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MINUTES

of the

EIGHTY-FOURTH MEETING

of the

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

U. S. ATOMIC ENERGY COMMISSION

REPOSITORY 326 US ATOMIC ENERGY COMMISSION
COLLECTION BIOLOGY OF MEDICINE
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FOLDER 2

January 13, 14, 15, 1961

University of Puerto Rico
Puerto Rico Nuclear Center
Rio Piedras, Puerto Rico

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The 84th meeting of the Advisory Committee for Biology and Medicine, U. S. Atomic Energy Commission, was held at the Puerto Rico Nuclear Center, Rio Piedras, Puerto Rico, on January 13, 14, and 15, 1961. All members of ACBM were present except Dr. Robert F. Loeb. Since Dr. John C. Bugher, Chairman, is Director of the Center, Dr. H. Bentley Glass, Vice-Chairman, presided at the meetings. Also in attendance were Dr. Charles L. Dunham, Director, Division of Biology and Medicine, and various members of his staff.

The next meeting will take place at the Oak Ridge National Laboratory, March 10 and 11, 1961, where the Biology and the Health Physics Divisions will be visited.

The business of the 84th meeting is summarized under the following headings:

1. Program Review -- AEC Project, Puerto Rico Nuclear Center
 2. DBM -- Further Information on Program and Budget Control
 3. Miscellaneous Information
1. AEC Project, Puerto Rico Nuclear Center (PRNC)

The Commonwealth of Puerto Rico (Estado Libre Asociado de Puerto Rico) occupies an island about 100 miles long and 35 miles wide, with a population of more than 2 million and a population density of more than 600 per square mile.

The Puerto Rico Nuclear Center, now in the process of developing its facilities and staff and settling on the working details of its program, has its headquarters just outside of San Juan, on the Rio Piedras Campus of the University of Puerto Rico, where the Director, Dr. John Bugher, has his office and administrative staff. The work of the Center is carried out at the Rio Piedras Campus (Associate Director, Dr. Amador Cobas) and at the Mayaguez Campus (Associate Director, Dr. J. L. Garcia de Quevedo), College of Agriculture and Mechanic Arts, about 100 miles away. The programs of the two campuses are complementary ones: at Rio Piedras, where the medical school is located, the work in atomic medicine, chemistry, and allied subjects is pursued; at Mayaguez, where the 1-Megawatt Swimming Pool Reactor is located, the program is centered on reactor technology, health physics, and the related agricultural and biological sciences.

The University has schools for the arts and sciences, engineering, agriculture, medicine, etc., and an enrollment of about 14,000 students on the two campuses. Programs leading to the M.S. degree are only now being set up in chemistry, mathematics, and other sciences.

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- 2 -

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The ACBM meetings took place at Rio Piedras on Friday, at Mayaguez on Saturday, and at Rio Piedras on Sunday. ACBM members were supplied in advance with abstracts of the talks given on Friday and Saturday by staff members of the Nuclear Center.

The speakers on the program were as follows:

Friday, January 13, 1961: Medical Center, Rio Piedras

Jaime Benitez, Chancellor, University of Puerto Rico
John C. Bugher, Director, Puerto Rico Nuclear Center
Jose R. Vivas, Dean, School of Medicine
Edwin Roig, Head, Radioisotope Applications Division
Sergio Irizarry, Head, Clinical Applications Division
Victor Marcial, Head, Radiotherapy and Cancer Division

Saturday, January 14, 1961: PRNC, Mayaguez

Jose Luis Garcia de Quevedo, Associate Director, Mayaguez Campus
Howard J. Teas, Chief, Agricultural Bio-Sciences Division

Discussion of General Program in Agriculture:

James G. Horsfall, Director, Connecticut Agricultural Exp. Sta.
Arturo Roque, Director, Puerto Rico Agricultural Exp. Sta.
Ovidio Garcia Molinari, Dean, College of Ag. & Mech. Arts
Harry Warmke, Director, Federal Experiment Station, Puerto Rico
Howard Teas, Chief, Agricultural Sciences Division

Jose A. Ferrer-Monge, Chief, Health Physics Division

Discussion of Ecological Program:

Juan Rivero, Director, Institute of Marine Biology
Virgilio Biaggi, representing Dean of Arts & Sciences, Mayaguez
Charles S. Shoup, Oak Ridge Oprns. Office, USAEC, Oak Ridge, Tenn.
John N. Wolfe, Division of Biology & Medicine, USAEC, Washington
Jose Ferrer-Monge, Chief, Health Physics Division
Peter Glynn, University of Puerto Rico, Biology Dept., Mayaguez

The original objective of the Puerto Rico Nuclear Center (PRNC) was to provide training in nuclear technology for Latin Americans. To this end the reactor at Mayaguez which went critical one month ago, was built. In addition, adjacent laboratories for radiation chemistry, physics, and the biosciences are being constructed, and should be ready for occupancy in a month or so. At the medical center in Rio Piedras, a laboratory building

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- 3 -

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is also under construction and should be ready in several months. The completion of buildings will facilitate teaching and training, and will make possible the initiation of non-clinical research.

