

The upper ends of the radius and ulna are connected together by means of a strong dorsal as also by a weak palmar ligament, both of which pass transversely between these bones.

The wrist joint is provided with two internal and a single external lateral ligament. The internal ligaments are attached above to the distal ends of the radius and ulna respectively, and below to the inner side of the proximal end of the great metacarpal bone. The external ligament extends from the distal end of the radius above to the proximal extremity of the metacarpal bone below.

The ulnar carpal bone is attached to the distal ends of both the radius and ulna by means of a single stout ligamentous band, and by a broad aponeurotic slip to the whole length of the third metacarpal bone.

The metacarpo-phalangeal articulation is provided with two external and two internal lateral ligaments, which pass from the distal ends of the metacarpal bones to the inner and outer surfaces of the first phalanges of the second and third fingers respectively.

The first and second phalanges of the second finger are connected together by strong internal and external lateral ligaments. The first phalanx of the second is moreover attached to the whole length of that of the third finger by a stout interosseous membrane.

LIGAMENTS OF THE LEG.

The ligaments connecting the bones of the leg in the Penguin differ less from those of other birds than do those of the wing.

The hip joint is provided with capsular and round ligaments which resemble those of other birds.

In relation to the knee joint there are two very powerful lateral ligaments—an external and an internal. The former passes between the outer condyle of the femur and the head of the fibula, while the latter is attached above to the inner condyle of the femur and below to the inner side of the shaft of the tibia, a short distance below the upper end of that bone. In addition to these, there is an extremely short anterior ligament or ligamentum patellæ which attaches the patella to the anterior border of the upper end of the tibia.

On opening the knee joint the interval between the heads of the tibia and fibula is seen to be occupied by a wedge-shaped mass of cartilage, the broad end of which is directed upwards. This cartilaginous plate is firmly fixed to the head of the fibula, but glides freely on the lateral surface of the head of the tibia, so that a limited amount of rotation is permissible between the heads of these two bones. This piece of cartilage is moreover continuous with the anterior horn of a well-developed semilunar cartilage which intervenes between the inner condyle of the femur and the head of the tibia.