

November 8, 1948.

Dr. D. Lewis,
John Innes Horticultural Institution,
Mortyn Road, Merton Pk.,
London SW 19, England.

Dear Dr. Lewis,

Thank you for your note of 25 Oct. As you might imagine, I have also been much impressed with the parallelism of technique and philosophy that pertains to the genetics of microbes and of pollen. Indeed, I was strongly tempted to include a discussion of the male gametophyte and of tissue cultures in my recent review, under the general heading of "cellular genetics." It has seemed to me that if the problem of the continued propagation of the gametophytes of higher plants would be solved, that one would have the best material imaginable for physiological genetic studies.

My attempts to find qualitative ^{differentiations} ~~alterations~~ of gene functions in bacteria have not yet been successful. The most promising material has consisted of certain mutations which affect the production of several enzymes (e.g. glucosylase, maltase and lactase) at once, but attempts to find alleles in which some of these functions are represented have generally resulted in "suppressor" mutations at other loci. By looking for mutational losses, in turn, in these suppressor stocks, however, we hope to gain some inkling of the previous functions of these "suppressor" loci. However, an allele of one of the mutants has been found which is temperature sensitive, and which shows a distinct temperature threshold for its several effects and this might be regarded as a splitting of the specificities of the gene. In general the genetic determination of enzyme specificities has turned out to be far more complex than I would have imagined a priori from the one-to-one generalization.

I shall be glad to send you the reprints you asked for as soon as I receive the set of my review in Heredity, and look forward to a continued exchange of our ideas and publications.

Yours sincerely,

Joshua Lederberg
Assistant Professor of Genetics.