

MINUTES
ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE
TWENTIETH MEETING
Held at
UNIVERSITY OF CALIFORNIA, L.A.
and
CALIFORNIA INSTITUTE OF TECHNOLOGY
January 13-14, 1950

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MINUTES

Advisory Committee for Biology & Medicine

January 13-14, 1950

The twentieth meeting of the Advisory Committee for Biology and Medicine was held on Friday and Saturday, January 13 and 14, 1950 at the University of California, at Los Angeles, and the California Institute of Technology at Pasadena, with all members being present.

Attendance

ATTENDANCE

Members of Committee Dr. Alan Gregg, Chairman
Dr. E. W. Goodpasture, Vice-Chairman
Dr. George W. Beadle
Dr. Detlev W. Bronk
Dr. A. Baird Hastings
Dr. E. C. Stakman
Dr. J. T. Wearn

AEC and the Division
of Biology & Medicine Dr. Shields Warren
Dr. John Z. Bowers
Dr. W. F. Bale
Dr. C. L. Dunham
Dr. P. B. Pearson
Mr. J. A. Derry
Mrs. Frances R. Montgomery
Mr. R. O. Niehoff
Mr. L. D. Low
Mr. R. Tumbleson

California Institute
of Technology Dr. Lee A. DuBridge
Dr. George W. Beadle
Dr. H. K. Mitchell
Dr. N. H. Horowitz
Dr. Robert F. Bacher
Dr. A. H. Sturtevant
Dr. E. B. Lewis
Mr. Ed Novitski

Dr. E. G. Anderson
Dr. A. E. Longley
Mr. H. J. Teas
Mr. Melvin Stehsel

Dr. Henry Borsook
Dr. A. J. Haagen-Smit
Dr. Geoffrey Keighley
Dr. Clara L. Deasy
Mr. Peter Lowy
Dr. A. G. R. Strickland
Dr. Lewis Pauling

University of
California, L.A.

Dr. Stafford Warren
Dr. Benedict Cassen
Dr. Andrew H. Dowdy
Dr. George Taplin
Dr. Albert W. Bellamy
Dr. Marta Billings

FRIDAY, JANUARY 13, 1950 - MORNING SESSION

The various research projects at the California Institute of Technology were inspected, which included studies on the Biological Synthesis of Proteins with use of Isotopes under the direction of Dr. Henry Borsook; the Genetic and Cytological Effects of High Energy Radiation divided as follows: Work on the mold neurospora crassa; Work on the fruit fly drosophila melanogaster; Work on Indian Corn, Zea Mays under the direction of Dr. George Beadle.

Reports will be studied from time to time to determine the progress that is being made in these genetic studies.

AFTERNOON SESSION

The facilities at the AEC Project at the University of California were inspected on Friday afternoon. The Committee was interested in visiting the various laboratories which included Radiobiology, Pharmacology, Toxicology, Biochemistry and Industrial Hygiene.

AGENDA - SATURDAY - JANUARY 14, 1950

Minutes of
Meeting of
November 11
and 12, 1949

Minutes of Meeting of November 11 & 12, 1949. The first order of business presented to the Committee by the Chairman was a discussion of the minutes of the meeting held at Oak Ridge Operations Office on November 11 and 12, 1949. The minutes were unanimously approved after a motion by Dr. Wearn and seconded by Dr. Hastings.

Report on
Support of
Research
Projects

Report on Support of Research Projects. Dr. John Bowers and Dr. Paul Pearson reported that the following projects had been approved for support by the Division of Biology and Medicine during the months of November and December 1949.

a. Proposals approved:

Medicine

- (1) Georgetown University - Dr. Charles F. Geschickter
"A Study of the Redistribution of Bivalent
Metallic Ions in Bone Metabolism and in Bone
Disease and Neoplasms through the Use of Radio-
isotopes and Novel Chelating Compounds" - \$8,000

(Georgetown University - cont'd.)

