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UNITED KINGDOM DELEGATION TO THE UNITED NATIONS
EMPIRE STATE BUILDING
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TELEPHONE:
LONGACRE 8-2070

13th February, 1947.

Dear Lawrence,

I expect Hamilton will have told you that I am in New York and that I hope to come out to Berkeley to see you before I leave. This is beginning to look a little doubtful now as there is so much trouble over the confirmation of Lilienthal as chairman of the Atomic Energy Commission. I feel that I cannot approach him before the Senate has confirmed his appointment, for it might make things even more difficult for him. I must continue to hope for a better turn in the hearings, at least for some days longer.

I am particularly anxious to know your views on the screening needed to protect personnel from neutrons and other radiation arising from the tank and the beam in your new arrangement. From some calculations, made I think by Frisch, the Harwell people have concluded that they need 6 to 8 feet of concrete around their 90 inch cyclotron. This seems to me somewhat excessive but on the other hand I must be on the safe side, and I mean to go to much higher energies than Harwell. You must now have some direct experience on this point and I intended to ask Hamilton about it but forgot. Will you ask him to send me whatever information you have?

There is another matter about which I can write. We have developed in England a photographic emulsion which is particularly good for recording tracks of particles, much superior to the ordinary emulsions. Alpha tracks are thick black lines and even in [illegible] tracks the [illegible] detection of rare events much easier [illegible] chormously [illegible] strain of observation. I am [illegible] Liverpool [illegible] I can either send them to you or [illegible] the [illegible] when I come. [illegible] to expose these plates [illegible] your [illegible] neutrons

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(1) to observe the proton-neutron scattering, (2) to see the types of disintegration which occur.

We also have plates impregnated with various elements e.g. Li, Be, B, Na.

If these plates turned out to be useful I could arrange for a supply.

With best regards,

Yours sincerely,

J. Chadwick.

Please give my regards to the McMillans. I hope all goes well with them.

I should have added that the Harwell people, on the basis of a one-tenth scale model, think they will be able to go up to 30 megacycles fairly readily. We are planning similar experiments in Liverpool in our 12 inch cyclotron.

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