

On the Dermal Covering of *Hesperornis*.

BY S. W. WILLISTON

(With Plate II.)

A specimen of *Hesperornis*, collected in western Kansas the past year by Mr. H. T. Martin and now in the University Museum, is of especial interest from the information it affords of the dermal covering of this Cretaceous toothed bird.

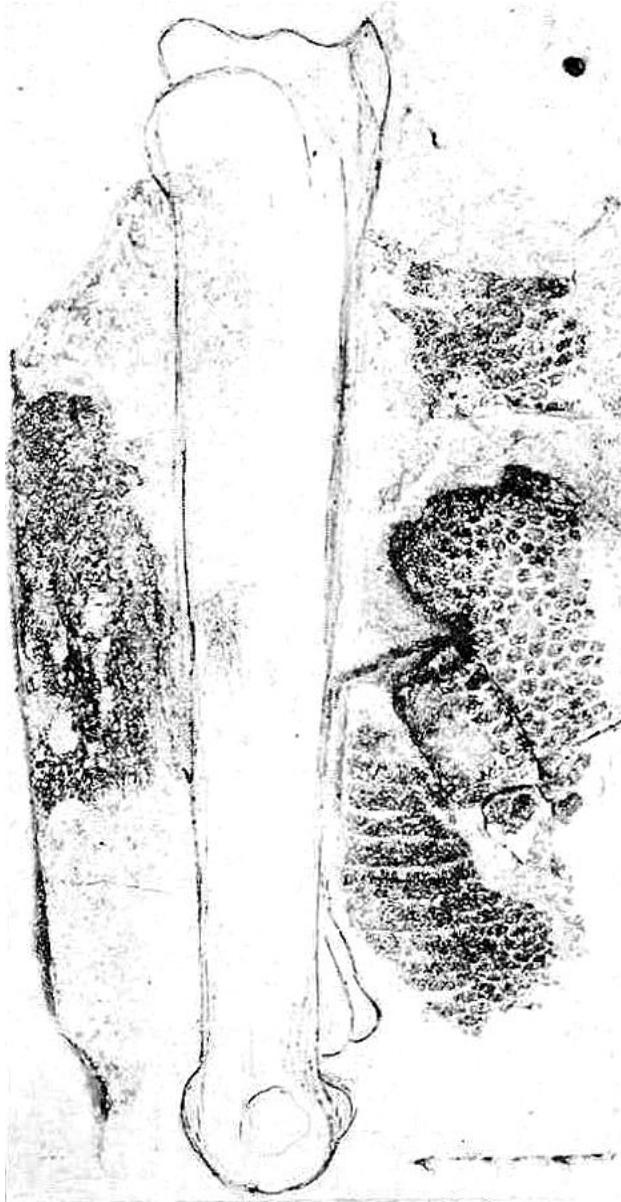
The specimen, which is in excellent preservation, lies upon a chalk slab, with the head doubled partially under the pelvis. Some six or eight vertebrae, together with the humeri and coracoids and many of the ribs are wanting; otherwise the specimen seems perfect. The size is distinctly less than that of *H. regalis*, and it does not seem to be due to immaturity. Possibly the species is identical with *H. gracilis*, which has been only imperfectly described.

The photographic illustration given in Plate II was taken from the fragment removed from the slab over the right tarso-metatarsal, the surface of the slab itself being less clearly, though more fully marked. I have sketched in the bone to show the relative size and position

The podotheca is seen to be scutellate in front. The structure is shown so clearly in the photography that I need not enter into a fuller description. The scutes are all smooth, not imbricated, and distinctly separated from each other. They are a little longer from side to side below, though not much. I count twenty-six on the slab, and to the back part of the bone, while impressions of the feathers will be seen on the opposite side.

These feathers were evidently long, reaching nearly to the phalangeal articulation, and are clearly semiplumulaceous in character, the pennaceous shaft of considerable size, the vanes long and wavy. The shaft of one feather is seen in the illustration lying close to the outline of the bone, and is of considerable size. I doubt not that the feathers throughout were of this character, or wholly plumulaceous. I find distinct impressions of the wavy vanes at the back of the head and elsewhere, but in no case is there the impression of a true feather, as I think would surely be the case had the bird possessed them.

This plumulaceous character of the plumage is not unexpected. Although Marsh nowhere mentions the plumage in his work, I know that he personally had the opinion that it was of a downy character. That the feathers of the tarsus should extend to the feet in a wading bird seems surprising, but there can be no other interpretation of the specimen.



Dermal Covering of Hesperornis
Enlarged about one-fourth