Personnel	\$3,000
Equipment & Supplies	4,500
Overhead	500
Miscellaneous	0
Total	<u>\$8,000</u>

- (2) University of Chicago - Dr. Isidore Gersh -
"Histochemical Study of Cement Substances of
the Normal and Abnormal Optic Lens" - \$12,960

Personnel	\$5,000
Equipment & Supplies	6,500
Overhead	960
Miscellaneous	500
Total	<u>\$12,960</u>

- (3) Harvard Medical School and Massachusetts
Institute of Technology - Dr. David G. Cogan
(Harvard) and Dr. Robley D. Evans (MIT) -
\$15,591.70 - "Production of Cataracts by
Neutrons and Other Radiations"

Personnel	\$8,008
Equipment & Supplies	4,250
Overhead	2,033.70
Miscellaneous	1,300
Total	<u>\$15,591.70</u>

- (4) State University of Iowa - Dr. Titus C. Evans
and Dr. P. J. Leinfelder - "A Quantitative and
Morphologic Study of Radiation Induced
Cataracts" - \$20,564

Personnel	\$8,000
Equipment & Supplies	8,100
Overhead	1,464
Miscellaneous	3,000
Total	<u>\$20,564</u>

- (5) New York Medical College - Dr. Alfred L. Copley -
"Studies of Vascular Factors in Radiation
Hemorrhage and Other Hemorrhagic Diatheses in
Patients and Experimental Animals" - \$13,528

Personnel	\$9,060
Equipment & Supplies	3,018
Overhead	1,000
Miscellaneous	150
Total	<u>\$13,528</u>

- (6) Northwestern University - Dr. John Cooper -
"Radiobiology Training Program" - \$8,200

Personnel	\$3,000
Equipment & Supplies	4,600
Overhead	600
Miscellaneous	0
Total	<u>\$8,200</u>

(Approval of transfer to AEC of ONR contract
and renewal for one year)

- (7) University of Georgia - Dr. S. A. Singal - "The
Effect of Nutritional Deficiencies in the
Synthesis of Phospholipids and Nucleoproteins
in the Rat" - \$5,600

Personnel	\$1,500
Equipment & Supplies	3,685
Overhead	415
Miscellaneous	0
Total	<u>\$5,600</u>

- (8) Louisiana State University - Dr. Ralph W.
Brauer - "Studies of Liver Physiology and
Pathology Involving the Use of Bromsulphthalein
Containing S³⁵" - \$6,383

Personnel	\$2,750
Equipment & Supplies	2,840
Overhead	473
Miscellaneous	300
Total	<u>\$6,383</u>

Biology

- (1) Boyce Thompson Institute (Yonkers, N.Y.)
Dr. George L. McNew; Dr. S. E. A. McCallan;
Dr. Lawrence P. Miller - "Use of Tracer
Fungicides in Determining the Mechanics of
Protecting Plants from Fungus Diseases" -
\$13,500

Personnel	\$7,300
Equipment & Supplies	3,500
Overhead	1,500
Miscellaneous	1,200

Total \$13,500

- (2) University of Wyoming - Dr. Irene Rosenfeld;
Dr. O. A. Beath - "The Interrelationship of
Sulfur, Phosphorus and Calcium in Selenium
Poisoning and the Mechanism of Selenium
Metabolism in Plants and Animals" - \$7,747

Personnel	\$2,000
Equipment & Supplies	5,747
Overhead	0
Miscellaneous	0

Total \$7,747

- (3) Fish and Wildlife Service, U. S. Department
of Interior - Dr. A. M. Phillips, Jr. -
"A Study of the Physiology of Coldwater
Fish" - \$21,150 - (To be performed under
working agreement)

Personnel	\$12,350
Equipment & Supplies	8,600
Overhead	0
Miscellaneous	200

Total \$21,150

- (4) Utah State Agriculture College - Dr. Clyde
Biddulph - "Uptake of P³² by Sperm in Vitro
and in Vivo" - \$3,000

