

OFFICIAL USE ONLYADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

The fifty-sixth meeting of the Advisory Committee for Biology and Medicine was held at the Atomic Energy Commission in Washington, D. C., on Saturday and Sunday, May 26 and 27, 1956 with the following persons in attendance:

ATTENDANCE

Members of
ACBM

Dr. Gioacchino Failla, Chairman
Dr. Shields Warren, Vice Chairman
Dr. John C. Bugher
Dr. Edward A. Doisy
Dr. H. Bentley Glass

Note

Dr. Charles H. Burnett and Dr. Simeon T. Cantril, members of the Committee were unable to be present due to illness.

Biology and
Medicine

Dr. Charles L. Dunham, Director
Dr. Charles W. Shilling
Mr. Howard C. Brown, Jr.
Dr. Willis R. Boss
Dr. Sterling Emerson
Dr. John R. Totter
Dr. John N. Wolfe
Dr. Roy E. Albert
Dr. John F. Bonner
Dr. Thomas Ely
Dr. Clifford V. Harding
Dr. James F. Haggerty
Dr. Walter D. Claus
Dr. Forrest Western
Dr. Douglas L. Worf
Dr. Robert L. Corsbie
Mr. Herbert A. Stanwood, Jr.
Dr. Paul S. Henshaw
Mr. Robert L. Butenhoff
Mr. Herbert W. Talkin
Dr. Albert W. Bellamy, Consultant
Mrs. Frances R. Montgomery, Secretary

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Other AEC

Mr. A. Tammaro
Mr. Merrill Eisenbud
Dr. A. Bishop
Mr. Richard J. Hallinan
Dr. Harold M. Knapp

Agriculture
Dept.

Dr. Lyle T. Alexander

Saturday, May 26, 1956

9:00 A.M.

The Chairman convened the meeting and expressed regrets that Dr. Burnett and Dr. Cantril were unable to be present on account of illness. He then asked Dr. Dunham to proceed by reporting on the current activities of the Division.

Current Activities Dr. Dunham opened his remarks by introducing the new members of the staff which included, Dr. John F. Bonner, Assistant to Chief of Medical Branch, Dr. Clifford V. Harding, Physiologist, Medical Branch, Dr. Paul S. Henshaw, Biophysics Branch, and Dr. John R. Totter, Biochemist, Biology Branch.

Dr. Dunham reviewed the activities of the Division of Biology and Medicine since the last meeting of the ACBM. Of special interest to the Committee was the statement that the stipends for the fellows of the radiological physics fellowship program and for the industrial

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Hygiene program had been increased from \$1,600. to \$2,500. per year.

Dr. Dunham brought out that the increase in remuneration might have a salutary effect in inducing a higher percentage of acceptance because the need is getting greater all the time for persons with this type of special training.

Brookhaven Medical Center Dr. Dunham advised the Committee that the bids had been opened for construction of the Brookhaven National Laboratory Medical Center.

The low bid was slightly under the original cost estimate. Dr. Dunham felt that the staff and the AEC area office at BNL had done a wonderful job of planning and designing.

Dr. Bugher commented that he thought the BNL staff and the AUI should be commended on the work that they had done in so carefully estimating the costs of the Brookhaven Medical Center and the reactor.

JCAE Hearings Dr. Dunham reported that the JCAE had been very pleased with the hearings on agriculture and medicine which were conducted under Dr. Bugher's auspices two years ago and that they had requested that a follow-up hearing be given this June. A current program is being planned, although on not as large a scale as the previous one. It will be under the guidance of Dr. Albert and Dr. Boss.

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High School Summer Courses Dr. Shilling advised the Committee that three high school science teacher summer courses have been initiated, one at Harvard, one at Duke, and one at the University of New Mexico. The courses are to run for eight weeks commencing July 1.

Training kits are to be provided each teacher and Dr. Shilling expressed his thanks to Mr. Butenhoff for the part he played in obtaining and having the kits assembled.

Research Program In connection with the study of the biological and medical research program, Dr. Shilling told of the meeting of an ad hoc panel which consisted of Dr. Charles H. Burnett, Dr. Robley Evans, Dr. Curt Stern, Dr. A. Baird Hastings, Dr. Orr Reynolds and Dr. Dunham which met with the staff of the Division for two days to discuss and evaluate the research program. Another meeting of this group will take place in the fall for the purpose of firming up the ideas discussed.

A formal report listing the recommendations of the ad hoc panel will be presented to the Committee at a subsequent meeting.

Interdepartmental Committee on Community Air Pollution Dr. Shilling presented a brief summary dealing with the activities of the Interdepartmental Committee on Community Air Pollution. He stated that

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the Congress has authorized the expenditure of \$5 million a year for a five year period. In 1956, \$1,722,000. has been expended and it is anticipated that \$3 million will be spent in 1957.

