

**Article XII.—ORNITHOLESTES HERMANNI, A NEW
COMPSOGNATHOID DINOSAUR FROM THE
UPPER JURASSIC.**

By HENRY FAIRFIELD OSBORN.

The type skeleton (Amer. Mus. Coll. No. 619) of this remarkable animal was discovered at Bone Cabin Quarry, near Medicine Bow, Wyoming, by the American Museum Expedition of 1900. It was removed and transported to the Museum with the greatest care, and worked out, restored, and mounted under the direction of the head preparator, Mr. Adam Hermann, in recognition of whose many services to vertebrate palæontology the species is named.

The material embraces: the skull; 45 vertebræ, including 3 cervicals, 11 dorsals, a complete sacrum, 27 caudals; the complete pelvic girdle; representative portions of both fore and hind limbs,—all belonging to one individual; our knowledge of the manus is chiefly derived from another specimen (Amer. Mus. Coll. No. 587).

PRINCIPAL CHARACTERS.

The entire length of the skull and vertebral column as restored is 2.22 m. (7 ft. 3½ in.); the height at the pelvis is .56 m. (22 in.).

The vertebral formula, except in the sacrum, is still undetermined.

The most distinctive feature is the narrowing of the manus and the great elongation (.172 m.) of the metapodials and phalanges of the second digit, suggesting the rapid grasping power of agile and delicate prey. This feature, combined with the prehensile character of the somewhat enlarged anterior teeth, the extreme lightness of the skeleton, the cursorial structure of the hind limbs, the balancing power of the tail, suggest the hypothesis that the animal may have been adapted to the pursuit of the Jurassic birds; in allusion to this supposed habit the genus may be named *Ornitholestes*, or 'bird robber,' as suggested by Dr. Theodore Gill.

A possible objection to this hypothesis is that the teeth, while distinctively prehensile, are not so serrate or trenchant as in *Cælurus*. They are, however, quite as sharp as in the varanoid and other lizards which are known to capture and feed upon small birds.

The premaxillary contains 4 teeth, the most anterior of which is the largest tooth in the upper jaw. The maxillary retains 10 teeth, of which the fifth is the largest. In the dentary are 12 teeth. In both jaws the teeth occupy a rather short space, a little more than one third the entire length of the skull, and gradually decrease in size posteriorly. The premaxillary teeth are slightly worn on the posterior surface. There are two antorbital openings, a smaller within the maxillary, and a larger bounded posteriorly by the coalesced lachrymal and jugal. The orbits are very large, bounded posteriorly by the united postorbito-frontal, which connects by a slender bar with the squamosal. The depression of the quadrate extends the latero-temporal fenestra vertically. The jaw is relatively long and slender, with sessile coronoid process; the sutures have not been determined. The cervicals are gently opisthocœlous, the dorsals are amphicoœlous, the posterior face being slightly more concave than the anterior; the caudals are gently amphicoœlous. The neural arch only of the supposed fifth cervical is preserved. The supposed tenth and eleventh cervicals are moderately elongate, slightly opisthocœlous, with separate attachments for the capitulum on the anterior portion of the centrum, and for the tuberculum on the broad diapophysial expansion of the neural arch; the zygapophyses are large and the neuro-central suture is faintly indicated. In the supposed second dorsal or thirteenth presacral the capitulum is still borne on the centrum; behind the capitulum is a pit (paracœle), a feature also observed in the supposed fifth dorsal; the diapophysis is narrow; the head of the rib gradually rises to the junction between the centrum and neural arch, as in other dinosaurs. The four sacrals are firmly coalesced. The sacral ribs are still suturally distinct and attached chiefly at the sides of the centra, although the third sacral rib partially overlaps the

