

Chimpanzee. ¹	} Plantar layer	} consists of	1. Adductor hallucis (two heads united in first, but separate in the second).
<i>Hylobates leuciscus.</i>			
Orang.	} Plantar layer	} consists of	1. Adductor hallucis (two heads united in first, but separated in second).
Gorilla.			

From this table it will be observed that, whilst in the majority of the animals quoted, the plantar layer is complete, a diminution in the number of its elements can be traced through the *Hapale* and the Chimpanzee and *Hylobates* until we come to the Orang and Gorilla in which there is merely the adductor hallucis. But the Orang seems to stand intermediate between the Gorilla, in which not a vestige of the absent muscles is to be found, and the other apes in which they are present. Ruge has shown in his important article upon the "deep muscles of the foot,"² that in this animal the place of the lost adductors of the second, fourth, and fifth toes is taken by tough strands of connective tissue, and that the nature of these is borne out not only by the deep division of the external plantar nerve lying subjacent to them, but also by the presence in connection with them of weakly developed muscular fibres. The regressive changes, therefore, by which these muscles have disappeared are very clearly indicated in the foot of the Orang.

Intermediate layer.—In the Quadrumana we never find a complete layer of flexores breves, *i.e.*, a two-headed muscle provided for each toe. The flexor brevis hallucis and the flexor brevis minimi digiti generally retain their two slips, but the flexor brevis annularis and the flexor brevis indicis are often represented by a single head, whilst the flexor brevis medii seems in the great majority of cases to be absent.

According to Bischoff the Gorilla,³ the Chimpanzee, the *Hylobates*, the *Cynocephalus*,

¹ Since writing the above I have had the opportunity of examining the foot of a young Chimpanzee. The adductors were three in number, *viz.*: (1) adductor hallucis, (2) adductor minimi digiti, and (3) adductor annularis. The adductor hallucis was represented by an oblique and a transverse part, both of which were very strongly marked, and in close apposition to each other, but yet quite separable. A very interesting point in connection with the adductor obliquus hallucis was that it was supplied by twigs from both plantar nerves; the internal plantar nerve sent a branch into its superficial surface, whilst the terminal filaments of the deep division of the external plantar nerve sank into its deep surface. Nor could it be said that this double nerve supply was due to its having amalgamated with the outer head of the flexor brevis hallucis, because this muscle was present, although greatly reduced in size from being pressed deeply into the sole by the largely developed adductor. The adductor minimi digiti was well marked, and arose from a central raphe common to it and the transverse adductor of the hallux. The adductor annularis was exceedingly feeble, and took origin from the deep surface of the raphe which separated the adductors of the great and little toes; further, it was partially coalesced with the subjacent interossei, and could not be raised without lacerating muscular fibres.

² *Loc. cit.*, p. 650.

³ Duvernoy and Macalister both describe the flexor brevis hallucis in the Gorilla as consisting of an inner head alone. Bischoff, however, points out that the former has regarded the true outer head as corresponding to the interosseus primus volaris in the hand, whilst the latter has, in all probability, looked upon it as an opponens, a muscle of which Bischoff could find no trace.