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MINUTES

of the

NINETIETH MEETING

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

U. S. ATOMIC ENERGY COMMISSION

January 12, 1962 - AEC HQ  
January 13, 1962 - "H" St.

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The 90th meeting of the Advisory Committee for Biology and Medicine was held at the AEC HQ, Germantown, and Washington, D. C. on January 12 and 13, 1962.

Committee members present were Drs. John C. Bugher, Chairman, James G. Horsfall, Robert F. Loeb, Leonidas D. Marinelli, Carl V. Moore, James H. Sterner and Harland G. Wood. The meetings were attended by Dr. C. L. Dunham, Director, Division of Biology and Medicine, various members of his staff and representatives from other AEC HQ Divisions. Dr. John H. Harley, Director, Health and Safety Laboratory, New York Operations Office, was also present. Commissioners Wilson and Haworth were present during some of the discussions on the 13th.

Dr. Harland Wood's service with ACBM was terminated at this meeting because of his departure for New Zealand on a sabbatical leave. To replace him, it is suggested that the following biochemists, in order of preference, be considered by the Commission: (1) Dr. Paul D. Boyer, of the University of Minnesota; (2) Dr. Edward L. Tatum, of the Rockefeller Institute; (3) Dr. Paul Berg, of Stanford University.

Committee members were also asked to consider nominating worthy persons for the Fermi Award.

The next meeting of ACBM will be held at the Los Alamos Scientific Laboratory, March 9 and 10, 1962.

The business of the 90th meeting is summarized under seven headings:

1. Nuclear Testing
2. Atomic Bomb Casualty Commission
3. Fallout and Civilian Defense
4. Other Agencies
5. Oceanography
6. Intramural Organization
7. Information Services

1. Testing of Nuclear Devices

(a) BREN (Bare Reactor Experiment, Nevada). As a part of the ICHIBAN dosimetry studies, a reactor is to be held at various elevations above the Nevada Test Site by a tower 1527 feet high. Mr. Deal reported that completion of the tower is now scheduled for February 1, 1962, and the first criticality runs are scheduled for February 15. Dr. Marinelli

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suggested that if practical a small lake be placed around the tower's base in order to simulate conditions at a coastal city.

(b) Project Chariot. Dr. Wolfe reported that a limited ecological survey will be made this summer of the Cape Thompson area. A book on this region is now in preparation, and publication is expected this year. In addition, a revision of the first report on the radioactivity of the region's biota is being prepared. The target date for Chariot is now 1964-1965.

(c) Other Tests. Col. A. H. Anderson, Division of Military Application, reviewed the possibilities of other tests and Mr. J. Z. Holland examined these from the point of view of studying the distribution of radioactivity in the atmosphere. ACBM believes that such studies will be of prime importance, both for their contribution to knowledge regarding the atmosphere and to the radiation hazards from fallout.

2. ABCC (Atomic Bomb Casualty Commission)

Drs. H. D. Bruner (DBM) and R. Keith Cannan (National Academy of Sciences-National Research Council) reviewed the functioning of the ABCC, whose program in Japan, with headquarters at Hiroshima under the directorship of Dr. George Darling, has now achieved clear lines of coordination and joint sponsorship with the Japanese Department of Welfare. ABCC was gratified to learn that during the past year the program has achieved a very considerable success in its follow-up clinical and autopsy studies, owing to great progress in achieving official Japanese recognition of its programs - it is expected that further official recognition will be obtained - and a very substantial and essential measure of public good will and cooperation. From this base it is anticipated that the program can be continued for many years - a prime requisite for ultimate success, since it is anticipated that 40% of the survivor-population will still be alive in the year 2000.

On the scientific side, it was reported that the statistical and epidemiological aspects of the program were proceeding well. The chief need is for senior pathologists, or other scientists, who could lead and coordinate investigations in which the junior men, who carry out the routine work, could participate during their 2-year stay with the project.

Some miscellaneous facts concerning the program and its management:  
The two major follow-up programs were established in 1950 when the first postwar census was taken:

SG-100 Program: A survival study based on 75,000 persons from

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Hiroshima and 25,000 from Nagasaki. Controls are those beyond 10,000 meters from the epicenter.

ME-200 Program: A clinical study of 16,000 persons who are examined biannually. Clinical study of 16,000 persons who are examined biannually. Clinic attendance during the past year was 96% (corrected for migration and mortality).

The autopsy rate was 40% for the SG and 50% for the ME programs, respectively.

Of the 375 patients exposed in utero, none has developed leukemia. This group is now about 17 years old.

The ABCC has 51 U. S. employees, 4 Foreign Nationals, and 924 Japanese employees. The Japanese unions are now negotiating for a 10% increase in pay. This increase has been occurring annually and follows the Japanese Government's policy for its employees. The flexible utilization of this staff is rendered difficult by various Japanese customs centering on considerations of "loss of face".

The FY 62 budget of ABCC is \$2,634,706, the major portion being funded by AEC.

3. Fallout and Civilian Defense

(a) Division of Radiological Health, USPHS. Dr. D. R. Chadwick, Director, DRH, told ACBM that there are now some 60 stations throughout the U.S. monitoring the air for gross beta activity daily, and also that there is a 60-station milk-sampling program. During the past fall, as a result of Russian testing, the atmospheric level went above 100  $\mu\text{C}$  per  $\text{m}^3$  for several days, and the level of radioactive iodine in milk likewise spiked above 100  $\mu\text{C}$  per liter. The latter value is the Federal radiation guide. The types of countermeasures that might be taken if such levels were maintained were discussed.

