

## CARNIVORA.

Of the Carnivora I have examined the feet of the domestic Dog (*Canis familiaris*), the Dingo (the Australian Wild Dog), the Cat (*Felis catus*), the Puma (*Felis concolor*), the Leopard (*Felis leopardus*), the Lion (*Felis leo*), the Otter (*Lutra vulgaris*), the Badger (*Meles taxus*), the Pole-Cat (*Mustela putorius*), and the Walrus (*Trichechus rosmarus*). In the last four the foot is pentadactylous, whilst in the others it is tetradactylous—the hallux being only represented by a rudimentary metatarsal.

Let us, in the first instance, direct our attention to the tetradactylous Carnivora. In these the metatarsal bones are placed in such close apposition, that the intrinsic muscles of the pes are situated almost entirely upon the plantar aspect of the metatarsus. In the Dog, indeed (Pl. VIII. fig. 4), it is with difficulty that the point of a knife can be introduced into the interosseous spaces. In the Cat, Puma, Leopard (Pl. VIII. fig. 7), and Lion, whilst the bones are in actual contact towards the tarsus, yet they open out towards their phalangeal extremities, and in the narrow elliptical spaces thus formed, the thin, sharp edges of the dorsal interossei may be seen reaching half-way up the interosseous spaces (Pl. VIII. fig. 7,  $d^3$  to  $d^5$ ).

Owing to this arrangement of the metatarsal bones, the intrinsic muscles are crowded into the sole; further, the clear definition between the three typical layers is in a great measure lost. None of the muscles are suppressed, but fusion has taken place between several which in other feet we have seen as separate and distinct factors. The cause of this fusion, however, cannot be assigned to crowding, because in *Phascogale*, and especially in *Dasyurus*, the condition of the metatarsus is very similar, and yet all the intrinsic muscles have retained their individuality in spite of the limited space they occupy.

*Plantar layer.*—In all cases the adductor muscles remain as a distinct plantar layer, and they are arranged so as to adduct towards a line drawn through the medius. Generally they are two in number,—viz., (1) the adductor minimi digiti (Pl. VIII. fig. 8,  $p^5$ ); and adductor indicis (Pl. VIII. fig. 8,  $p^2$ ). Occasionally a third is to be found in the Dog—an adductor annularis; but this is feebly developed, and always more or less fused with the tibial head of the flexor brevis of that toe. This seems to indicate that in the other animals this muscle is lost by fusion and not by suppression. These adductor muscles, whether two or three in number, all arise by a common origin in the middle line of the foot from the ligamentous textures at the base of the metatarsus, and then diverge from each other to reach their respective points of insertion.

Associated with the plantar layer is the opponens minimi digiti (Pl. VIII. fig. 8, *o.m*). It is a narrow band of fibres which arises in common with the adductor of the little toe, and is inserted into the plantar face of the distal third of the shaft of the fifth metatarsal bone, under cover of the flexor brevis minimi digiti. This muscle was found in all the tetradactylous Carnivora mentioned above.