ART. XXXI.—*Notice of some New Tertiary and Post-Tertiary Birds*; by O. C. MARSH.

THE discoveries of the last few years have shown conclusively that remains of Birds, so long unrepresented among the fossils of this country, are occasionally found well preserved in some of our deposits of Cretaceous age.* Although still rare, they are more numerous in the Tertiary formation; and our Post-pliocene beds, doubtless rich in such remains, are beginning to yield many interesting forms of this class. The present paper contains preliminary descriptions of several species of birds, which were found by the Yale party during their explorations of last year in the lower Tertiary strata of Wyoming. To these are added a few species of interest from the Post-pliocene of the Atlantic coast.

Aletornis nobilis, gen. et sp. nov.

A large wading bird, nearly equal to a Flamingo in size, is indicated in our collections by the distal end of a tarso-metatarsal bone, and by a few other fragmentary remains. The former specimen resembles in its main features the corresponding bone in the Cranes, but the inner or second metatarsal element is more produced distally, and its articular face has the posterior tubercle less developed. The tibia, also, has the trochlear groove on the posterior face of its distal extremity much shallower. The distal articular ends of the second and fourth metatarsals are nearly equal in size, and the foramen between the third and fourth is large.

Measurements.

Transverse diameter of distal end of tarso-metatarsal,	16· mm·
Antero-posterior diameter of distal end of second metatarsal, 9·3	
Transverse diameter,	4·8
Antero-posterior diameter of distal end of fourth metatarsal, 11·	
Transverse diameter,	5·

The known remains of this species were found in September last, at Grizzly Buttes, Wyoming, by Mr. O. Harger of the Yale party. The geological horizon was lower Miocene, or Eocene.

Aletornis pernix, sp. nov.

A smaller species, which may for the present be referred to the same genus, is represented also by some fragmentary specimens, found together and evidently belonging to one skeleton. The most important of these remains is the distal end of a

* This Journal, vol. xlix, p. 205, March, 1870, and vol. iii, p. 360, May, 1872.

tibia, which differs from that of the preceding species, aside from its smaller size, in having a deeper groove on the posterior trochlear surface. This tibia is, moreover, peculiar in its short antero-posterior diameter between the condyles, which are narrow in front, and divergent. The opening below the supra-tendinal bridge is transversely oval in outline, and looks forward, and downward. The outer condyle has its margin semi-circular below, and its external face is excavated, especially near the anterior border. The species was about as large as a Scarlet ibis.

Measurements.

Antero-posterior diameter of outer condyle at distal end of tibia,	9. mm.
Transverse diameter in front,	3.
Vertical diameter in front,	8.
Width of trochlear groove on posterior face of tibia,	5.
Width of opening below supra-tendinal bridge,	2.

The specimens on which this species is based were found by the writer, last autumn, near Henry's Fork, Wyoming. The geological position of this locality is essentially the same as that at Grizzly Buttes.

Aletornis venustus, sp. nov.

Another species of wading birds, apparently belonging to the genus *Aletornis*, is indicated by the distal part of a tibia in perfect preservation. This fossil has the condyles less expanded in front than in the specimen last described, and the trochlear groove on the posterior face is not so deeply excavated. The supra-tendinal bridge is transverse, of medium width, and almost entirely inside the central line. The opening below the bridge is a broad transverse oval, and looks forward, downward, and slightly inward. The tendinal canal is broad, and deepest on the inner side: its floor is nearly flat. The outer condyle has its margin nearly semi-circular below, and its external face regularly concave. The inner condyle has a very short antero-posterior diameter. The trochlear groove is deepest near its external margin, where there is a faint narrow channel. This specimen indicates a bird about the size of a Curlew.

Measurements.

Transverse diameter of distal end of tibia in front,	7.3 mm.
Transverse diameter below,	6.2
Width of trochlear groove on posterior face,	5.
Antero-posterior diameter of outer condyle,	7.
Antero-posterior diameter of inner condyle,	7.
Width of supra-tendinal bridge,	2.3
Width of opening below bridge,	1.9

This unique fossil was found by Mr. G. M. Keasbey, of the Yale party, in September last, near Henry's Fork, Wyoming.

Aletornis gracilis, sp. nov.

