

A Phororhacoid bird from the Eocene of Africa

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Abstract The bird fossil record is globally scarce in Africa. The early Tertiary evolution of terrestrial birds is virtually unknown in that continent. Here, we report on a femur of a large terrestrial new genus discovered from the early or early middle Eocene (between ~52 and 46 Ma) of south-western Algeria. This femur shows all the morphological features of the Phororhacoidea, the so-called Terror Birds. Most of the phororhacoids were indeed large, or even gigantic, flightless predators or scavengers with no close modern analogs. It is likely that this extinct group originated in South America, where they are known from the late Paleocene to the late Pleistocene (~59 to 0.01 Ma). The presence of a phororhacoid bird in Africa cannot be explained by a

vicariant mechanism because these birds first appeared in South America well after the onset of the mid-Cretaceous Gondwana break up (~100 million years old). Here, we propose two hypotheses to account for this occurrence, either an early dispersal of small members of this group, which were still able of a limited flight, or a transoceanic migration of flightless birds from South America to Africa during the Paleocene or earliest Eocene. Paleogeographic reconstructions of the South Atlantic Ocean suggest the existence of several islands of considerable size between South America and Africa during the early Tertiary, which could have helped a transatlantic dispersal of phororhacoids.

Keywords Aves · Eocene · Algeria · South America · Paleobiogeography · Transatlantic dispersal

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As yet, very little is known about the Paleogene avifaunas from Africa. The phosphatic deposits from the upper Paleocene and lower Eocene of Morocco have yielded almost exclusively marine birds, belonging to the extinct families Pelagornithidae (pseudo-toothed birds) and Prophaethontidae (early representatives of tropicbirds), and possibly to the recent family Phaethontidae (tropicbirds) (Bourdon et al. 2010 and references therein). A few remains of Pelagornithidae have also been found in the middle Eocene of Nigeria and Togo (Mayr 2009). Among the terrestrial birds, a primitive galliform has been recently reported from the middle Eocene of Namibia (Mourer-Chauviré et al. 2011), and a relatively diversified avifauna is known in the late Eocene or earliest Oligocene (Seiffert 2006) of the Jebel Qatrani Fm. of the Fayum in Egypt (Rasmussen et al. 1987; 2001). Because of this poor fossil record, it is hard to say anything significant about