "The Measurement of Beta Radiation Dosage with Photographic Emulsions."

Minutes, Meeting at Chalk River, Ontario, Canada, May 8 & 9, 1953

The Chairman presented the minutes of the meeting held at Chalk River, Ontario, Canada, on May 8 and 9, 1953, for reconsideration after corrections had been made. Dr. Doisy recommended their approval with Dr. Warren seconding the motion. The minutes were approved unanimously.

Minutes, Cancer Research Institute Boston, Massachusetts, June 26 and 27, 1953

The Chairman presented the draft minutes of the meeting of the Advisory Committee for Biology and Medicine held at the Cancer Research Institute on June 26 and 27, 1953. It was suggested that a few minor corrections be made in the minutes. Upon a motion by Dr. Failla, seconded by Dr. Stern, the minutes were approved unanimously.

Report by Dr. Failla and Dr. Warren - International Commission on Radiological Protection, Copenhagen, Denmark

Dr. Failla reported on his trip to Copenhagen, Denmark, to attend the International Commission on Radiological Protection, which was held on July 19-25, 1953. He stated that the International Congress of Radiology is comprised of the International

Commission on Radiological Units and the International Commission on Radiological Protection. The International Commission on Radiological Protection has several sub-committees, and it is patterned after our National Committee on Radiation Protection which also has several sub-committees, depending on the activities that are to be covered. Dr. Failla acts as Chairman of sub-committees for both the National and International primary body, in adopting permissible limits of exposure from external sources.

Note: A full report by Dr. Failla, which was read at the meeting, may be found in the files of the Division of Biology and Medicine.

Dr. Warren reported on classified matters pertaining to radiation that were of primary interest in the United Kingdom. He stated that the British are very much concerned over the particular levels of radiation which both civilian and military units may receive and still remain effective.

Note: A copy of the classified report by Dr. Warren may be found in the complete set of notes of the meeting.

Review of 1954 Budget -  
Dr. Bugher

Dr. Bugher briefed the Committee on the 1954 budget matters. He stated that our operational budget is \$26,565,000 as approved by the Appropriations Committee. However, there was no assurance that we would receive the full amount in view of the fact that the Administration hoped to maintain federal expenditures at less than the actual appropriation levels. Dr. Bugher explained that the President and the Director of the Bureau of the Budget have notified all agencies that they will be expected to make greater reductions in their expenditures than they had planned for in

their estimates. In this connection, Dr. Bugner advised the Committee of the steps that had been taken in the Division to curtail expenditures, i.e., survey of activities within the Division; letters to contractors (see Appendix 1).

He stated further that a real pressure is on to achieve the greatest amount of results with the least possible expenditure.

Status of Proposed 1955 Budget Mr. Stanwood brought out the highlights of the proposed 1955 budget. He spoke of 1954 special budget review as falling substantially short of the Administration's budgetary objectives. Judgment on progress will be predicated on progressive reductions in the rate of expenditures and the level of employment. He stated further that the two measures of accomplishment will be receiving constant public attention.

The Committee was very interested in a summary of scientific man-years presented by Mr. Stanwood. This summary depicted the various costs of scientific man-years at each of the installations and for off-site research programs. A scientific man-year is the full-time assignment of a research employee who has a B.S. degree, the equivalent or better and who is directly engaged in or directly supervising research activity.

Status Report - Overhead  
Problems - Mr. Brown

Mr. Brown reviewed the status of the policy question on overhead in grant-like research contracts. He stated that the Commission had not as yet had an opportunity to review the staff paper prepared by the Divisions of Research and Biology and Medicine.

Steps have been taken to place our grant-like research contracts on a uniform footing. A letter has been sent by Dr. Bugher to the New York Operations Office (a copy to the Managers of other Operations Offices) relative to the Harvard contract 609, discussed at the June meeting, and which would, when it is renewed, put it on an equal footing with other grant-like research contracts.

The philosophy which was taken in the letter and which is the basis for the action, is: "There is a Commission policy on overhead albeit an interim policy; that the Division of Biology and Medicine is not free to change the policy, and that we have no alternative but to comply with it in the absence of a Commission decision on policy. If and when the Commission makes a change in policy, we shall abide by that too."

