

Summary: 04 The Long Beach Road to Oz

In 1987, Cann, Stoneking, and Wilson claimed to have identified a woman who lived about 200 KYA and who was the common ancestor to all the people in the world outside Africa. They called her **Mitochondrial Eve**. According to the “**Out of Africa**” or **African Replacement Hypothesis** she was the ultimate mother of *Homo sapiens*, but not of the other members of the genus *Homo*, such as *erectus* and *neanderthalensis*. According to this hypothesis, a small group of *Homo sapiens* left Africa some time between 60 and 95 KYA and from that point, peopled the world. The alternative, older “**Multi-regional Hypothesis**” held that modern man had evolved from *H. erectus* in a number of different locations in Africa, Europe and Asia — ie, Peking Man fathered the Mongoloid race, Neanderthal Man the Caucasoid and so on. Of these, the Multi-regional Hypothesis is largely defunct but a compromise “**Hybrid-origin Theory**” contends that archaic AMH did evolve into Modern Man in their own part of the world, but “gene flow” resulted in a kind of amalgam now labelled *Homo sapiens*.

According to the Out of Africa theory, only two mtHaplogroups made the crossing into Eurasia and from these, all other mtHaplogroups in the world outside Africa have evolved. Exactly when this exit occurred is not known but a date ~85 KYA allows 11,000 years for human beings to have migrated beyond the kill-zone of the Toba eruption ~74 KYA.

Making the exit from Africa, people went in a north or north-westerly direction and significantly, to the east. Of course they didn't know where they were headed but their journey ended in Australia and New Guinea, then joined into one huge super-continent called Sahul. No archaeological record remains of this long march because the people followed the beaches and because sea-levels were 125m lower than today, their routes have since been submerged. Genetic traces however remain: the Andamanese Islanders have some features in common with Asians yet in other ways, have genetic features which are unique to their islands. In India, a "dazzling array" of clades of mtHg M have evolved among people who presumably moved back into India after the effects of the YTT had passed.

Moving eastwards at an estimated 4km a year, people passed through the landmass called "Sundaland" (nowadays the Indonesian archipelago) and eventually reached Sahul. Some scientists argue they made the shorter sea-crossing to New Guinea; others argue they made landfall on the Kimberley coast of Australia. Either way, much of the sea-travel would have been between islands which could be seen on the horizon. The journey from Timor to north-western Australia however, would always have been hazardous and across open sea. Nonetheless, these people had lived off the beach and the sea for thousands of years and were by then probably very competent sailors.

Dating of human settlement in Australia remains controversial but colonisation probably began about 65-60 KYA. It is thought that Australians and what are now Highland New Guineans could have shared genes until about 30 KYA but the evidence is not convincing that they did and some scientists argue that the regions were actually settled by separate migrations.

The oldest human remains — so-called *Mungo Man* — found in Australia has become the focus of controversy. In 2001, Adcock and his team at ANU extracted aDNA and argued it represented a human which did not descend from Mitochondrial Eve, adding weight to the Hybrid-Origin hypothesis. Other scientists argued his findings were consistent with contaminated aDNA. Whatever the outcome, all other fossil remains such as those at Kow Swamp, are undisputedly the descendents of *Mitochondrial Eve*.