UNIVERSITY OF CAMBRIDGE Department of Genetics

Whittingehame Lodge, 44 Storey's Way, Cambridge.

4th June, 1955.

My dear Frankel,

The seed shuttle system you suggested when you were visiting here has gone so well as a preliminary exploration that I want now, if you will still collaborate, to try it on a specific research project.

As you know, I have been working with a pair of linked genes, that for short, and that which distinguishes a rosy colour from full purple, but owing to the efficient self-sterility of short plants, we have never been able to synthesize the six genotypes which are triplex for the short gene. The other thirteen genotypes heterogenic for both these factors we either have, or can manufacture with my present material.

Apart from the desire to show that these genotypes exist and behave consonantly with the theory so far developed it will be specifically useful to have triplex shorts as supplying the most direct method of estimating double reduction at that locus.

Anyway, the scheme drawn out on the enclosed sheet will, I think, be intelligible, and might even be practicable on the time-schedule suggested. Of course it may meet with difficulties, and Gilbert, in this country, will be carrying out a similar plan due to be completed, however, two years later at Bayfordbury.

I imagine your department actually is more experienced in colchicine treatment than is mine, though we have been playing with it, and that yours will have no difficulty in checking the

hexaploid seed parents which should be growing in Canberra at the end of this year.

I hope you find the idea attractive. It might be interesting to try out the general possibilities on some other species such as the quick growing, but capricious, oxalis species we have been working with.

Please give my regards to Mrs. Frankel.

Sincerely yours,

Diploid seed sown in England April 1955 should flower in August.

Long plants crossed with Duplex Short tetrasomics

Seed sent to Canberra, with diploid seed if necessary.

Oct. 1955

Treated with colchicine at Cambridge or Canberra.

Shorts crossed with long diploid in Canberra (hexaploid longs or mids not used).

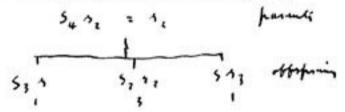
Jan., Feb. 1956

Frogenies from, say 25, hexaploid Shorts sent to England.

April 1956

Progenies containing long or mid plants discarded (1/5 expected). >a - 100 jum

Progenies consisting of Shorts only i.e.



supply Shorts to be crossed with Long tetrasomic (s,).

August 1956

Seed from 25 shorts sent to Canberra.

Oct. 1956

Expect 8:8

> Simplex 1:1 5 progenies Duplex 5:1 15 progenies

progenies of 50-100

Triplex 150: 1 5 progenies or all Short

Parents numbers communicated to England.

Feb. or March 1957

Large progenies (2000) grown in Cambridge

from triplex Shorts/perhaps a dozen non- Feb. to Aug. 1957

short show 2.4% double reduction.)