MINUTES

64th MEETING OF

A. E C ADVISORY COMMITTEE ON BIOLOGY AND MEDICINE

PLACE: *Washington, D. C.*

DATE: *September 13 and 14, 1957*

The sixty-fourth meeting was held in Washington, D. C. on September 13 and 14, 1957. At a preliminary Executive Session in Dr. Dunham's office it was agreed that the nomination of a Chairman would be postponed until the next meeting and that Dr. Warren was to conduct this meeting as Vice-Chairman.

The regular session was called to order by DR. WARREN at 9:50 a.m. with the following persons present.

A D V I S O R Y C O M M I T T E E

Shields Warren, Acting Chairman
Simeon T. Cantril — Leonidas Marinelli
Charles H. Burnett — George Beadle (Consultant)
Hanson Blatz, Scientific Secretary
Rosemary Elmo, Administrative Secretary

STAFF, DIVISION OF BIOLOGY AND MEDICINE

Charles L. Dunham, Director	Paul Henshaw
Charles W. Shilling, Deputy Director	Virginia Bolton
Forrest Western, Assistant Director	Walter D. Claus
Howard C. Bron, Assistant Director	F. Raymond Zintz
G. Victor Beard	Clifford Harding
Herbert Talkin	John Bonner
Gordon Dunning	Thomas Ely
Paul B. Pearson	Richard Johnston
John Totter	Elizabeth A. Hower
Robert D. O'Neill	Herbert A. Stanwood
Kathryn E. Weichold	James Haggerty
Harry D. Bruner	Walter Schroebel
Robert Reitemeier	John N. Wolfe
Bernard Trum	Joshua Holland

OTHER, AEC

Kenneth E. Fields, General Manager
Commissioner John Graham
Merril Eisenbud, Manager NYOO
S. Allan Lough, Deputy Director HASL

DR. WARREN turned the chair over to Dr. Dunham for presentation of the Division program. DR. DUNHAM announced a number of staff changes.

STAFF

Dr. C. D. Van Cleave has joined the staff to replace Dr. Clifford Harding; Dr. Max Zelle has joined the staff to replace Dr. Sterling Emerson. Mr. Allan Brodsky, Health Physicist, Mr. Joshua Holland, Meteorologist, Mrs. Virginia Bolton, Special Assistant for Education and Training and Mr. Ed Lockyer, Management Assistant, have also been added to the staff.

HASL

DR. DUNHAM announced the transfer of the New York Operations Office which is now reporting to the Division of Reactor Development instead of the Division of Biology and Medicine in accordance with his earlier request.

RONGELAP

DR. DUNHAM described his trip to Rongelap and reported that the health and morale of the natives appeared to be good after having been returned to their homes two months previously. He also described existing plans for future studies of this group.

In connection with the stratospheric monitoring program, DR. DUNHAM announced the possibility of the use of another balloon in the southern hemisphere.

He then introduced Mr. Kenneth Fields, General Manager. MR. FIELDS said that Commissioner Graham had recently been sworn in and that Mr. Floberg was expected to be sworn in as a new Commissioner in early October. He spoke briefly of the importance of the ACBM services and discussed matters of a budgetary nature.

DR. WARREN spoke of the difficulty in defending the early Strontium-90 research in 1949 before the Bureau of the Budget and compared it to other pioneering events now being proposed. In response to a question by DR. BURNETT about the present status of the NIH program, DR. DUNHAM reported on Dr. Shannon's remarks at the Congressional Hearings during which he outlined a program intended to result in an Institute of Biophysical Medicine. It appeared that in this program, radiobiology was to make up a small part of it.

DR. DUNHAM then proceeded with a review of the Division program, mentioning Dr. Henshaw's program of categories of problems, Dr. Shilling's program review, and Mr. Stanwood's problems with the budget.

DBM — PROGRAM

MR. STANWOOD was introduced and presented a review of the budget. He said that the Biology and Medicine budget of $36 million constituted approximately 1.7% of the entire AEC budget and gave a resume of budget allotments in the past and estimates for the future which ran from $13.2 million in 1948 to a proposed $45 million budget in 1959. In response to a question by DR. WARREN, MR. STANWOOD gave some additional information as to the amount of budget going into overhead. He stated that the cost per scientific man year in a national laboratory runs from $30,000 to $35,000 whereas in a quasi-Commission laboratory such as Rochester or UCLA, it would be somewhat over $20,000 per year. In the offsite program it would run about $10,000 per man year.