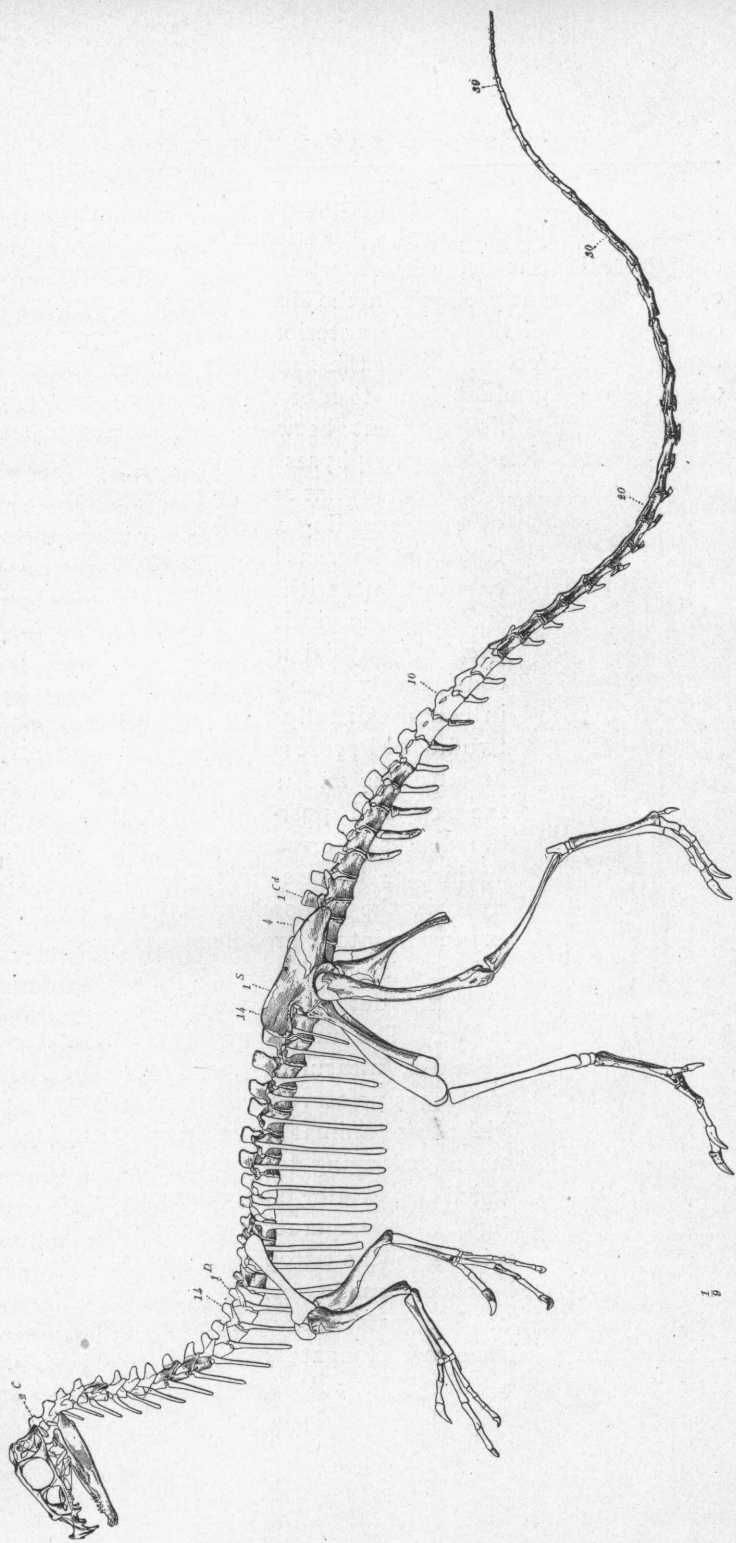


Fig. 1.—*Ornitholestes hermanni*. Type. Am. Mus. No. 619. $\times \frac{1}{2}$. The unshaded areas indicate the portions restored.

posterior portion of the second centrum. The forked chevrons apparently begin at the posterior side of the third caudal, the chevrons being intervertebral; the hæmapophysial canal is apparently closed in the first chevron. The firmly coalesced caudal ribs of the anterior caudals are broad and backwardly directed. With the supposed thirteenth caudal there begins a gradual elongation of the zygapophyses, which reaches a great development between the sixteenth and twenty-fourth, the prezygapophyses being greatly elongated and partly encircling the somewhat smaller postzygapophyses of the preceding vertebræ. At the same time the chevrons become depressed, bifurcate in front, with a deep posterior keel.

