

All this points to an exceedingly close association between the intermediate and dorsal layers, and possibly also to the fact that the latter (*i.e.*, the dorsal interossei, the abductor hallucis, and the abductor of the minimus) may have originally been derived from the former (*i.e.*, the flexores breves). Ruge's researches into the development of the muscles of the human foot decidedly favour this view. He has shown that at a very early stage the muscles are plantar, and that it is only as development advances that the dorsal interossei pass upwards between the metatarsal bones.

It is interesting to note that whereas the adductor of the hallux is the most constant and frequently the most highly developed muscle of the plantar layer, it is the abductor minimi digiti which is the most constant and most highly differentiated member of the dorsal layer.

It is convenient to notice at this stage the criticism which Dr. Young has made upon the abstract of this portion of my report, which I published in 1878. He examined the hands of five Marsupials, viz., the Opossum, Wallaby, yellow-footed Kangaroo, Wombat, and Koala. From these dissections he concludes that, "with respect to the disposition of the intrinsic muscles of the hand and foot, a considerable number of Marsupials agree closely with what has been laid down as the actual type, upon which these muscles are arranged in the whole of the mammalia. But it does not appear that this 'type' is so constantly adhered to in any other group of the Mammalia; on the contrary, the deviations from it are so numerous and of such a nature as to render the justifiability of its extension to all mammals questionable." It is true that it is in "the Marsupials as a class that we find the typical arrangement most closely adhered to," but we have simply to glance over the foregoing tables to see that the mammals are very few indeed in which we do not find indications of all the three layers. Putting aside the plantar muscles as a layer about which there can be no dispute, it will be observed, that in every animal, with one exception (*viz.*, the *Bradypus*), there is a distinct flexing group, and that in almost every case one muscle from this layer is allotted to each toe. The dorsal layer, although it is the most fully represented of the three groups in Man, is the one which in the lower animals is least constant and most variable. In very few instances, however, do we find it wholly unrepresented. Surely Dr. Young is not prepared to abolish this layer. If any is to be abolished it must be the dorsal layer.

But another paragraph in Dr. Young's article leads me to believe that he applies a wider meaning to the word typical than I have any intention to convey. He says:—"The history of the developmental changes, indeed, will afford the only sure data for the determination of that fundamental arrangement which alone can be considered as constituting an actual and inclusive type in contradistinction to one purely ideal or hypothetical." I have no wish to claim that the trilaminar arrangement is the fundamental or original disposition of the intrinsic pedal muscles in Mammalia. On the contrary I am strongly of opinion that it is not so, and I have already hinted that they are strong arguments in