A small aquatic bird, about the size of a Woodcock, is represented in our Wyoming collections by the proximal end of a humerus in excellent preservation, and probably by some less important remains. The species thus indicated may be placed provisionally in the genus *Aletornis*, until the discovery of additional material determines more closely its affinities. The portion of the humerus preserved resembles in its general characters the corresponding bone of the American woodcock (*Philohela minor* Gray), but differs from it in having the head broader vertically, and less prominently convex, and the shaft below the head subtrilateral in transverse section. Just beneath the head, on the palmar side, the surface is concave.

Measurements.

Greatest diameter of proximal end of humerus,	11.4 mm.
Greatest diameter of articular head,	8.4
Least diameter,	3.6
Least diameter of shaft below head,	3.6

The specimen here described was found by Mr. H. D. Ziegler, in September last, near Henry's Fork, Wyoming.

Aletornis bellus, sp. nov.

A diminutive species, about half the bulk of that last described, and which may for the present be referred to the same genus, is indicated by the distal end of a tarso-metatarsal, and probably by a few other isolated and less characteristic specimens. The tarso-metatarsal is similar in its essential features to the same bone in the Killdeer plover (*Egialitis vociferus* Cass.), and about the same size. The outer, or fourth, metatarsal element, however, is more produced distally, and its extremity is obliquely compressed. The trochlear groove in the distal end of the third metatarsal is not quite in the middle, the outer articular surface being slightly the larger.

Measurements.

Transverse diameter (approximate) of distal end of tarso-metatarsal,	4. mm.
Antero-posterior diameter of distal end of third metatarsal,	2.
Transverse diameter,	2.
Antero-posterior diameter of fourth metatarsal at distal end,	3.
Transverse diameter of shaft through lower foramen,	3.1

The remains at present representing this species were found by the writer, at Grizzly Buttes, Wyoming, in September last.

Uintornis lucaris, gen. et sp. nov.

A small bird evidently belonging to the Scansores, and probably related to the Woodpeckers, is represented by the distal end of a tarso-metatarsal in perfect condition, and by some other fragmentary remains of different individuals. These specimens indicate a bird about as large as the Golden-winged woodpecker (*Colaptes auratus* Sw.). The tarso-metatarsal bone has the second and fourth metatarsal elements divergent, and of nearly the same length distally. The fourth is the larger, and is turned obliquely inward and backward, its outer half being especially produced. The end of the third metatarsal is largest of all, and has its extremity cleft, somewhat unequally, by a deep groove. The shaft above the union of the three elements is broad, and nearly flat in front. On the posterior side it is somewhat concave. The foramen between the third and fourth metatarsals is small, and the groove above it quite narrow.

Measurements.

Transverse diameter of tarso-metatarsal at distal end,....	4·8 mm.
Antero-posterior diameter of third metatarsal,.....	2·
Transverse diameter,	1·7
Antero-posterior diameter of fourth metatarsal,.....	3·
Width of shaft through lower foramen,.....	3·5

The type specimen of this species was found by the writer, last autumn, near Henry's Fork, Wyoming.

Catarractes affinis, sp. nov.

A new species of *Catarractes*, somewhat larger than *C. lomvia* Linn., may be based upon a right humerus, which is entire, and in an excellent state of preservation. This specimen was referred to by the writer in the description of *Catarractes antiquus*, from the Tertiary of North Carolina,* and the latter is evidently a nearly related species. The present humerus, however, indicates a rather smaller bird, and differs from the corresponding bone of that species in several particulars. The shaft on the anconal side below the articular head is roof-shaped, instead of being rounded, and the impression for the insertion of the second pectoral muscle is broader, and has its margin less elevated. At the distal end, also, the grooves for the tendons of the triceps muscle are of unequal size in the present species, the one on the ulnar side being much the larger.

Measurements.

Length of entire humerus,.....	95· mm.
Greatest diameter of proximal end,.....	20·3
Transverse diameter of distal end,....	10·

* This Journal, vol. xlix, p. 213, March, 1870.

Greatest diameter of articular head,.....	14· mm.
Least diameter,	7·2
Greatest diameter of shaft at middle,.....	7·
Least diameter,	4·2

This interesting specimen, which belongs to the Academy of Natural Sciences in Philadelphia, was found by Dr. A. C. Hamlin, in the Post-pliocene clay near Bangor, Maine.

Meleagris altus.

