

21 December 1931.

Professor C.G. Darwin, F.R.S.,  
The University,  
EDINBURGH.

Dear Prof. Darwin,

I have recently sent you an offprint on dominance theory, which I think interested you in the less complete form in which it appeared in Chapter III of my book on Selection. The paper assembles the evidence more thoroughly than I had been able to do before, but is still not as complete as I should like it to be, for, after my return from the States, Dr. Harland from Trinidad, was good enough to visit me in the Nursing Home, and tell me that his later generations with the cotton mutant Crinkled Dwarf have now established the case most conclusively, whereas in the absence of published material I had had to deal rather tentatively with the reports I had previously received.

The later generations show that the Crinkled Dwarf mutation, which is a complete recessive in the species (Sea Island) in which it occurs, is not at all recessive when introduced into Upland, in which it is not known to occur, and in which, if it does occur at all it must be

incomparably rarer than in Sea Island. In Sea Island the heterozygote is normal, but the homozygote somewhat dwarfed and with crinkled leaves, but in Upland the heterozygote is about as much dwarfed as is the homozygote in Sea Island, while the homozygote is so dwarfed as to be nearly inviable. Harland calls it semi-lethal. In the heterozygote the variability decreases with successive crossings back to Upland, showing that dominance in Sea Island has been brought about by the accumulation of several or many modifying factors, and I imagine that these are quite ordinary Mendelian factors in their inheritance, though they can only be detected by their effects in modifying the reaction of the plant to the Crinkled Dwarf mutant. Altogether I could scarcely have a more perfect case for demonstrating that the recessiveness of the mutant has actually been produced by the selective modification of the species in which the mutant occurs. But it will be difficult to duplicate and confirm it in other material, for it depends on the cotton species being completely fertile inter se, without chromosome abnormalities, such as occur in most species crosses; and on sufficiently large plantings of seeds from inbred parents having been examined to show that the mutation is frequent in one species, but apparently absent in ~~the~~ congeners. I believe there is good mutual fertility in the Violets and Snapdragons, but not being commercial <sup>field</sup> crops we are not likely

to get evidence of it, if any striking mutations occur in some species but not in others.

Congratulations on the success of your book. By the time I enquired for it the edition had been already exhausted so that it must have "gone with a bang". I hope you will have a reprint quickly.

Yours sincerely,