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MINUTES

of the

SEVENTY-SEVENTH MEETING

of the

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

U. S. ATOMIC ENERGY COMMISSION

November 13-14, 1959  
Oak Ridge, Tennessee

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The 77th meeting of the Advisory Committee for Biology and Medicine, U. S. Atomic Energy Commission, was held on November 13 and 14, 1959 at Oak Ridge, Tennessee. The meeting was attended by Committee members Drs. H. Bentley Glass, James G. Horsfall, Robert F. Loeb, Leonidas D. Marinelli and John C. Bugher, the Vice Chairman, who presided. Dr. Charles L. Dunham, Director, Division of Biology and Medicine, and various senior members of his staff were present at the various sessions. The Oak Ridge Operations Office was represented by S. R. Sapiro, Manager, Dr. Herman M. Roth, Director, Research and Development Division, and Dr. Sam Stroup, Chief, Biology Branch, Research and Development Division.

The Minutes of the 76th meeting were accepted with a minor correction.

With respect to filling the two vacancies in the Committee membership, it was reported that Dr. Charles H. Burnett felt himself unable to continue for two more years, as had been proposed. Dr. Carl V. Moore, of Washington University, St. Louis, and Dr. James Sterner, Eastman Kodak Company, Rochester, N. Y., were proposed as possible successors to Dr. Burnett. Of the radiologists proposed to fill the vacancy created by Dr. Cantril's death, it was learned that Dr. Henry Kaplan (Stanford University) was unable to consider such an appointment at this time, and the name of Dr. Fred J. Hodges, of the University of Michigan, was therefore sent to the Commission.

The next meeting of ACBM will be held at Hanford, Washington, on January 8 and 9, 1960.

The business of the 77th meeting fell under the following general headings:

1. On-site review of the program of the University of Tennessee-AEC Agricultural Research Laboratory
2. On-site review of the program of the ORINS Medical Division
3. Reports on other AEC laboratories (Hanford, Argonne)
4. Reports on certain AEC programs
  - a. Radiobotany
  - b. Molecular biophysics (Florida State University Proposal)
5. Short-lived isotope and fallout exposure problem

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6. Miscellaneous

1. UT-AEC Agricultural Research Laboratory

The morning of November 13th was spent in visiting the University of Tennessee-AEC Agricultural Research Laboratory, where a series of presentations by staff investigators described investigations dealing with (a) radioactive strontium-89, fluorine-18, and related elements in beef, sheep, swine, and poultry (Bell, Cragle, Demott, Mraz); (b) the effect of radiation on reproduction in swine, cattle and rats (Murphree, Hupp); (c) some acute and late effects of whole body exposure on farm animals (Brown, Sasmore, Souto); (d) some mutagenic effects of radiation on chrysanthemums (Osborne, Gast).

A number of the staff also hold teaching appointments at the University of Tennessee, and a 3-year program leading to the M.S. degree in the School of Agriculture is in force which allows the student to work full time at the laboratory. It is hoped that a program leading to the Ph.D. degree can be worked out through the University's Radiobiology Institute.

It is anticipated that the physical plant of the Laboratory will be adversely affected if the proposed Milton Hill Dam is constructed by TVA on the Clinch River: about 600 acres -- perhaps one-third of the available grazing land -- would be flooded; such land would have to be replaced. Because of time limitations, the ACBM discussion of this program was deferred to a subsequent meeting.

2. Medical Division, ORINS

The afternoon of November 13th was spent in visiting the Medical Division of the Oak Ridge Institute of Nuclear Studies. The Medical Division is located in its own 30-bed hospital-laboratory-teaching building; it also has a pre-clinical research building near the UT-AEC project. Dr. Marshall Brucer, Chairman, and the senior staff reviewed important aspects of the three-phase program.

The clinical program now is concerned with the treatment of blood disease, especially of acute leukemia with total-body irradiation (Andrews, Sitterson, Kretchman, Nelson, Ross, Comas). The latter, especially, with its concomitant biochemical and bone marrow transfusion studies, is considered to be of special interest to the AEC, since knowledge acquired here may be of great use in the case of radiation accidents.

