

Files

March 31, 1959

James L. Liverman
Biology Branch

REPORT OF VISIT TO LOS ALAMOS SCIENTIFIC LABORATORY, March 23 - 25, 1959

SYMBOL: HMB:JLL

I arrived about noon on March 23, 1959, and was picked up by Dr. Wright Langham in company of Dr. Augenstine. We drove to the guest house where I disposed of my bags and then proceeded to the Bio-med building housing the H-4 Group headed by Dr. Langham.

Langham, L. Augenstine and I discussed in some detail the organizational structure of the Laboratory and in particular where the H-4 group fit into the total organization. The first part of this was rather hurried and we got into the internal structure of H-4 and discussed the research programs in this area which are DEM supported. The group is divided into 6 sections each headed by a senior scientist:

- Radiobiology
- Biochemistry
- Low Level Counting
- Veterinary
- Organic Chemistry
- Radiopathology

BEST COPY AVAILABLE

The research programs in each of these sections was discussed in order that we might get oriented toward the general scope of the program, the specific problems of interest and who was doing them, how many people were involved in each program and what their technical competence was. This discussion occupied most of the afternoon, however, toward the end of the day we discussed budget preparation, etc., in some detail. I indicated to Dr. Langham that if he could break the program down into the detail which he had done for us during the afternoon - i.e., by title of projects under each section and the approximate total cost for the work done by the section that we would be most pleased. I indicated further that if there were some objection on the part of his superiors that we could accept this directly from him and not have to go through all the many channels to get to him. He felt that this was probably the best way since he knew the people upstairs would scream.

March 24: Dr. Shipman picked LGA and me up at 8:15 and drove us around the general laboratory area and indicated what was concerned with what and all in all gave us a pretty general rundown on the history of the whole lab. We then adjourned to his office where he gave us a more detailed breakdown on the laboratory organization. There are about 8 or

9 divisions: Weapons, Tests, Physics, Theoretical Math, Health, Metallurgy, and others. The directors of these divisions report

OFFICE ▶

SURNAME ▶

DATE ▶

US DOE ARCHIVES
 326 U.S. ATOMIC ENERGY
 COMMISSION
 Collection: *DSM*
 Box: *3374*
 Folder: *3*

directly to the Laboratory Director - BRADBURY - and there are no go betweens. The Technical Advisory Committee sets the policy for the Lab and this is made up of the Division Directors.

We then got a complete breakdown on the Health Division which runs from Group H-1 through Group H-7 (see attached list of personnel and the breakdown into Groups) with a history of how each group got started and what its functions were. This was most informative. When we started on budget with Shipman he said - wait a minute and let me call Les Hawkins the Lab Budget Director. Hawkins came down and we spent the next 25 or 30 minutes talking with him about how he prepared the budget, the amount of detail he furnished NEA who funds his budget and other like details. I learned from him that the way they budget for the different activities bears no relation to the Headquarters Division which funds their money. The Health Division for instance which might logically all fall under DEM was funded only to the extent of 1/4 of its budget through DEM. Actually it turns out that we are now only picking up the tab on 90% of the H-4 budget with one of the operational divisions in the Lab funding the other 10% since they call upon H-4 for instrumentation. I DON'T KNOW WHETHER THIS IS GOOD OR BAD FOR US. THEY DON'T SEEM PARTICULARLY CONCERNED WITH THE WHOLE OPERATION AND THOUGHT THIS WAS OK.

I visited with Les Hawkins in his office and found out that the H-4 people have really very little to do with budget preparation unless they have a request for a really big piece of equipment or are starting a new program. Otherwise the Budget office, which consists of 3 people, prepare the budget from information about the last 6 year's costs which are plugged into a 704. They just plug in a fudge factor based on previous costs and come out with the new FY projections and make the FY 61 projection in the same manner by further extrapolation. Their actual costs for the current year as compared to their predictions of 18 months ago are running very close - on a 70,000 KB budget they were off by only 200 KB over all - pretty close. In FY 59 we put up money for equipment but in 60 and 61 they are going to fund this out of BMA's equipment budget of 2.5 million - DEM or H-4 request they felt would represent such a small amount of this cost that they could just absorb it without any trouble at all.

I must agree that I think the way they do it involves a probably lot closer approximation than our other National Labs can do since they rely on six years experience in arriving at the figures plus putting particular stress on the current year's costs. I left feeling that I had found out how the system works and that it probably represents a better approximation than we can make.

OFFICE ▶					
SURNAME ▶					
DATE ▶					

March 24 - afternoon: Talked with Shigman and Langham about two things: Why we don't like their liquid scintillation counter, i.e., the Bonner, Tetter, attempt to scotch their shipping one to Europe for the Geneva Conference; the extra liquid scintillation counter they will have when the current one they are building is finished. Myers at New Mexico Highland University wants to take this one over and also the milk analyses for Cs 137. The PES will pick up the tab for operating costs - we might be asked for a small contract to pay for the milk program which now involves weekly sampling of 60 sites in the US and Canada. AND do we have suggestions as to what to do with their X5 milk -- now accumulating at the rate of 1 1/2 tons per week.

Talked with Gould, Foreman, and Petersen of Biochemistry group about what they are doing and also with Williams in Organic Chemistry about synthesis of compounds which they have done.

cc: Dr. Shilling
E. Hower

ORGANIZATION & MANAGEMENT

15-1

OFFICE ▶	BMB				
SURNAME ▶	Liverman:vl				
DATE ▶	3/31/59				

1149441

JOE ARCHIVES

After talking with Gould, Foreman and Peterson of the Biochem Group we adjourned essentially for the day and I met with Ernie Anderson, Libby's former student the following morning, Wednesday, March 25. We discussed his milk sampling program and the whole body counter set up. Anderson felt rather strongly that the milk program should be continued for a little bit longer and he intimated that it would be January 1, 1960, before they had their other counter completed so that we will be assured of at least an additional year's data on the milk program. They felt this program should continue although they were not sure that the AEC should continue to support it.

