Herbert also says,[47] "I am inclined to think that I have derived "advantage from impregnating the flower from which I wished "to obtain seed with pollen from another individual of the same "variety, or at least from another flower, rather than with its "own." Again, Professor Lecoq ascertained that crossed offspring are more vigorous and robust than their parents.[48]

General statements of this kind, however, can seldom be fully trusted: I therefore began a long series of experiments, continued for about ten years, which will I think conclusively show the good effects of crossing two distinct plants of the same variety, and the evil effects of long-continued self-fertilisation. A clear light will thus be thrown on such questions, as why flowers are almost invariably constructed so as to permit, or favour, or necessitate the union of two individuals. We shall clearly understand why monœcious and diœcious,—why dichogamous, dimorphic and trimorphic plants exist, and many other such cases. I intend soon to publish an account of these experiments, and I can here give only a few cases in illustration. The plan which I followed was to grow plants in the same pot, or in pots of the same size, or close together in the open ground; carefully to exclude insects; and then to fertilise some of the flowers with pollen from the same flower, and others on the same plant with pollen from a distinct but adjoining plant. In many of these experiments, the crossed plants yielded much more seed than the self-fertilised plants; and I have never seen the reversed case. The self-fertilised and crossed seeds thus obtained were allowed to germinate in the same glass vessel on damp sand; and as the seeds germinated, they were planted in pairs on opposite sides of the same pot, with a superficial partition between them, and were placed so as to be equally exposed to the light. In other cases the self-fertilised and crossed seeds were simply sown on opposite sides of the same small pot. I have, in short, followed different plans, but in every case have taken all the precautions which I could think of, so that the two lots should be equally favoured. The growth of the plants raised from the crossed and self-fertilised seed, were carefully observed from their germination to maturity, in species belonging to fifty-two genera; and the difference in their growth, and in withstanding unfavourable conditions, was in most cases manifest and strongly marked. It is of importance that the two lots of seed should be sown or planted on opposite sides of the same pot, so that the seedlings may struggle against each other; for if sown separately in ample and good soil, there is often but little difference in their growth.

I will briefly describe two of the first cases observed by me. Six crossed and six self-fertilised seeds of *Ipomœa purpurea*, from plants treated in the manner above described, were planted as soon as they had germinated, in pairs on opposite sides of two pots, and rods of equal thickness were given them to twine up. Five

[47] 'Amaryllidaceæ,' p. 371. [48] 'De la Fécondation,' 2nd edit., 1862, p. 79.