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135th MEETING

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

September 11, 1970 - AEC HQ, Germantown, Md.
September 12, 1970 - "H" St. Ofc., Washington, D. C.

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The 135th meeting of the Advisory Committee for Biology and Medicine was held September 11-12, 1970 at AEC HQ, Germantown, Maryland and the "[illegible]" Street Office, Washington, D. C. ACBM members present were Drs. R. D. Moseley, Jr. (Chairman), P. P. Cohen, C. A. Finch, J. S. Laughlin, W. J. Schull and Dr. Perry R. Stout, and Dr. J. B. Storer (Scientific Secretary) and Miss Rosemary Elmo (Executive Secretary). Also present were Dr. John R. Totter, Director, Division of Biology and Medicine and members of the DBM staff. Dr. S. G. English, Assistant General Manager for Research and Development, was present for part of the meeting as was Dr. Martin Biles, Director, Division of Operational Safety and several DOS staff. Chairman Moseley called the meeting to order at 9:00 A.M. on September 11. He then welcomed the new ACBM members, Drs. Laughlin and Schull.

Dr. Totter briefly covered some items of general interest. The budget for FY-72 will apparently not be increased significantly over that for FY-71. The FY-71 budget is presently before a House-Senate conference committee. Since DBM's budget is the same in both the House and Senate versions, it is unlikely to be changed.

New members of the DBM staff were introduced to the Committee by Dr. Totter.

In response to a request from the Joint Committee on Atomic Energy, Dr. Burr and Mr. Howard Brown (Assistant General Manager), have investigated the allegation that the Lawrence Radiation Laboratory, Livermore, had taken retaliatory actions against Drs. J. W. Gofman and A. Tamplin because of their public attacks on Federal Radiation Council radiation standards. In essence Burr and Brown, after a methodical on-site investigation, found no evidence supporting the charge of reprisal. A copy of the report was also provided to Senator Muskie who refused to accept the findings on the grounds that he believed the report biased. He subsequently requested that the American Association for the Advancement of Science, A. Spilhaus, President, investigate these charges. Dr. Spilhaus has the request under consideration.

Dr. Burr reported that the new head of the Japanese National Institute of Health is very much interested in the Atomic Bomb Casualty Commission and there is some prospect that the JNIH may gradually increase its participation in ABCC. Dr. English reported further that opinion in Japan may be shifting in favor of ABCC and that Dr. Darling, the Director of ABCC, believes that by April 1971 it may be time to reopen high level discussions between the U.S. and Japan on the future of ABCC.

Dr. Richmond of the DBM staff reported a reversal of a decision concerning unemployment compensation to a former employee of Dow Chemical Company at Rocky Flats, Colorado. The employee was fired for refusing to work in an area he considered to constitute a health hazard. He was initially supported in this action by the Colorado authorities and was awarded

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compensation. After a full hearing, the judgment was reversed.

Dr. Totter pointed out that with the marked reduction in support of Plowshare operations it was necessary to reevaluate the entire operation of the Biomedical Division at Lawrence Radiation Laboratory, Livermore. The ecology portion of the program was recently visited and reviewed. The chromosome studies will be reviewed in late September and the remainder of the program will be reviewed in November.

It was noted that on October 9, 1970, there will be a 20th Anniversary celebration at the University of Utah AEC Project.

Last spring the General Advisory Committee requested that the thermal effects data from Hanford be evaluated for potential usefulness in reactor siting in general. A committee is being formed to undertake this task. It is not clear whether they will have access to all data (some of which is classified). Dr. English is strongly in support of the position that they should see all the data and believes they can easily write an unclassified report.

