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MINUTES

126th MEETING

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE
U. S. ATOMIC ENERGY COMMISSION

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September 13, 1968 - AEC HQ, Germantown
September 14, 1968 - AEC "H" St. Office

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The AEC Advisory Committee for Biology and Medicine held its 126th meeting at AEC Headquarters, Germantown, on September 13, 1968, and at the "H" Street Office, September 14, 1968. Committee members present were Drs. Green (Chairman), Cohen (Vice-Chairman), Bale, Haagen-Smit, McGee, and Rosemary Elmo (Executive Secretary). Also present were Drs. Totter (Director), Storer (Deputy Director) and various members of the staff of the Division of Biology and Medicine; Dr. Spofford English, Asst. General Manager for Research & Development, and Dr. Nathaniel Barr and Mr. Enzi DeRenzis, of the AGMRD staff. Dr. John Harley, HASL, NYOO, was also present.

The program on September 13 consisted of a series of briefings. The meeting was opened by Dr. Totter, who introduced new and returning DBM staff members (Drs. Fluke, Judd, Schulman, Biology Branch; Richmond, Goldstein, Brooks, Medical Branch; Huebner, Radiation Physics & Instrumentation Branch; Gross, Fallout Studies Branch; Cutshall, Environmental Sciences Branch. Dr. Totter informed the group that the natives have been returned to Bikini. He discussed the budget situation, advising that BOB may approve a modest increase in appropriation similar to the one approved in 1969.

Reorganization of DBM Research Program. Mr. Whitnah discussed a proposed reclassification of the biology and medicine program, which emphasizes its objectives and would facilitate its presentation to the BOB and various committees of Congress. The three major categories are 1) interaction of radiation with biological systems; 2) assessment, evaluation and control of radiation exposure to man and his environment, and 3) beneficial applications of radiation. New program areas defined in the reclassification are 1) exposures to external and internal radiation; 2) a separate activity for atmospheric sciences, and 3) a grouping of all clinical research in nuclear medicine. Pending further review of the staff it is expected that the budget for FY 1971 will be developed along the lines of the new classification.

Visit to Russia with IAEA Panel. Dr. W. R. Bibb reported on his participation at an IAEA panel on "Current Problems of Bone Marrow Cell Transplantation with Special Emphasis on their Conservation and Culture" held in Moscow, June 22-26, 1968. He discussed the relatively wide use of human bone marrow transplantation as an acceptable therapeutic tool in the USSR. His impressions, based on the presentations of the Russian scientists, indicated that considerable doubt still exists regarding the viability of the frozen bone marrow preparations and its ability to repopulate a stem cell depleted patient.

He pointed out the dicotomy which exists between the philosophy of the USSR and USA regarding transplantation. The USA has shown no hesitancy in considering organ transplantation as an acceptable procedure whereas the

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USSR has been more conservative. In the area of bone marrow transplantation the reverse situation currently exists. Some general impressions of the non-scientific sessions and Moscow were also briefly presented.

Pu-Registry. Dr. Bruner informed the ACBM that a contract has been negotiated with the Hanford Environmental Health Foundation to develop the Plutonium Registry. The origin and development of the Registry was reviewed as well as plans for its operation. Dr. Bruner advised the ACBM that they will be informed from time to time about the effects of plutonium and other transuranic elements on man as obtained by this prospective epidemiological study of in-plant accident cases reported by licensees and contractors.

Pulmonary Toxicology. Dr. Bruner noted that the inhalation of plutonium aerosols, generated by weapon accidents or space nuclear aborts or by explosive accidents during plutonium processing constitutes a major health threat to nuclear energy workers and/or the population as well as being a potential restriction to the development of reactors using plutonium in their fuels. Since knowledge of the pulmonary radiotoxicology of this metal is becoming so important to these several areas of nuclear energy, plans are being developed for one or more large chronic animal experiments designed to permit a more precise evaluation of the long-term hazards of inhalation of fine aerosols of PuO_2 .