Since the time - about five years ago - when the objective of the PRNC was originally defined, the realization has developed that some modification in orientation would be desirable for several reasons. From the discussions with Dr. Bugher and members of his staff, coupled with its own general background of experience, ACBM has gained the following impressions.

Latin America is not eagerly and anxiously awaiting the full activation of the PRNC, since several of the countries now have their own reactors, and for those who can afford it and have the necessary qualifications, excellent opportunities for training and study exist in the United States or elsewhere. On the other hand, there is a continuing stream of inquiries concerning training, and there is a small flow of students. The latter is, however, controlled by the availability of dollars, and most students cannot stay long enough to receive thorough training. It appears that some kind of financial support will be needed (e.g., in the form of fellowships) if visiting students are to stay for periods measured in months instead of weeks.

Assuming that adequate financial support for visiting students can be arranged, the question arises as to what fields of instruction should be dealt with and at what level of sophistication. It is Dr. Bugher's view that technical training and lower level instruction, once organized, should be taken over by the appropriate University departments so that members of the staff of the PRNC can concentrate on advanced instruction and especially on research. Thus the PRNC would become more of a research center than a training center.

In considering plans for the PRNC, it was clear that the major divisions require separate evaluation.

With respect to the medical program relating to radiation therapy (Dr. Marcial) and the use of isotopes in clinical medicine (Dr. Irizarry), excellent opportunities are becoming available for clinical training and the present staff, although relatively young, appears able, vigorous and well trained. A wealth of clinical material is available, and a going organization of cancer treatment, control, and statistics is already functioning. Although radiological physics is not yet adequately represented, it appears that the possibility exists for the development of a superior - possibly an outstanding - center in the medical field. Furthermore, no formal training is obtainable in this field anywhere in Latin America. Although the possibility of using neutrons at Mayaguez will

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- 4 -

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eventually occur, and although fundamental interests are to some extent connected, it is clear that the medical development at Rio Piedras is now, and probably always will be, independent of the activities at Mayaguez. Because of the nature of the subject there may be close relations between Dr. Roig's radiation chemistry research at Rio Piedras and the reactor facility at Mayaguez.

With respect to reactor engineering and the allied physical sciences, ACBM will make no comment.

In the case of the Health Physics and the Agricultural Bio-Sciences Division, centered at Mayaguez, some difficulties are foreseen. Neither of these divisions as yet has a definite going program of research. Furthermore, it is not at all clear that either one can attract the number of experienced scientists of senior caliber to insure the development of important programs within the next several years and attract the attention of Latin American students for advanced study. That Dr. Teas has joined the staff recently is considered a favorable step in this direction. Aside from the question of advanced instruction, it is apparent that the staff qualitatively and quantitatively is not now adequate to fulfill what may be called a primary service function - the undertaking of an ecologic survey of the area. Nor does the faculty of the University have the necessary strength to supply these needs.

In summary, the following picture emerges. The original objective of training and teaching Latin Americans is no longer a practical one in all fields of nuclear technology and science.

1. In the case of radiation therapy and the clinical use of isotopes in medicine, an important training program has been initiated which will also concomitantly produce fruitful research. This program will attract Latin Americans.

2. In the biological sciences, the staff and program at present are weak or are only in an early stage of development.

3. The University is not yet strong enough scientifically to fill these deficiencies.

4. Dr. Bugher would like to stimulate work in agriculture, nutrition, ecology, and marine biology, especially as the latter two will provide the basis of an ecological survey.

5. To accomplish this, Dr. Bugher wishes to place major emphasis on bringing in able scientists for 2-year terms. These men would organize research programs in which University staff and students would be encouraged to participate. Through this means the University's strength at the

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- 5 -

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graduate level would be developed to the point where it could supply the needs of PRNC.

6. Dr. Bugher therefore wishes an increase in budget in FY 1962 to the vicinity of \$ 1.3 million, which will cover such a research program as well as the basic service and administrative functions of the PRNC.