Meleagris altus Marsh. Proceedings Philadelphia Academy, 1870, p. 11, and American Naturalist, vol. iv, p. 317. (*Meleagris superbus* Cope, Synopsis Extinct Batrachia, etc., p. 239.)

This species, which was based on portions of four skeletons, resembles most nearly in size and general features the common wild Turkey of North America (*Meleagris gallopavo* Linn.). It may readily be distinguished, however, by its more slender proportions, and especially by the more elongated posterior limbs. The more important characters of the species were given by the writer at a meeting of the Philadelphia Academy (March 8th, 1870), when the discovery was announced, but through an oversight the communication did not appear in full in the Proceedings of the Society.

The humerus in this species apparently differs from that of the wild turkey in being proportionally longer, and in having the shaft straighter, or less sigmoid. The coracoid is elongated, and its lower end expanded transversely. Its pneumatic foramen is large, but not more so than is often seen in the wild turkey. The femur and tibia are both longer than in the latter species, the tibia especially so. The tarso-metatarsal is particularly slender and elongated. The hypotarsus, or calcaneal process, of this bone has two canals for the passage of tendons, but in the specimens preserved, although belonging to fully grown birds, there is no osseous bridge over the inner canal, as in the adult turkey and other gallinaceous birds. The bridge, if it existed in an ossified condition, was less massive than in the wild turkey; otherwise some portions of it would have been preserved in the present specimens. The calcar, or spur, of the male in this species was placed lower on the tarso-metatarsal than in the turkey.

Measurements.

Length (approximate) of humerus,.....	159·5 mm.
Greatest diameter of proximal end,.....	42·
Greatest diameter of distal end,.....	33·
Length of coracoid,.....	122·
Transverse diameter of lower end,.....	37·5
Length of femur,.....	150·
Transverse diameter of distal end,.....	31·

Length of tibia,.....	243· mm.
Transverse diameter of distal end,.....	18·
Length of tarso-metatarsal,.....	176·5
Transverse diameter of proximal end,.....	23·
Distance from proximal end to spur,.....	110·

The specimens here described were found in the Post-pliocene deposits of Monmouth County, New Jersey.

Meleagris celer, sp. nov.

A much smaller species of the same genus is represented by two tibiae and the proximal half of a tarso-metatarsal, which were found together, and probably belonged to the same individual. The tibia is slender, and has the shaft less flattened from before backward than in the last species. The distal half of the shaft has its anterior face more distinctly polygonal. From the head of the tibia, a sharp ridge descends a short distance on the posterior face, where it is met by an external ridge of similar length. The tarso-metatarsal has the external ridge of the proximal end more prominent, and the posterior tendinal crest more ossified than in the larger species. The remains preserved indicate a bird about half the bulk of *M. altus*.

Measurements.

Length of tibia,.....	183· mm.
Greatest diameter of proximal end,.....	34·
Transverse diameter of shaft at middle,.....	9·6
Transverse diameter of distal end,.....	16·5
Antero-posterior diameter of outer condyle.....	16·
Transverse diameter of proximal end of tarso-metatarsal,	19·
Antero-posterior diameter,.....	14·

The known specimens of the present species are from the Post-pliocene of Monmouth County, New Jersey.

Grus proavus, sp. nov.

An extinct species of Crane, somewhat smaller than *Grus Canadensis* Temm., is indicated in the collections of the Yale Museum by a nearly perfect sternum, a femur, and a few other less important remains, which are probably all parts of the same skeleton. The sternum apparently resembles most nearly that of the Sand-hill Crane, but differs essentially from it in not having the grooves for the coracoids meet on the median line. They are in fact separated from each other by a space nearly equal to the width of the adjacent groove. The sternum is, moreover, less constricted near the middle than in *C. Canadensis*. The femur differs from the corresponding bone in that species mainly in having the shaft less curved: in other respects the resemblance is close.

Measurements.

Width of sternum between outer ends of coracoid grooves,	45·mm·
Width of sternum at middle,.....	39·
Distance between coracoid grooves,.....	5·
Length (approximate) of femur,.....	126·
Transverse diameter of shaft at middle,.....	12·5
Transverse diameter of distal end,.....	26·

The remains on which this species is established are likewise from the Post-pliocene deposits of Monmouth County, New Jersey.

Yale College, New Haven, August 28th, 1872.