DR. DUNHAM then introduced DR. SHILLING, who reviewed the research program. He spoke of the problems inherent in an expanding research program and the importance of improving communications.

RESEARCH PROGRAM

He spoke also of the difficulty of interpreting science to the layman and of the application of research to practical problems.

DR. SHILLING then introduced DR. TOTTER to make a presentation on the molecular effects of microorganisms on tissue culture. He spoke of radiation chemistry work being done and its relationship to biology. He emphasized particularly the difficulty in stimulating investigators to do any particular type of work. Reference was made to the summaries of research activities at the molecular level given in report to the Advisory Committee and DR. TOTTER discussed each one separately. DR. DUNHAM emphasized the importance in attempting to stimulate different types of basic research.

MOLECULAR EFFECTS

DR. BURNETT pointed out the serious deficiency in water and electrolyte studies and suggested that an effort be made to direct those working in these fields to focus their attention more on radiation effects. DR. WARREN asked if there was work going on in the activation analysis field as far as the trace metal components of large molecules are concerned. A general discussion indicated that there was no evidence of much work in this area but that there was research work being done in trace metal activation analysis where interest might be stimulated in this particular area. DR. TOTTER reported that the work being done at Berkeley was not with metals.

After a brief recess, DR. HARDING was introduced by DR. SHILLING to discuss organ systems. This included a discussion of research work going on concerning blood and blood-forming organs, immunology, bone metabolism, the endrocrine system, cataracts and embryology. DR. CANTRIL raised the question as to the wisdom of permitting interest in the vascular problem to decline and pointed out how little work has been done on radiation effects with respect to capillaries. DR. DUNHAM stated that the staff was well aware of an interest in the problem but that long-shot investigations in the past had not been productive. DR. WARREN suggested that a greater emphasis be placed on GI tract studies with particular emphasis on intestinal motility, intestinal absorption and therapy of GI tract injuries. DR. DUNHAM reported that there was a fairly extensive program on the GI tract at the national laboratories, including Brookhaven and UCLA, but that perhaps more work should be encouraged outside the Commission laboratories.

ORGAN SYSTEMS

At DR. DUNHAM'S request, MR. MARINELLI reported on studies of irradiation of the bones. He stated that there were approximately 4500 patients to whom had been administered thorotrast and estimated that perhaps 10,000 to 15,000 had maximum permissible concentrations in their skeletons of thorium and thorium decay products. He suggested that these patients should be investigated. DR. WARREN mentioned that there were from 200 to 250 cases in Denmark which have been followed.

DR. SHILLING next introduced DR. PAUL HENSHAW to discuss the subject of performance and life shortening. This included the study of aging with particular attention to the bone marrow and peripheral blood. He spoke of three large contracts dealing with radiation induced life shortening representing a total of $173,000. There are also aging studies progressing at five other laboratories. These contracts represent about $1 million, all of which does not represent aging studies alone. DR. WARREN suggested that in addition to the thorotrast patients, there were many others receiving isotopes who should probably be followed. DR. DUNHAM referred to many such studies now in progress.

PERFORMANCE AND LIFE SHORTENING

DR. BRUNER was next introduced to discuss research in combatting radiation damage. He spoke of bone marrow transplantation in mice, rats, monkeys, and dogs and then discussed the possible applicability to man. DR. WARREN mentioned the forthcoming conference on bone marrow transplantation to be held at the New England Deaconess Hospital at which there would be Biology and Medicine representation. DR. BRUNER then discussed new pharmaceutical compounds being studied for protection against radiation damage. He mentioned that more than 150,000 chemicals had been synthesized and tested. After a brief discussion of Dr. Bruner's presentation, the meeting was adjourned for lunch.

