For the Artiodactyl, the theoretical history is the same, excepting that two toes, the third and fourth, were concerned instead of one — the two acting together in dynamical unison. An early Ungulate rising on these two toes in running in order to make thus its greatest speed, the toes and also their metatarsals and metacarpals became equally enlarged and alike elongated, while the less-used toes either side, the second and fifth, became a shorter, weaker pair — as illustrated in the Hog; or, after further change, the dominant pair became still longer, while the shorter was reduced to a rudimentary pair or to hoofs, or became wholly obsolete excepting metacarpal and metatarsal splint bones, as in the fleeter Artiodactyls.

Further: the stroke of the foot demanded, for high speed and safety, that there should be little or no rotation of the foot by a movement of the bones of the lower leg, — that is, of the radius and ulna of the front pair and the tibia and fibula of the hind pair, — and consequently the ulna and fibula became reduced sometimes to splint bones, or united by coössification severally to the radius and tibia; and likewise, in the two-toed Artiodactyl, the corresponding two metatarsals and metacarpals, having no movement between them, became coössified into a "cannon bone."

There is little that is hypothetical in the above statements, for the successional lines and the sutures of half-finished coössification are fully illustrated among the species. Modern surgery finds that bones at joints become coössified by too long confinement in splints without a chance for movement. The variety of four-toed Artiodactyls during the Tertiary was very large; but at present they are confined to the few of the Suillines, or the Hog family, and the Hippopotamus group. The two-toed species, on the contrary, or the Stags, Deer, Cattle, and the like, are most abundant in recent time.

The following considerations bear on the character of the changes that went forward among the Mammals. Of the three divisions (1) the Plant-eaters, (2) the Animal-eaters, (3) the Omnivores, the last-mentioned, — that is, the Quadrumana or Monkeys, — must have early taken to the trees, as their habits indicate. This was an easy method of escaping enemies. Being strong in their fore limbs, they had the trees and the ground, fruit and flesh, within their range. For defense or attack they needed no abnormal growths, such as horns; and they have been from the first without them.

The *Animal-eaters*, in their development, would have divided according to food and habits. Those forced to take the poorest and most abundant and easily got of animal food, the *Insectivores*, fossorial and skulking species, degenerated, becoming small species, mostly remaining plantigrades, the teeth in some losing their differentiation, in others disappearing altogether. The insects which they ate needed no chewing. Some of them found protection in the substitution of spines for fur (the Hedgehogs), and in the safe but cowardly method of rolling into a ball with spines out in all directions.

The higher section of the Animal-eaters, or the Carnivores, living on the best of animal food, and generally having to fight for it, and always on the alert, having the fore limbs the stronger pair, and efficient as arms in secur-