

entirely unfertilized."⁵ The hybrid *V. fimbriatula* x *sororia*, according to Dr. Brainerd, is less sterile than most hybrids, but never was a capsule found that contained more than half the normal number of seeds.⁶ Also in other hybrids, the characteristic sterility of the capsules is most typical. Thus, *V. cucullata* x *septrionalis* was found to bear only from one to six seeds⁷ and, in the hybrid *V. septrionalis* x *sororia*, "the uniformly stunted and often distorted capsules containing mostly aborted ovules"⁸ clearly betrayed its mongrel origin. In *V. affinis* x *sororia* the capsules of the cleistogamous flowers were found to be small and often one-sided and relatively infertile⁹ and in *V. cucullata* x *sororia* although numerous, proved to be all small, imperfect and few seeded."¹⁰

The above quotation will suffice to substantiate what was stated without confirming evidence on a previous page, namely, that in a hybrid between two violet species, the faculty of producing the normal amount of germinable seed is most conspicuously reduced. To avoid misconception, it may be pointed out, especially, that the degeneration of the sexual organs mentioned above refers to the cleistogamous flowers, that is to say the flowers, which in specimens belonging to a "good" species normally produce an abundance of well developed seed. As the cleistogamous flowers are always self-fertilized this failure, in hybrid plants, to bear seed of normal reproductive vigour, cannot be explained by assuming that the pollen necessary for the fertilization of the ovules has not been available. It can be explained only by recognizing the fact that the mixing of and unnatural union of sexual units, belonging to distinct species, in the reproductive organs of the hybrids, is causing a disturbance of the functions of the sexual cells which manifests itself in partial or total sterility.

The inability of the cleistogamous flowers of hybrid plants to produce seed of normal vitality is thus very pronounced. This being the case, it is evident that when violet plants are found having sterile cleistogamous flowers they may be locked upon as possible hybrids. In fact, such plants in most cases are really hybrids. The sterility of the capsules of the cleistogamous flowers in violets is therefore a character which will prove most helpful for the identification of critical forms as hybrids.

⁵ l.c. 217

⁶ l.c. 218

⁷ l.c. 220

⁸ l.c. 221

⁹ l.c. 222

¹⁰ l.c. 222