

strong rudder-feathers in twos, so that the whole tail appears regularly feathered. This same formation of the tail part of the vertebral column occurs transiently in the embryos of other birds, so that the tail of the *Archæopteryx* evidently represents the original form of bird-tail inherited from reptiles. Large numbers of similar birds with lizard-tails probably lived during the middle of the secondary period; accident has as yet, however, only revealed this one fossil.

The *Fan-tailed*, or *Keel-breasted birds* (Carinatae), which form the second sub-class, comprise all living Birds of the present day, with the exception of those of the ostrich kind, or Ratitae. They probably developed out of Feather-tailed Birds during the first half of the secondary period, namely, in the Jura or chalk period, by the hinder tail vertebrae growing together, and by the tail becoming shortened. Only very few remains of them are known from the secondary period, and these moreover only out of the last section of it, namely, from the Chalk. These remains belong to a swimming bird of the albatross species, and a wading bird like a snipe. All the other fossil remains of birds as yet known have been found in the tertiary strata.

The *Bushy-tailed*, or *Ostrich-like Birds* (Ratitae), also called *Running Birds* (Cursores), the third and last sub-class, is now represented only by a few living species, by the African ostrich with two toes, the American and Australian ostrich with three toes, by the Indian cassowary and the four-toed kiwi, or Apteryx, in New Zealand. The extinct giant birds of Madagascar (*Æpyornis*) and the New Zealand *Dinornis*, which were much larger than the