

NATIONAL ACCELERATOR LABORATORY

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Report on Trip to BNL on January 4, 1968

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I spent the morning with some of the Health Physics Group staff (Drs. F. Cowan and John Baum and Messers. C. Distenfeld, and L. Phillip). This group was able to report some work in biological dosimetry and neutron spectrum unfolding. The former work is somewhat along the lines of A. N. L.'s work. The latter work is along the lines of A. N. L.'s Gold and already exploited by K. O'Brien and myself.

There are strong feelings between the Health Physics Group and the A. G. S. conversion groups. Hence, cooperation between them is essentially non-existent.

The afternoon was spent with George Wheeler, William H. Moore and Mr. G. Levine. They did not have any data which could be useful to N. A. L. readily available. However, they were willing to discuss possible experiments that could be useful to both the A. G. S. conversion and N. A. L.

The first experiment we agreed to plan was one on laberynth. It would be done using the external slowly extracted beam. In figure 1, the geometry of the experiment is shown. The neutron source will be one mean free path of iron which will be moved with respect to the entrance to the laberynth.

The purpose of the experiment is to see if the formulae commonly used in laberynth design have any application in the vicinity of hard neutron sources.

A second experiment discussed was the study of hadron absorption by "thick" shields to control the residual exposure dose rates after machine turn-off.

Mr. Levine is about to begin some experiments on neutron streaming through small circular ducts (about 2 ft. diameter). The ducts lead from the AGS tunnel to the center of the machine. The results of these measurements may be useful to us.

~~They have been working on the problem of radioactivation and cooling~~ of the linac beam dump. Great attention has been given to the problem of the entrance window. They are presently thinking about making it of Be. For energy absorption, they plan to use plain water. They claim that H^3 production is negligible at these energies.

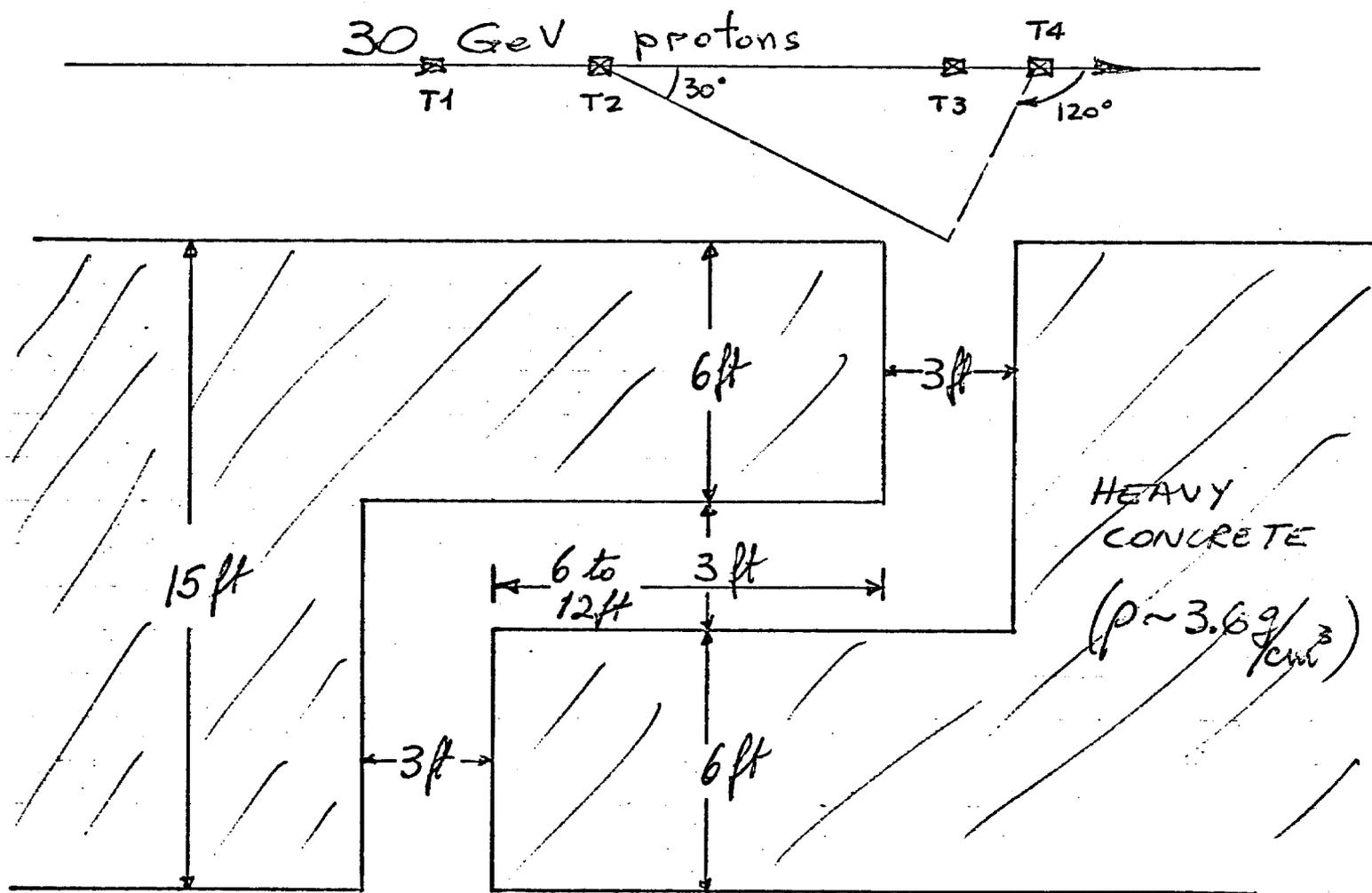


Fig 1. GEOMETRY FOR PROPOSED LABYRINTH STUDY EXPERIMENT.

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