Personnel	\$1,500
Equipment & Supplies	1,545
Overhead	0
Miscellaneous	400

Total \$3,000

Biophysics

- (1) Mount Sinai Hospital - Dr. Sergei Feitelberg -
"Investigation of Sewage Water Contamination
by Radioactive Isotopes" - \$11,145.60

Personnel	\$6,670
Equipment & Supplies	3,650
Overhead	825.60
Miscellaneous	0

Total \$11,145.60

b. Proposals extended during November and December 1949:

- (1) Columbia University - Dr. Sidney C. Werner -
"Use of Radioactive Iodine in Developing
Quantitative Assay Method for Thyrotropic
Hormone" - \$5,000 - (Extended 1 yr. (Feb. 1,
1950 - January 31, 1951)
- (2) University of Kansas - Dr. E. R. Hall - "Radium
Chloride and Hemopoietic Physiology of Rodents" -
\$1,287 (Supplement to previously approved
contract)
- (3) The Johns Hopkins University - Dr. Abel Wolman,
Dr. George Reid, Dr. Charles Renn, Dr. Irving
Grossman; Dr. Albert Talboys - "Investigation
of Adsorption and Assimilation of Radioactive
Waste by Bacterial Slimes - \$9,422.32 (Duration
November 15, 1949 to November 14, 1950)
- (4) Harvard University - Dr. V. Everett Kinsey -
"Effects of Neutrons and Other Radiations on the
Ocular Lens" - \$19,122.00 (Duration October 1,
1949 to September 30, 1951)
- (5) Mount Sinai Hospital - Dr. Harry Sebatka - "The
Use of Isotopes in the Study of the Etiology of
Drug Eruptions" - \$6,530.00 (Duration December 1,
1949 to November 30, 1951)
- (6) Peter Bent Brigham Hospital - Dr. Francis D.
Moore - "Intracellular Changes in Trauma,
Depletion and Repair; Biochemical Studies in
the Human Being with the Aid of Isotopes" -
(Duration September 16, 1949 to September 15,
1951) - \$18,282.00

- (7) University of Michigan - Dr. Henry J. Gomborg and Dr. F. J. Hodges - "Autoradiography" - \$5,885.00 (Duration January 15, 1950 to January 14, 1951)

c. Proposals Declined during November and December 1949 -

- (1) Reed College - Dr. George Livingston - "Research with Labeled Dichlorophenoxyacetic Acid"
- (2) University of Washington - Dr. Wade Volmiller - "The Effects Upon Liver Function, Protein and Hemoglobin Metabolism of Performing an Eck Fistula in the Presence of Cirrhosis of the Liver"
- (3) Columbia University - Radiological Research Laboratory - Dr. V. K. Franz - "Study of Thyroid Cancer Patients Receiving Repeated Large Doses of Radioactive Iodine to Determine the Effects of Repeated Whole Body Doses of Irradiation"
- (4) Illinois Institute of Technology - Dr. Stanley Mittler - "Effects of Cysteine on the Production of Lethal Mutations in *Drosophila*"
- (5) Loyole University School of Medicine - Dr. Martin B. Williamson - "The Relation of Amino Acids to Healing of Experimental Wounds"
- (6) University of Kansas - Dr. Paul G. Roefe and Dr. Russell C. Mills - "Studies on Casual Factors in Differentiation in Hemopoiesis"
- (7) University of Minnesota - Dr. Jun-ch'uan Wang - "Effect of Radioactive Gold on the Course and Induction of Mouse Leukemia"
- (8) Biological Laboratories, Inc., Brooklyn, N. Y. - Dr. Norman Holomut - "Benefits of Aureomycin in Counteracting Radiation Syndrome"
- (9) Tracerlab - "Radiation Biology"
- (10) Tufts Medical School - Dr. Freddy Homburger - "Construction of Laboratory for High Voltage Linear Accelerator"

UCLA

University of California, L.A. Dr. Stafford Warren presented a brief description of the organization of the AEC project at UCLA. It was of interest to the Committee to learn of the studies that are being carried forward and are primarily focused on:

- (1) The mechanism involving the absorption of dust particles and the effect on the alveolar surface of the lungs;
- (2) Study of the toxic effects following tissue irradiation;
- (3) Study of mechanism by which materials are deposited in bone and other tissues;
- (4) Study of bone marrow and hemopoietic system and what can be done to reduce injury to hemopoietic tissue.

