

The various grooves and muscle-attachments are rather better marked in the fossil than in the living form; this seems to be the case also in *Chenalopex pugil*. This specimen is 24 mm. in length. Compared with the radius of *Phænicopterus*, which in length it resembles, it is found to be much stouter and to differ in many other respects.

The proximal three-fourths of a right *ulna* wanting the olecranon process, and part of a left, correspond in size with the above-mentioned radius. They also agree closely in structure with the same bone in *Sarcidiornis* and *Chenalopex*, though, as might be expected, in the larger bird the muscle-impressions, particularly the insertion of the *brachialis anticus*, are more strongly marked. The largest diameter of the middle of the shaft is 10 mm.

Perhaps the most characteristic bone of this bird is the *metacarpus* (Pl. VIII. fig. 7), but unfortunately only the proximal half of that from the left side is preserved, and even from this the free portion of the third metacarpal is broken away. Its most striking character is the presence of a very long spur-like process formed by the production downward and forward of the fused first metacarpal. The terminal half of this process has an irregular roughened surface which indicates that it was not invested with a claw-like spur such as occurs in *Chauna* and some Plovers, but was most probably covered by rough hardened epidermis, like the similar processes in *Chenalopex* and *Sarcidiornis*. The resemblance of this bone to the metacarpus of *Chenalopex pugil* is remarkable, the only differences perceptible being that in this bird the spur is rather stouter and more curved forward; the size is nearly the same. The spur on the wing of *Plectropterus* is borne on a process of the radial carpal, and is therefore not comparable with that of *Chenalopex* and *Centronis*.

The dimensions of the imperfect metacarpal are :—

Greatest width of upper end.....	31 mm.
Length of spur measured from tip to middle point of articular surface for first phalangeal of digit I.....	26
Width of metacarpal II. ....	9



A specimen of the first phalangeal of the second digit, measuring 46 mm. in length, probably belonged to this bird.

It will be seen from the foregoing description that in *Centrornis majori* we have a Goose in many respects similar to *Sarcidiornis* and *Chenalopex*, but differing from them in its large size and in the great length of its legs. Indeed, judging from the slenderness of the metatarsus and femur and the slight degree to which the lower end of the long tibia is inflected, it seems probable that this bird was not a good swimmer, but was rather adapted for wading. The wings were long and powerful, and, being armed with a long spur, were no doubt formidable weapons.

The genus *Chenalopex* is represented by two species: *C. ægyptiacus*, inhabiting Africa and Palestine, and *C. jubatus*, found in South America. It is noteworthy that these birds are represented in the Pleistocene deposits of their respective areas by very large extinct forms, the former by *Centrornis majori*, the latter by the so-called *Chenalopex pugil*\*. These, though differing one from another in the form of their legs, seem to have been almost identical in the structure of their wings, the similarity between their metacarpi being a remarkable instance of parallel modification.

By far the greater number (at least three-fourths) of the bird-bones in the collection belong to another Anserine bird considerably smaller than that just described. Of this form all the important parts of the skeleton, including the skull, sternum, pelvis, and the bones of the fore and hind limbs, are preserved, and in one or two cases a number of bones are known to have belonged to a single individual. The largest of these associated sets includes the skull, two or three vertebræ, humerus, radius, ulna, scapula, and coracoid. The metatarsus is unfortunately wanting in this instance, but since several specimens occur associated with bones identical in form with those represented, it is possible to refer them

\* I am of opinion that it would be not only justifiable but desirable to make this species the type of a new genus, since, though in very many respects similar to *Chenalopex jubatus*, it presents important differences both in size and structure.



with certainty to this species ; even if this method of identification had been impossible, the great number of specimens of this particular type of metatarsus would be strong evidence that they belonged to this, the commonest species.

If only the wing-bones had been preserved, this bird would probably have been regarded merely as a somewhat robust variety of *Sarcidiornis*, a genus now occurring in Madagascar. The skull and metatarsus, however, show that this is not the case, but that we are dealing with a bird closely allied to, if not identical with, the Egyptian Goose, *Chenalopex aegyptiacus*. This species is widely distributed in Africa, but has never been recorded from Madagascar so far as I can ascertain. Considering the great abundance of the fossil remains of this, or at least a closely allied species, in these comparatively recent deposits, the complete absence of such a bird from the present avifauna of the island is remarkable. It is also noteworthy that no bones that can be referred to *Sarcidiornis melanonotus*, now a common species, occur among the fossils, so that it seems that this species must be of late introduction and that it has succeeded in displacing the older *Chenalopex*-like type.

The various specimens which I refer to the present species indicate that it was subject to considerable variation in size, and that, as in *Chenalopex aegyptiacus*, the differences were partly dependent on sex, the male being larger than the female. Some of the measurements given below will show that this was the case.

It will be unnecessary to give a complete description of this species, but will be sufficient to point out the chief characters in which it differs from *Sarcidiornis melanonotus* and approaches *Chenalopex aegyptiacus*.

The *skull* (Plate IX. fig. 1). Of the skull of the type specimen the whole of the cranial region together with fragments of the facial portion are preserved. Comparison with the crania of *Sarcidiornis* and *Chenalopex* shows at once that the fossil differs widely from the former and approaches the latter in a number of structural points, the chief of which are : (1) the shortness of the postorbital part of the cranium ; (2) the narrowness of



Butler, Arthur G. 1897. "On Changes of Plumage in some of the Typical Weaver-birds." *Ibis* 3(3), 359–361.

<https://doi.org/10.1111/j.1474-919x.1897.tb03282.x>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/54800>

**DOI:** <https://doi.org/10.1111/j.1474-919x.1897.tb03282.x>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/382267>

#### **Holding Institution**

Smithsonian Libraries and Archives

#### **Sponsored by**

Smithsonian

#### **Copyright & Reuse**

Copyright Status: Public domain. The BHL considers that this work is no longer under copyright protection.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.