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VINDICATION OF GÄRTNER—EFFECT OF CROSSING PEAS.

IN my last communication1 I said that Gärtner had proved that the colour of the Pea in one variety of the garden Pea may be changed by the direct action of the pollen of another differently-coloured variety. Mr. Beaton authoritatively remarks on this: "Gärtner never found that—he only asserted it; and when he was pushed to the proof he lowered his sails, made a second edition of his great work, and confessed many of his errors." He adds, "No cross-breeder of any practice in England at the present day would like to have his name associated with that of Gärtner for or against any exploit in crossing."2

I should have taken no notice of this, although I should be sorry to lie under the imputation of having made an entirely incorrect statement, and although it is not pleasant to be flatly contradicted; but I wish much to be allowed to endeavour to vindicate the memory of one of the most laborious lovers of truth who ever lived. It is painful to see a long life of honest labour repaid by contumely from a fellow-experimentalist, who, I suppose—anyhow I hope—never read one page of the great original work—namely, the "Bastarderzeugung," published in 1849, a mine of wealth to all who will explore it.

Gärtner, when young, and at the very commencement of his long work, committed a very foolish action; he crossed a number of plants belonging to distinct genera without having taken due precaution to exclude insects, and when he found their capsules full of seed, he thought that he had succeeded in crossing them. With the enthusiasm of a beginner he most unwisely published3 the result, and to this first paper Dr. Herbert has alluded with proper blame. When Gärtner found his seedlings came up pure, he, like an honest and excellent man (as all who knew anything of his life will admit that he was), publicly confessed his error.4

Gärtner's great and last work, entitled "Versuche über die Bastarderzeugung," contains in 790 closely-printed pages the detailed results of nine thousand distinct experiments in crossing, together with admirable observations on the whole subject of hybridisation. This is a greater number of experiments than, as I believe, have ever been published by any other man, even by Kölreuter,5 and a far greater number than those published by Dr. Herbert.6 One great superiority in Gärtner's work over those of Kölreuter, Herbert, and others consists in his having actually taken the trouble to count the seeds in the capsules of every cross and hybrid which he made. He kept an exact record at the time of making each experiment; and this I have reason to believe was not done by Herbert, and certainly has been very far from the case with other English experimentalists.

I cannot resist here mentioning—as some who honour, as I do, the memory of Dr. Herbert, might like to hear the fact—that I have reason to believe that the last words ever uttered by Herbert were on his favourite subject of crossing. I called on him in London, and saw that he was very feeble.7 I wished to leave him, but he stopped me, and talked with much interest on this subject. An hour or two afterwards, as far as I could judge by the published account, he was found dead in the chair in which I left him.

But to return to the Pea-question. An account of the various crosses made by Gärtner (he selected the most constant varieties) between differently coloured Peas, with the results given in detail, will be found at page 81 to 85 in his "Bastarderzeugung." Gärtner was led to try these experiments from doubting the accuracy of Wiegmann's statements,8 and he found many of them incorrect; but he was compelled to believe in the Pea case; not that Peas can be crossed with Vetches, to which other statement of Wiegmann Mr. Beaton alludes. I may add that Gärtner knew of the account, published in vol. v., pages 234, 237 of the "Transactions of the Horticultural Society of London," on the influence of pollen on Peas.9 In an old volume of the "Philosophical Transactions," vol. xliii., page 525, there is a full account, with every appearance of truth, of Peas in adjoining rows affecting each other.10 The Rev. M. J. Berkeley has, as I have been informed, subsequently to the publication of Gärtner's book, tried again the Pea-experiment with the same result.—CHARLES DARWIN, *Down, Bromley, Kent*.

1 [Darwin 1863](http://darwin-online.org.uk/content/frameset?itemID=F1828&viewtype=text&pageseq=1). See [*Correspondence*](http://www.darwinproject.ac.uk/) vol. 11, pp. 109-112.

2 [Beaton 1863](http://darwin-online.org.uk/content/frameset?itemID=F1828&viewtype=text&pageseq=1), p. 70.

3[Gärtner 1826](http://darwin-online.org.uk/bibliography.html" \t "_blank).

4[Gärtner 1827](http://darwin-online.org.uk/bibliography.html" \t "_blank), pp. 74-5.

5Joseph Gottlieb Kölreuter (1733-1806), German botanist. [Kölreuter 1761-6](http://darwin-online.org.uk/bibliography.html" \t "_blank).

6William Herbert.

7 Darwin visited Herbert's house in Hereford Street, Park Lane, London, on 28 May 1847, see [*Correspondence*](http://www.darwinproject.ac.uk/) vol. 4, p. 44.

8 [Wiegmann 1828](http://darwin-online.org.uk/bibliography.html" \t "_blank).

9[Goss 1822](http://darwin-online.org.uk/bibliography.html).

10 [Cooke 1745](http://darwin-online.org.uk/bibliography.html), p. 526 note by Cromwell Mortimer. See [*Correspondence*](http://www.darwinproject.ac.uk/) vol. 11, p. 112 note 15.

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