The great island of Madagascar has a long insular history, having split from Africa some 120 million years (myr) ago and from India around 88 myr ago (see below). The length of its isolation has much to do with its extraordinary biotic uniqueness. Madagascar’s endemic primates, the lemurs, are the most spectacularly diversified element of a highly unusual fauna that displays an adaptive variety surpassing that of any comparable primate group, especially if the recently extinct “subfossil” forms are taken into account. But although from a geographical perspective the strepsirhine primates of Madagascar represent a contained unit, there are many reasons why it is hardly possible, still less desirable, to discuss their origins separately from the larger biogeographic tapestry within which they are woven. This is particularly true given the current total lack in Madagascar of a terrestrial Tertiary fossil record that might give a direct indication of the ancestral stock(s) from which today’s major groups of Malagasy strepsirhine primates emerged. At least for the Paleocene and Eocene, the fossil records of Africa and Asia are only marginally better, with the result that inferences about the primate colonization of Madagascar have largely to be made from indirect—even highly indirect—evidence. For these reasons I begin this survey well before the initial emergence of the strepsirhines, with a brief overview of Madagascar’s geological and geographical histories.
THE ISOLATION OF MADAGASCAR

Madagascar is separated from the southeastern African coast by the 350- to 750-mile-wide Mozambique Channel, and with a surface area of 230,000 square miles it is the world’s largest oceanic island (Greenland, New Guinea, and Borneo are all larger, but are connected to the adjacent mainlands at times of lowered sea level). This isolation has evidently had a strong effect on the composition of Madagascar’s fauna which, when compared to those of the continents and even to other very large islands, shows an unusual combination of low diversity at high taxonomic levels with high within-family diversity. Clearly the waters surrounding Madagascar have acted as a powerful faunal filter, albeit a slightly porous one.

The fragment of continental crust we know today as Madagascar once lay deep within the ancient supercontinent of Gondwana, with India to its east. But by the time that Gondwana began actively to fragment in the middle Jurassic, about 160 myr ago, the western edge of the island was already underwater and Madagascar, still attached to Antarctica in the south and to India in the east, began to move south-southeast away from Africa along a slip-strike fault, the modern remnant of which in the Mozambique Channel seafloor is called the Davie Fracture Zone (see review by Wells, 2003). This movement had ceased by the middle Cretaceous, about 125 myr ago, leaving Madagascar in roughly its present position vis-à-vis Africa (Coffin and Rabinowitz, 1988). It is not certain whether at this point Madagascar still retained a land connection to Africa and Antarctica via India (contrast Krause, 2003, with Smith et al., 1984). India parted company with Madagascar in the late Cretaceous, about 88 myr ago (Storey, 1995; Storey et al., 1997), definitively completing the island’s isolation well before the beginning of the Age of Mammals at around 65 myr ago.

Although the current record of Cretaceous mammals in Madagascar consists of little more than a small handful of teeth, a remarkably wide range of taxa is represented. Among them are the world’s oldest tribosphenic mammal, Ambondro mahabo (Flynn et al., 1999) from the middle Cretaceous, and the earliest marsupial, from the latest Cretaceous (Krause, 2001). The balance of late Cretaceous specimens includes a multituberculate and two gondwanatheres (Krause, 2000, 2003). But as impressive as this variety may be compared to the size of the collection, no modern placental groups are represented; and it is clear that none of Madagascar’s modern mammalian groups (or any plausible precursor) is represented among Mesozoic fossils discovered so far, and that none can be shown to represent a Gondwanan remnant. Instead, it appears that all must be descended from ancestral forms that somehow contrived to cross a substantial water barrier (Krause et al., 1997). Terrestrial mammals are notoriously poor overwater dispersers (Lawlor, 1986), and the only even remotely plausible mechanism for getting them to Madagascar is by rafting on tangled mats of vegetation such as those that are swept out to sea by the floodwaters of African rivers.

Today’s terrestrial Malagasy mammals belong to four orders: Primates, Lipotyphla (broadly, Insectivora), Carnivora, and Rodentia, all of which also