Dr. Bruner and Mr. Hollister of the DBM staff and Dr. Robert Miller from National Cancer Institute discussed in detail the recent publications of Dr. Alice Stewart in which she has estimated that 1 rad of exposure to human fetuses would result in an excess of 300 to 800 childhood cancers per million fetuses exposed. The arguments advanced by Bruner and especially by Hollister centered on methods and techniques of analysis which of themselves appeared inadequate to explain Stewart's remarkable findings. Material presented by Miller, however, cast very serious doubts on the validity of Stewart's claims. The data were provided by Mr. S. Jablon of ABCC and can be summarized as follows:

> If linearity of dose-response is assumed (as it is by Stewart) then the same total excess cancers would be seen whether 10^6 people were exposed to 1 rad or 10^5 people were exposed to 10 rads. The person-rads is the unit of interest in the denominator. A number of children were exposed <u>in utero</u> to bomb radiation in Japan. The numbers involved were approximately:

	Trimester	Person-rads
	1	10,000
	2	15,000
	3	10,000
Total		35,000 person-rads

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On the basis of Stewart's prediction of 300-800 excess cancers per 10^6 person-rads, the Japanese should have shown 10.5 to 28 cases/35,000 person-rads. The observed number of cases was one.

Storer pointed out that this is the third major prospective study that has been unable to demonstrate an increased risk of cancer from in utero radiation, whereas nearly all retrospective studies show a significant association.

Miller again voiced the argument he presented so well in his article in Science (166: 569-574, 1969), namely that retrospective studies of the Stewart type may contain a systematic error which has so far been impossible to identify.

Dr. Finch raised the question of whether it might be possible to obtain Stewart's data for further study by DBM. Dr. Miller suggested that similar data by Dr. McMahon might be more easily obtained. Dr. Cohen warned against any out-of-hand dismissal of the results of retrospective studies.

Mr. Joe Deal of the DBM staff reported on civil defense studies concerning the status of the U.S. shelter program as compared to the rest of the world. The U.S. is apparently considerably behind the rest of the world in dual use shelter planning. The report of the study will go to the National Security Agency for a committee to consider it. Mr. Deal argues quite plausibly that new construction should consider incorporating shelters. This approach will provide shelters much less expensivly than if shelters have to be built later.

He also described in some detail the aerial radiological monitoring survey program. This program, which is supported by DBM, recently located a missile for the Department of Defense. The missile had missed its targeted area in Southern New Mexico and had landed in the Mexican desert. At the last moment the AEC was called in and was able to pinpoint the impact site using the aerial radiological monitoring system.

Dr. Wood of the DBM staff described the current status of phosphor development by the Lockheed Company under contract to DBM. Dr. Wood also described the current status of the negative pi-meson facility at the Los Alamos Scientific Laboratory. At the moment there are no funds allocated for a Bio-Medical Facility in connection with the pi-meson program. Unless funding is forthcoming to construct an area for biomedical research, then either no biomedical research can be done or the entire facility would necessarily have to be shut down for a prolonged period of time at a later date to enable such construction.

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An ad hoc committee convened by Dr. Wood has recommended that the heavy ion synchrotron be built for biomedical research in Berkeley. The National Aeronautics and Space Administration has expressed strong support for such a facility inasmuch as it would provide densely ionizing radiations of the type encountered in space in a ground level facility.

The committee convened in executive session at 1:30 P.M. and decided to support strongly the biomedical facility at the negative pi-meson factory. The committee felt this should have priority over the synchrotron but conceded that NASA certainly needed research of the type that could be performed with a synchrotron.

The committee then discussed the published reports on cancer induction as a result of fetal radiation but was unable to reach any conclusion on whether such reports are valid or not. Dr. Totter raised the policy question of whether DBM should get into the area of epidemiology in view of past agreements with the Bureau of Radiological Health that BRH would do such studies.

Following the executive session, the committee met with Commissioners Larson and Johnson. Commissioner Larson greeted the new chairman and expressed his thanks to Dr. Cohen on behalf of the Commission for his long service to the Advisory Committee.

The first topic discussed was the AEC citation. Mr. McCool pointed out that the award is being considerably upgraded and asked for the Advisory Committee's help in making nominations.

Dr. Moseley stated that the Advisory Committee for Biology and Medicine recommends that priority be given to a biomedical facility in connection with the negative pi-meson factory to insure that the opportunity for biomedical research is not lost. Commissioner Larson was interested to know whether the committee felt that negative pi-mesons might prove to be of superior value in the treatment of cancer. Dr. Laughlin pointed out the likelihood that negative pi-mesons may very well be the ultimate in radiation therapy. Dr. Moseley indicated that the synchrotron has a lower priority for DBM but it does have an important interagency aspect with respect to the needs of NASA.