A group of persons from Los Angeles had suggested that all the money be spent in Los Angeles, however, it was the sense of the subgroup that the money should be expended in a great many different areas of the United States. Dr. Shilling brought out that there is a real opportunity here and that the Committee will have a great deal of money to spend for contract research in the general area of air pollution.

He suggested that if anyone knows where this kind of work can be conducted, he should contact him or write directly to the Air Pollution Committee in the Department of Health, Education and Welfare.

Project Sherwood Dr. A. S. Bishop, Head of the Controlled Thermo-nuclear Branch of the Division of Research briefed the Committee on the present status of controlled thermonuclear research. Dr. Bishop presented some sketches which gave a conceptual picture of what is being attempted and the approaches that are being used.

The Committee thanked Dr. Bishop for an outstanding presentation of a complicated but fascinating subject.

Note: A complete transcript of Dr. Bishop's remarks is available in the files of the Division of Biology and Medicine.

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Status Report Operation Redwing Mr. Corsbie having just returned from the Pacific opened the discussion on Project Redwing.

Dr. Boss reported on the current activities in the test series by reviewing the marine surveys.

Mr. Eisenbud stated that plans are being made for the long range survey of the Pacific. This will consist of utilizing the naval vessels which in the normal course of events are traversing the Pacific. Arrangements have been made with the Navy Department to provide ships that are destined for certain parts of the Pacific to take on foot lockers of polyethylene bottles and for them to take samples of water and to ship them to the NYOO for analyses. It is anticipated that this survey will cover a period of months.

United Nations Scientific
Committee on Radiation

Dr. Warren in his capacity as United States Representative to the United Nations

Scientific Committee on Radiation reported on the activities of its first meeting held in April, 1956. He felt strongly that the most important phase of this first meeting was to set up arrangements by which information could be received and distributed to the member countries and organizations of the United Nations. There was general agreement finally that all of the material turned in should be made available to all countries.

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The next meeting is to be held in October and at that time Dr. Warren believes that there will be pressure for the establishment of regional laboratories where measurements, comparison of standards and so on can be carried out. He stated that long range studies of areas of widely different natural background were considered very carefully.

Dr. Warren emphasized and Dr. Failla concurred that it has been established firmly that the International Commission on Radiation Protection has its specific job to do while the responsibilities of the UN Scientific Committee are entirely separate.

In this connection Dr. Failla said that the most important problem is "not to undermine the authority of the ICRP, because there is always danger that the UN Committee might become a political agency whereas the other definitely is not, and is not likely to become such."

Dr. Dunham inquired of Dr. Warren what kind of material he would like to receive from the Division of Biology and Medicine?

Dr. Warren replied that any of the fallout data as it comes from the shots would be helpful. He also suggested that when the genetics report is received from the Atomic Bomb Casualty Commission that it be sent as a submission to the United Nations as a release from the National Academy of Sciences.

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A full discussion ensued as to the proper procedure for release of the genetic report. It had been suggested by the Japanese that the report should be released from Japan.

The Committee was in agreement that the ABCC report should be released as a joint presentation of the Japanese and the NAS and sent to the United Nations.

Dr. Warren emphasized that the important thing is that the release of the report should be timed so that it is made prior to any of the individual presentations.

Dr. Warren announced that the NAS panels which have been considering the Biological Effects of Atomic Radiation will release their report on June 12. A press conference will be held at that time.

Note: Copies of the report of the Biological Effects of Atomic Radiation are available in the Division of Biology and Medicine.

Operation Sunshine At the instance of Mr. Murray, Operation Sunshine was reviewed at the meeting held in Idaho Falls on March 9 and 10, 1956. The Committee delayed in making a formal report after that meeting awaiting additional data on world-wide fallout available from the New York Operations Office Health and Safety Laboratory.

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A further discussion on the problems emanating from Operation Sunshine was held at this meeting.

Mr. Harold Knapp of the Office of Operations Analysis and Planning opened the discussion by explaining that his office is directly responsible for assisting the General Manager in evaluating existing and proposed technical programs taking into account their economic aspects, their policy implications and their probable effects on other AEC activities and for analyzing and coordinating long range plans especially on those matters involving more than one organization or one unit of the AEC.

Dr. Claus reviewed the previous data that had been presented at the March meeting of the ACBM held in Idaho Falls. He presented for study two statements that he had prepared concerning the problem entitled "Reconsideration of Objectives of Project Sunshine" and "Prospectus on Project Sunshine." Each individual paragraph was analyzed.