RADIATION DAMAGE

The afternoon session was called to order at 1:35 p.m. at which time DR. FORREST WESTERN spoke of the work being done on environmental radiation. He spoke particularly of the fallout monitoring program involving worldwide sampling as well as the stratospheric sampling by means of balloon flights. He also told of the human sampling program and of environmental radiation in connection with peacetime applications of atomic energy. The latter includes studies in the field of radioactive waste disposal which is being done jointly with the Sanitary Engineering group of the Division of Reactor Development. Most of this latter work is being carried under other programs and does not appear as a budget item in the Division of Biology and Medicine program. At DR. DUNHAM'S request, DR. LOUGH spoke briefly on the part the Health and Safety Laboratory plays, particularly in analyzing fallout samples and bone and milk samples. This milk program has recently been expanded to include human milk.

ENVIRONMENTAL RADIATION

At this point DR. DUNHAM interrupted the meeting to greet Mr. John Graham, recently appointed Commissioner, to whom the Advisory Committee was introduced.

DR. JOHN WOLFE was then introduced and discussed the ecology and oceanography programs. He spoke of the broad aspects of the ecology program which touched on almost every phase of research being conducted. After Dr. Wolfe's presentation, DR. WARREN asked if there was any indication as to whether the emphasis should be on test-site studies, on food-chain studies, or whether there was any one aspect of this broad field that should be followed in preference to random sampling in various parts of the field. DR. WOLFE answered that the total approach of any field nearly in equilibrium as possible would be more productive and should be followed for many years. COMMISSIONER GRAHAM suggested that perhaps some of the Coast Guard units could be utilized for the collection of samples.

ECOLOGY AND OCEANOGRAPHY

DR. BURNETT commented that there appeared to be a need for the Division of Biology and Medicine staff to rush around the world dealing with crises and increasing its activities dealing with fallout to the extent that ecology and related work might suffer. This he felt should be guarded against. DR. DUNHAM pointed out that it was for this reason that he had recently placed the meteorology group, the soil science group, and the general sampling, oceanography and marine biology under Dr. Wolfe in order to unify this phase of the program.

DR. SHILLING next introduced Dr. Max Zelle to discuss the genetics program. DR. ZELLE pointed out that he observed a distinct change in point of view and emphasis since his last term of office with the Division six years ago. He saw the increased interest as an opportunity of exploiting radiation and isotopes in studies of basic or fundamental genetics. He observed that this should not interfere with the primary objective. He spoke of an attempt being made to extract additional data from some of the early large scale studies sponsored by the Manhattan Engineering District. DR. ZELLE spoke of the work being done at Oak Ridge and at the Argonne National Laboratory. He spoke also of suggestions which had been made by Dr. Sterling Emerson shortly before he left as to areas in which there should be more emphasis. These include certain aspects of consanguinous marriage studies, surveys of children of parents who had received known radiation exposure, increased support of human genetics in medical colleges, studies of radiation on nuclear proteins and studies of the chemical nature of genes and other self-reproducing cellular constituents. DR. EMERSON also believed that fundamental genetics studies should be increased just to learn more about mutation and also a study to determine the radiation induced mutation rate in other animal species than the mouse. In answer to a question by DR. WARREN concerning studies in Japan of consanguinous marriages, DR. ZELLE said that it was expected that it would take two years to gather the data and two additional years to analyze them. After Dr. Zelle's presentation, there was considerable general discussion by Committee members and Dr. Beadle on the subject of genetics.

GENETICS

DR. SHILLING then introduced DR. PAUL HENSHAW, who spoke on the subject of human radiobiology. He spoke of the NCRP Committee studying radiation injury with which the Division had been cooperating. He also discussed the efforts being made by Dr. Karl Morgan's group at Oak Ridge to give attention to more accurate dosimetry with respect to the ABCC cases. This involved certain studies being conducted at the Nevada Test Site.

HUMAN RADIOBIOLOGY

DR. SHILLING then introduced MR. HERBERT TALKIN, who spoke on plans for future dosimetry studies at the NTS. It is planned to duplicate or stimulate the Hiroshima or Nagasaki bombs and obtain more accurate dosimetry in Japanese-type houses which were to be constructed. There had been preliminary studies made during the current series in two Japanese-type houses which had been constructed. DR. WARREN inquired as to whether there had been a continued heavy rate of attrition as far as the ABCC patients were concerned. DR. DUNHAM stated that there is much better cooperation with the Japanese at the present time. DR. CANTRIL asked if continuing attention was still being paid to the induction of thyroid cancer secondary to the treatment of hyperthyroidism. Although there had been no evidence of the development of cancer in patients treated with radioiodine, he expressed the opinion that this should be followed further.