In connection with some experiments which Langham has done on some 5,000 people it appears that the potassium 40 level in humans may be related to their aging. He intimated that he would be very interested in setting up a whole body counter, dog size, at the Utah projects in order to try to correlate the potassium content of these animals with their chronological age as well as with the effects of radiation and internal emitters upon the potassium content. Langham intimated that Los Alamos would be amenable to constructing an instrument for the people at Utah and estimated the cost would be from 7 to 10 thousand dollars. There was some discussion of this item and they agreed that it would be desirable if some commercial firm would get interested in building these instruments and get some knowledge and know-how for doing it in order to relieve them of any further responsibilities for having to make up such instrumentations.

I talked with Dr. Lushbaugh concerning the clinical use of the liquid scintillation counter. His feeling was that this instrument was far superior to the crystal type counter for some purposes although not for all. In particular, they have just observed that the metabolism of the various thyroid hormones is completely different than one would suspect on the basis of measuring the activity in the thyroid alone with a collimated system. The apparent advantages for small children up to the age of 12 or 14 -- it is difficult to get them to maintain themselves in a particular position which would be required for the crystal whereas with the liquid scintillation counter they get shoved into a machine and it does not matter how they move around, the geometry is still constant. Lushbaugh is working in cooperation with the base hospital there and apparently is doing as much with the whole body counter in connection with clinical use as anyone in the nation.

In a final discussion with Wright Langham I indicated to him that we would like to receive prepublication copies of all publications which they send out. Also it would be very helpful if we could be kept informed of talks and the like which they give as well as the general format of the submission which I desired him to make for the budget.

OFFICE ▶						
SURNAME ▶						
DATE ▶						

This would be in the form of the six sections which occur in this group which were outlined in the very early part of this report. With this type of breakdown indicating the number of personnel to each section and with the listing of titles of projects for each of these sections we would have a reasonably clear picture of what they are trying to do. I particularly stressed to him that we would like to know those programs which are starting or expanding and those which are terminating since this is the basis on which we must defend our budget. Langham agreed to submit this information to us. I am writing him a letter, copy of which is attached, to outline to him again the type of information which we desire.

* * * * *

THE FOLLOWING INFORMATION WAS GLEANED FROM A TALK WITH WRIGHT LANGHAM THE FIRST DAY I WAS THERE ABOUT THE GENERAL ORGANIZATION OF HIS SECTION AND THE PERSONNEL AND THEIR WORK.

Radiation Biology

- 1. Biophysics - Nuclear Propulsion Reactor
 - Neutron and Gamma
 - Depth Dosimetry
 - Space Satellite

2. Radiation Biology

RBE - Acute Exposures - they have been working on these for some time but are now concentrating on chronic.

Chronic Exposures:

- 1. Part and whole body
- 2. Life length F1 and F2 following irradiation of male
- 3. Genetic death of population
- 4. RBE and Inactivation of Hemophilus DNA
- 5. Acute effects changing with time
- 6. Tissue culture, mouse lens, etc.
- 7. Aging. Give original dose of say 400 R
 - a. Then wait different times and give LD 50 again to compare effect.
 - b. Wait 120 days after 400 then give chronic dose to compare with a.
 - c. Wait 120 days stress in cold and determine effect.

13 people - 9 professional and 4 helpers at approximate cost of \$295,000.

RADIATION CHEMISTRY - Low Level Counting (Whole body counters)

5 professionals and 3 technicians - 8 total, \$145,000.

OFFICE ▶						
SURNAME ▶						
DATE ▶	11	4	9	4	4	3

1. Development of low level activity counters
2. Cesium-137 in milk
3. Running analyses on animal material for Nevada and NTS projects
4. Normal body potassium as a function of body size, age, etc.

ORGANIC CHEMISTRY

5 professionals, 1 technician - 6 total, \$108,000

1. Contemporary C-14 levels. Are measuring build-up in C-14 in essential oils. John Wolfe's branch gave contract to Mirov to collect samples.
2. Structure vs. scintillation properties of compounds.
3. Organic dosimeters.
4. Scintillation systems for KIWI - differential dose rate meter.
5. Labelling of compounds with isotopes.

VETERINARY SECTION

This consists of 1 staff professional and 7 technicians. They do all of the animal house chores etc. to keep the colony going. \$144,000.

RADIATION PATHOLOGY

1 professional (Lushbaugh) and 4 technicians, \$0,000.

1. Do slides, i.e., staining, etc. for whole lab.
2. Use of whole body counters in clinical diagnosis.

BIOCHEMISTRY SECTION

5 PhD level and 5 technician level - 10 total, \$180,000

1. Endo and Exogenous metabolism of cholesterol. (Gould)
2. Enzymes as affected by radiation. (Petersen)
3. Bone metabolism and chelation as means of elimination of toxic elements. Use of EDTA and other chelating agents as test for kidney function. (Forman)
4. Use of various (all) gamma emitting substances as metabolized in 5 species mice, dog, rat, monkey, man. (Richman and Langham)
5. Tritiated water in water metabolism (Langham)

OFFICE ▶	BMB					
SURNAME ▶	Liverman;vl					
DATE ▶	5/12/59					