Mr. Eisenbud presented several graphs which depicted the data obtained from fallout samples throughout the world. He stated that the NYOO had calculated the amount of gamma emission over the lifetime of the debris.

Dr. Bugher pointed out that "any matter that affects national

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policy so profoundly and goes to the attitudes of the whole population of people, we can't afford to be indulging in small economies, either in time or money."

Dr. Bugher stated further that he didn't feel that the effort that goes into this problem, taking the whole thing, is at all incommensurate with the magnitude of the problem, and the implication of that in our national policy. A further discussion of the Project Sunshine took place in the Executive Session.

Remarks by Mr. Tammaro The Chairman welcomed Mr. Tammaro and thanked him for being present. He asked him if he would like to say a few words to the Committee.

Mr. Tammaro responded by speaking of the fellowship and training programs. He said that the Commission has \$5 million dollars to be spent for education and training in 1957. He explained that under the present AE Act we cannot assist universities to build research reactors, however, if the proposed legislation as recommended is approved, the Commission will be able to assist universities to obtain training and research reactors.

In this connection, Mr. Tammaro mentioned that plans are being formulated whereby the training programs of the Divisions of Biology

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and Medicine, Reactor Development and Organization and Personnel would be better coordinated.

Fiscal Report Mr. Stanwood summarized the budget estimates of the Division for fiscal year, 1958. He informed the Committee that in 1956, we had an operating budget of \$29.2 million; in 1957, \$31.5 million, an increase of slightly over two million dollars. In 1958, after a complete analysis of all requirements, it was decided that the Division would need \$36.1 million or an increase of \$4.6 million. This will include a substantial expansion of the medical program, a large increase at the Oak Ridge National Laboratory, fulfillment of the ABCC program and roughly a million dollars in wage increases and new programs. One million is included for the proposed training program, which is now up as a policy question.

In connection with the discussion on the budget increase, Dr. Warren pointed out that one of the "hardest things to do is to get across the fact that you cannot step up the reactor program, you cannot step up weapons programs, without the necessary backup in biology and medicine. I think that the logical approach is to make the same percentage increase in the foundation programs that are made in the programs in the reactor and weapons fields. Neither of those can progress safely or with any degree of surety unless they are adequately supported from

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the standpoint of biology and medicine."

- Mr. Tammaro remarked that "I think that is a very good point."

Dr. Glass commented that "there was one item in the final conclusions of this Committee report from the genetics panel of the NAS Committee, on which there was never any question of disagreement." That is "that we were all strongly convinced that the amount of money going into biological and medical research, and in particularly as far as that Committee is concerned, genetic research is very badly out of balance with the amount going into the physical aspects of atomic energy programs."

Mr. Tammaro agreed that the Division had been very conservative over the years in their budget estimates and in view of the importance of the biological and medical programs he was of the opinion that additional funds should be requested of the Commission. He indicated that he would be pleased to take this matter up with the General Manager.

Research Program Dr. Shilling led an interesting discussion on the overall research program. He spoke of the responsibility of the Division in selecting areas of research and particularly mentioned the strontium⁹⁰ program, the ecology program, and the oceanography program. He said

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that Dr. Dunham and he had talked with Dr. Libby to seek his advice on whether the Division should go into an oceanography program and Dr. Libby said "by all means go into it."

Dr. Failla made reference to the Sunshine Project - stating that it has acquired great importance in the minds of the Commission because of public relations, etc. "It is perhaps being run as a crash program." He emphasized that what he had in mind was to re-examine the project and "see what actually we want to find out in a hurry, and then to let the other things progress slowly and in the natural course of events."

Dr. Claus raised the question of lack of sufficient personnel to handle these programs.

Mr. Tammaro inquired whether the personnel for the Division had been raised?

Dr. Dunham responded "not yet."

Mr. Tammaro remarked that he thought probably something could be done about increasing the ceiling for personnel in the Division.

Mr. Brown commented that since he had joined the Division in 1951, that we now have programs at both poles around the world, and we are

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taking broad samplings at the bottom of the ocean and we are sponsoring rocket flights to the stratosphere.

Dr. Dunham brought out that the Division had to rush through an emergency allocation of funds in the amount of \$75,000 before the Cherokee shot.

The discussions on the research program ended at 4:40 P.M. and the Committee took a recess until Sunday, May 27, at 9:00 A.M.

Sunday, May 27, 1956

9:00 A.M.

The Chairman reconvened the meeting for the second day of the session and asked for any discussion on the research projects that had been approved by the Division since the last meeting.

Research Projects Dr. Glass inquired if there was some kind of a breakdown in between the summary of contract actions which just gives biology, medicine, biophysics and so on and the individual progress reports.

