

## INTRINSIC MUSCLES OF THE MAMMALIAN FOOT.

We have seen that the intrinsic muscles of the manus of certain of the Marsupialia (*vide* p. 19) may be considered to be disposed in three layers according to the plane which they occupy as we dissect from the palmar to the dorsal aspect of the hand. Each digit is provided with three muscles, each of which exercises its own independent action upon it. It derives an adductor from the palmar layer, an abductor from the dorsal layer, and a flexor brevis from the intermediate layer. The medius is usually an exception to this rule, inasmuch as two of its muscles belong to the dorsal layer.

In making inquiry into the arrangement of the corresponding muscles of the pes, I have extended my investigations over a much wider area. In the case of the manus my observations, with a very few exceptions, were restricted to members of the Marsupial order; in the case of the pes I have examined a large number of different mammalian feet, and with very interesting results. From the Challenger Expedition Commission I received for this purpose one specimen of each of the following animals:—(1) the Dingo or Australian Wild Dog, (2) *Hyrax capensis*, (3) *Ornithorhynchus paradoxus*, (4) *Mus capensis*, (5) *Bathyergus capensis*, (6) *Felis concolor*. The other specimens which I have had an opportunity of examining were for the most part supplied from the stores of the Anatomical Museum of the Edinburgh University, which Professor Turner, with his usual kindness, placed at my disposal.

*Definition of the term "intrinsic."*—The term "intrinsic" as applied to the muscles of the foot can best be defined by a process of exclusion—by naming those muscles which it does not include. These are—

1. The accessorius and lumbricales.
2. The flexor brevis digitorum.
3. The extensor brevis digitorum.

The accessorius and lumbricales cannot be regarded as independent muscles. They are simple accessory parts of the flexor longus digitorum and must therefore be classed with it. The flexor brevis digitorum is the homologue of the flexor sublimis of the forearm, and in some animals it may be seen taking origin beyond the limits of the foot in common with the flexor longus digitorum. The extensor brevis digitorum is excluded for the same reason. The history of this muscle has already been referred to (p. 47). Originally a peroneal muscle, it comes to lie in a number of animals upon the dorsum of the foot.

In the human foot, therefore, the intrinsic muscles are the following:—

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| $\alpha$ . The four short muscles<br>of the great toe, . | } | <ol style="list-style-type: none"> <li>1. Flexor brevis hallucis.</li> <li>2. Abductor hallucis.</li> <li>3. Adductor hallucis (adductor obliquus).</li> <li>4. Transversalis pedis (adductor transversus).</li> </ol> |
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