There followed a general discussion of the publications on the effects of prenatal radiation exposures. It was pointed out to the Commissioners that prospective studies had been negative while retrospective studies had been generally positive. It was suggested that it might be well for DBM to develop its own capability in the area of epidemiological research.

At the conclusion of the meeting Commissioner Johnson again brought up his concerns about the studies being conducted by Drs. Paulsen and Heller utilizing volunteer prisoners in Washington and Oregon. Commissioner Johnson apparently is uneasy about the ethical aspects of these studies.

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After the meeting with the Commissioners the committee returned to its briefing session with DBM staff. Dr. Wood reviewed the status of instrument development to evaluate radiation levels in the uranium mines. There have been problems with all the personnel dosimeters. The instant working level meters on the other hand appear very promising. Dr. Barr reported on the activities of the various sub-groups which report to the Federal Radiation Council concerning a recommended working level value for uranium miners.

Dr. Bruner and Mr. McCraw reported on the status of the residential surveys in Grand Junction, Colorado. As background, Dr. Bruner pointed out that in Grand Junction there are two million tons of tailings concentrated on 55 acres. In the past local contractors have used these tailings as backfill around houses and as a subsurface in concrete construction. The uranium tailings contain, of course, radium and radon in relatively high concentrations. The Colorado state public health officer has asked the AEC for help in surveying the homes and in recommending actions to be taken. He has also asked the Public Health Service and the AEC for financial support. At the present time approximately 1,000 of 4,000 homes suspected to have increased radiation levels have been screened. Of these, about 25% are high enough to warrant a thorough survey. Ultimately there may be 300-400 houses needing some sort of remedial action to decrease the radiation levels.

Mr. McCraw then showed a moving picture of the current status of the resettlement of Bikini. The work appears to be progressing well but it still requires considerable time.

At this point the committee recessed until the following day.

The committee reconvened at 8:30 A.M. on September 12 at the "H" St. Office. The first order of business was the approval of the minutes of the 134th meeting. The next meeting of the Committee will be November 13-14 in Los Alamos, New Mexico. The January meeting will be held the 8th and 9th in Washington and the spring meeting, if held, will be the 12th and 13th of March. The meeting after that will be the 14th and 15th of May 1971.

Dr. Totter announced that Dr. Wolfe, having returned from a sabbatical, will be attached directly to his (Dr. Totter's) office. Dr. Osterberg has been appointed Chief of the Environmental Sciences Branch.

At a previous meeting Dr. Conard indicated the difficulty in insuring that the natives of Rongelap would take their prescribed medication. Dr. Totter reported that the Trust Territory will assign a nurse fulltime to Rongelap to help with this problem. He also reported that a staff paper will be initiated to see if it is possible to pay some small amount to the Utirik natives to insure their continued cooperation in the study of the effects of radioactive fallout.

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Problems with the contract at UCLA were then discussed. A principal difficulty with respect to the ecology program appears to be the recruiting of a suitable ecologist. The possibility of phasing out ecology at UCLA and building it up at the Nevada Test Site under Mr. Jerry Davis was discussed.

Dr. Goldstein described the status of the nuclear medicine program and the cyclotron at UCLA.

Dr. Totter then reported briefly on the ^{13}C program. The Los Alamos Laboratory is actively producing ^{13}C. The demand may be very much larger than anticipated because other agencies want the ^{13}C to use as a tracer for materials in the environment. The Los Alamos Laboratory is proposing to go to some additional bigger columns to increase their output. Dr. Stout asked that the Los Alamos Laboratory be encouraged to make ^{15}N if they could do it at a lower price than the current one. Dr. Totter felt that there were problems with patent rights on the process and that Los Alamos probably could not get into the production process.

Dr. Totter then gave a history of the biomedical program at the Lawrence Radiation Laboratory at Livermore and traced the difficulties with Gofman and Tamplin.

Dr. Totter announced that he has proceeded with the necessary paper work to appoint Dr. Burr as Deputy Director of DBM. The Advisory Committee gave its enthusiastic approval.

Dr. Perry Stout was unanimously elected Vice Chairman of the ACBM. At that point the meeting adjourned.

Respectfully submitted,

John B. Storer

John B. Storer, M.D.
Scientific Secretary, Advisory
Committee for Biology and Medicine

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