

LETTERS TO THE EDITOR.

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The Origin of the Cultivated *Cineraria*.

AFTER reading the recent letters on the origin of the cultivated *Cineraria*, I have consulted the principal authorities cited by Mr. Bateson in NATURE of April 25; I now wish to point out that Mr. Bateson has omitted from his account of these records some passages which materially weaken his case.

Mr. Bateson, as I understand him, considers his letter to prove (1) that modern *Cinerarias* arose as hybrids from several distinct species; and (2) that the main features of existing varieties were established between about 1830 and about 1846, as a result of the appearance of considerable "sports" among these hybrids or their offspring. I will first discuss the latter half of the letter, in which authorities are quoted to prove two special acts of hybridisation, performed at known dates by known persons, and to show that certain named varieties arose as "sports."

First, as to hybridism. Drummond, of Cork, writing in 1827, is quoted as recommending the cultivation of *C. cruenta* for the production of "fine double and single varieties of different colours." At this date, therefore, *C. cruenta* was apparently variable, and yielded forms worth cultivation without hybridisation.

An article by Mrs. Loudon, written in 1842, is next quoted as evidence that "in or about 1827" Drummond obtained "some handsome hybrids" between *C. cruenta* and *C. lanata*. In this article a list of other hybrids, said to have been produced by unnamed persons between 1827 and 1842, is also given. It is not stated that these hybrids were grown by florists for exhibition, or that they had received definite names. The list is followed by a paragraph, omitted by Mr. Bateson, which is so important that I copy it at length:

"Some of the most beautiful *Cinerarias* now in our green-houses have been raised by Messrs. Henderson, Pine-Apple Place; particularly *C. Hendersonii* and the King, both raised from seeds of *C. cruenta*. *C. waterhousiana* was raised by Mr. Tate, gardener to John Waterhouse, Esq., of Well Head, near Halifax, from seed of *C. Tussilaginis*, fertilised by the pollen of *C. cruenta*. Two new ones have lately been raised, of remarkably clear and brilliant colours, apparently from *C. cruenta*, named Queen Victoria and Prince Albert, by Mr. Pierce, nurseryman, of Yeovil, Somersetshire." (*Ladies' Magazine of Gardening*, 1842, p. 112.)

This passage clearly shows that in the writer's belief the hybrids produced by Drummond and others had not given rise to two, at least, of the named varieties of her time: certainly two, and probably two more, were descended from *C. cruenta* alone.

Mr. Bateson refers to this account of *C. waterhousiana*, and also to an earlier one, said to be communicated by Tate himself, the originator of the plant, to a writer in *Paxton's Magazine of Botany*, for 1838. In this account the parents are called *C. cruenta* and *C. tussilagifolia*; and in this, the earliest account, there is no statement as to which species furnished seed and which pollen. I do not know whether *Tussilagifolia* was ever recognised as a synonym of *C. Tussilaginis* or not; since the name does not occur in the *Index Kewensis*, where I find, as the only entry bearing on the subject, "*Waterhousiana* = *Senecio tussilaginis*?" Mr. Bateson has assumed that *Tussilagifolia* is identical with *Tussilaginis*: for while repeating only the statement given by Mrs. Loudon, he cites both her article and that in *Paxton's Magazine* as authorities. Is he sure that there did not exist in 1838 a florist's variety named *Tussilagifolia*?

Again, the writer in *Paxton's Magazine* goes on to express an opinion, not referred to by Mr. Bateson, that several of the florist's varieties known to him are descended from *C. cruenta* alone. He recommends the cultivation of various "species and varieties" (not hybrids) of *Cineraria*, and says "one species especially merits cultivation, namely *C. cruenta*. This may be regarded as the parent of many of those beautiful varieties which are so successfully cultivated by Messrs. Henderson." (*Paxton's Mag. Bot.* iv. p. 220, *not* p. 43.)

