

CHAPTER XVI.

CAUSES WHICH INTERFERE WITH THE FREE CROSSING OF
VARIETIES—INFLUENCE OF DOMESTICATION ON FERTILITY.

DIFFICULTIES IN JUDGING OF THE FERTILITY OF VARIETIES WHEN CROSSED—VARIOUS CAUSES WHICH KEEP VARIETIES DISTINCT, AS THE PERIOD OF BREEDING AND SEXUAL PREFERENCE—VARIETIES OF WHEAT SAID TO BE STERILE WHEN CROSSED—VARIETIES OF MAIZE, VERBASCUM, HOLLYHOCK, GOURDS, MELONS, AND TOBACCO, RENDERED IN SOME DEGREE MUTUALLY STERILE—DOMESTICATION ELIMINATES THE TENDENCY TO STERILITY NATURAL TO SPECIES WHEN CROSSED—ON THE INCREASED FERTILITY OF UNCROSSED ANIMALS AND PLANTS FROM DOMESTICATION AND CULTIVATION.

THE domesticated races of both animals and plants, when crossed, are, with extremely few exceptions, quite prolific,—in some cases even more so than the purely-bred parent-races. The offspring, also, raised from such crosses are likewise, as we shall see in the following chapter, generally more vigorous and fertile than their parents. On the other hand, species when crossed, and their hybrid offspring, are almost invariably in some degree sterile; and here there seems to exist a broad and insuperable distinction between races and species. The importance of this subject as bearing on the origin of species is obvious; and we shall hereafter recur to it.

It is unfortunate how few precise observations have been made on the fertility of mongrel animals and plants during several successive generations. Dr. Broca¹ has remarked that no one has observed whether, for instance, mongrel dogs, bred *inter se*, are indefinitely fertile; yet, if a shade of infertility be detected by careful observation in the offspring of natural forms when crossed, it is thought that their specific distinction is proved. But so many breeds of sheep, cattle, pigs, dogs, and poultry, have been crossed and recrossed in various ways, that any sterility, if it had existed, would from being injurious almost certainly have been observed. In

¹ 'Journal de Physiolog.,' tom. ii., 1859, p. 385.