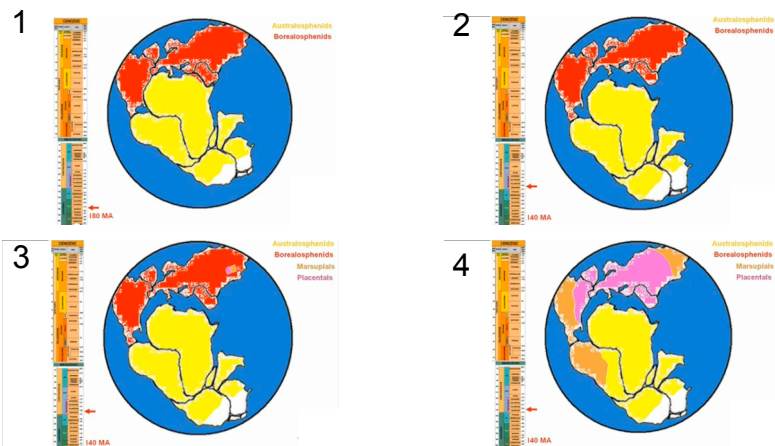


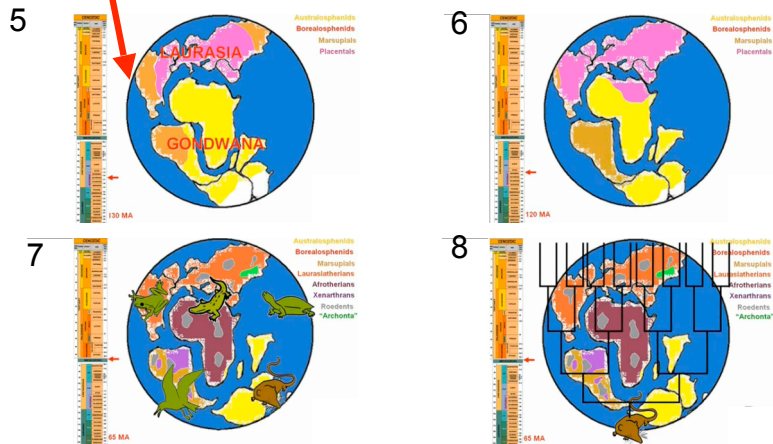
How did marsupials and placental mammals end up in different places?



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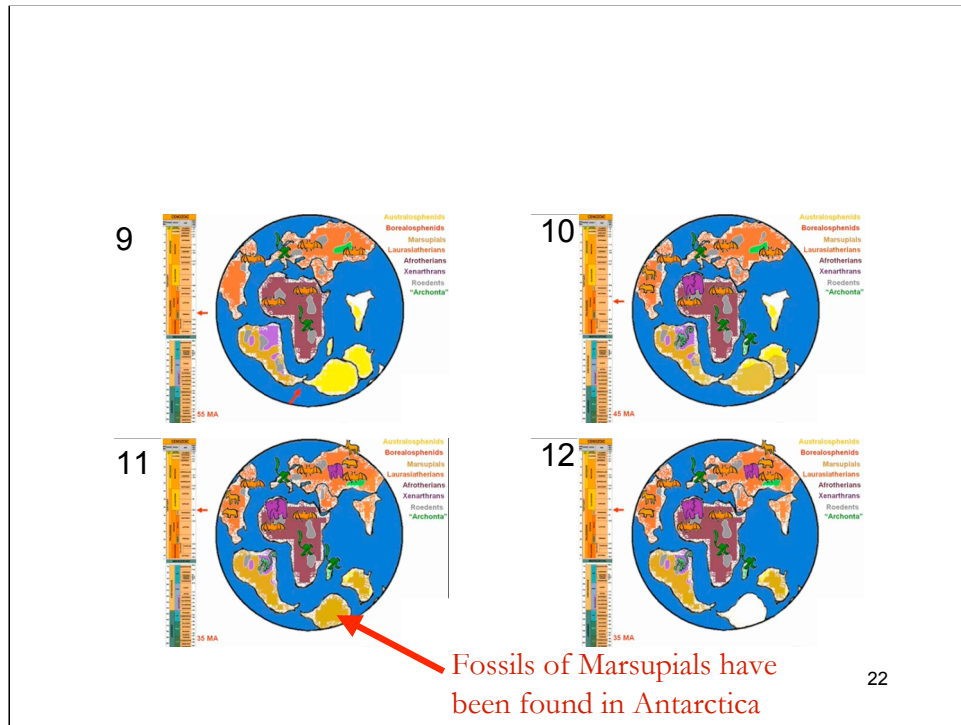
1. It is difficult to say when mammals first emerged (sometime around 180 MA (MA = million years ago)) but we know they were likely small and resembled a shrew.
2. In a few million years the mammals diversified into two forms, the Australosphenids, let's call them the southern lineage (yellow), and the Boreosphenids, the northern lineage in red. They spread through the continents.
3. 140 MA the continents began to separate.
4. The Boreosphenids split into marsupials and placentals, and spread.

