

by its own pollen (eight capsules), and by that of the yellow variety (five capsules), yielded seed in the proportion of 100 to 79. So that in every case the unions of similarly-coloured varieties of the same species were more fertile than the unions of dissimilarly-coloured varieties; when all the cases are grouped together, the difference of fertility is as 100 to 86. Some additional trials were made, and altogether thirty-six similarly-coloured unions yielded thirty-five good capsules; whilst thirty-five dissimilarly-coloured unions yielded only twenty-six good capsules. Besides the foregoing experiments, the purple *V. phœniceum* was crossed by a rose-coloured and a white variety of the same species; these two varieties were also crossed together, and these several unions yielded less seed than *V. phœniceum* by its own pollen. Hence it follows from Mr. Scott's experiments, that in the genus *Verbascum* the similarly and dissimilarly-coloured varieties of the same species behave, when crossed, like closely allied but distinct species.<sup>18</sup>

This remarkable fact of the sexual affinity of similarly-coloured varieties, as observed by Gärtner and Mr. Scott, may not be of very rare occurrence; for the subject has not been attended to by others. The following case is worth giving, partly to show how difficult it is to avoid error. Dr. Herbert<sup>19</sup> has remarked that variously-coloured double varieties of the Hollyhock (*Althea rosea*) may be raised with certainty by seed from plants growing close together. I have been informed that nurserymen who raise seed for sale do not separate their plants; accordingly I procured seed of eighteen named varieties; of these, eleven varieties produced sixty-two plants all perfectly true to their kind; and seven produced forty-nine plants, half of which were true and half false. Mr. Masters of

<sup>18</sup> The following facts, given by Kölreuter in his 'Dritte Fortsetzung,' ss. 34, 39, appear at first sight strongly to confirm Mr. Scott's and Gärtner's statements; and to a certain limited extent they do so. Kölreuter asserts, from innumerable observations, that insects incessantly carry pollen from one species and variety of *Verbascum* to another; and I can confirm this assertion; yet he found that the white and yellow varieties of *Verbascum lychnitis* often grew wild mingled together: moreover, he cultivated these two varieties in considerable numbers during four years in his garden, and they kept true by seed; but when he crossed them, they produced flowers of an intermediate tint. Hence it might have been thought that both varieties must have a stronger elective affinity for the pollen

of their own variety than for that of the other; this elective affinity, I may add of each species for its own pollen (Kölreuter, 'Dritte Forts.' s. 39, and Gärtner, 'Bastarderz., passim') being a perfectly well-ascertained power. But the force of the foregoing facts is much lessened by Gärtner's numerous experiments, for, differently from Kölreuter, he never once got ('Bastarderz.,' s. 307) an intermediate tint when he crossed the yellow and white flowered varieties of *Verbascum*. So that the fact of the white and yellow varieties keeping true to their colour by seed does not prove that they were not mutually fertilised by the pollen carried by insects from one to the other.

<sup>19</sup> 'Amaryllidaceæ,' 1837, p. 366. Gärtner has made a similar observation.