Dr. Stafford Warren discussed matters of defense regarding the handling of large groups of casualties in the event of disaster.

In this connection, the Committee was impressed particularly with the Alpha Scintillation Counter for Health Physics and Dust Study Applications which had been developed at the project under the direction of Dr. Benedict Cassen. This counter has many uses. It was of interest to the Committee to learn that a local veterans' hospital has set aside six beds for the study of the counter application.

Dr. Stafford Warren presented the problem of the

Navy's intention to sink the "Independence". It was unanimously agreed that it would be well to explore the feasibility of beaching the "Independence", the last ship which is still contaminated with long-term radiation hazards rather than sink it. It would then be possible for the ship to be used as a training school. The Director of the Division of Biology and Medicine proposes to submit this problem to the Military Liaison Committee for their consideration and recommendations.

Waste Disposal

Waste Disposal. Dr. William F. Bale reviewed his report on Health Protection in the Handling and Disposal of Radioactive Wastes". After a full discussion it was the sense of the Committee that this excellent report should be published and be widely distributed.

END OF MORNING SESSION -- 12:30 P.M.

MEETING CONVENED -- 1:30 P.M.

Nominees
for
ACBM

Nominees for ACBM. The Committee considered the following nominees to take the places of the two members (Dr. A. Baird Hastings and Dr. George W. Beadle), who are retiring from the membership of the Committee effective June 30, 1950. Nominees in biochemistry to replace Dr. Hastings: Dr. Edward A. Doisy, St. Louis University; Dr. Konrad A. Elvehjem, University of Wisconsin; and Dr. C. H. N. Long, Yale University. Nominees in biology to replace Dr. Beadle: Dr. Curt Stern, University of California; Dr. Kenneth V. Thimann, Harvard University; Dr. Douglas M. Whitaker,

Stanford University.

The above list will be sent to the Commission for their consideration and recommendations.

Atomic —
Bomb
Casualty
Commission

Atomic Bomb Casualty Commission. The problems emanating from the ABCC were summarized by the Chairman.

Dr. Stafford Warren, a member of the ABCC, suggested that it might be well if a contract could be given to a University which would undertake to carry out the established programs in Japan, furnish clinical men (including geneticists and physiologists), and facilities through a contract medium, thus relieving the National Research Council of the administration of the program. Dr. Stafford Warren suggested further that the staff could be known as "traveling professors" and be given a six months' to a year's leave of absence from their universities for assignment in Japan on a rotating basis. The Committee took the view that even though it may become necessary to curtail some of the activities of the program, the genetic part of the program should be continued.

In furtherance of these discussions a meeting is to be held at the National Research Council on February 4, 1950, with the following persons in attendance, to discuss the future program of the Atomic Bomb Casualty Commission in Japan:

Atomic Bomb Casualty Commission Atomic Energy Commission

Dr. Thomas Rivers
Dr. Rebley Evans
Dr. Philip Owens
Dr. Milton Winternitz
Dr. D. W. Bronk
Dr. H. S. Wigodsky
Dr. Grant Taylor
Col. Carl Tessmer
Mr. George D. Meid

Dr. Alan Gregg
Dr. Joseph T. Wearn
Dr. Shields Warren

Bikini-
Eniwetok
Experiments

Bikini-Eniwetok Experiments. The Committee heard with interest the report by Dr. L. R. Donaldson, of the University of Washington, on the Biological Effects of the Bikini-Eniwetok Experiments and the plans for the new survey.