Human Radiobiology. Dr. Burr reiterated for the committee the events that had taken place since Dr. Robley Evans' proposal for a Center on Human Radiobiology had been received by the DBM in December 1967. In particular, he discussed what steps had been taken since the last ACBM meeting to move toward relocation of the radium and mesothorium studies of Dr. Evans. He noted that he and Dr. Totter had spent one morning in discussions in Chicago with Dr. Moseley and Dr. Hasterlik and the afternoon with Drs. Rowland, Duffield and Finkel. There had also been conversations with the staff in the Medical Department at Brookhaven. Proposals for the continuation of the radium studies had been requested from both BNL and ANL. In a letter to Senator Pastore, the Division had gone on record as indicating that it would select a laboratory for this study by October 31, 1968, and anticipated that some material and records might be transferred after January 1, 1969, from MIT to the new site. For FY 69 Dr. Evans' program should remain very active particularly in the area of instrumentation for the uranium mine problem and during FY 70 it is anticipated that during the 12 months his program will be phased out.

New Studies Relating to the Uranium Mine Problem. Dr. Burr outlined for the ACBM the general reorganization within the Department of Health, Education and Welfare relating to the Public Health Service. He noted that the two groups had been given responsibility in the uranium mine area. These are

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the Division of Environmental Health Sciences (DEHS), Research Triangle, North Carolina and the National Center of Urban Health and Industrial Medicine in Cincinnati. Dr. L. W. Tuttle, of the Division of Environmental Health Sciences has been acting as coordinator for their research effort. In collaboration with DEHS the AEC has entered into two interagency agreements, Battelle-Northwest and Rochester, for additional research directed toward the "Biological Effects of Radon and Radon Daughters." Since the last ACBM meeting an additional contract dealing with the uranium mine problem had been initiated by DBM. This work is with Dr. Geno Saccomanno at Grand Junction, Colorado, and consists of the establishment of a tumor registry, a follow-up on the exfoliative cytologic changes in miners' sputum after they have been reassigned from underground mining, and an effort by Dr. Saccomanno with several other pathologists to further evaluate the exfoliative cytologic technique.

Uranium Miner Research. Dr. Lough reported that the development of instruments needed in connection with estimating exposure to radon daughters in uranium mines is proceeding along two lines: 1) development of an improved instrument to measure the radon daughter concentration in mine air -- the "Instant Working Level Meter" developed by Dr. Schroeder, MIT, is considered outstanding; 2) the "Personal Dosimeter" of which several types have been developed. These devices are all intended to estimate the integrated exposure of the wearer to radon daughters and upon appropriate read-out yield the exposure in working level weeks of months. All of these devices are under examination in the laboratory and mines. It is hoped that the field testing will be completed by January 1, 1969.

Status of ABCC. The current status of the Atomic Bomb Casualty Commission was described by Dr. Storer. A brief history of the scientific program was presented which indicated that while for the first 20 years of operation the findings were essentially negative (except for leukemia incidence) there are now emerging positive data indicating an increased incidence of thyroid, breast, and lung cancer and an increased death rate in the heavily exposed survivors. Despite the extreme scientific importance of the program DBM is now being squeezed by inflation in Japan on the one hand and by the balance of payments problem on the other either to effect a reduction in personnel at ABCC or to induce the Japanese to increase their scientific, administrative and financial participation. DBM has elected to pursue the latter alternative initially and steps are being taken to open negotiations with the Government of Japan to see whether they will agree to an increased role in ABCC affairs.

International Biological Program. Dr. Wolfe discussed the IBP which includes as a major objective an attempt to measure biological productivity at the level of ecological systems. The U.S. effort is represented by

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approximately 20 agencies. DBM provided funds in 1967 and 1968 for operation of the National Committee; no support has been provided the Committee in 1969. However, \$50,000 was provided for study of the Grassland Biome of the Ecosystem Analysis Program in FY 1968. DBM favors IBP concept and will continue support and consider IBP proposals on an individual basis. The 120 square miles for Arid Land Ecology research at Hanford has been approved as a site for studies by the Desert Biome Committee. Dr. Stanley Auerbach, Director of the Oak Ridge Ecology Program, heads the planning for the Deciduous Forest Biome.

Thule Incident. The Committee was pleased to learn that the clean-up activities at Thule, Greenland, had been satisfactorily concluded and that the Danish Government agrees that no significant radioisotopic contamination has been introduced into the ecological systems of the area.

Jointly Sponsored Medical Seminars. Dr. Doran announced that the first in a series of training seminars for physicians in the medical care and treatment of radiation accident victims was held at Richland, Washington, in July 1968. These sessions are primarily for licensee and contractor staff physicians but some key doctors from cooperating community hospitals are also included. The second seminar is scheduled for October 1968 at the Brookhaven National Laboratory.

