Dr. L.H. Gray,
Mount Vernon Hospital,
NORTHWOOD.

22nd February, 1957.

Dear Dr. Gray,

I am writing to you at the suggestion of Professor F.S. Dainton. We are studying the structure of crystalline viruses by means of X-ray diffraction, and are much hampered by the rapid deterioration of the virus crystals in the X-ray beam. We use 40-50 KV X-rays, and exposures are long. A very rough calculation shows that a crystal of .04 mm^2 cross-section receives something of the order of 100 Rontgens per exposure. We should like to be able to make a whole series of measurements on a single crystal, whereas, at present, deterioration is appreciable even after a single long exposure. I asked Professor Dainton whether he thought it would be possible to inhibit chemically the secondary reactions which follow the production of free radicals by X-rays, and he suggested that I should consult you.

We are already experimenting with the effect of lowering the temperature, and of surrounding the crystal with nitrogen instead of air. If you have any other suggestion to make, or would spare the time to discuss the problem, I should be glad to come and see you and should be grateful if you would suggest a convenient time.

Yours sincerely,

Rosalind Franklin.