DOSIMETRY AT NTS

DR. SHILLING then introduced DR. JOHN BONNER, who discussed the subject of weapons effects. He limited his discussion essentially to blast effects and described past and current studies on the biological assessment of blast damage. He also mentioned radio-ecological aspects of nuclear fallout and instrumentation and dosimetry studies. DR. BURNETT asked why this particular program should be included in Biology and Medicine. While agreeing to its importance, he expressed the opinion that it belonged in some other Division. DR. DUNHAM explained that no other agency appeared to be interested in this matter and that the only blast information which had been developed had come from the Biology and Medicine studies.

BLAST EFFECTS

DR. PEARSON was next introduced to discuss agricultural research. He stated that while the major responsibility for agricultural research was in the Department of Agriculture and the agriculture experiment stations, the AEC nevertheless had basic biological research programs with many agricultural implications. He reviewed the work being done in animal physiology, metabolism of proteins and amino acids in animals, and in the field of trace elements in large animals; such as, zinc, molybdenum, cobalt and iodine.

AGRICULTURAL RESEARCH

DR. PEARSON then called on DR. TRUM to discuss the effects of radiation on farm animals. At present what work that is being done is in the large animal field; such as, cattle, donkeys, sheep and dogs. There appears to be a strong case for further studies in large animals and particularly in studies of radioactive materials resulting from weapons tests other than fission products; in other words, induced radioactive materials.

FARM ANIMALS

DR. ROBERT REITEMEIER was then introduced to discuss study in the field of soil chemistry and some of the inorganic phases of plant physiology. DR. REITEMEIER told of the severe limitations on the use of radioisotopes in field experiments because of health and safety reasons. He believed that the use of crops for the purpose of decontaminating soil should be investigated. It appears that studies of the decontamination of food products suffer because of a lack of actual fallout materials readily available for experimental purposes. DR. WARREN asked if it had been learned whether in general contamination was retained by the edible parts of plants. DR. REITEMEIER said that in general most food products did not concentrate the radioactive contamination in the edible parts, such as the sugar from a sugar cane and sugar beet and pods of beans and peas. A more serious problem was in the case of leafy vegetable subject to aerial deposition.

SOIL CHEMISTRY

DR. THOMAS ELY was then introduced by DR. SHILLING to discuss the chemical phase of toxicology. He spoke of the work being done at on-site laboratories in insoluble uranium, beryllium, fluorides, rare earths, mercury, indium and polyphenyl compounds (such as used in organic moderators). At offsite laboratories, work was being done on rare earths and nickel carbonyl. He also spoke briefly of the Toxicological Information Center which he had discussed at a previous ACBM meeting.

TOXICOLOGY

DR. SHILLING then introduced DR. DAVID BRUNER to discuss the radiation aspects of toxicology. Dr. Bruner spoke of animal studies being made with so-called internal emitters. There are two general groups of internal emitters being studies; the so-called standard materials such as iodine, phosphorus and gold and also studies involving other uses of isotopes in medicine, tritium as an inhalation hazard, radium and thorotrast. At the conclusion of Dr. Bruner's presentation there was a general discussion of the subject of toxicology and the meeting was adjourned at 5:25 p.m..

The meeting was called to order on Saturday morning at 9:00 a.m. by DR. WARREN. The first two presentations had been carried over from the previous day.

DR. JAMES HAGGERTY was introduced to discuss the cancer program. He stated that 8% of the budget was devoted to this program and was carried out principally by ORINS, BNL, ACRH, University of California (San Francisco), ANL, University of Rochester, and several off-site locations. He compared the AEC program involving $3.4 million to the much larger NCI program involving $58 million for 1958. In response to a question by DR. WARREN, it was explained that the isotope aid program now was not limited to cancer but was limited to research and at present amounted to about $229,000 as a subsidy.

