BERKELEY: RADIATION LABORATORY
June 8, 1948

DR. JOHN H. LAWRENCE

Re: Proceedings of the Atomic Energy Commission Washington Meeting of May 25th and 26th.

Undoubtedly many of the minor details of the Proceedings of these meetings will be omitted in this summary. I have endeavored to cover the points of major interest.

I. The Atomic Energy Commission Fellowship Program:

The Atomic Energy Commission admitted that because of the hurried character of its embarkation upon its fellowship program the distribution of necessary information and the formulation of policy regarding the appointments were both in a rather bad state. Dr. John Bowers stated that this will be remedied in the near future with more detailed circulars and with better distribution of such circulars.

Largely for the purpose of stimulating interest and activity in the over all atomic energy field, it has been decided to recommend that fellows receive their training in one of a group of institutions previously not heavily engaged or not at all engaged in Atomic Energy Commission work. These institutions are listed in a circular which the Atomic Energy Commission has issued and which is appended herewith. However it is not implied that fellows chosen must decide to work at these institutions, and, in fact, are to be encouraged to work at any institution where they may receive an adequate training.

Further it is recognized that many of the individuals coming into this work with a clinical training in medicine or biological sciences may be "rusty" and deficient in some of the basic disciplines such as elementary college mathematics and physics. Such individuals will therefore be encouraged to go back to this elementary level where necessary in order to obtain a thorough grounding. Thus it is not anticipated that the major portion of a year's Fellowship shall be the completion of a research project.

The salary level for such fellowships has been planned to be roughly equivalent to that of other National Research Council Fellowships. No rigid dates of closing have been set and it has been planned to consider new applications several times per year.

II. The Clinical Cancer Research Program of the Atomic Energy Commission:

The present support by the Atomic Energy Commission for Cancer Research, as authorized specifically by Congress, is divided among the following activities. a) Work of the Atomic Bomb Casualty Commission, b) distribution of free radioisotopes for diagnosis and treatment of cancer, c) cancer research projects to the extent of 350,000 dollars per year at present, and d) the establishment of clinical cancer research facilities directly under the auspices of the Atomic Energy Commission. In this last group (i.e., d) the establishment of clinical cancer research facilities) the Oak Ridge Unit is the first one to be planned

and constructed. Some 30 to 40 supported beds plus laboratory facilities will be available there. Two general approaches will be followed in this Oak Ridge set up. a) Individual patients or groups of patients will be brought there under the auspices of staff members of the cooperating group of universities associated with the Oak Ridge Laboratory. One illustration of this is a plan for the study of patients with acute leukemia by Dr. Roy Kracke. It is anticipated that many individuals will carry on work in the Oak Ridge set up in this fashion. b) In addition it is planned to have a staff associated with this research unit which will develop its own cancer research program. This entire effort is to start at Oak Ridge approximately January 1, 1949 and the estimated cost will be something in the neighborhood of 500,000 to 600,000 dollars per year. Dr. Warren emphasized that such a center should stay away from any sort of ordinary cancer diagnostic and therapeutic service and should instead stick to those things for which the special facilities of such a center as Oak Ridge would qualify it. The question was raised concerning the extent to which the Atomic Energy Commission should go in financing the actual bringing of patients to such a center for study including transportation and hospitalization. No answer was given but Dr. Warren States that this will be brought up in the form of a proposal at the Advisory Council at its next meeting. Since the specific direction of Congress is on the subject of cancer, the attitude of the Commission at present is that no other research of the clinical type should be supported in a research unit like that planned for Oak Ridge.

It is planned that the Argonne Laboratory will have a cancer research hospital in cooperation with several of the mid-western universities. It is expected that Los Alamos and Brookhaven will also initiate such a program in the near future. The question was raised as to whether this sort of effort would drain medical schools of necessary talent and it was pointed out that Dr. Goodpasture of the Advisory Commission feels that this is the case. However, the plan is to go ahead with this type of program in spite of some objections of this sort. It is for this reason that Dr. Warren feels strongly that none of the routine type of cancer work should be done at these centers. The question was also raised by Dr. McLean of Los Alamos as to whether Atomic Energy Commission support could be given to any other form of clinical research other than cancer or the radioisotope research. They are specifically concerned about this program for members of their hospital staff whose research interests were in other fields. Dr. Bowers stated that there is no policy established on this point but that it will be brought up with the Advisory Commission. Dr. Bowers and Dr. Jensen of the Commission both felt strongly that Commission support should extend to fields other than direct applications of atomic energy when promising leads developed.

III. The Atomic Energy Commission Support of the Office of Naval Research Projects:

The Atomic Energy Commission pointed out that it is now supporting numerous projects that are administered by the Office of Naval Research. There is some question at present as to whether this arrangement will continue in the future. Some of the Atomic Energy Commission members feel that it would be preferable for the Commission to administer these projects as well as provide financial support. However at the present time the Office of Naval Research is set up to administer programs whereas the Commission is not. Decision on this point is being delayed pending the determination of the status of the proposed National Science Foundation if and when this should materialize.