Dr. Shilling replied that there is an effort being made at the present time to categorize the projects and he explained how the procedure

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will be placed into effect.

A report will be made available on the new procedure at a subsequent meeting.

Status Report - ABCC Dr. Dunham led the discussion on the ABCC. He referred to the Resolution made by the Committee at the meeting held in Idaho Falls and which was forwarded by the Chairman of the ACBM to the Chairman of the AEC. Dr. Dunham said that the Resolution was discussed with the General Manager and the Chairman. A draft letter addressed to Dr. Bronk was considered at that meeting. It was determined that no letter should be sent to Dr. Bronk but that a conference should be arranged to talk over the mutual problems.

Dr. Dunham mentioned his discussion with Dr. Hayworth, Director of the Brookhaven National Laboratory concerning the possibilities of having the Associated Universities, Inc., take over the administration of the ABCC. Dr. Dunham stated that Dr. Hayworth had said that the Executive Committee of the AUI would not consider taking over the ABCC unless it was with the wholehearted blessing of the Academy or at least the Academy was willing that this be done.

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A conference was held with Dr. Bronk which concerned the possibility of transferring the administration of the ABCC to another authority. Dr. Bronk felt that the Academy had a challenge. They had accepted this responsibility back in 1947 by a Presidential directive and it could not afford from the standpoint of its prestige and reputation in the country, as it were to admit that it was incompetent to do this job properly, therefore, he was going to see that it was done.

After this conference the following letter, dated April 25, 1956, was dispatched to Dr. Bronk which set forth the mutual agreements:

"Dr. Detlev W. Bronk, President
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington 25, D. C.

April 25, 1956

Dear Dr. Bronk:

It was a pleasure to meet with you last Thursday and for Mr. Fields and Mr. Tammaro to have an opportunity to discuss with you the very real problems associated with the operation of the Atomic Bomb Casualty Commission. As we indicated the Atomic Energy Commission's prime interest in the ABCC is to assure smooth continued operation of this program which is so important to science as well as to the prestige of the United States. Since 1947 the AEC has invested \$10,900,000 in the program of the ABCC including approximately \$900,000 in overhead to the Academy. Inasmuch as the program is of a long-range character, a further investment in operating costs and facilities substantially in excess of prior expenditures must be anticipated.

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During our discussion certain steps were mutually agreed upon which in our opinion will materially strengthen the operation of ABCC. The three most important for immediate action are:

1. The appointment of a full-time top level person reporting directly to the President of the Academy to handle all matters concerning the ABCC seemed to be of prime importance. This individual would have to have stature sufficient to assure the cooperation and assistance of all the Division of the NRC-NAS organization. He would have to be provided adequate staff. He should develop complete rapport with the Director of the ABCC staff in Japan and as a part of his responsibilities would visit the ABCC two or three times a year. He would be expected to maintain liaison with universities, associations of universities such as AUI and ORINS, major AEC radiobiological laboratories and appropriate schools of public health, preventive medicine and the like, as well as laboratories of the USPHS and various departments of the Department of Defense for the purpose of planning for an uninterrupted supply of competent personnel to the project in such a way that persons employed in Japan will be relieved of worries concerning their status on return to this country. He would plan a 3-months orientation period for all scientists prior to their departure for Japan so they would have adequate grounding in radiation biology and become familiar with current experimental work going on in this field and where appropriate a similar orientation in epidemiology. The former could be accomplished by arrangements with such laboratories as the Argonne National Laboratory, the Argonne Cancer Research Hospital, the ORNL, and the BNL.

2. The establishment of an additional top-level position in Japan. In this connection, it was agreed that the responsibilities vested in the position of Director were too much for one man. The best solution to this problem seemed to be that there should be a director or an administrative director who among other things would be responsible for public relations with the Japanese which appear to be almost a full-time job in themselves. In addition, there should be a scientific Director or Deputy Director for Research who would coordinate the research program and by relatively frequent visits to the States assist the Western Office of the Academy in its responsibilities as to procurement of personnel, liaison with laboratories, medical schools, and the like. This would be a particularly important part of his activities, for in the past recruitment for ABCC without personal

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interviews with a responsible member of the field staff has in my opinion been a source of a great amount of dissatisfaction developing after new staff has arrived in Japan. This sort of dual directorship has to the best of my knowledge worked very well at the National Institutes of Health.

3. Re-orientation of the responsibilities of the Committee on Atomic Casualties. It was agreed that the CAC, as reconstituted, in relation to the new status of the Washington ABCC staff should concern itself with advising and evaluating re the scope and orientation of the scientific program.