Mr. Brown told of a visit to Berkeley, California, to attend the Seventh Annual Conference on the Administration of Research. The purpose of the conference was to exchange ideas and to discuss problems of mutual concern to government and industry and the university.

Mr. Brown said that it seemed clear from the discussions both from universities and industry and the government that universities are obligated to use some of their own funds to help support grant-like research contracts.

Dr. Doisy was of the opinion that Dr. Piore, Chief Scientist, ONR, should be commended for stating at the conference that <sup>in</sup> his opinion, ~~that~~ no coordination of basic research at all was a lesser evil than the super-coordination envisaged in some quarters of the Federal Government. Dr. Piore's fear is that super-coordination of research assures adequate

support for the mediocre scientist but tends to preclude support of the really brilliant scientific gambles.

Research Projects Approved  
during June, July, and August

Dr. Bugher opened the discussion on the 86 projects that had been approved by the Research Committee during June, July and August, 1953. It was noted that most of the actions were on renewals. Of the total projects reviewed only six were new projects with an allocation of \$49,262, and there were 80 renewals with an allocation of \$1,865,802.

The six new projects were fully explained as to the work to be undertaken as well as a major portion of the renewals. (See list of projects - Appendix 2).

Preliminary Reports on Civil  
Effects Experiments - Upshot  
Knothole

Dr. Bugher reviewed the background of the biomedical experimentation which took place at the test series in the spring. He stated that the Division had sponsored a planning and screening committee for biomedical experimentation and a second committee for structural effects. These committees reviewed the problems, reviewed the submissions of various agencies and people—arrived at certain recommendations of a program content that could with profit be pursued in the tests.

Dr. Bugher spoke of Commander Cronkite, who had under his supervision the biomedical program; Dr. Plough, who organized the geneticists of the country in a section of this biomedical program; the Radiation Instruments Branch under Mr. Butenhoff undertook the problems of radiation measurement

and cross evaluation; and Mr. Corsbie, Chief of the Civil Defense Liaison Branch, who is an expert on bomb effects on structures, and who was asked by Dr. Graves to assume the responsibility for the direction of a section of the test program to be called the Civil Effects Section.

Mr. Corsbie reported in detail on the general plan for the Civil Defense Section. He said that in going into this program the nation's need for civil effects data parallels and keeps pace with the development of military atomic weapons and everything in our civil effects program stems from this need for information on the effects given by our so-called family of atomic weapons. Mr. Corsbie brought out strongly that in all of the planning and performing for these tests there is a need on a continuing basis to know more and more about the ways in which atomic blast s and heat and light and ionizing radiation affect people, water, food, houses, villages, utilities and all other parts of our economy.

In connection with the report Mr. Corsbie presented many interesting slides that gave the background of the organization and the projects.

Commander Cronkite spoke on radiation hazards in the AEC communal shelters. He stressed the fine cooperation that had been given to the Navy group of the Los Alamos Scientific Laboratory and the Division of Biology and Medicine.

Commander Cronkite's report covered the question of biological dosimetry in general and the biological effects of neutron and gamma radiation inside the shelters. The various parameters that have been used in the laboratory and in the field with respect to mammals were shown on

slides with Commander Cronkite giving an interesting narrative.

Dr. Bugher noted that for the first time a picture of the relative contributions of neutron and gamma fluxes to the hazard in the shelters was obtained. Previously, there was no basis for making a statement for neutron hazard from a knowledge of the gamma.

Note: A complete copy of Dr. Cronkite's report is available in the record of the activities of the meeting.

Blast Effects on Animals Commander Cronkite continued his report and spoke on the studies made on the effects of neutrons, and in particular, the bacteriological studies on neutron-exposed animals using lead hemispheres to shield out gamma rays. Slides were shown of the blast effect on the animals used in the shelters.

Dr. Plough presented a summary of the data as they existed at present on the genetic experiments. He said that the major reason from the point of view of the AEC for including genetic tests in this program is essentially to find out whether or not neutron irradiation causes any different genetic results from gamma radiation or x-rays and therefore what the hazard of particular types of weapons may be as differing from the x-ray or gamma exposure. Many questions were propounded by the members of the Committee and at a later date a more complete summary will be presented to the group.