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The preclinical program (Kyker, Snyder) is currently concerned with the effects of cerium on fat metabolism.

The Research and Training Program (Kniseley) is continuing to serve the needs of medical technicians and of various medical specialists -- both from this country and abroad -- who seek specific training in the medical use of radioactive isotopes. A particular feature of the program is one course designed to satisfy the AEC requirements for the licensing of physicians in this country who wish to use radioactive isotopes in practice.

The budget of the Medical Division for FY 1960 is \$784,000, and it is expected that this will be increased somewhat in FY 1961 owing to the increasing cost of personal services, but not to increase in general activity. The anticipated breakdown of the budget is 36% for patient care, 20% for medical research, 17% for training, 17% for preclinical research, and 10% for medical physics.

The discussion of the Medical Division's program took place on November 14th at the executive session of ACBM. It was attended by Dr. Paul Gross, President of the Board of Directors, ORINS (and Vice President of Duke University), Dr. William G. Pollard, Executive Director, ORINS, and Board members Dr. George T. Harrell (Dean, College of Medicine, University of Florida), and Dr. John L. Wood (Chief, Division of Chemistry, University of Tennessee at Memphis).

ORINS has three other divisions besides the Medical Division: University Relations, Special Training, and Museum. Its council represents 37 Southern universities. Its aim is to complement the work of the universities in the field of education but not to compete with them.

Dr. Gross, in agreement with the other ORINS representatives present, stated that the Institute is interested in keeping training and education to the fore in its activities. The Medical Division began as a program to study the potential therapeutic effects of short-lived isotopes. It was then joined with a training program (separate from the other training programs in the Division of Special Training), since it was believed that training and research are best carried out in close association. ORINS does not anticipate expanding the operation of the Medical Division, but wishes to maintain the staff at a high level of competence.

Although no formal motion was made, it was evident from the tenor of the discussion that ACBM felt that the ORINS program has been well conceived and administered over the years. It concurs in the judgment of the Board of Directors that the Medical Program should be

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ERRATA SHEET

Minutes, 75th Meeting of Advisory Committee for Biology and Medicine,  
USAEC, June 12-13, 1959.

Substitute following paragraph for paragraph 2, page 5:

There was noted the marked tendency in the national laboratories to resist undertaking work designed to answer operating difficulties encountered by AEC. There has been an increasing tendency, especially on the part of the directors of the laboratories, to regard them as great centers of free research of all kinds, wherein the investigator can go his own way almost entirely. It was the concensus of the Committee that the Division should pursue a policy of expecting the national laboratories and other corresponding units to direct their programs squarely at answering those questions of primary concern to the AEC; furthermore, steps should continue to be taken to promote interest in these problems, not only within AEC laboratories, but in the scientific world at large.

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continued at approximately the present level of effort and that the close cooperation with the participating universities be constantly maintained.

3. Reports on Other Major Laboratories.

Hanford. Dr. Max Zelle and Mr. Herbert Stanwood (DBM) and Dr. Alexander Hollaender (Director, Biology Division, ORNL) comprised the committee which recently conferred with responsible administrators and investigators at the Hanford Laboratories and with officials at the University of Washington (Seattle) and at the State University of Washington (Pullman) in regard to the future of the biology program now in progress at Hanford. The committee's written report was distributed to ACBM members and was discussed at the executive session by the members. It was agreed by all that the program at Hanford cannot continue in its present form. The divergent views on administration and program held by Drs. H. A. Kornberg and H. M. Parker, together with the general state of uncertainty and insecurity of the scientific staff, require that decisions be made shortly with regard to: whether the Biological Laboratory shall continue and, if so, at what level of activity; whether part or all of the program shall be placed under the University of Washington or the State University of Washington; how such policy decisions can be executed efficiently and fairly. To this end, the next meeting of ACBM will take place at Hanford on January 8 and 9, 1960. (A previous report on the Hanford problem will be found in the Minutes of the 66th meeting, held in Washington, D. C. in January 1958, and also in the Minutes of the 75th meeting.)