Earliest marsupial fossils
(from 8 million years ago)
were not found in
Australia but North
America.

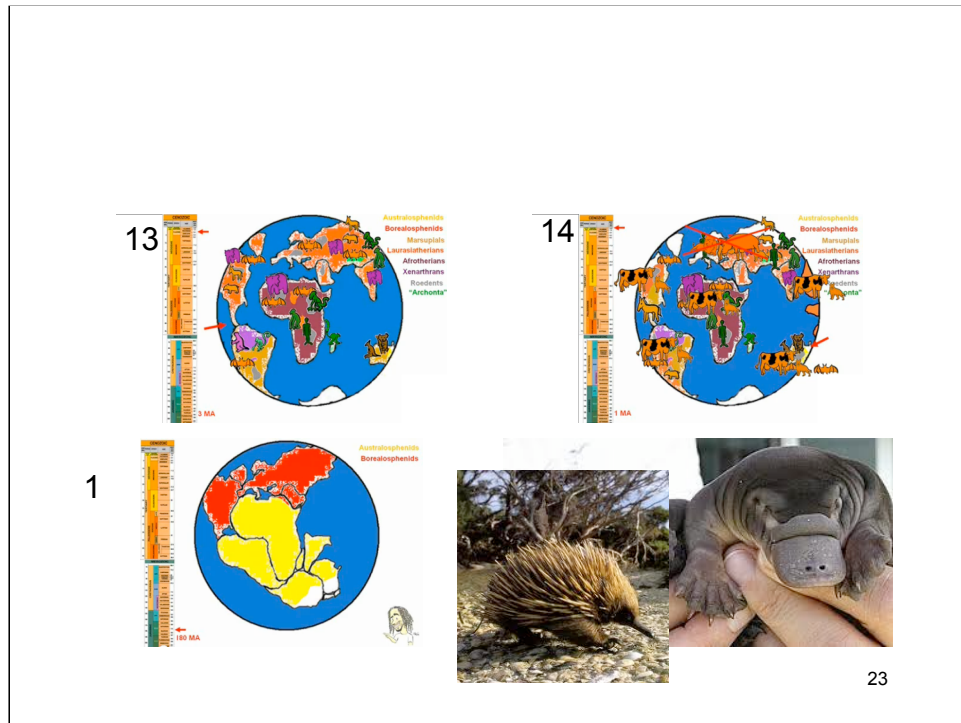


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5. 130 MA the continents separated totally to form Gondwana and Laurasia.
6. The placentals spread through the north and marsupials spread through South America.
7. At 65 MA the dinosaurs went extinct and what survived were the tiny vertebrates.
8. With the extinction of the dinosaurs, the mammals were free to diversify.



9. South America touched Antarctica and marsupials spread.
10. Placentals took over the rest of the world.
11. The landmasses moved further apart.
12. Ocean currents cause Antarctica to freeze.



13. Marsupials diversify in Australia.

14 All marsupials and placentals evolved from Boreosphenids; the only examples of Australosphenids are in Australia (Echinids and Platampus, both monotremes).

Why are nearly all of Australia's native mammals marsupials, while placental mammals dominate the rest of the world?