Mr. Corsbie gave an informative review of the structural experiments and presented some visual material of the typical frame residences used in the experiments. The homes had been selected by the American Institute of

architects as being typical and they were tested at two distances, 3500 feet and 7500 feet. A film was shown that concerned blast effects on four typical buses such as are used for school buses. Considerable discussion ensued when the film showing both thermal and blast effects on the four typical buses was reviewed.

Mr. Butenhoff gave an interesting report on the evaluation of dosimetric methods and instruments used at the tests. He explained the rep measurements in detail. He said that the test group rapidly developed between its inception and the time of test operations many projects as the vehicles that were shown, the houses, the projects that concerned these particular objects, the hemispheres, the shelters and many other things. This project was established to study these requirements and to coordinate the various methods and to take the necessary steps to assure that the various dosimeters would be available at the tests.

Dr. Dunning provided the meeting with graphs and reviewed the data concerning the area contamination from operation of Nevada Test site.

Dr. Pearson's report on problems arising from the losses of livestock were of particular concern to the Committee. They noted with approval that two projects have been initiated to continue studying the problem of livestock losses in the area of the test site, one at the university of Nevada and the other at the Utah State Agricultural College.

Status Report on Gabriel

Dr. Bugher reviewed the Gabriel question, to wit: "What are the limitations of the use of atomic weapons from the

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standpoint of contamination or other effect on environment." The answer to the question has significant implications with respect to planning in atomic energy program.

Dr. Bugher stressed the importance of the project and of the Commission's interest. He stated that Dr. Western, with the assistance of Dr. Dudley, has assumed primary responsibility for setting up the program and of initiating the projects that will be concerned with sampling suitable material and then of analyzing material in several different places on a uniform basis and with considerable accuracy.

Dr. Claus and Mr. Eisenbud explained in detail the results of the program to date as to the analyzing of soils, variety of foodstuffs, wheat grasses, etc.

Waste Disposal Policy

Dr. Western gave a general orientation of the Waste Disposal Policy. He said that a draft of the proposed GM Bulletin establishing general criteria<sup>a</sup> for the disposal of radioactive wastes by AEC contractor<sup>s</sup> had been distributed previously to the Committee for their comments. Dr. Failla pointed out that statements in the draft bulletin would permit some individuals to get three times as much radiation as is permitted for the average individual. Considerable discussion ensued. In view of the seriousness of the problem and the complications therein it was the sense of the Committee that the draft policy should be further discussed with Dr. Failla, <sup>and</sup> re-submitted to the Committee in draft form for their consideration and recommendation.

The problem will be placed on the agenda for the next meeting.

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Status of Biology Station  
at Eniwetok

Dr. Pearson reported on the status of the Biology Station at Eniwetok. He stated that the building to house the project was in the process of construction and will probably be completed by the first of November. Arrangements have been made to transport investigators by Military Air Transport from Hawaii to Eniwetok at no cost to the investigator. In addition, the ONR will provide transportation particularly for those people whom they sponsor going to the laboratory and also they will cooperate in providing transportation for other investigators. The details of the operation of the laboratory are still in the planning stage. Dr. Doisy and Dr. Stakman expressed favorable comments upon the development of the marine laboratory. They believed that it had been planned well and the persons responsible should be commended for their promptness and execution of the details.

Status of Food Sterilization

Dr. Butts summarized the Food Sterilization Program which is under the supervision of the Reactor Development Division and of great interest the Division has in it. He stated that the Division acts in an advisory capacity only. He pointed out that approximately one million dollars has been invested in the program which covers some six projects. Dr. Stakman spoke of the tremendous problem in connection with storage of bulk grain and cereals and asked that consideration be given to it in making these studies.

EXECUTIVE SESSION

Appointment of New Member  
To Committee

The Committee considered nominees to take the place of Dr. Alan Gregg, whose resignation from the Committee became effective May 1, 1953.