CANCER PROGRAM

DR. DUNHAM stated that he was attempting to obtain a reduction in the cost of radioactive carbon in order to stimulate its use. The cost of Cobalt-60 had recently been reduced but it has not been subsidized. There was a general discussion among Committee members of support for education in cancer. MR. MARINELLI expressed the opinion that he would like to see some of the fundamentals of carcinogenesis verified. In this connection he referred to the work done by Bloom using ultraviolet radiation. DR. WARREN said that sources of Strontium-90 of known strength were not readily available for biologic experimentation, and suggested that the Abbott Company or some similar organization be asked to offer some standard sources.

CANCER PROGRAM (continued)

DR. CANTRIL asked if isotopes for the training of high school teachers was being subsidized and DR. SHILLING explained that this was at present being investigated. He said that Dr. Libby was very much interested in increasing the use of isotopes, particularly from the commercial standpoint. He said that as far as high schools were concerned, the only probable solution was to enter into a contract with some of the suppliers to prepare a small kit of low activity isotopes for high school use. This could be subsidized by the Commission providing for a small charge to users. A general discussion followed as to the advantages of allotting funds for the purchase of isotopes equipment for educational purposes. Requests have varied from a few hundred to four thousand dollars. DR. BURNETT expressed the opinion that the support program should not be discontinued in 1961 as planned or the college programs involved would not get sufficiently under way.

INSTRUMENTATION AND DOSIMETRY

DR. SHILLING next introduced MR. RICHARD JOHNSTON to discuss the instrumentation and dosimetry program. An investigation indicated that up to 1953, approximately $9 million had been spent on instrumentation in the Commission program. Fifty percent of this was for research and 25% for off-site procurement of commercial instruments. About 5% was for on-site fabrication and 20% for maintenance. There was some question about this figure because of the fact that much instrumentation cost is included in research support. MR. JOHNSTON estimated that the present cost of instrumentation was about $700,000 a year. He estimated that 50% of this was for radiation detectors, 20% for systems and special components, 20% for radiation physics and 10% for programmatic instrumentation, most of which is monitoring for instrument tests. In response to a question from DR. CANTRIL, MR. JOHNSTON stated that support was entirely from the Biology and Medicine budget. COMMISSIONER GRAHAM inquired as to what extent we are taking advantage of British developments. MR. JOHNSTON told of our participation in international conferences and review of British journal articles. DR. WARREN asked if the FCDA had yet developed an inexpensive, reliable detector which could be distributed widely. MR. JOHNSON spoke of three types of instruments; a G-M gamma instrument which could sell for $17 each in orders of from five to ten thousand and also of ionization chamber instruments and G-M instruments which could measure both beta and gamma. He spoke of pocket dosimeters which cost about $5 apiece and were very reliable. DR. WARREN asked as to the general state of the industry at present, remarking that previously it had been considered in a condition of chaos. MR. JOHNSTON stated that an estimate had been made in 1952 indicating that it was a $20 million a year industry and that it had been increasing ever since, and he explained that there was to be another estimate ~~to be~~ made soon.

DR. DUNHAM then requested MR. JOHNSTON to discuss plans for the Radiation Instruments Branch. He stated that a committee had been organized to make recommendations. The committee includes Robley Evans, of MIT as Chairman, Dr. Water, of DMA, Dr. Kuper, of BNL, and Dr. Borkowski, of ORNL. The first meeting was scheduled for September 18 so that no report could yet be made.

RADIATION INSTRUMENTS BRANCH

The meeting was then turned over by DR. SHILLING to DR. WARREN, who then introduced DR. DUNHAM to discuss research planning. DR. DUNHAM expressed the opinion that it appears as if the subject of fallout was well in hand and that the Division could divert more of its attention to normal reactor operations and similar matters. DR. DUNHAM asked the Advisory Committee to make comments on the thirteen programmatic category items and indicate in which areas they believed more emphasis should be paid or on any which might be omitted. DR. WARREN said that the approach looked very sound. The items were taken up one by one for a detailed discussion.

