REPORT ON VISIT TO LABORATORIES OF DOCTOR JOHN LAWRENCE
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by
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I. Chronology. I was in the Donner Laboratory from 2:25 to 5:10 on the afternoon of Tuesday, January 30, 1951.

a. short discussion with Dr. Lawrence on the organization and objectives of the laboratory.

b. discussion with Doctors Berlin and Elmlinger on work with radioactive iron and glycine.

c. discussion with Dr. Jones on gaseous diffusion and measurement of circulation.

d. discussion with Dr. Gofman on lipoproteins.

II. Comments on Projects and Research.

1. Metabolism of iron. The work here is with iron 59. Several techniques and problems are under investigation.

a. Scintillation counters. With scintillation counters they follow the relative concentration of radioiron over the spleen, liver, sacrum, and heart. They also carry out a mathematical plotting of the torso at 4 to 6 levels from neck to pelvis with 8 points at each level. They have also developed a counter to determine the concentration of iron in the blood. With my limited knowledge of the field, I get the impression that this is an interesting technique but is:

1) lacking in exact quantitation, 2) based on an unproven assumption of theirs that all concentration of injected radioiron means hemopoiesis, and 3) patients are not too plentiful for study (they showed me results only 1 patient each with three diseases), and 4) their evaluation of patients with what they call hypochronic and refractory anemia are not too critical.

b. Life of red cell in blood dyscrasias. They have some evidence that the average life of the red cell in leukemia is very short (20-40 days) and in polycythemia there are some cells with a life of not over 10 days. These observations to me are important and basic and should be pursued vigorously.

c. Radioactive glycine. The synthesis of hemoglobin is being studied with glycine as well as iron.

2. Determination of trace elements. This is a really good idea on paper and apparently works. It is simply to take biologic material, ash it, expose it in a pile, add a amount of a carrier, separate the carrier

out chemically, and measure radioactivity. If there were any of the same material in the specimen, it will have been made active in the pile, and will come out with the carrier.

3. Studies on the circulation. By the use of gases and colloids Dr. Jones believes he has methods to determine minute volume blood flow. I do not know enough physiology to evaluate them.

   a. Circulation thru liver. He has a colloid which is selectively abstracted from the blood by the liver and spleen at a rate in direct ratio to blood flow. Although interesting I doubt it will be useful since there is no evidence that the abstraction will under all conditions remain constant so its disappearance from the blood can be translated into blood flow.

   b. Circulation with aging. Jones has some evidence that the minute volume flow in an extremity progressively decreases from age 18 onward to 50 or 60, when it may be one-fifth of the peak. This is certainly independent of vascular disease and worthy of full investigation.

4. Lipoprotein and Arteriosclerosis. The work here is so diffuse and varied, and the factual results are so far ahead of analyses, that I was unable to get a complete picture. It is probably unfortunate that this study became diverted to an applied aspect before there was enough basic knowledge of the nature of the molecules and their metabolism. The laboratory has been pulled from pillar to post to make 100 analyses here and a 1000 analyses there that there is no time to do what should be done.

As I see it, the idea is logical and the potentiality of further study is great. Hence, I think the work should be strongly supported. But, the men in this laboratory capable of basic studies should be protected from having to make mass analyses to correlate with arteriosclerosis and coronary disease. Even if it does not they have made a good contribution to metabolism.

III. Comments on Individuals.

1. Dr. Lawrence. Manifestly a driver with great ambition, perhaps sparked by an attempt to equal his brother. On the score of ability and originality I can not decide. I wonder if his critical evaluation of data is what it should be. Manifestly well liked by some of his associates, and perhaps not so by some others.

2. Dr. Jones. A soft spoken, quiet, I suspect, profound fellow. Is suffering somewhat from lack of breadth of view of all of medicine. I'll take a chance on him.

3. Drs. Berlin and Elmlinger. Above average investigators but without a spark that I could detect. Are overridden by Lawrence, I suspect.

4. Dr. Gofman. Here is a boy I would gamble on; an enthusiast for his work. As he tells you of his work the words tumble out on top of each other. Well grounded in the techniques he is using. Perfectly

honest in evaluation of own results. Expressed a desire to get back to basic problem and animal studies.

IV. General Comments. My general thoughts (not all fully justified after a visit of less than three hours) are that this laboratory is a general medical research institute and not a division of medical physics (its university name) which is suffering from

(a) too much research direction from the top

(b) not enough critical evaluation of the results

(c) a lack of contact with the rest of medicine

(d) a lack of patients who have been thoroughly worked up in general before being used for clinical investigation

(e) a tendency to rush to the applied aspects of a problem before the basic knowledge is nailed down.

(f) an attempt to do too much in too many fields, and not going at one or a few problems small step by small step

Some of this viewpoint is given by the procedure of my visit. Everything was arranged in advance on an almost assembly line basis, I was talked to and shown results and sometimes only in generalities, and was never taken into a laboratory to see what was actually being done.

V. Special Difficulties. There were none I could detect except fear staff would be lost to the Armed Forces. On what I saw I could not recommend protection by the AEC of all the staff; the research does not seem to me to be that important.

VI. General Recommendations.

Qualified continued support.

As I see it there are three really good problems here.

a) life of red cells in patients with leukemia and polycythemia

b) minute volume blood flow at different ages

c) the metabolism of lipoproteins

Frankly, I was not impressed with the other studies I was told about. I asked about hemolyses in transfusion reactions as you instructed but got the answer that they had no information on that topic. Rightly or wrongly I got the idea that Dr. Lawrence suspected me of carrying back information to Dr. Carl V. Moore (which of course I shall not do). He repeatedly asked me what Carl was doing on this or that. I had to tell him honestly I did not know. I am not sure he believed me.