7. He also wishes to obtain \$ 250,000 for fellowships to insure a flow of Latin American students who could stay for at least a year. This would be especially helpful in bringing in older men in the field of radiology and radiobiology who themselves are influential as teachers and practitioners.

8. Inasmuch as the Division of International Affairs controls the budget of the PRNC and was originally directed to promote training, the provision of extra funds for research poses a problem. It is estimated that two-thirds of the budget under the proposed plan would be spent on research. On the other hand, it should be borne in mind that a training effort in vacuo, i.e., without a moderate research effort as backup, would not be satisfactory, particularly would training at the graduate level be inadequate.

9. The PRNC will also need the guidance of DBM. A policy decision should be made defining the role of DBM, and its relationship to the Division of International Affairs, with regard to PRNC.

The ACBM therefore recommends that the Commission consider the wisdom of enlarging the research effort of the Puerto Rico Nuclear Center relative to the size of the training program at lower levels. Provision of funds for this research effort may well require some readjustments of the budget. ACBM further recommends that the Commission explore with other federal agencies the ways and means of providing fellowships for Latin American students and more advanced research workers visiting the PRNC for periods of a year or longer. Finally, ACBM recommends that the Division of Biology and Medicine be requested to serve in an official advisory capacity to the Division of International Affairs with respect to the research program in biology and medicine of the PRNC.

2. DBM - Budget and Program Control

DBM Research Program. At the request of the General Manager, a staff paper has been prepared on the biological, medical, and environmental research program of DBM. Members of ACBM received copies of this document. Dr. Walter Claus of DBM, using a specially prepared syllabus, discussed the main conclusions with the members of ACBM and asked for written comments,

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- 6 -

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since the document is now about to be transmitted to the General Manager. Three of the most important points considered in the discussion were the following:

(a) In dealing with the Commission, it is important to emphasize that DBM's contribution to knowledge is of major importance and should not be considered a minor and dispensable part of a program primarily dedicated to the manufacture of weapons and power plants.

(b) The most important single factor which hampers intelligent program planning is the absence of a positive continuing Commission policy of recognition for the DBM program.

(c) The projected budgets for FY 1962-1965 are planned to increase from \$ 60 to \$ 85 million, with approximately 60% to be spent in the basic areas of research, 24% on research and engineering for problems of radiologic health and safety, and 16% on research for immediate beneficial applications.

Offsite Programs. Dr. Max Zelle discussed the processing of applications for offsite research grants, which now total about one-third of DBM's budget. The system in use for some years has functioned reasonably well. Changes are being introduced which are intended to speed up the processing of applications, to facilitate the review of applications by extra-mural experts, and to give the Research Committee a more integrated picture of the entire research program, both onsite and offsite. A written report on this subject by Dr. Zelle will be completed and distributed to ACBM members in the near future. Dr. Zelle also distributed two tables summarizing the statistics for applications and grants and their research categories for FY 1960-61.

PHS. The Public Health Service is now formulating plans for research in the field of radiation biology under its newly formed Division of Radiological Health. Meetings have been convened by Mr. Robert Cutter of the Bureau of the Budget and participated in by Mr. Stanwood and Dr. Zelle (DBM), James Burris (Finance-AEC), Paul Tompkins (Division of Radiological Health, PHS), and Dr. Samuel S. Herman (NIH, PHS) so that the PHS, BOB and DBM would be mutually informed of the programs of DBM and PHS. It is anticipated that the DRH-PHS program will eventually cost \$ 15 million per year.

ACRH. Dr. Dunham reported that the Bureau of the Budget has suggested during the preliminary hearings that the Argonne Cancer Research Hospital be transferred to the National Institutes of Health. The cancer program of DBM continues to be the one which is constantly under question. Dr. Dunham has requested Dr. Robert Loeb to make a special site visit to

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- 7 -

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the ACRH with a view toward formulating future policy. This will be discussed at a future meeting.

3. Miscellaneous

Dr. Sterner reported that the Beryllium Toxicity Committee is continuing to recommend that the "target" maximal permissible concentration for industry be a daily weighted average of 2 micrograms per cubic meter of air. For short periods, of say 10 to 15 minutes or so, 25 micrograms is considered permissible. Dr. Sterner also reported that the recent accident at the Arco, Idaho, testing grounds has not yet been fully analyzed.

Respectfully submitted,

Henry I. Kohn, M.D.
Scientific Secretary, ACBM

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- 8 -

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