Against these specific statements, the only contemporary assertion that all named varieties are hybrids, which is quoted by

Mr. Bateson, occurs in the *Journal of Horticulture*, &c. (Ghent, 1846). This journal contains a general statement that florists' *Cinerarias* have been produced by crossing and recrossing several species, which are named; but although a list of florists' varieties is given, the exact history and parentage of each variety is not attempted.

Finally Burbidge, who wrote in 1877, is quoted as believing that existing varieties are due to hybridism between three species. It is not mentioned that Burbidge, before giving the systematic list of hybrid plants, in which the passage relied upon occurs, is careful to point out the uncertain nature of much of his evidence, and even writes, by way of caution to his readers, that "the parentage of many of the hybrids enumerated in this book is open to question" (p. 118).

I have only examined one of Mr. Bateson's cases of alleged "sports," namely *C. webberiana*. This plant, as Mr. Bateson says, is described and figured as having flowers of a deep blue, the rays being short and wide as compared with *C. waterhousiana*, for example. I fail to see why Mr. Bateson calls this a "sport." There is no evidence cited by him to show that it is descended from *C. waterhousiana*: and if it is not, then there is nothing remarkable in the shortness of its rays. The colour gives no evidence, without detailed knowledge of its descent; for I find in *Paxton's Magazine*, between 1838 and 1841, varieties recorded which are "lilac tipped with purple," "approaching to a blue," "bright blue," "blue or bluish," and in 1842 comes this "deep blue" variety *webberiana* to complete the gradual series.

Judging only from the documents referred to, it seems clear (1) that *C. cruenta* was cultivated, in what was believed to be a pure state, in 1827, and that it yielded valuable varieties, single and double, at that date; (2) that according to contemporary opinion, many of the varieties cultivated between 1838 and 1842 were directly descended from *C. cruenta*, and were not hybrids; and (3) that in 1842 some florists, at least, were believed to produce new varieties by the continued cultivation of *C. cruenta* alone.

So far as Mr. Bateson's history goes, therefore, it establishes the existence in 1842 of sufficient named varieties, believed to be pure-bred *C. cruenta*, to serve as parents for the flowers of to-day.

As to the actual pedigree of the modern varieties, I am not qualified to express an opinion. All I wish to show is that the documents relied upon by Mr. Bateson do not demonstrate the correctness of his views; and that his emphatic statements are simply evidence of want of care in consulting and quoting the authorities referred to. W. F. R. WELDON.

University College, London, May 13.

I HAVE read with some interest the communications on this subject which have appeared in NATURE, and I may add that I have examined living plants of the species in question with Mr. Thistelton-Dyer. My memory also serves me sufficiently far back to remember a great variety of different "strains" of *Cineraria*, in which they had not got so far away from the parent *C. cruenta* as they now are. I say the parent *C. cruenta*, because I believe that we have to deal with races or strains, obtained by selection according to the taste of the several selectors, and not with the descendants of hybrids between different species. I think Mr. Bateson has relied too implicitly on the literature of the subject. Many of the records of hybrid productions in the vegetable kingdom are based upon groundless assumptions; mere seminal variations having been mistaken for crosses. It requires some skill and care to raise hybrids in the Compositæ; and when you have raised your hybrid, even assuming a fertile one, you can only propagate it vegetatively. All stability is gone. But it is not so with selected seminal variations of a given species. They will intercross most freely, and give birth to new varieties without end; yet each one of those varieties may be reproduced from seed, by careful isolation, without a single "bastard" appearing. There are several instances among our cultivated plants of this great plasticity combined with stability, but I will give only one—the China Aster. I select this because there can be no question of hybridity; and there is as great, or even a greater, variety than in the herbaceous *Cinerarias*. But with regard to the latter, I think our experience and the trustworthy literature go to prove that it is an analogous case. Careful selection, year after year, has resulted in the various fixed races or strains offered by florists. I am aware that the letters