Argonne. Dr. Dunham reported on the administrative problems at the Division of Biological and Medical Research, Argonne National Laboratory. At an on-site visit one month ago, detailed conversations were held with Dr. W. C. Johnson (Vice President, University of Chicago, the prime contractor), Dr. Norman Hilberry (Director, ANL), Dr. Austin Brues, (Director, Division of Biological and Medical Research, ANL), and others. DBM was represented by Dr. Dunham (Director), Dr. H. D. Bruner (Chief, Medical Branch), and Dr. Max Zelle (Chief, Biology Branch). A decision was made to establish a working council within the Division to assist Dr. Brues in administration.

4. Reports on Programs

a. Radiobotany. The report of the Committee on Radiation Botany was accepted (Marinelli abstaining), and the Committee is to be thanked for its painstaking efforts. Dr. Dunham stated that the DBM staff was in agreement with the report. During the discussion of the report, led by Dr. Horsfall who had served as the Committee's Chairman, the following points were emphasized: the effects of radiation on higher plants,

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especially with respect to organs, organ systems, and plant communities, are worthy of increased study; the establishment of an institute at Argonne as proposed by Dr. Hilberry is not desirable; the further development of radiobotany programs at Brookhaven, ORNL, and UT-AEC should be encouraged; complementary and inter-related programs should be developed; the current program at ANL should be discontinued, but arrangements should be made so that Dr. S. Gordon can continue there or elsewhere.

b. Molecular biophysics (Florida State University Proposal).

The report of the group that made an on-site visit on September 23 and 24 was distributed to ACBM members and was discussed by Dr. Leroy G. Augenstine (Biology Branch, DBM). The visiting group consisted of Dr. Dunham and other DBM staff members, Dr. Harland G. Wood (ACBM), and three extramural consultants: Dr. F. Hutchinson (Yale-biophysics), Dr. J. Platt (Chicago - chemical physics), and Dr. H. Quastier, (Brookhaven - radiobiology). Conversations with various faculty members, deans, the President of the University, and the Governor of Florida took place. The visiting group concluded that this significant opportunity for the promotion of the study of molecular biophysics should be supported by DBM; with this ACBM concurs. (Moved by Dr. Loeb, seconded by Dr. Horsfall. Unanimously approved).

5. Short-Lived Isotopes and Fallout Exposure Problem

In response to AEC Chairman McCone's request, ACBM is to prepare a statement for the Commission on the importance of short-lived isotopes in fallout that can be used to answer certain questions asked by Senator Clinton P. Anderson, Chairman, JCAE. Since the last ACBM meeting, the nature of the problem has been further studied by Mr. Hal Hollister and Drs. Bugher and Marinelli, who presented their views. Dr. Allan Lough (NYOO) also participated in the discussion. It was decided that a short statement should be prepared and sent to the Commission as soon as possible -- this is to be considered a temporary answer. Meanwhile, steps will be taken to prepare a proper staff paper on the subject which will involve the services of the DBM staff and outside consultants. It is estimated that something like a year may be necessary to obtain the pertinent data, much of which is dispersed in the files of other government agencies, and to prepare it for statistical analysis. The short statement sent to the Commission will specify that the problem cannot be definitively analyzed now, and that steps to prepare the full-scale scientific report have been taken.

6. Miscellaneous

Dr. Dunham reported on the following matters:

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6. Miscellaneous

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The Federal Radiation Council has approved the recommendations of the National Committee on Radiation Protection with regard to exposure. A white paper on general policy has not been decided on.

An exposure incident involving curium occurred recently at the Lawrence Radiation Laboratory, University of California, Berkeley. Of the 27 potential personnel exposed, one showed detectable body activity for some days. A study is being made to determine the body burden.

The Minnesota symposium on fission products, especially in relation to foods and soils, was held October 19-23, 1959. It appears to have been quite successful in bringing together a large volume of information of use in both science and public health administration, and also in illustrating the active role DBM has played in supporting research in this field.

Respectfully submitted

Henry I. Kohn

Scientific Secretary, Advisory Committee  
for Biology and Medicine

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