The pelvic girdle is distinguished by the deep symphysial union of the pubes, the considerably more slender ischia, which are in contact distally and proximally exhibit two hooked processes; the ilium has a very broad pubic and narrow ischial peduncle, the pre- and post-acetabular portions of the depressed crest are subequal. A very distinctive feature of the postacetabular crest is the hollowing out and inferior expansion into a broad concave plate.

In the fore limb there was some question as to the determination of the ulna and radius. The humerus is longer than these elements, measuring .127 m. The few phalanges preserved enable us to associate with this animal a relatively complete manus belonging to another individual, in which the striking elongation of the second digit, the comparative slenderness of the third and the atrophy of the fourth can be clearly made out. The palmar view of

the manus somewhat suggests that of the two-toed sloth. The terminal phalanges are elongate, recurved, and laterally compressed, with a distinct lateral claw-groove. The some-



Fig. 2.—*Ornitholestes hermanni*. Amer. Mus. No. 587. Palmar view of left manus. $\times \frac{1}{2}$.

what crushed femur (.207 m.) is much longer than the humerus and somewhat longer than the tibia (.159 m.). The pes has the typical tridactyl arrangement, the phalanges being more rounded and less decidedly curved than those of the manus; the median metatarsal measures .117 m.

GENERIC AND SPECIFIC CHARACTERS.

Skull with two antorbital openings; four premaxillary and ten maxillary teeth, non-serrate; twelve dentary teeth. Four coalesced sacrals. Mid- and posterior-caudal vertebræ with greatly elongate zygapophyses; manus narrow with greatly elongate digits, second digit of manus enlarged, fourth digit vestigial, fifth digit wanting.

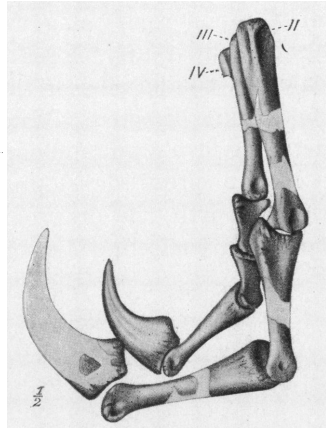


Fig. 3.—*Ornitholestes hermanni*.
Amer. Mus. No. 587. $\times \frac{1}{4}$. Left manus.

AFFINITIES.

The affinities of the animal are evidently with the light-limbed, slender-jawed group of Theropoda, for which the subordinal name Compsognatha Huxley will probably be found applicable, as distinguished from the large Megalosauria. The exceptional rod-like elongation of the pre- and postzygapophyses in the mid- and posterior caudals strongly suggests affinity to *Ornithomimus* of the Upper Cretaceous. *Ornitholestes*, however, is a much less specialized form, lacking the peculiar compression of metatarsal III which characterizes the Cretaceous genus. It is distinguished from the contemporary *Caelurus* by the non-serration of the teeth, by the relatively short cervical vertebræ, by the less extreme hollowness of all the vertebræ. From the contemporary *Hallopus* it is distinguished by the less elongate character of the metatarsals. Comparison with smaller foreign Wealden

dinosaurs also serves to show its distinctness. The sacrum differs from that of *Aristosuchus* in the possession of four primary sacral ribs. The elongation of the second digit of the manus resembles that in *Archæopteryx*, but was evidently for a different purpose.