RESEARCH PLANNING

Item 1. MOLECULAR LEVELS - DR. BURNETT expressed the opinion that the field was well covered except for a few minor areas. He stated incidentally that the Division appears to be so occupied and under such great pressure that there appeared to be two alternatives which should be investigated. One is to increase the Division staff and the other is to obtain more outside advice similar to the consulting system used by the National Cancer Institute and National Institutes of Health. DR. DUNHAM stated that there were three such advisory groups now set up (Education, Genetics and Ecology) but that he did not like the staff to become merely secretaries to advisory groups. He also stated that some correction would have to be made to the salary structure in order to continue to attract the right type of staff. DR. BURNETT stated that no matter how competent the staff was, it still needed time to think. DR. DUNHAM expressed the opinion that some routine matters could be aided by enlarging the staff. DR. SHILLING stated that Dr. Wolfe's four advisors had given him real assistance in genetics. The choice of the individuals had been left to the staff and the American Institute of Biological Sciences had made recommendations. It was generally agreed that the staff should have the ultimate authority concerning the research program. DR. DUNHAM spoke of the problem of the travel budget. He said that it had been cut and that the situation would probably be worse when the office moved to Germantown. At present, scientists attending Washington meetings drop in frequently to discuss the research program and that this will probably be discontinued to some extent because of the relatively inaccessible location in Germantown.

RESEARCH PLANNING (continued)

It was generally agreed that the discussion of Item 2 had been included with Item 1.

Item 3. ORGAN SYSTEMS - DR. CANTRIL asked how well this program was being coordinated with work of the Aircraft Nuclear Propulsion program and DR. DUNHAM told of work being done by Brookhaven in the study of brains of animals which had been taken up to high altitudes.

Item 4. PERFORMANCE AND LIFE SHORTENING - DR. DUNHAM explained that the Division planned to intensify these studies, particularly as far as life shortening studies and aging, and planned to cooperate closely with the NIH. DR. WARREN expressed the opinion that the AEC had a responsibility to the Armed Forces and should investigate the influence of acute doses of radiation on the ability of men to carry out assigned tasks. DR. DUNHAM spoke of the work that was done a number of years ago on dogs on treadmills showing very little impairment in work capacity. There was also work done at Austin, Texas and at Los Alamos. DR. CANTRIL suggested that the best correlation with that type of research could probably be obtained through nuclear weapons tests, although this would be expensive. DR. BONNER spoke of a preliminary proposal from Convair to design a reactor that would emit a pulse of radiation essentially equivalent to that from a weapon which would be useful in working out some of the domimetric problems. This however, would cost about $700,000. DR. CANTRIL expressed the opinion that such an installation would be useful for many other experiments besides biological. DR. WESTERN told of the interest of the FCDA and the ODM in determining under what radiation conditions people could be brought back into radiation areas after an atomic explosion, and in determining the length of time during which they could stay there. This would appear to have very important civil defense implications. DR. DUNHAM stated that he did not believe any experiments had been directed at that problem and DR. WARREN agreed that it was a very important one to explore.

Item 5. COMBATTING DAMAGE - DR. CANTRIL spoke of Dr. Bruner's statement that there was now skepticism over the possible long-range benefit to be derived from the humoral approach and inquired if the work of Jacobson and that at Parke Davis were still going on. DR. BRUNER stated that this work was still in progress, although he had not covered it. He also mentioned work at the Rand Laboratory and at Roswell Park. DR. DUNHAM spoke of plans to make available a contract for $50,000 to Armour to protect the Government's patent rights. DR. SHILLING spoke of the Werthesen contract at Southwestern Research Institute in which they are searching biochemically for an active principle from the serum from pregnant bovine.

RESEARCH PLANNING (continued)

Item 6. ENVIRONMENTAL RADIATION PROGRAM - There was a general discussion within this large area which covered fallout monitoring, waste disposal, meteorology, total environment and marine biology, with particular mention of work on the Colorado Plateau and some of the background radiation measurements being made by the Health and Safety Laboratory. DR. WARREN expressed an interest in the background measurement made by the HASL in Denver as being twice that measured in New York. He stated that this was important because there have been a number of statements made that there was little difference in background in Denver. It was also stated by others that statements of much higher background in Denver have also been made. DR. DUNHAM suggested further aid to projects such as oceanography and marine biology as they relate to waste disposal in the ocean. He stated that no one else appeared to be particularly interested in this subject but that Dr. Libby had expressed a keen interest. The Division had held back, however, because of the tightness of the budget. DR. WOLFE expressed the opinion that the ecology projects should go on regardless of any radiological aspects. MR. HOLLAND expressed the opinion that it would be a mistake to discontinue stratospheric sampling at this time. Referring to the discussions of oceanographic studies, DR. WARREN said that such studies offer very little result for the amount of effort exerted. In answer to a question by DR. CANTRIL, DR. DUNHAM told of the large program in waste disposal being conducted under the Division of Reactor Development. This includes work at Brookhaven and at Oak Ridge in an attempt to develop a method of containment. They have not been directing their attention towards dumping raw wastes into the ocean.