Meeting on Radiation Protection. Dr. Duda informed the Committee of a meeting held at Argonne National Laboratory on July 9, 1968, to discuss chemical protection against radiation attended by various DBM staff members and other invitees. The suggestions and recommendations of the discussants were 1) that the radioprotectants developed by the Walter Reed group should be brought to the attention of and made available to interested scientists; 2) that more studies need to be conducted on the biochemistry of cysteamine, the oxygen effect, and repair mechanisms; 3) more emphasis should be placed on studying chemical protection in cell suspension. It was not recommended that a critical creative review be encouraged at this time. A second meeting is tentatively scheduled for January 13, 1969, at Gainesville, Fla.

HENRE II Program. Mr. Deal briefly brought the Committee up to date on the discussions about the funding ratio for the ORNL Civil Defense Research Project. The Commission approved discussions with the BOB and the Joint Committee's staff aimed at eliminating the ceiling approach. There was a brief discussion of the work which will be done for the DHUD (Department of Housing and Urban Development) and he reported on the success of the accelerator for Phase II of Operation HENRE.

Marine Resource Council Activities. Dr. Osterberg announced that two recently formed groups, The National Council of Marine Resources and

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Engineering Development (Marine Sciences Council) and the closely related Commission on Marine Science, Engineering, and Resources plus their various subcommittees and panels are busily examining the roles of government agencies in oceanography. Their recommendations, due the Winter of 1968, will probably influence the structure of the federal government's program in oceanography. In the Spring of 1968 the President called for an International Decade of Ocean Exploration (IDOE) beginning in 1970. A group of scientists representing five universities has suggested that an integrated effort be devoted to look at certain trace elements (including radionuclides) in the world's oceans to determine residence times, mixing rates, and current structure. Dr. Osterberg is hopeful that the AEC can support that portion of the IDOE program involving radioactive tracers, since these tracers show considerable promise as research tools in oceanography.

Program for 127th ACBM Meeting. Mr. Deal discussed briefly the program that he and the staff at NTS and NV00 are planning for the 127th ACBM meeting to be held November 7-9, 1968.

Executive Session.

UCLA. Mr. Stanwood briefed the members of the Committee on the current status of problems of the DBM-supported program at the Laboratory of Nuclear Medicine and Radiation Biology, UCLA. In summary, DBM staff has taken steps to implement the recommendations of the ACBM subcommittee's report of February 1968, involving discussions with the Commission, JCAE staff, and University of California officials. In the interim, the existing contract has had several short-term extensions, including the present one through December 31, 1968. While most of the operating difficulties seem to have been resolved and a plan mutually developed for strengthening this program, the JCAE staff has not yet granted approval for its adoption and full term extension of the contract. The single obstacle centers around the disposition of the employment case of laboratory staff member Dr. R. L. Lehman. The JCAE staff has requested that the AEC evaluate Dr. Lehman's work and the history of his case, and further stated that they intended independently to review the matter by another JCAE staff visit to UCLA. ACBM members were advised that DBM proposed to present the entire matter once again to the Commission to obtain its guidance.

ACBM Replacements. The following names were suggested for consideration to replace ACBM members whose appointments expire June 30, 1969:

Dr. Green: J. V. Neel, William J. Schull, James Crow, Seymour Lederberg, George Beadle, E. L. Tatum, Ray Owen, N. Mendelsohn, R. P. Levine, Gunther Stent, R. Lewontin, Clifford Grobstein, Charles Yanofsky, R. Billingham, Bruce Wallace, W. K. Baker.

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Dr. Cohen: R. Bock, Herbert Canter, Paul Jamicnek, E. Kennedy, E. E. Snall, Dan Koshland, Al Meister, William Rutter, Paul Boyer, W. B. McElroy.

Dr. Bale: Warren Sinclair, Harold Rossi, C. P. Tobias, John Cameron, Francis R. Shonka, Frank Hutchinson, Hanson Blatz, Jack Healy, Allan Lough, Mortimer Elkind.

Dr. Russell: Harry Staub, A. G. Norman, Nyle C. Brady, M. L. Peterson, Dan Aldrich, Jack Hanson, Cornelius Van Bavel.

The Minutes of the 126th meeting were approved as circulated.

The 127th meeting will be held at the NTS and NV00 November 7-9, 1968.

Respectfully submitted,

Rosemary Elmo
Secretary to Advisory Committee
for Biology and Medicine

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