You will recall that we discussed the question of the desirability of having some operating contractor for the ABCC other than the National Academy of Sciences. It was agreed to drop this idea for the time being inasmuch as the NAS would immediately undertake to implement the measures outlined above.

Finally, you were given assurances that the AEC would do everything within its power to assure continuity of adequate financial support consistent with the needs of the ABCC to accomplish its primary mission.

Sincerely yours,

Charles L. Dunham, M.D.
Director
Division of Biology and Medicine"

Dr. Dunham discussed each separate item in the letter and he said that he intended to keep in touch with Dr. Bronk regularly regarding its contents.

Further discussion ensued.

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Dr. Bugher thought that it would be unfortunate to contemplate any agreement which would have two directors. He said "I think there can be only one director of a project. We might have a deputy to work with him in what ever division of duty which might seem to be reasonable or proper. But one person must carry the responsibility for discharging the requirements of the program."

Dr. Warren indicated that he would certainly agree strongly with that statement and particularly in an overseas operation.

Dr. Failla believed that the division of authority is not a workable solution to the problem. He said that "you have to have one individual who is responsible for the administration of the project."

Dr. Glass stated that he appreciated Dr. Bronk's feeling about the reaction that the transfer of the ABCC to some other contractor would have on the Academy. He pointed out that "it makes me feel very uneasy because to say that he sees a great challenge here does not excuse the fact that the challenge has been there all the time, and the situation was desperate. I feel uneasy because this amounts to saying really, we will give you one more chance. It may very well be that giving this one more chance will mean the final disintegration of the program. This is a chance we have to take, but I feel uneasy."

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Shielding Studies - Japan
Trip Report - Mr. Corsbie

Mr. Corsbie told of the recent trip of the survey team to Hiroshima and Nagasaki for the purpose of obtaining first hand information on kinds of shielding data collected by the ABCC on individuals exposed to the atomic detonations of August, ¹⁹⁴⁵~~1955~~ and to assess the data with the objective of carrying out laboratory and full scale field tests in the United States to establish the radiation doses received by individuals exposed to the radiation effects.

He stated that "it was the concensus of the team that the shielding studies have been carefully conducted and a significant amount of reliable information has been collected on individuals, their location at burst time, and materials contributing to the attenuation of neutron and gamma radiation received by these individuals."

He felt that he would be derelict in his duties if he didn't stress the fact that the data collected from Hiroshima and Nagasaki are of the greatest importance for national self protection.

Dr. Warren remarked that he was very happy to learn that the shielding studies are going ahead rapidly, and the matter of preservation of records being expedited.

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Dr. Bugher said that "I think the direct visit of this survey team must have had a very uplifting effect as far as the enthusiasm of the people at the ABCC are concerned."

Status Report
Rongelap Natives

Dr. Dunham referred to his statement which he had forwarded to Dr. Libby on April 19, 1956 concerning the return of the Rongelap people to their home atoll. (Copy of statement sent to the Committee members May 4, 1956)

He said that it is now planned to return the natives as soon after completion of Operation Redwing as it can be accomplished, subject however, to a resurvey of the island so as to be sure that the test activities themselves have not altered the picture. In connection with the discussion Dr. Glass pointed out that here was a very small population exposed to a very high dose of radiation. Dr. Dunham stated that there were 64 people who were on the Island of Rongelap that received 175r and 18 on Ailingnae who received 75r.

Dr. Glass stated "this is an ideal situation to make your genetic study. It is far more significant than anything you could ever get out of Hiroshima and Nagasaki."

After a full discussion, Dr. Dunham said there was no reason why the study could not be carried out since it would not be inconsistent

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with our interest in the well being of these friendly peoples.

Dr. Glass pointed out that it would be a good chance to get some kind of check on what the NAS panel is emphasizing, the dominant effect of what are commonly called recessive genes.

Dr. Dunham said that he would keep Dr. Glass' suggestion in mind and see what type of study can be done.

Status Report
Uranium Mining

Dr. Albert reported on his recent trip to Johannesburg, Africa, where he went to investigate the possibility of obtaining evidence on radon exposures of the miners.

He said that an attempt was made to spot these mines which would be representative. A mine was selected which mined only uranium, one which mined gold and one which mined both uranium and gold.

Dr. Albert stated in summary that the South African gold mining situation appears to have the possibility of making a useful contribution toward our ideas as to what individuals can tolerate in the way of long term exposure to radon and daughter products. The population is large and the exposures there are appreciable.

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Rochester Toxicity Studies Dr. Albert continued by discussing the current toxicologic problems under study at Rochester. He explained that the Knolls Laboratory had asked them to look into some of the current problems on rare earths, gadolinium, samarium, etc. Sandia had asked that some toxicological studies be done of indium, both in the non-radioactive state and also indium 114.