(b) Shelter, Oak Ridge. Mr. J. Deal informed ACBM of the proposed plan to construct a 100-person community shelter at Oak Ridge. The city has offered to provide a site and to finance the upkeep if DBM will provide the construction funds. The plan has had technical support from interested local professional groups. It is considered to provide an opportunity for a model study of the problem. The proposal will be presented to the General Manager in the near future.

(c) DOD Booklet. Dr. H. A. Knapp reviewed the recently published DOD booklet, "Fallout Protection - What to Know and Do About Nuclear Attack". In the course of the discussion the point was made repeatedly

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that the booklet gives a fundamentally false impression of what atomic attack involves because it appears to deal with a 5-megaton weapon instead of a total attack at the 10,000 megaton level. It was also emphasized that in any race between the forces of shelter provision and firepower, the latter would always win. On the other hand, it was recognized that there is a vast shelter potential in the cities. Granting this, however, the disorganization of communication, transportation, and power supply that massive bombing would engender was considered by some to render such protection of little value.

The problems raised in the discussion were of such magnitude that they could not be thrashed out in detail. From the practical point of view of ACBM's immediate functions, the following queries and statements may perhaps serve as a summary:

(1) Forty million copies of the DOD booklet have been published. What do we do now?

(2) Could any brief booklet for popular consumption give a reasonably accurate picture of the problem?

(3) All were agreed that a number of errors of omission and commission were incorporated in the booklet (e.g., the shelter construction costs were too low).

(4) Are not the differences in the several recommended courses of action dependent on differences in philosophy rather than on disagreements as to facts?

(5) The two extremes in approach to the problem were:

(a) Abandon the shelter program; use the money and effort for an international program of peace on earth, good will to men.

(b) Pursue the shelter program to insure that at least a few hardy souls will survive - somehow, somewhere.

(6)(Recommendation by ACBM to be furnished)

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4. Relations with Other Agencies

(a) Aerospace Nuclear Safety Working Group. Originally organized under the Office of Reactor Safety, this advisory and liaison group has now become an appendage of DBM, Dr. Bruner reported. The group is particularly concerned with fission-product inhalation toxicology and a variety of recovery and re-entry problems, whose number and complexity are expected to increase in the future at an accelerated rate.

(b) NASA (National Aeronautics and Space Administration). Dr. J. L. Liverman (DBM) described the organization for the life sciences. At present, the largest segment of the program is associated with the Manned Space Flight Division, which is preparing for the Apollo Project (round trip to moon). Dr. Nathaniel Barr, of DBM, is the staff member specifically charged with liaison.

5. Oceanography

Dr. I. E. Wallen (DBM) reported on the AEC's oceanography program which is about to enlarge rapidly as a result of widespread interest in this field among various Government agencies and now crystallized in the recently created Interagency Committee on Oceanography.

The Interagency Committee on Oceanography came into being as a result of the report of the NAS-NRC's Committee on Oceanography entitled Oceanography 1960 to 1970, of which Chapter 5, "Artificial Radioactivity in the Marine Environment" deals with problems of immediate AEC interest. This chapter was given to ACBM members at the meeting, along with the staff paper prepared by Dr. Wallen on a 10-year program for AEC.

The AEC's budget in this field will be determined by its role in the Interagency Committee's conjoint program, budgeted at \$123 million for FY 1963, and already defended before the Federal Council for Science and Technology. The total budget is now being assigned piecemeal to the appropriate individual agencies for inclusion in their budgets.

ACBM wishes to express its hearty concurrence with the steps that have been taken in this interagency attack on a problem of great importance.

In discussing the history of AEC's interest in these matters, it was brought out that this stemmed principally from two sources: the use of the Columbia River to carry certain waste products from the Hanford operation to the ocean, and the deep-sea disposal of wastes from other plants in 55-gallon drums (sealed with concrete). Dr. Walter Belter, of the Division of Reactor Development, (which cooperates with DBM in this) reported that

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the Columbia River in one year disposes of perhaps ten times as much waste as has been dumped in packaged form from all plants over the past 15 years. The Atlantic and Pacific dumping sites are at depths of 6000 feet and are expensive to utilize. A recent audited study demonstrated that terrestrial burial grounds are safe and are far more economical.

It was also noted that the Russians claim to dump no waste in the ocean. This appears to be a matter of definition: it appears that the Russians consider all levels below the M.P.D. as equivalent to zero. No one has had contact with any of the Russian engineers who execute the waste disposal program.

6. Intramural Organization

Offsite Contracts. At present, one-third of its budget (some \$22 million per year) is expended by DBM on 600 offsite contracts, of which only 10% are in amounts exceeding \$50,000. To expedite the handling of these contracts, a reorganization has been effected in DBM, the details of which were described in printed material given to ACBM members and discussed by Mr. H. A. Stanwood and Dr. J. L. Liverman. It was pointed out that the DBM system permits rapid action -- a great advantage when sudden demands are made by the Executive Branch of the Government - and that it allows for a continuity of policy and program more readily than in the case of some other granting agencies. The use of a contract instead of a grant provides added flexibility in managing the over-all program, since grants are budgetary line items whereas contract monies can be allocated where needed.

AEC Lines of Communication. Dr. S. G. English, Assistant General Manager for Research and Development, described the reorganized system that brings the national laboratories into more direct contact with the central staff (including DBM).

7. Information Services

Mr. E. J. Brunenkant reviewed the organization of AEC's Technical Information Program, and some of the major problems in communication that it attempts to meet. Dr. W. D. Claus again discussed DBM's system of project classification by program categories which was instituted September 1961, and the system of sending project abstracts to the Bio-Sciences Information Exchange.

Respectfully submitted,

Henry I. Kohn, M.D., Scientific Secretary  
Advisory Committee for Biology & Medicine

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