resists the severest frosts, and I have seen seeds gathered from pods which had been covered with snow during three weeks.[83] *Berberis wallichii*, from the hot Khasia range in India, is uninjured by our sharpest frosts, and ripens its fruit under our cool summers. Nevertheless, I presume we must attribute to change of climate the sterility of many foreign plants; thus, the Persian and Chinese lilacs (*Syringa persica* and *chinensis*), though perfectly hardy here, never produce a seed; the common lilac (*S. vulgaris*) seeds with us moderately well, but in parts of Germany the capsules never contain seed.[84] Some few of the cases, given in the last chapter, of self-impotent plants, might have been here introduced, as their state seems due to the conditions to which they have been subjected.

The liability of plants to be affected in their fertility by slightly changed conditions is the more remarkable, as the pollen when once in process of formation is not easily injured; a plant may be transplanted, or a branch with flower-buds be cut off and placed in water, and the pollen will be matured. Pollen, also, when once mature, may be kept for weeks or even months.[85] The female organs are more sensitive, for Gärtner[86] found that dicotyledonous plants, when carefully removed so that they did not in the least flag, could seldom be fertilised; this occurred even with potted plants if the roots had grown out of the hole at the bottom. In some few cases, however, as with Digitalis, transplantation did not prevent fertilisation; and according to the testimony of Mawz, *Brassica rapa*, when pulled up by its roots and placed in water, ripened its seed. Flower-stems of several monocotyledonous plants when cut off and placed in water likewise produce seed. But in these cases I presume that the flowers had been already fertilised, for Herbert[87] found with the Crocus that the plants might be removed or mutilated after the act of fertilisation, and would still perfect their seeds; but that, if transplanted before being fertilised, the application of pollen was powerless.

Plants which have been long cultivated can generally endure with undiminished fertility various and great changes; but not in most cases so great a change of climate as domesticated animals. It is remarkable that many plants under these circumstances are so much affected that the proportion and the nature of their chemical ingredients are modified, yet their fertility is unimpaired. Thus, as Dr. Falconer informs me, there is a great difference in the character of the fibre in hemp, in the quantity of oil in the seed of

---

[83] Dr. Herbert, 'Amaryllidaceæ,' p. 176.

[84] Gärtner, 'Beiträge zur Kenntniss,' &c., s. 560, 564.

[85] 'Gardener's Chronicle,' 1844, p. 215; 1850, p. 470. Faivre gives a good résumé on this subject in his 'La Variabilité des Espèces,' 1868, p. 155.

[86] 'Beiträge zur Kenntniss,' &c., s. 252, 333.

[87] 'Journal of Hort. Soc.,' vol. ii., 1847, p. 83.

http://www.geology.19thcenturyscience.org/books/1887-DarwinAnimalsPlants/README.htm