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October 17, 1963

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MEETING OF THE AEC BIOMEDICAL PROGRAM DIRECTORS, NEW ENGLAND
DEACONESS HOSPITAL, CANCER RESEARCH INSTITUTE, BOSTON, MASS.
OCTOBER 14-15, 1963.

ORB:CSS

The fall, 1963, meeting of the Biomedical Directors was held at the Cancer Research Institute, NEDN, on October 14-15, with Dr. Shields Warren as the host Director. NEDN is a hospital of 400 beds, specializing in cancer and related diseases, receiving patients from the Northeast primarily, and with affiliation to the nearby Harvard Medical School.

This meeting opened at 9:00 A.M., on Monday, October 14 with Shields Warren, M.D., presiding. The following is a report on the program:

1. Shields Warren. Comments on the Harbor Project. Warren reported in general on his feelings regarding the Woods Hole meeting. It was felt that new concepts came forth regarding civil defense and civilian preparation for the aftermath of nuclear war. The full report is in preparation, and we will be interested to see what it will say regarding (1) serious problems of water supply, especially in the West, (2) a new currency and banking and a new concept of economics, (3) problems of transportation and efforts to bring the relatively abundant stored food to the points where needed. Fire protection will be important, and it was recommended we see the movie of the L.A. fire control exercised at the time of the Beverley Hills and Bon Air fire storms in the forested canyons. Also emphasized is the need to keep up immunization as a defense safeguard. Livestock is important as a protein food source, and as survival edible materials serving as a fission-product food-chain filter surpassing vegetation-type foods. Dr. John Bugher (PRNC) was called on for comments, and he replied by stating general agreement that the Harbor conference accomplished a good deal and that in Puerto Rico a good look is being taken at the whole social structure in CD and some progress is being made on construction criteria and handling of food and medical supplies.

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Before going on to the next item on the program, Dr. Warren announced that Henry Kohn is now professor of radiology at the Harvard Medical School.

2. W. E. Knox, M.D., reported on hormone balance and enzyme activities in animals, giving data on the feeding of tyrosine which did not give rise to elevated tyrosine transaminase in the adult rat, but did cause this rise in the less than 90-day young rats and in guinea pigs, the differences found being connected with the saturation of the enzyme with coenzyme pyridoxal phosphate.
3. Olive Gates, M.D., reported on the comparative carcinogenic picture in rodents of five different strains where Co^{60} wires were implanted in the animals. Carcinomas were most common, and sarcomas least; leukemias occurred only in mice.
4. David L. Joffes, Ph.D., described a new Cl^{402} inhalation apparatus and experimental setup for small animals. Although the system will be a closed sealed glove-box system in thick plastic, and escape of Cl^{14} of 17 uc/day at 2 mm p.p. will be expected.
5. Dr. J. T. Duhig, who from his speech I deduced to be an Australian, spoke on influence of thymectomy on life span in mice. Some animals thymectomized at birth. Showed a marked increase in immunological tolerances, but lymphoid tissues developed poorly and there was a lowered life span. Those operated on at four weeks of age showed less lymphocytes but no decreased life span and more sensitivity to irradiation.
6. Merle A. Legg, M.D., a study of thymic tumors in man was presented. There is some kind of association of thymic tumors with the disease myasthenia gravis, but the association is not clear. The lecture was primarily one of illustration of the tumor histology.
7. James T. Duhig presented data on increased lymphoid leukemia in irradiated thymectomized mice. Thymic implants did not appreciably influence the occurrence of tumors after irradiation.
8. Gilbert Fridell, M. D., Anemias of golden hamsters with tumors were described as being similar to those anemias found in human tumor patients, possibly due to immature red cell destruction by overgrowth of the reticulo-endothelial system.

