August 18th
1 9 3 1

Dr. H. D. Goodale,
Mount Hope Farm,
Williamstown, Mass.

Dear Dr. Goodale: -

I am sorry the people here should have returned your letter. I have seen the Post Office now, and it should not occur again.

(1) Table 1 seems to me to illustrate very well the fact that if we have a purely additive interaction of genes without dominance, then the mean offspring phenotype will always be equal to the mean parental genotype. The table might be criticised as unnecessarily long for demonstrating this point which follows from the fact that the genotype is in such a case always expressible as the sum of the contributions of different genes, however these may be combined.

(2) Yes, certainly.

(3) I do not think your treatment of dominance quite satisfactory, since one must take into account the frequency of all types of matings. Suppose the milk yields AA, Aa, aa, or 4,4,0. Suppose the frequencies of the three types of cow are A,B,C. Then measured by the performance of their heifer calves, the three types of bulls will score as follows:

AA 4A + 4B + 4C
Aa 4A + 3B + 2C
aa 4A + 2B

Note the average of Aa bulls is necessarily half way between the averages of the other two types, if used on the same group of cows.

(4) I do not think it should be assumed that if dominance is complete in any one factor, it is necessarily the high yielding gene which is dominant.

(5) I should not accept your 70% value except on the basis of the analysis of actual data.

Let me know if there are any further points that you would like to go into in detail.

Yours sincerely,