INTERNATIONAL ATOMS FOR PIECE CONFERENCE

At this point DR. WARREN interrupted discussions to introduce MR. EDWARD GARDNER, who had been invited to speak on the subject of the Second International Conference on the Peacetime Uses of Atomic Energy. He said that the meeting was to be held in Geneva ~~of~~ from September 1 to 13, 1958 and that the AEC had been assigned the task of preparing technical presentations consisting of technical papers, technical exhibits and certain technical material and information to be distributed to delegates. There are also plans for a number of films of a technical nature to be shown. He spoke generally of efforts being made to obtain technical papers for presentation and for publication as well as the publicity aspects. He spoke particularly of the plans under the subject of biology and medicine which would include biological effects of radiation, methods for reduction of radiation damage, biological research with sub-headings of photosynthesis, aging, enzymes, kinetics and chromosome duplication. Another major item is metabolism studies. There are plans to exhibit a medical

INTERNATIONAL ATOMS FOR PIECE CONFERENCE (continued)

treatment room, a research medical reactor, a whole body counter and health physics facility. He spoke also of some of the details of films to be prepared for Geneva showing, all of which had to be prepared in English, Russian, Spanish and French. DR. WARREN expressed the opinion that the United Kingdom had stolen the show as far as the commercial exhibits were concerned during the last Geneva Conference and gave the impression that they were the only people doing anything with atomic energy. He hoped that this would not be the case for the coming meeting. DR. DUNHAM invited all those present to submit any items for the Geneva Conference to him.

Item 7. GENETICS - DR. WARREN asked for comments from DR. GEORGE BEADLE, who had been invited to the meeting as a consultant. DR. BEADLE expressed general satisfaction with the program and stated that he was planning to go over some of the details with Dr. Zelle. DR. ZELLE expressed the opinion that in view of the recent increases in budget, there was some question as to whether additional funds could be spent wisely in this area.

RESEARCH PLANNING (continued)

Item 8. HUMAN RADIOBIOLOGY - DR. HENSHAW expressed the opinion that measurements of life span should be investigated further. There was a general expresseion of satisfaction among the Committee members with the progress in the human radiobiology program.

Item 9. BLAST DAMAGE - DR. BURNETT supported Dr. Cantril's previous expression of feeling that the blast damage really did not belong in the Biology and Medicine program and DR. WARREN also expressed the opinion that someone else should take it over.

Item 10. AGRICULTURE - In introducing this Item, DR. WARREN said that tremendous contributions had already been made to the economy of the country through the AEC agricultural research program. DR. PEARSON expanded somewhat on his earlier remarks about his trip to Central and South America.

Item 11. TOXICOLOGY - This Item was discussed generally by Dr. Dunham with no comments from the Committee.

MR. STANWOOD was next introduced by DR. DUNHAM to discuss facilities for long-term animal experiments. MR. STANWOOD said there had been some difficulty in obtaining legislation and this had delayed some of the plans for expanding facilities. DR. WARREN stated that he believed that there should be much more in the construction budget for the reason that universities throughout the country were faced with a very rapidly increasing population to serve, and that normal demands would mean that some research space would probably be used for classroom laboratories. For this reason research support for colleges and universities would have to be increased in greater proportion than would normally be required. DR. BURNETT said that for the same reason it would probably be found that $10,000 per man year would not be a realistic figure in the future and that universities would not be able to participate in the research program under these conditions. DR. WARREN stated that a very strong case should be made to keep the research program going. DR. CANTRIL asked if continuing investigation of inert uranium was productive and DR. ELY replied that it was a five-year program with dogs and essentially a radiological program. There had not been much return on the first two years of work. DR. WARREN asked if there was anything new in the mercury investigation. DR. DUNHAM said that a literature search had been started at Rochester and that the problem was important because of the large operation at Oak Ridge involving the use of mercury which present a difficult problem. DR. BRUNER stated that the fans and blowers necessary to keep the air concentration down to acceptable level resulted in objectionable noise levels at the Oak Ridge Plant.

