

f2 “Terror” birds < *Phorusrhacos longissimus*, *Diatryma* >

... an outstanding characteristic of evolution is its opportunism. —George Gaylord Simpson, *Meaning of Evolution*, 1949.¹ —which Léo F. Laporte finds supportive of Dostoevsky’s aphorism: ‘If there is no God, everything is allowed.’²

Birds have been of modern appearance throughout the 65.5 million years of the Cenozoic. However, in addition to the variety with which we are familiar, were a group of flightless, flesh-eating, “terror” birds. The most spectacular and formidable of these raptors is a group ornithologists call phorusrhacoids. The first was described scientifically in 1887 by the Argentine paleontologist Florentino Ameghino (1854-1911). He named his fossil specimen (a large, toothless jaw) *Phorusrhacos longissimus* (which he thought was a mammal but corrected this to a bird when, beginning in 1891, he described other specimens).³ Until the Panama landbridge rose 2.5 million years ago admitting cats (jaguars), phorusrhacoids occupied the role of fleetfooted top carnivores in South America disappointing there any pretension of marsupial carnivores (extinct order Sparassodonta) none of which evolved adaptations for swift running. This was so through to the culminating Cenozoic dog- and bear-like borhyaenids and sabre-toothed catlike thylacosmilids, and from the middle Paleocene when the first medium-sized genera *Patene*, meaning ‘fox,’ had appeared. So phorusrhacoids triumphed during almost all of the age of mammals and without the greatest virtue or, possibly, the distraction in their evolutionary course of being a bird, which is the power of flight. Elsewhere, since the Eocene, mammalian carnivores evolved to effectively displace carnivorous ground birds from that top predatory ecological niche. In Australia between 26,000 and 25 million years ago roamed “thunder” birds such as *Bullockornis planei*.⁴ During the Eocene large, flightless, predatory birds were throughout most of the world. One of these was *Diatryma* (**Figure f2.1**).⁵

The “terror” birds are extinct now but extant are two small related species: the red-legged seriema (*Cariama cristata*), and the black-legged, or Burmeister’s, seriema (*Chunga burmeisteri*).⁶ These birds reach a height of 0.7 meters. They are light-bodied, long-legged and long-necked. Their wings are small relative to their body, and the birds resort to spurts of short-distance flight only when pressed. They are excellent runners, able to attain speeds in excess of 60 kilometers per hour. Like most carnivorous animals, seriemas are territorial. Their call has been described as eerie and piercing—a reminder that the past would not have had the hush of a Victorian museum. What cacophony rent the air in ancient times? □

Figure f2.1 *Diatryma gigantea* (subclass Neornithes, order Gruiformes) named by paleontologist E. D. Cope in 1876 from a New Mexico fossil, stood about 2.1 m (7 feet) tall, had a big head with a huge powerful beak, thick legs ending in clawed feet, and tiny wings.⁷ If these flightless birds were indeed carnivores (their upper beak lacks the hook that is usual for birds of prey) and not just nut eaters as has been suggested, they would have been the top predators in western Europe and North America, and likely preyed on slow moving early (Eocene) mammals. They were of a size to swallow terrier-sized *Hyracotherium* (*Eohippus*—shown in the drawing to comparative scale) in one throat-distending gulp.⁸ Allison V. Anders in 1988 noted that their “habitat, as deduced from depositional environments, was coastal lowlands and alluvial floodplains.”⁹ They went extinct about 2 million years ago. As ground nesters, they may have been driven to extinction by small, fast, carnivorous mammals, such as *Cladosictis*, eating its eggs and preying on its chicks. *Diatryma* first appeared in the early Eocene (about 48 million years ago).