The nominees are:

- (1) Dr. Reuben Gilbert Gustavson  
Chancellor, University of Nebraska  
Lincoln, Nebraska
- (2) Dr. Edwin Brown Fred  
President, University of Wisconsin  
Madison, Wisconsin

It was the unanimous recommendation of the Committee that an appointment to the Committee should be proffered to Dr. Gustavson, and if he is not available, the appointment should be proffered to Dr. Fred.

Vice Chairman

The Committee voted unanimously to have Dr. Warren made permanent Vice Chairman of the Committee to replace Dr. Joseph T. Wearn, whose retirement became effective June 30, 1953.

Next Meeting

The next meeting of the Committee is scheduled to be held at the Los Alamos Scientific Laboratory on Friday and Saturday, October 9 and 10, 1953.

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*Mr. Bugher*

AGENDA

TO: Commissioners and Division Directors

FROM: M. W. Boyer, General Manager

SUBJECT: MEETING OF THE ADVISORY COMMITTEE FOR BIOLOGY & MEDICINE

The thirty-ninth meeting of the Advisory Committee for Biology and Medicine is to be held on Friday and Saturday, September 11 and 12, 1953, at the Atomic Energy Commission, 1901 Constitution Avenue, N. W., Washington, D. C., in Room 213 at 9:30 A.M.

Friday - September 11, 1953

9:30 A.M.

1. Introductions by Dr. Bugher  
Dr. Charles H. Burnett - University of North Carolina  
Dr. Earl L. Green - Ohio State University  
Dr. Willis R. Boss - Syracuse University  
Dr. Robert A. Dudley - Massachusetts Institute of Technology  
*Bibliographies in folder.*
2. A. Reconsideration of minutes of meeting held at Chalk River, May 8 and 9, 1953.  
  
(Corrected as suggested at June meeting) -  
  
B. Consideration of draft minutes of meeting held at the Cancer Research Hospital, Boston, Massachusetts, June 26 and 27, 1953.
3. Report by Dr. Failla and Dr. Warren on International Commission on Radiological Protection, Copenhagen, Denmark.  
  
(Material in Folder) - *Mr. Bugher - your folder has personal report by Mr. Warren*
4. Review of 1954 budget - Dr. Bugher  
Status of 1955 budget - Mr. Stanwood
5. Status report on overhead problems - Dr. Bugher and Mr. Brown
6. Review of research projects approved during June, July and August, 1953. - *Dr. Bugher - et al.*

\* Copy of letter to Contractors in each folder.  
Copy of letter to Mr. Raymond Howes re research in each folder  
Your folder has the only copy of report.

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Luncheon - 12:30 P.M. - 2:00 P.M.

7. Preliminary reports on Civil Effects Experiments - Upshot-Knothole
  - A. Introduction and general plan - Mr. Corsbie
  - B. Biological Effects of Neutrons and Biological Dosimetry - Cmdr. Cronkite
  - C. Blast Effects in Animals - Cmdr. Cronkite
  - D. Genetics Program - Dr. Plough
  - E. Structural Experiments - Mr. Corsbie
  - F. Evaluation of dosimetric methods and instruments - Mr. Butenhoff

8. Operational Problems of Continental Tests

- A. Data - in 14th Semiannual Report - Dr. Bugher
- B. Review of area contamination from operation of Nevada Test Site - Dr. Dunning
- C. Report on problems arising from the losses of livestock - Dr. Pearson

*Cocktails - Dinner Kennedy-Warren - 6:15 PM.*  
Saturday - September 12, 1953 *Cornell Ave.*

9:30 A.M.

9. Status Report on "Gabriel" - Dr. Bugher
10. Provisions of Waste Disposal Policy - Dr. Western  
Committee discussion requested  
(Material distributed previously) - *copy in your folder.*
11. Status of Biology Station at Eniwetok - Dr. Pearson
12. Division Management Report - Mr. Brown

Luncheon - 12:30 P.M.

13. Status of Food Sterilization Program - Dr. Butts  
Dosimetry problems - Mr. Deal, Mr. Butenhoff

14. Other Business

15. Executive Session

Selection of Vice-Chairman

Consideration of nominees for member of committee.

*Bibliography of Control in each folder*

Place and date of next meeting:

Los Alamos, New Mexico, October 9 and 10, 1953