ANIMAL FACILITIES

Item 12. CANCER PROGRAM - DR. CANTRIL expressed satisfaction with the trend towards the shifting emphasis in the case of teletherapy. It had initially been developed by the AEC but had now been taken over by other agencies or private sources. He also spoke of Dr. Hempelmann's report of leukemia centers in upstate New York.

RESEARCH PLANNING (continued)

Item 13. INSTRUMENTATION AND DOSIMETRY - DR. DUNHAM said that the Appropriations Committee had not looked with favor on the small amount of the budget devoted to dosimetry and instrumentation. MR. JOHNSTON expressed the opinion that there was less need now for supporting instrumentation development because it had become a consumer product.

MR. MARINELLI asked if there were any film study contracts in effect and MR. JOHNSTON replied that there was work going on at UCLA relating to fallout films where the film is used to attempt ~~to attempt~~ to assess the beta hazards from fallout. MR. MARINELLI mentioned previous work done by Ansco with scintillators and film and that there were much better scintillators available now.

DR. PEARSON was then introduced to discuss the food sampling program in South America. He spoke of his recent visit to Brazil and told of the current nutritional program which will be utilized in obtaining representative samples from different parts of Brazil. Samples are to be shipped for the next two or three months to the Health and Safety Laboratory for analysis. A similar program has been set up for Argentina and these samples are to be sent to the Atomic Energy laboratories in Buenos Aires for analysis. DR. PEARSON also spoke of plans to supply gamma sources for agricultural research to Central and South American countries. There appear, however, to be some legal obstacles to this program.

FOOD SAMPLING PROGRAM

DR. SHILLING was then introduced to discuss the training program. He spoke of the various aspects, including on-the-job training, special fellowships and high school science teacher training. The last has been a cooperative program with the Division of Reactor Development which furnished a training kit for the teachers to take back to school with them and with the National Science Foundation which furnished the stipends and family allowances. There had also been a series of radiological lectures in cooperation with the American Institute of Biological Sciences. In this program, lecturers are furnished to small colleges from the larger universities and the national laboratories. DR. SHILLING also spoke of the isotopes training assistance program in which money was to be furnished for the purchase of equipment. He then introduced Mrs. Virginia Bolton to talk about the composition of the Educational Advisory Committee. Mrs. Bolton said that the Committee consists of a chairman and five members, the Chairman being Dr. J. Newell Stanard, of the University of Rochester. Other members are Dr. Robert MacVicar, Dr. John Cooper, Dr. Lincoln Contance, Dr. Samuel Schenberg and Dr. Elda Anderson. DR. BURNETT inquired as to the problem of support of personnel in the educational program and DR. SHILLING replied that this was a subject which the Committee gave great attention to. They had the same opinion that some faculty support would be necessary in order to keep these programs running, although at present such support was not permitted. DR. WARREN asked if there had been much response from students during the last two summers. DR. SHILLING said that there had been a great number of applicants to take the courses and also from schools to obtain additional equipment. He stated that, in general, he believed that the program was working very well.

TRAINING PROGRAM

COMMISSIONER GRAHAM expressed his pleasure at being able to be at the meeting and felt that he had gained considerable knowledge through his attendance.

The meeting was adjourned at 1:00 p.m. to be continued in Executive Session in the afternoon.

EXECUTIVE SESSION

The Executive Session was held with only the Committee members present. The minutes of the 62nd and 63rd meetings were reviewed and approved with minor corrections. A letter was prepared for transmittal to the Commission reporting on the current meeting.

The Committee decided to hold the next meeting at the Argonne Cancer Research Hospital on November 8 and 9, 1957.

Respectfully submitted,

Hanson Blatz

Hanson Blatz
Scientific Secretary ACBM