

which, according to the laws of cumulative adaptation (vol. i. p. 233) and established inheritance (vol. i. p. 216), lead to the origin of new functions, and thus also to new forms of the organs. Here, as everywhere, the interaction between function and organ goes hand in hand. Just as the mental faculties of man have been acquired by the progressive adaptation of the brain, and been fixed by continual transmission by inheritance, so the instincts of animals, which differ from them only in quantity, not in quality, have arisen by the gradual perfecting of their mental organ, that is, their central nervous system, by the interaction of Adaptation and Inheritance. Instincts, as is well known, are inherited, but experiences and, consequently, new adaptations of the animal mind, are also transmitted by inheritance; and the training of domestic animals to different mental activities, which wild animals are incapable of accomplishing, rests upon the possibility of mental adaptation. We already know a series of examples, in which such adaptations, after they had been transmitted through a succession of generations, finally appeared as innate instincts, and yet they have only been acquired from the ancestors of the animals. Inheritance has here caused the result of training to become instinct. The characteristic instincts of sporting dogs, shepherd's dogs, and other domestic animals, and the natural instincts of wild animals, which they possess at birth, were in the first place acquired by their ancestors by adaptation. They may in this respect be compared to man's "knowledge *à priori*," which, like all other knowledge, was originally acquired by our remote ancestors, "*à posteriori*," by sensuous experience. As I have already remarked, it is evident that "knowledge *à priori*" arose