

freely than the individuals of the same species breed together. Cases will, also, be given of sexual incompatibility between certain male and female domesticated animals, which, nevertheless, are fertile when matched with any other individual of the same kind.

In the early part of this chapter it was shown that the crossing of individuals belonging to distinct families of the same race, or to different races or species, gives increased size and constitutional vigour to the offspring, and, except in the case of crossed species, increased fertility. The evidence rests on the universal testimony of breeders (for it should be observed that I am not here speaking of the evil results of close interbreeding), and is practically exemplified in the higher value of cross-bred animals for immediate consumption. The good results of crossing have also been demonstrated with some animals and with numerous plants, by actual weight and measurement. Although animals of pure blood will obviously be deteriorated by crossing, as far as their characteristic qualities are concerned, there seems to be no exception to the rule that advantages of the kind just mentioned are thus gained, even when there has not been any previous close interbreeding; and the rule applies to such animals as cattle and sheep, which can long resist breeding in-and-in between the nearest blood-relations.

In the case of crossed species, although size, vigour, precocity, and hardiness are, with rare exceptions, gained, fertility, in a greater or less degree, is lost; but the gain in the above respects can hardly be attributed to the principle of compensation; for there is no close parallelism between the increased size and vigour of hybrid offspring and their sterility. Moreover, it has been clearly proved that mongrels which are perfectly fertile gain these same advantages as well as sterile hybrids.

With the higher animals no special adaptations for ensuring occasional crosses between distinct families seem to exist. The eagerness of the males, leading to severe competition between them, is sufficient; for even with gregarious animals, the old and dominant males will be dispossessed after a time and it would be a mere chance if a closely related member