IV. Discussion of Radiation Tolerances:

Dr. Failla spoke about the advisability of lowering the permissible level to 0.05 r per day instead of the present 0.1 r per day and of shifting the basis to a weekly level instead of a daily level, that is approximately 0.3 r per week. This he felt would make many people happier who worry about over-exposure on a certain day. He emphasized that no specific evidence has been accumulated which indicates that the previous level is too high but that he has the impression that it would be worth lowering it. This of course refers to total body irradiation. He has suggested that one consider allowing a greater local exposure. For example, say 0.6 r per week to the hands for gamma rays. For beta rays he thought one might even allow as much as 1.2 reps per week. Some debate ensued concerning the advisability of allowing the increased tolerances for local areas but no suggested change in Dr. Failla's levels was made.

Discussion was presented by Dr. White concerning the recent injury of several members of the Einewetok bomb tests. Four men were involved. They had handled filters from drone planes sampling the surrounding gases. Because they felt that they could avoid total body irradiation, they did not use tongs in working with the material thus greatly increasing the exposure on the hands. In one case, after four hours tingling was noted in the fingers and in other cases such paresthesias were noted between six and twenty four hours later. Following this, three of these men developed blisters on the fingers. In one case the first thing that was noted was a blanched out area over the phalangeal region. Within eight hours after the original onset of symptoms a minimal swelling of the fingers was noted. Within twenty four hours in the case of the man having the blanched out area a frank bulla had developed with surrounding erythema. In all cases the blood count was normal, the Van den Bergh test was at the upper limits of normal. One of the four individuals showed a low sperm count. Healing has been slow in the case of all of these lesions and there has been progressive reddening spreading from the palmer surface to the interphalangeal spaces. The therapy has consisted of cool packs plus elevation.

An exposure meter in the case of one man who did use tongs for the entire operation indicated 1 r of irradiation. Dr. Failla stated that the early appearance of paresthesia and swelling means that these men received thousands of r to the involved areas.

There was some discussion concerning blood counts of individuals employed in Radiation Laboratories. Dr. Warren felt that people with counts persistently elevated above normal (10,000 for the eastern states at least) should not be employed in radiation laboratories. His impression is that these people may have hyperactive marrows and that such a marrow is possibly more sensitive to injurious agents. He felt that one should certainly try to get old medical records to determine whether there was any indication toward a progressive rise in count. The case of one man employed at one of the installations whose count has risen from 10,000 to 14,000 without any known basis was discussed. Dr. Warren felt strongly that this person should not be exposed to radiation any further.

A discussion was held on the criteria in using radioisotopes in clinical research. These were a) that no conceivably harmful materials should be given, b) no material known to be harmful should be given and c) that the knowledge and consent of the patient and one relative were necessary. It was emphasized, however, that it was unwise and unnecessary to ask the patient to sign a release since such a release is not legally binding.

V. Waste Disposal:

The question of waste disposal for all installations handling large amounts of radioactive materials was discussed. A suggestion was made for a central burial ground for the United States or for several such burial sites but no concrete plans were made. The question of what activity level in waste solutions was tolerable was discussed. Dr. Karl Morgan pointed out that no level could be definitely set as acceptable since selective adsorption or absorption of a certain species at a certain point might very well completely upset prior calculations of concentrations.

Since Dr. Warren feels that a definite long range program should be established on the waste disposal problem he would like from each laboratory by this fall an estimate of the quantity of active material both with respect to radiation and volume which must be disposed of per unit time. Secondly if concentration procedures are known for such materials he would like an estimate of the general cost and type of procedure necessary (I would presume that Lowry Dobson would probably prepare this for the Berkeley Group).

John — Please see him JWW

VI. Disaster Measures:

Dr. Warren and the other members of the Commission are quite concerned that each site consider the prospects of accidents which might result in the dissemination of radioactive materials. Among such possibilities he listed as major hazards a) a large scale explosion which in some sites might even release pile material, b) floods, c) tornados, and d) fire. Discussions were given by the Oak Ridge and Los Alamos groups in which they pointed out that they had trucks fully equipped with portable radiation detection devices and emergency equipment for handling a spill, for example due to fire. Dr. Warren feels strongly that each site should develop adequate protective measures thinking of the possibilities, and he added that in his tour of the sites he obtained the impression that the universities are least prepared for such an emergency. He states there is much room for improvement. Further it was felt that the local police and fire departments in the area should be notified as to who should be contacted in the event of an emergency so that the radiation aspects might be best handled.

Dr. Lawrence

Any discussion of evacuation of sites Dr. Warren felt should be best played down since preparedness for such an event won't help much any way.

VII. Future Meetings:

It was decided to hold similar meetings to this one approximately every three months and to rotate the site chosen for the meetings. Tentatively the next meeting is to be at Oak Ridge the first week in October. Several at the meeting criticized the distribution of necessary information from the Commission Offices. Dr. Bowers stated that they would try to improve circulation of such information so that the laboratories would not have to learn about these matters through the press and radio.

There was a discussion about the possibility of all of the laboratories participating in an abstract of the literature service. It was felt that in this way everyone could be posted on current items of interest at the earliest possible moment without the necessity of reading all the journals. Dr. Hollaender of Oak Ridge was to look into this possibility.

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John W. Gofman