INCREASING EVIDENCE FOR AN ARBOREAL ORIGIN OF DINOSAUR-AVIAN FLIGHT, AND FOR LOSSES OF FLIGHT IN POST-ÜRVOGEL DINOSAURS

PAUL, Gregory S., 3109 N. Calvert St., Baltimore MD, 21218 The hypothesis that birds descended from climbing predatory dinosaurs predicts that the theropods closest to Archaeopteryx should have been well adapted for grasping branches rather than specialized for running. The most ürvogel-like dinosaurs were Sinornithosaurus and Microraptor. Both had numerous arboreal adaptations, the foot of Microraptor was better proportioned for grasping branches than that of Archaeopteryx, Adult Microraptor were smaller than adult Archaeopteryx, disproving claims that no dinosaur was small enough to be an arboreal glider. The fossil record is beginning to favor a predominantly arboreal over a cursorial origin for avian flight.

The hypotheses that the most bird-like dinosaurs were secondarily flightless, and closer to modern birds than the urvogel, predict that the former should have reduced bird-like and flight related characters as they evolved in the Cretaceous. The waisted teeth, distally elongated toes and abbreviated tail of the basal sickle claws *Sinornithosaurus* and/or *Microraptor* were more bird-like than those of more derived dromaeosaurs. The short tail of *Microraptor* was also a flight character lost in later sickle claws. Basal *Beipiaosaurus* was more bird-like than more derived therizinosaurs in the carpals and other respects. With short arms bearing symmetrical feathers, large sternal plates, ossified sternal ribs and uncinates, and a very short tail, *Caudipteryx* had the characteristics predicted in a dino-bird that descended from fliers more devaced than *Archaeopteryx*, and entirely lacked the attributes expected in a protoflier. The Cretaceous may have seen a radiation of neoflightless, post-ürvogeldinosaurs.