

The other three adductors are inserted respectively into the inner sides of the bases of the first phalanges of the annularis and medius, and into the outer side of the base of the first phalanx of the hallux.

In the foot of one very large specimen, I found a delicate muscular fasciculus apparently associated with these muscles and inserted into the outer side of the base of the first phalanx of the medius. I could detect no trace of this minute muscle in the other specimens and it is difficult to account for its presence in this individual case.

In Ruge's excellent paper upon the deep muscles of the sole two additional muscles are described as belonging to this group, viz., one inserted into the inner side of the index digit and another inserted upon the outer side of the minimus. I have looked in vain for the first of these, and the deep division of the external plantar nerve afforded me no help in my search. As Ruge has pointed out, this nerve generally runs across the foot between the adductors and the other intrinsic muscles so as to separate this group from the subjacent flexors and abductors. In the *Ornithorhynchus* I found it impossible to trace this nerve inwards beyond the muscles of the index. It here breaks up into its delicate terminal twigs, in a manner very different from that which is represented by Ruge in fig. 46 of his paper.

With regard to the extra plantar muscle which he describes for the minimus, I have not the least hesitation in pronouncing this to be the outermost belly of the flexor brevis digitorum. I have undertaken three special dissections with the view of determining this point. The flexor brevis digitorum consists of four fleshy bellies. Of these the two for the index and medius arise from the plantar surface of the long flexor tendon as it enters the sole, whilst the other two (viz., those for the annularis and minimus) spring by a common fleshy origin from the under surface of the outwardly directed tuberosity of the os calcis. They are all inserted into the bases of the first phalanges and also partly into the flexor sheathes of the digits to which they go.¹ The identity of the outermost belly is established (1) by its origin being so far apart from that of the plantar muscles, (2) by its continuity at its origin with the fleshy belly of the flexor brevis digitorum for the annular digit, (3) by its lying superficial to the long flexor tendon of the minimus, (4) and lastly, by its having an insertion similar to that of the other bellies of this muscle. It is quite true, as Ruge points out, that it is supplied by a twig from the external plantar nerve, but this of itself is not sufficient to separate it from the muscle to which it so manifestly belongs.²

¹ Meckel in his great work upon Comparative Anatomy (*loc. cit.*, vol. vi. p. 447) holds a different opinion regarding these four fleshy bellies. He looks upon them as being the lumbrical muscles. He says: "Le tendon inférieur produit deux muscles lombricaux alongés, qui se rendent à la première phalange des deuxième et troisième orteils. Deux muscles semblables, destinés aux troisième (?) et quatrième orteils, sont fournis, non par ce tendon, mais par le bord externe du tarse." The nerve supply certainly seems to favour this view. A reference to page 461 of same volume will show that the second "troisième" in this quotation, should in reality be "cinquième."

² In Cuvier and Laurillard's plates (pl. cclxix. fig. 5) the four fleshy bellies are well figured, and they are all included under the name of "court fléchisseur commun."