

pronounced, and overhangs a shallow fossa which indicates the upward limit of the extensor cruris muscle. The posterior border of the trochanter is rough, and affords insertion to the obturator internus and gemelli muscles. The outer surface of this eminence is likewise rough, and marked by three depressions, into which are inserted from above downwards the gluteus medius, obturator externus, and gluteus minimus muscles. The shaft of the femur is nearly cylindrical, and presents the longitudinal curve usual in birds. A "linea aspera" can hardly be said to exist, the posterior surface of the shaft being almost smooth. On the anterior surface of the shaft an oblique ridge continuous with the anterior border of the trochanter is traceable as far as the middle in length of the bone. It affords origin to the extensor cruris.

The lower end of the bone is provided with two condyles, of which the internal is the broader. The groove on the outer side of the external condyle for articulation with the head of the fibula is well developed. The intercondyloid surface for the patella is much pronounced. On the posterior surface of the lower end of the femur is a deep recess, which affords insertion to the lower fibres of the adductor magnus, and origin to the outer and inner heads of the gastrocnemius muscle.

I have observed the following peculiarities in the femur of *Aptenodytes*, as compared with that of other species:—*First*, In *Aptenodytes* the femur is relatively stouter and more powerful than in other species. *Second*, In *Aptenodytes* the internal condyle of the femur does not project beyond that of the external to the same extent as in other species. Hence in *Aptenodytes* when the lower end of the femur is placed on a horizontal surface, the shaft of the bone is directed nearly vertically upwards, whereas in other species the shaft of the bone is directed obliquely upwards and outwards. *Third*, In *Aptenodytes* the summit of the trochanter projects above the level of the articular head of the bone to a greater extent than in other species, all of which agree with one another in this as well as in the other points indicated.

The table on the following page shows the length of the femur in different species in inches.

The Patella.

The patella (Pl. VII. figs. 9 and 10) is of exceptionally large size, and presents a somewhat peculiar form in the Penguins. In form it resembles a wedge, the anterior or sharp margin of which is directed forwards, the base backwards towards the femur. The base of the wedge is broad, deeply concave, and adapted to the pulley-like surface of the lower end of the femur. The outer surface of the bone is for the most part smooth, but presents about its middle a deep and narrow groove which, commencing in front at the middle of the anterior border of the bone, passes obliquely backwards, downwards, and outwards across the external surface. This groove accommodates the tendon of the "ambiens" muscle. The inner surface of the bone is smooth. The upper end of the patella is obliquely truncated, and affords insertion to the muscular fibres of the extensor cruris