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IN REPLY
REFER TO: H-4

January 24, 1973

Dr. H. R. Blieden
Advanced Technology Applications
Room 409
National Science Foundation
1800 6 Street N.W.
Washington D. C. 20550

Dear Dr. Blieden:

Last summer, as you know, Tony Armstrong from Oak Ridge spent a month with us here at Los Alamos. It was an occasion when we became closely acquainted with the theoretical work on the behaviour of a pion beam in tissue. Since then I have been very impressed with the guidance and enlightenment that such calculations can bring.

I am now writing to urge you to expand this program in a way which will fill a void in our work; namely, we need a theoretical co-worker that will collaborate on the experimental techniques and results with pions by the use of silicon and germanuim detectors. These detectors enable one to approach many questions experimentally, especially the LET composition of the therapeutic beam. The Biomedical beam will be used in a scanning mode in therapy and consequently the LET fractions must be measured carefully for radiobiology and also for therapy. The two motions that will be used in scanning must give a uniform dose with constant LET fractions, with high accuracy.

One problem that we want to be sure about is how faithfully do these measurements represent the situation in tissue. Any probe distorts the radiation field somewhat. So to make a long story short, I feel that a theoretical co-worker would be of great value in applying what is being done at Oak Ridge on pions and furthermore bring the actual problems of therapy into closer contact with the calculations.

With best regards, I remain,

Sincerely yours,

Chaim Richman
Pion Radiobiology
Biomedical Research Group

CR:hb

CC: Robert Wood, AEC
C. R. Richmond, LASL, H-4