

their separate bones cannot be distinguished from those of birds. Professor Marsh, who has brought these interesting forms to light, regards them as having been in some cases probably arboreal in habit, with possibly at first no more essential difference from the birds of their time than the absence of feathers.⁵⁴

The oldest known bird, *Archæopteryx* (Fig. 402), comes from the Solenhofen Limestone in the Upper Jurassic series—a rock which has been especially prolific in the fauna of the Jurassic period. This interesting organism, which was rather smaller than a crow, united some of the characters of reptiles with those of a true bird. Thus it possessed biconcave vertebræ, a well-ossified broad sternum, and a long lizard-like tail, each vertebra of which bore a pair of quill-feathers. The three wing-fingers were all free and each ended in a claw, and there appear to have been four toes to each foot, as in most of our common birds. The jaws carried true teeth, as in the toothed birds found in the Cretaceous rocks of Kansas.⁵⁵ Remains of birds have also been obtained from the Upper Jurassic rocks (*Atlantosaurus*-beds) of Wyoming Territory in Western America. The best preserved of these has been named by Marsh *Laopteryx*, which he believes to have possessed teeth and biconcave vertebræ.⁵⁶

The most highly organized animals of which the remains have been discovered in the Jurassic system are small mar-

⁵⁴ For Prof. Marsh's descriptions of Jurassic Deinosours see *Amer. Journ. Sci.* xvi. 1878, p. 411; xvii. 1879, p. 86; xviii. 1880; xix. 1880, p. 253; xxi. 1881, p. 417; xxii. 1881, p. 340; xxiii. 1882, p. 81; xxvi. 1883, p. 81; xxvii. 1884, p. 161; xxxiv. 1887, p. 413; xxxvii. 1889, pp. 323, 331; xxxix. 1890, p. 415; xlii. 1891, p. 179; xliv. 1892, p. 347.

⁵⁵ See Marsh, *Amer. Journ. Sci.* Nov. 1881, p. 337; *Geol. Mag.* 1881, p. 485; Carl Vogt, *Rev. Sci.* Sept. 1879; Seeley, *Geol. Mag.* 1881, pp. 300, 454; W. Dames, *Sitzb. Berlin Akad.* xxxviii. 1882, p. 817; *Geol. Mag.* 1882, p. 566; 1884, p. 418.

⁵⁶ *Amer. Journ. Sci.* xxi. 1881, p. 341; also xxii. p. 337.