

intrinsic muscles of the foot. This view is very strongly supported, as we shall see, by an examination of the foot of the Sheep.

Ovis aries (Sheep).

The bony framework of the foot of the Sheep is the same as that of the Ox. A study of this pes places the fascial derivation of the strong tendinous slips, which are given by the suspensory ligament of the Ox to the perforatus tendons, beyond a doubt. The suspensory ligament of the Sheep is covered by a dense aponeurotic membrane which is attached on each side to the margin of the metatarsus. This aponeurosis has no anatomical union with the ligament; indeed the ligament glides freely under it. It therefore represents the deep layer of fascia which is spread over the intrinsic muscles in other animals, and which is so strongly marked in the Baboon, and many other Apes (*vide* Bischoff¹). Inferiorly it joins the tendons of the perforatus, not in cord-like processes, but by a flat ribbon-like band. This is unquestionably the homologue of the slips which spring from the superficial aspect of the suspensory ligament of the Ox, and by its union with the perforatus the rings, through which the tendons of the perforans pass, are formed.

The suspensory ligament of the Sheep has the same connections as that of the Ox. Its division into slips, however, takes place somewhat nearer the metatarso-phalangeal joints. Not a trace of muscular tissue is to be seen upon its superficial surface. A narrow inspection of its deep surface shows three delicate and parallel white streaks running in the long axis of the ligament, and occupying the same position as the strands of muscular fibres in the ligament of the Ox. On making thin microscopic sections of the structure we observe, with the naked eye, four rings, each with a delicate white outline, lying side by side in the substance of the ligament, and situated nearer the deep than the superficial surface (Pl. XI. figs. 9 and 9a). Under the microscope these outlines are seen to consist simply of fat cells, with here and there minute blood-vessels and nerves in their midst. Not a vestige of muscular tissue can be detected. In the Sheep, therefore, the fibrous metamorphosis of the intrinsic muscles has reached a more complete stage than in either the Horse or the Ox. Further, the microscopic examination of all these ligaments, but more especially that of the Sheep, appears to indicate that the process is effected by the fatty degeneration of the muscle fibres, with a concurrent increase of the connective tissue elements of the muscle. In all cases the change is more complete upon the superficial surface, and the blood-vessels and nerves of the muscles concerned are retained. On the deep surface of the ligament we always find a quantity of soft fat which, in the case of the Horse and the Ox, is so completely incorporated with the muscular fibres that it is impossible to remove it unless we take away at the same time the fleshy tissue.

With regard to the muscles which enter into the formation of the suspensory ligament

¹ Beiträge zur Anatomie des *Hylobates leuciscus*, München, p. 24, 1870.