Dr. Albert stated also that the Laboratory at Rochester plans to get some studies going on mercury for Oak Ridge, because there are levels of mercury vapor in the air at the separation plant for the lithium isotopes which are pretty high, and they have had about 30 or 40 cases of albuminuria. Oak Ridge National Laboratory is making some strenuous efforts to cut down the exposure concentrations by increased ventilation and cleaning up the area. However, they are still worried about the long term toxicity of mercury vapor.

Gaseous Diffusion Plant Dr. Ely reported that at the instance of the Division of Reactor Development he visited the Portsmouth area (Ohio) for the purpose of looking into several problems at the Gaseous Diffusion Plant.

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Radioisotopes Training
Program

Mr. Haggerty explained that a proposal had been received in the Division from the University of Washington in which there is pointed out the inadequate provisions for the training of the medical student in both practical experience and the basic principles and techniques in using radioisotopes and requesting funds for this purpose. Mr. Haggerty inquired of the Committee their views as to the advisability of the Division supporting such enterprises in the various medical schools.

Dr. Shilling reported on a conference held with representatives of the National Institutes of Health, Dr. Ernest Allan and Dr. Ralph Meador, and Dr. Harry Kelly of the National Science Foundation in which the problem was considered. He said that it was the feeling of the NIH that they would not and could not undertake support of this type of activity. He stated further that Dr. Kelly was very familiar with the whole matter and has been working on it for a number of years, however, it was his feeling and that of Dr. Palmquist of the National Science Foundation that training activities dealing with radioisotopes certainly should be supported by the AEC and not by the NSF.

Dr. Shilling said that "if we activate the proposal that Mr. Haggerty has presented, others will ask for the same."

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A full discussion was held.

Dr. Warren brought out that we are doing extensive training of people from foreign schools in a much more elaborate fashion and at a much greater per individual cost. "I think that we certainly ought to do a fraction as much for our own people as we do for Egyptians and Thailanders and so on."

Further discussion was held on the cost of such a program.

The Committee members expressed their views on the value of such a training program and without making a formal recommendation, they individually suggested that the program should be initiated.

Atoms-for-Peace-Program In connection with the Atoms-for-Peace-Program,
Cobalt Units Dr. Emerson said that it had been suggested that some cobalt sources be made available to scientists in foreign countries. One of the aspects that he emphasized was the potential use of gamma fields for plant breeding studies. Dr. Emerson stated that the present status is that six gamma sources are now being manufactured, under design and the contracts let through Brookhaven and it is anticipated that the delivery date will be in July. It has not been determined which countries will receive the Cobalt Units for use in research in plant breeding studies.

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Remarks by Dr. Failla The Chairman commented on the question of burial sites for the disposal of radioactive material, whether they should be under the jurisdiction of either the Federal Government or the states. He asked "if something couldn't be initiated to start some sort of a movement?" "It is desirable to have these burial sites under permanent control. If you allow the industrial concerns or individuals to control them, they may change their occupation or business and the next thing you know, the site is used for something else, and the dispersal of radioactive material is not controlled at all."

Dr. Western replied that he didn't know whether any legislation would be necessary or not. He stated that there are under preparation regulations which essentially prohibit the burial of a large quantity of radioactive material except in such sites.

Dr. Failla once again asked if it should be done on the state level or the federal? Dr. Western answered that he personally would be glad to see it on the state level. Dr. Failla believed that that would be preferable.

International Congress of Radiobiology

Dr. Failla reported that the International Congress on Radiobiology is planning to hold a conference in all probability in the United States in 1958. He mentioned this is in connection with seeking information whether plans

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are in the offing for another United Nations conference in 1958.

International Commission on
Radiation Protection

Dr. Failla spoke on the recent activities
of the International Commission on

Radiation Protection. In this connection he mentioned that he was on the NAS genetic panel with Dr. Glass and their discussions had been in terms of a dose for occupational exposure up to the age of 30 or thereabouts.

Dr. Failla said that the International Commission was recommending "that up to the age of 30 the accumulated dose to the gonads should not exceed 50r, without however, changing in any way the present weekly doses. So that for a certain period of time, people can be exposed at a higher rate than would be indicated by the 50r. Therefore, this would not inconvenience or interfere with any work that is being carried out at a higher rate in exceptional cases. For the total lifetime dose, a figure of 200r was recommended, which actually means that an increase in the accumulated dose at the rate of 5 roentgens per year is considered to be the permissible rate."

Dr. Warren said that we are advancing our knowledge very fast year by year. The levels have been changed every few years in the past. They happen always to have been changed downward. He said that it is

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much easier to change upward than it is to change down, and that he couldn't see any major operating difficulties for the next two or three years. By that time we ought to have had a considerable advance in our knowledge of the mammalian genetic field, and a good idea as to whether we are on the right track or not.

