Cripps's Corna. Forest Row. Sussex.
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My dear Fisher.

I suppose I am being rather muddle-headed over the sterility business; but I can't resist having one more go. It will perhaps make it more clear to use infertility and sterility in different senses. Let infertility imply a tendency to produce smaller families from whatever cause. Let sterility mean the same when the spermatozoa are given every chance of reaching the ovum. It is sterility and not infertility which naturalists have held to distinguish species, and it was sterility which my father was thinking about.

I see clearly that infertility of certain types may arise through selection; eg, as you suggest, by flowering at different times, or by attracting different insects, or, with the higher animals, through unwillingness to mate. But this is no necessary step to sterility. In fact when perfect infertility is thus

brought about by selection, selection with them have no tendency to promote sterility. The proof that infertility may be promoted only makes the explanation of sterility more difficult.

Again I see that when sterility takes the form of failure to impregnate, and when this failure does not prevent impregnation from the same stock, it is a form which can be produced by selection. Plants impregnated by wind blown pollen would have more survival value than less probable impregnation by foreign pollen were found to be. But I gather that my father held that for the most probable step towards sterility was, not failure to impregnate, but rather impregnation with fewer offspring.

Take two couples, one having one hybrid offspring and the other two. If these hybrids are of such an inferior type that they never mate, or if they are sterile, then it does

not seem to me that the [redacted] individuals which have fewer offspring have any survival value in consequence. If the hybrid is only somewhat inferior to the pure stock, then I think that sterility may arise in the way you suggest. But even then, must you not assume that the hybrid is more likely to mate with a near blood relation than with one more distantly related? If a hybrid by mating damaged the stock, and if it were a matter of chance what individual's descendants were thus damaged, would the parents of few hybrids have any survival value over the parents of many? If we imagine family 13 of 1000, which will always take place to a certain extent, then I see that the more inferior hybrids there are produced in that family, the more the stock will be damaged.

and the more probable ones be Extinct-ion.

I think I now see that Sterility may be produced in nearly all cases where infertility has not been produced. Whether Sterility of hybrids can be so produced, I am doubtful.

The case when the hybrid is Superior to the parent stocks has also to be considered. As far as I can see the result would generally be, if there were much interbreeding, an Extinction of one of the two parent stocks. But I am not sure.

You see that you have on the whole nearly converted me to your views. Now don't answer this

Yours sincerely

Leonard Darwin