Fellowships

Fellowships. The Deputy Director summarized the status of the Fellowship Program, pointing out that the National Academy of Sciences and the National Research Council had declined to continue the administration of the entire program, and that the Commission and the National Academy of Sciences had come to agreement that NRC should continue to administer only a limited postdoctoral program where the research to be done would in any case necessitate security clearance of the Fellow.

Dr. Bowers stated further that the Commission is of the opinion that a limited predoctoral fellowship program in which Fellows will not necessarily be subject to "Q" clearance should be continued and that such a program is

being established on a regional basis. The Committee regretted the fact that the Fellowship Program is to be placed on a regional basis rather than a national basis, and in this connection, passed the following motion:

"The Advisory Committee for Biology and Medicine is gratified that the Atomic Energy Commission has continued a fellowship program, even under the objectionable restrictions imposed by the rider to the appropriation bill. However, it is the sense of this Committee and our belief that this program should be returned to national administration".

In reference to clearance of individuals working under unclassified research contracts, the Chairman of the Committee read the following letter in part from the Chairman of the Atomic Energy Commission, which summarized the clearance requirements which will be applicable in the future.

- (a) "Q" clearances will be required for all personnel associated with unclassified research projects involving an appreciable chance that restricted data may be discovered.
- (b) In the case of unclassified research projects involving a very small chance that restricted data may be discovered, one individual (normally a principal investigator) will be required to have a "Q" clearance, and suitable briefing so that the work can be carefully monitored; and no other personnel security requirements will be imposed.

- (c) In the case of unclassified research projects involving an essentially zero chance that restricted data may be discovered, no personnel security requirements will be imposed.

Civil —
Defense
Psychological
Survey

Civil Defense Psychological Survey. The Committee heard a report by Mr. R. O. Niehoff and unanimously recommended that in furtherance of the Civil Defense Program it would be well for the Atomic Energy Commission to conduct a psychological survey of the opinions of adult english-speaking citizens with regard to their attitudes and knowledge toward radiation hazards and atomic energy. The program is to be administered by the University of Michigan at an approximate cost of \$30,000 for the work of the survey.

Civil
Defense

Civil Defense. Dr. Warren reviewed the current activities of the Civil Defense Program. He stated that the National Security Resources Board have sent telegrams to the Governors of all the states advising them to plan their civil defense programs, and that Federal agencies will cooperate and lend aid relative to the training of personnel for the treatment of casualties and from a monitoring standpoint.

It is proposed that training courses be initiated by the AEC to assist the NSRB in its civil defense functions.

One course will be for the training of radiological monitoring instructors and the other for the training of

instructors in the medical aspects of atomic warfare.

After a full discussion of the program the Committee reiterated their previous views regarding Civil Defense Planning by reaffirming their action as stated in the minutes of February 12, 1949.

Construction
Contracts

Construction Contracts. Dr. Warren requested the advice of the Committee whether it was advisable to make small grants for remodeling physical equipment in connection with research contracts.

It was the sense of the Committee that each specific case would have to be judged on its merits and considered individually.

Radiation Tolerances. Dr. Warren reported on the suggested levels of tolerances. He stated that a safety factor of 10 for the worker within the plant and a safety factor of 100 for the large population outside the plant had been the suggested levels. Further study is being made of the problem and a report will be made at a later date.

Deputy Director

Deputy Director - Dr. John Z. Bowers. Dr. Warren reported that Dr. John Z. Bowers, Deputy Director of the Division, was transferring to the University of California at Berkeley for investigative work as of February 1, 1950. Dr. Bowers will assume the position of Special Assistant to the Director, effective with the assumption of his work at the University.

The Committee expressed their commendations of Dr. Bowers' past work with the Division of Biology and Medicine.

Executive Officer -

Executive Officer - John A. Derry. Dr. Warren stated that Mr. John A. Derry was joining the staff of the Division of Biology and Medicine as Executive Officer effective February 1, 1950.

Next Meeting

Next Meeting. The next meeting of the Advisory Committee for Biology and Medicine is scheduled to be held in Washington on March 10 and 11, 1950.