

ON THE SOUTH AFRICAN DINOSAUR (*HORTALOTARSUS*).

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(Read June 28, 1905.)

Plate III.

The genus *Hortalotarsus* was founded by Seeley * in 1894 on the remains of a small Dinosaur discovered at Barkly East, Cape Colony. Though most of the skeleton was apparently in the rock when the fossil was first discovered, it was destroyed by a charge of gunpowder, and all that now remains is the portion of the right limb described by Seeley. A very good description is given of the remains, but the figures are not very good. In Fig. 2 the fibula is represented as a very slender rod except at its lower end, and one would be led to believe by the manner of shading that both the fibula and the tibia are completely exposed. In reality much of the fibula and a fair proportion of the tibia are hidden by matrix. The tibiale and fibulare are much too small. Fig. 3 is rather inaccurately drawn. In the plate accompanying this paper I have given a slightly restored view of the tibia as seen from the inner side with the tibiale in position (Fig. 5). A restored outline of the proximal end of the tibia shows that it agrees closely with the tibia of *Massospondylus* as figured by Seeley. Fig. 7 shows the posterior aspect of the lower end of the tibia and fibula with the tibiale and fibulare, and Fig. 8 the lower aspect of the same bones. Though the tibiale and fibulare are not ankylosed to the tibia and fibula they fit closely to them, and there has probably been very little, if any, movement between them. The small bone which Seeley regards as the intermedium is quite rudimentary, but is probably rightly regarded as the intermedium. The fourth toe is fairly complete, and shows very well the structure of the proximal phalanges. The first phalanx has the proximal surface slightly concave for the head of the metatarsal, and no doubt had some

* H. G. Seeley, "On *Hortalotarsus skirtopodus*, a new Saurischian Fossil from Barkly East, Cape Colony." Ann. Mag. Nat. Hist. 14. 1894, p. 411-419.

degree of lateral movement. The more distal phalanges have saddle articulations.

The following are some of the principal measurements:—

Length of tibia	199 mm.
Antero-posterior measurement of proximal end of tibia.....	56
Width of distal end of tibia	39
Length of 3rd metatarsal	100
,, 4th ,, 	87
,, 1st phalanx of 4th toe.....	28
,, 2nd ,, ,, 	22
,, 3rd ,, ,, 	18
,, 5th metatarsal	42

There has recently been presented to the South African Museum, Capetown, by Mr. Alex. Moir, a block of sandstone from Ladybrand, O.R.C., containing the remains of a considerable part of the skeleton of an immature *Hortalotarsus*. The bones to a large extent have been dissolved out leaving casts, or where preserved they are in most cases too friable to be satisfactorily developed. The bones are at the ends imperfectly ossified, the animal being evidently not quite mature. When allowance is made for this, however, the agreement of the bones with those of *Hortalotarsus skirtopodus* is so close as to leave no doubt that this specimen belongs to the same genus, and very little doubt that it is the same species. The following parts of the skeleton have been displayed: Eleven dorsal and six caudal vertebrae, a few ribs and some abdominal ribs, part of the right scapula, both ilia, the right being fairly well preserved, the right pubis and ischium, the right femur and fibula, the tarsus, and the perfect right pes.

The dorsal vertebrae are only represented by imperfect casts, and those preserved are fairly similar. The best preserved is the 4th last. It is a little longer than high. The centrum is 33.5 mm. in length, and considerably broader than high. When viewed from the side the lower border is seen to be moderately concave. The arch is not yet quite ankylosed to the body. The spine is comparatively low and rather long antero-posteriorly. The zygapophyses are long, and appear to have been largely articulated with one another. From the anterior to the posterior zygapophysis the vertebra measures 48 mm. There are indications of a transverse process in the position shown in the Fig.

The caudal vertebrae are much shorter and a little higher than the dorsals. Well-developed chevrons are found attached.

Only a few portions of true ribs are seen, but there are a number of fairly well-preserved abdominal ribs. It seems probable that the plastron has consisted of a median series with an outer series on either side.

The right ilium is perfect except a portion of the crest. In contour it agrees pretty closely with the ilium of *Palaeosaurus*. There are well-developed pubic and ischiac processes, but they have not been fully displayed owing to the nature of the specimen. The crest as preserved measures 130 mm. This, however, is probably the full length. The anterior border of the ilium is more open than in *Anchisaurus*. The contour of the posterior border also differs a little from that of *Anchisaurus*.