Dr. Glass pointed out that "the recommendations are on the basis of what seems to be practicable, not on the basis of what radiation is considered to be genetically harmless. There is no such amount of radiation. All geneticists, I am sure, pretty well agree on this."

Dr. Failla said that the Committee is lowering the limit because they feel that the former limit didn't have enough of a factor of safety and present accumulated information indicated that the present limit is too high. He stated also, that the International Commission is going to recommend a dose for the general population which is going to be 10r accumulated up to age 30.

Upon the conclusion of this discussion, Dr. Failla gave a few remarks on his recent visit to some of the laboratories in Italy.

Laboratories in Italy Dr. Failla told of his recent visit to some of the laboratories in Italy. He discovered that they are not so poorly equipped in the way of apparatus.

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Dr. Failla mentioned however, that it might be worthwhile to provide the Biological Station in Naples with some apparatus and let it be known that this equipment came from the United States. He said that they do lack trained personnel.

Dr. Shilling stated that it is being contemplated that a conference be held in Italy on the use of radioisotopes in marine biology as a sort of a stimulus to bringing European scientists into that center, and advertise the fact that this center was something that America is particularly interested in.

In connection with the question of X-ray studies, Dr. Failla remarked that Italy would be a very good place to investigate what has happened to radiologists and technicians because they know practically nothing about protection. "The way some of these people work exposed to radiation was really shocking."

The Retirement of Dr. Doisy Dr. Dunham noted that Dr. Doisy would be
From ACBM

leaving the membership of the Committee on June 30. He said it had been a tremendous privilege for the staff to meet with Dr. Doisy regularly the past six years and that he wanted to thank him for his wise counsel and guidance and for the inspiration he had given to all of the staff to do a better job.

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Dr. Failla said that he wanted to express the feeling of the Committee at the terrific loss that they were going to have when Dr. Doisy was no longer with them to deliberate over questions. Dr. Failla stated further that the Committee appreciated his judgment and frankness and reasonableness in his discussions on important problems.

Dr. Doisy replied by thanking Dr. Dunham and Dr. Failla for their kind remarks and he expressed a desire to have each and everyone visit both ^{him} ~~he~~ and his family in Saint Louis.

Executive Session The problems associated with Project Sunshine were again reviewed in the light of Mr. Murray's request.

After a full deliberation, it was determined by the Committee that the Chairman with the assistance of Mr. Eisenbud should correlate the material and prepare a status report on Project Sunshine and circulate the report to the Committee members for their perusal and concurrence before submission to Mr. Murray.

Scientific Secretary Upon the recommendation of the Assistant General Manager for Research and Development in his memorandum to Mr. R.W. Cook dated February 20, 1956, there has been established the position of a scientific secretary for the ACBM. The committee considered several

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names of persons to fill such a position. It was agreed unanimously that the position of scientific secretary should be proffered to Mr. Hanson Blatz of the NYOO.

Note: Dr. Failla advised Dr. Dunham on June 1, 1956 that Mr. Blatz is willing to accept the appointment of scientific secretary to the ACBM.

Minutes of Meetings The draft minutes of the meeting held at the NYOO
Approved on January 13 and 14, 1956 and the meeting held in Idaho Falls, Idaho, on March 9 and 10, 1956 were approved unanimously upon a motion by Dr. Glass and seconded by Dr. Warren.

Next Meeting The next meeting of the ACBM is scheduled to be held at the Atomic Energy Commission in Washington, D. C., on September 21 and 22, 1956.

The meeting adjourned at 5:30 P.M.

APPENDIX A: Letter to Mr. Strauss, dated 8/7/56.

APPENDIX A

August 7, 1956

Mr. Lewis L. Strauss
Chairman
U.S. Atomic Energy Commission
1901 Constitution Avenue, N.W.
Washington, D. C.

Dear Mr. Strauss:

The minutes of the last meeting of the Advisory Committee for Biology and Medicine held May 26 and 27, contain in detail the subjects discussed and decisions reached. There are, however, several points which were particularly significant and which we feel should be reported to the Commission.

Dr. Warren in his capacity as United States Representative to the United Nations Scientific Committee on Radiation reported on the activities of the first meeting of the Committee held in April 1956. According to Dr. Warren, the most important result of this meeting was the establishment of preliminary arrangements by which pertinent reports could be received and distributed to the member countries of the United Nations. The next meeting is to be held in October and at that time, Dr. Warren believes thought will be given to the establishment of regional laboratories where measurements and comparison of standards can be made.