9. Lorraine Meisner spoke on work on human chromosome changes in irradiated patients, prepared by methods similar to the methods of Bender and Goch. A single X-ray treatment may drop normal levels by 20% from normal chromosome numbers and continuing irradiation will increase the number of aberrations such as dicentrics and fragments.
10. Edna Tompkins, M.D., spoke on the morphological characteristics of the nuclei of lymphocytes using new staining techniques involving methylene blue and Lugol's solution. DNA chromatin and nuclear histones show up by this technique. Dr. Tompkins was a member of the Vanderbilt anatomy department when I lived in Nashville.
11. Rosanna Chute spoke on the use of parabiotic rats. This attracted a good deal of attention. Rats in pairs are joined surgically by their peritoneal cavities, held by a tantalum wire suture through the scapulae. One partner is shielded and the other irradiated, and studies are made on life span, blood picture, tumor production, and growth. Several thousand animals have been so prepared. Osteogenic sarcomas occur in the irradiated animals but do not tend to cross the anastomosis.
12. Shields Warren, M.D., parabiosis and age. In some irradiated parabionts the parabiosis helps in survival time. Tumors and cataracts increased in aged irradiated animals. The percent of tumors was somewhat higher in males than female rats.
13. David L. Joffes spoke on the thyroid response in mice to low I-131 doses at various levels. The histology of the thyroid at various levels of change was shown. No malignancies were found and the speaker stated 300 rad is the ablation dose which seems unbelievably low by at least a factor of 10.
14. Robley D. Evans and collaborators from MIT spoke on the screening and recording of records on the medical histories of human patients with a history of radium and mesothorium body burden. These patients are the known dial painters, those who drank radium water and others with various other kinds of exposures. About 560 patients have been studied at MIT and ANL and compared in bone changes with that found in normal aged persons. Tumors are recorded and scored in relation to body burden. Based on body burden and response, the present Radiation Protection Guide maximal body burden of 0.1 microcurie of radium involves an cumulative dose which is clearly conservative, possibly from 10 to 100-fold.

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Dr. Dunham's DBM meeting began at 12:00 noon on October 15. The following items were brought to the attention of the group:

- A. DBM has a letter from a Rochester paper, with copies to Congress, asking for information on whether experimental patients in AEC-supported hospitals are worked on without their knowledge. This will be answered by DBM.
- B. The next meeting will be at NASL, New York City, on February 17 and 18. The spring meeting will be a two-day affair in May, with ORNL Biology Division as the host installation.
- C. Dunham spoke out on the matter of reducing requests for waivers for foreign visitors, and read the provisions of Public Law 87-256 regarding exchange visitors. He asked everyone not to request exceptions from the two-year return rule except real hardship cases. Anything else, no go; especially do not claim exemptions for skills in short supply, the foreign country needs these skills too! Bugher stated he felt that visitors asking for visas should be better informed on the matter of the requirements before they come to the States, that perhaps consulates and embassies should be informed to carefully advise and provide the correct kind of visas.
- D. Wartringer, in Weisner's office, will ask for assistance in making a study of the NIH granting operation. The study needs technical help and AEC laboratories will be called on to provide scientists for review work, 2-3 weeks at a time for six months or so.
- E. Dunham put in a plug for each laboratory to provide an illustrated annual descriptive bulletin. (See enclosed example from the Medical Department at Brookhaven).
- F. On the FY 1964-65 Budget, Dunham feels the continuing resolution may go on until Christmas. FY 1965 hearings will be next week and there will be specially difficult times with equipment dollars. FY 1964 and FY 1965 will be tight.
- G. Dunham called on John Lawrence (LRL) who stated there is a Geneva volume in preparation on "Applied Radiation", a short illustrated review, one of four. Laboratories will be called on for contributions. It was suggested that N. G. Anderson's centrifuge program might be one of the topics, even though it does not necessarily have a radiation connection.

- H. Dr. Bugher was called on for a 15-20 minute review of the PRNC program. He gave a good story, project by project, but at no time mentioned any relation with ORO. Among other things, he stated he now has 260 people including 69 scientists, the scientific-technical staff being from 13 countries. The medical center will eventually comprise 3500 beds in 9 hospitals. The I Gonzales Martinez Clinic has 111 beds. I had not heard this number before.
- I. Douglas Grahn from Argonne reviewed some of their work. The ZGC is completed and in September they achieved 12.7 bev. Dr. Marinelli has replaced Rose as Director of the Radiological Phycis Division. On April 9-10, 1964, ANL will sponsor a conference on transmethylation and methionine synthesis. Grahn says they will take the AEC biomedical directors' meeting (this meeting) in May 1965.
- J. Howard Curtis (BNL) stated that evidence is building up that older animals (and man?) can withstand higher radiation doses and the life-shortening effects are less. This may be of significance in emergency planning.

In talking with Joe Deal, it appears that almost certainly something will be done toward an ORNL "Civil Defense Institute". The dollars will not be what Weinberg asked for, hence there will be a question as to whether the program supported with be big enough to interest Wigner. DBM is approaching DOD for the supporting funds.

Also, the Civil Effects Branch wants to move ahead into neutron studies on the Ichiban program, using an accelerator on the 1500 feet BREN tower in Nevada. Deal says John Auxier may be pulled out of Sam Hurst's group in ORNL and be set up as head of his own Section. I had not heard this before.

The meeting adjourned at 4:30 P.M. This was a fairly good meeting and it was well attended. I did not, however, feel it was particularly informative in the formal sessions, and expect the New York Operations' meeting in February to be more interesting, especially from the health physics viewpoint as related to our own activities.

C. S. Shoup

Enclosures:

- 1. Program.
- 2. BNL Bulliten.

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