

latter are always so nearly connected with the original habits and propensities of each species in a wild state, that they imply no indefinite capacity of varying from the original type. The acquired habits derived from human tuition are rarely transmitted to the offspring; and when this happens, it is almost universally the case with those merely which have some obvious connexion with the attributes of the species when in a state of independence.

CHAPTER XXXVII.

WHETHER SPECIES HAVE A REAL EXISTENCE IN NATURE — *continued.*

Phenomena of hybrids — Hunter's opinions — Mules not strictly intermediate between parent species — Hybrid plants — Experiments of Kölreuter and Wiegmann — Vegetable hybrids prolific throughout several generations — Why rare in a wild state — De Candolle on hybrid plants — The phenomena of hybrids confirm the distinctness of species — Theory of the gradation in the intelligence of animals as indicated by the facial angle — Doctrine that certain organs of the fœtus in mammalia assume successively the forms of fish, reptile, and bird — Recapitulation.

Phenomena of hybrids.—WE have yet to consider another class of phenomena, those relating to the production of hybrids, which have been regarded in a very different light with reference to their bearing on the question of the permanent distinctness of species; some naturalists considering them as affording the strongest of all proofs in favour of the reality of species; others, on the contrary, appealing to them as countenancing the opposite doctrine, that all the varieties of organization and instinct now exhibited in the animal and vegetable kingdoms may have been propagated from a small number of original types.

In regard to the mammifers and birds it is found that no sexual union will take place between races which are remote from each other in their habits and organization; and it is only in species that are very nearly allied that such unions produce offspring. It may be laid down as a general rule, admitting of very few exceptions among quadrupeds, that the hybrid progeny is sterile; and there seem to be no well authenticated examples of the continuance of the mule race beyond one generation. The principal number of observations and experiments relate to the mixed offspring of the horse and the ass; and in this case it is well established that the he-mule can generate, and the she-mule produce. Such cases occur in Spain and Italy, and much more frequently in the West Indies and New Holland; but these mules have never bred in cold climates, seldom in warm regions, and still more rarely in temperate countries.

The hybrid offspring of the she-ass and the stallion, the *γίππος* of Aristotle, and the hinnus of Pliny, differs from the mule, or the