

2nd February, 1957.

My dear Henry,

I find, as indeed usually happens, that I am entirely in agreement with you. Many years ago now I went over Crosby's Ph.D. thesis, in which he gave an intelligent discussion of such questions as 'The improvement of the homozygote in places where it is numerous as compared with other places where it is rare', and put forward, I think in the same terms as he does now, his very unconvincing theory of ^a recent and isolated origin of a change destined to transform the primrose population of the country.

This argument has, frankly, always struck me as superficial, if only because, somehow or other, homostyle species ^{are not} have not only become predominantly or almost exclusively heterostyle, like the primrose, but in doing so presumably have evolved the complex physiological mechanism on which this type of self-sterility is based, i.e. selection must for long, and strongly, have favoured heterostyles against homostyles in populations in which both types were available.

[* Crosby, J.L. Evolution 3,]

Of course, evolution is often roundabout and it may indeed be that the distylic species have been derived from something more complicated, such as tristylic species, and these perhaps have evolved from the common form of multiple allele self-sterility by processes which we can scarcely imagine.

Nearer the facts I should point out that in the Sparkford area the homostyles exist in several narrow strips, perhaps half a mile by three miles typically, running north-east and south-west, with restricted central frequencies sufficiently near to 80%, and wide areas down to 1% ^{or 0%} ~~also~~ inbetween, whereas the simple mutation theory would produce unquestionably a wide flat plateau of 80% values and a fringe of lower values.

Secondly, I am not satisfied that Crosby has any good experimental evidence of reduced viability or fertility in the homostyle. My attempts to confirm his conclusions here have ^{been} resulted chiefly in the interesting fact that much of the seed formed on homostyle plants is cross-fertilized from other homostyles, which were present in my experiments, and perhaps in nature from local ^{plants} ~~forms~~. The apparent lowering of viability or fertility, if any has really been observed, might in fact be a purely inbreeding effect due to artificial self-fertilization, rather than a true effect of the genotype.

I have for myself often wondered whether the patches of homostyles now observable are not moving about in the sense that a very abundant population is liable to become homostyle by selective action of which we know nothing, though of course ^{W. D. H.} foreign selection may be important, and be followed by the total extinction of the species locally, for adjacent to homostyle areas near Sparkford there are large areas void of primroses.

However, it is all very speculative, and Crosby is not the only over-confident young man in the history of science, though some would think him an exhibition specimen! Your sample data are most instructive and I hope you will publish them, and in doing so be prepared for the criticism that perhaps homostyles with frequency of 1% or so, based on phenotypic observation, may in some cases be either something else genetically, or even non-genetic malformations.

When you come to Cambridge, as I hope you will, be prepared to tell me and perhaps others about your archaeological findings, or even about Maniola.

Sincerely yours,