The Advisory Committee has devoted many hours of serious discussion during the past year to Project Sunshine. We regard this as one of the most important responsibilities of the Commission. Accordingly, we were only too happy to review the subject once again at the instance of Commissioner Murray. At the meeting, and based on the discussions there, I offered and fully intended to collaborate with Mr. Eisenbud in the preparation of a status report on Project Sunshine for submission to the Commission on behalf of the Committee. Due to my illness, however, we have not been able to adhere to the schedule as set for ourselves. If all goes well, Mr. Eisenbud and I hope to have completed the report before the middle of September.

The Committee was most interested in Dr. Dunham's recent report to Dr. Libby dated April 19, 1956, concerning the "Evaluation of Environmental Contamination of Rongelap Atoll." We understand that it is planned to enable the return of the Rongelap people to their atoll soon after Operation Redwing. This is subject, we understand, to a resurvey of the radiation levels on and about the atoll. The Committee hopes that conditions will permit an early accomplishment of this plan. The Committee

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also is of the opinion that here is an opportunity for a useful genetic study of the effects of radiation on these people. We feel that such a study may be as valuable if not more so than the data from the Hiroshima and Nagasaki studies, and is not inconsistent with the interest of the United States in the well being of these friendly peoples. We recommend that such a study be undertaken.

Dr. Roy Albert, Chief, Medical Branch of the Division, reported to us on his recent visit to the uranium mines in South Africa. The purpose of the visit was to explore the possibility of obtaining data on the exposure of miners to radon and its daughter products. From the preliminary data obtained, the Committee believes that it would be useful for the AEC to follow up on the contacts made by Dr. Albert. There appears to be a real possibility of expanding our knowledge of the effects of long-term, low-level exposures.

The Advisory Committee has had under consideration for a number of months the establishment of a Secretariat to the Committee and the appointment of a Scientific Secretary. We have proceeded cautiously with the idea, not wishing to add to the expenses of the Committee nor to formalize unnecessarily the relationship of the Committee to the Commission and to the Division of Biology and Medicine. At the last meeting the matter again was considered and the consensus was that a Scientific Secretary could materially assist the Committee, ease the burden on the staff of the Division of Biology and Medicine and expedite the preparation and transmission of minutes and reports to the Commission. One of the more cogent reasons advanced in support of the need for a Scientific Secretary is that such an appointment would relieve the Division of Biology and Medicine from the anomalous position of serving as staff to the Committee and staff to the Commission. We do not think it is advisable for Division personnel to assist in the preparation of Committee comments to the Commission and Commission comments to the Committee.

If the Commission approves our request, the Committee would propose to offer the appointment of Scientific Secretary to Mr. Hanson Blatz of the New York Health and Safety Laboratory. Not only do we feel that Mr. Blatz is technically competent to carry out the assignment but his availability in New York would be a convenience to me as Chairman of the Committee for the coming year. In view of important and substantial responsibilities of Mr. Blatz as Chief of the Radiation Branch, Health and Safety Laboratory, and his role in assisting the Division of Civilian Applications in the formulation of health and safety regulations, we do not feel we should also impose on him the manifold administrative duties connected with Committee business. These administrative duties now and

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for the past nine years have been carried out in a most efficient and effective manner by Mrs. Frances Montgomery, Assistant to the Division of Biology and Medicine. After careful consideration we do not feel that the two functions would at all be in conflict but rather would complement one another.

The Committee was extremely interested in Dr. Dunham's report of the plans for the scientific and operational program of the Division of Biology and Medicine in the coming fiscal year. We noted with approval plans to expand research studies in oceanography, meteorology and marine biology. A vigorous program in these areas is essential, we believe, to the safe conduct of weapons tests and to the intelligent expansion of the atomic energy industry throughout the world. In this latter connection it occurs to us that studies in such disciplines as oceanography, meteorology, and marine biology ultimately might be undertaken by the proposed International Atomic Energy Agency. These are fields in which most of the nations of the world have a common interest; thus a joint undertaking by the proposed IAED would not only appear feasible but would serve to attract to that agency the scientific talent which will be necessary to carry out its control and inspection functions. Meanwhile, these studies must be carried out mainly by the AEC. We were encouraged by Mr. Tammara's assurances that every effort would be made to provide adequate funds and sufficient personnel to carry these programs forward.

We regretted very much that the time had come to say farewell to Dr. Doisy whose term of service on the Committee ended on June 30. On behalf of the Committee, I thanked Dr. Doisy for his wise counsel and guidance over the period of six years.

The next meeting of the Advisory Committee is scheduled to be held in Washington, D. C., on Friday and Saturday, September 21 and 22, 1956.

Sincerely yours,

G. Failla

GF:krj