The pubis and ischium of the right side are fairly well preserved, but considerably crushed and somewhat displaced. They are figured in their relative positions to each other as found, but not exactly in their relative positions to the ilium.

The pubis approaches rather more nearly the Zancodont type than the type of *Anchisaurus*. The distal extremity is moderately thick but evidently flattened. The proximal end has an inferior notch as in *Zancodon* and *Massospondylus*, but the bone is less expanded below the notch than in these genera.

The ischium is a moderately stout bone, probably not unlike that of *Massospondylus*, but it is too much crushed to enable one to make a careful comparison.

The femur is fairly well preserved and its anterior surface has been displayed. The upper and lower ends are imperfectly ossified, but the bone seems to have resembled fairly closely the femur of *Anchisaurus*. The lateral trochanter is situated above the point of union of the upper and middle thirds of the bone; in this resembling *Anchisaurus* but differing from *Massospondylus* or *Zancodon*. The proximal trochanter is very slightly developed.

The fibula is comparatively slender, but stouter proximally than distally.

The tibia has not been displayed as the foot is folded on it.

The foot is strikingly like that of *Anchisaurus*. The bones are very badly preserved, but the casts show pretty satisfactorily most of the details.

The tarsus consists of two proximal elements—the tibiale and fibulare. The intermedium was probably not fully ossified in this immature specimen. The distal row of the tarsus is represented by two bones, apparently tarsalia 3 and 4.

The metatarsals, though rather more slender, are essentially similar to those of *Anchisaurus*. Proximally they overlap in like

fashion. Distally the ends are less expanded, and the middle metatarsal is relatively a little longer than in *Anchisaurus*.

The digits are proportioned almost exactly as in the American genus. The ungual phalanx is more developed in *Hortalotarsus*, but in nearly every other respect the resemblance is so close that had the foot alone been discovered it would have been impossible to have distinguished the specimens generically.

The following are some of the principal measurements:—

Length of ilium	about	130 mm.
,, femur	,	200
Breadth of femur at lower end		43
Length of fibula.....		180
,, 1st metatarsal.....	about	55
,, 1st phalanx of 1st digit		28
,, 2nd ,, ,, 		36
,, 2nd metatarsal	about	80
,, 1st phalanx of 2nd digit.....		32
,, 2nd ,, ,, 		18
,, 3rd ,, ,, 		33
,, 3rd metatarsal	about	90
,, 1st phalanx of 3rd digit		30
,, 2nd ,, ,, 		18
,, 3rd ,, ,, 		15
,, 4th ,, ,, 		30
,, 4th metatarsal	about	82
,, 1st phalanx of 4th digit		25
,, 2nd ,, ,, 		16
,, 3rd ,, ,, 		14
,, 4th ,, ,, 		14
,, 5th ,, ,, 	about	21
,, 5th metatarsal		45

The vertebræ and most of the bones of the skeleton are hollow as in *Anchisaurus*, and the agreement otherwise is so close that there seems little doubt that *Hortalotarsus* must be placed in the family Anchisauridæ of Marsh,

Plate references will be found overleaf,
facing the plate.

REFERENCES TO PLATE III.

FIG.

1. Right ilium, pubis, and ischium of *Hortalotarsus skirtopodus*, $\times 31$.
2. Right femur of *H. skirtopodus* (anterior view), $\times 37$.
3. Right hind foot of *H. skirtopodus* (under view), $\times 33$.
4. Lower dorsal vertebra (probably 4th last) of *H. skirtopodus*, $\times 9$.
5. Right tibia and tibiale of *H. skirtopodus* (type), $\times 3$.
6. Proximal end of right tibia of *H. skirtopodus* (type), $\times 36$.
7. Tibiale and fibulare with lower ends of tibia and fibula (posterior), $\times 33$.
8. " " " " " (inferior), $\times 33$
9. 1st, 2nd, and 3rd phalanges of the type specimen (inferior), $\times 65$.
10. " " " " " (side), $\times 64$.



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Broom, Robert. 1905. "ON THE SOUTH AFRICAN DINOSAUR (HORTALOTARSUS)." *Transactions of the South African Philosophical Society* 16, 201–206. <https://doi.org/10.1080/21560382.1905.9526056>.

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