Australia's Lost Giants

What happened to Australia's megafauna, the giant animals that once existed across this enormous continent?

A In 1969, a fossil hunter named Rod Wells came to Naracoorte in South Australia to explore what was then known as Victoria Cave. Wells clawed through narrow passages, and eventually into a huge chamber. Its floor of red soil was littered with strange objects. It took Wells a moment to realize what he was looking at; the bones of thousands of creatures that must have fallen through holes in the ground above and become trapped. Some of the oldest belonged to mammals far larger than any found today in Australia. They were the ancient Australian megafauna – huge animals of the Pleistocene epoch. In boneyards across the continent, scientists have found the fossils of a giant snake, a huge flightless bird, and a seven foot kangaroo, to name but a few. Given how much ink has been spilled on the extinction of the dinosaurs, it's a wonder that even more hasn't been devoted to megafauna. Prehistoric humans never threw spears at *Tyrannosaurus rex* but really did hunt mammoths and mastodons.

B The disappearance of megafauna in America – mammoths, saber-toothed cats, giant sloths, among others – happened relatively soon after the arrival of human beings, about 13,000 years ago. In the 1960s, paleoecologist Paul Martin developed what became known as the *blitzkrieg hypothesis.* Modern humans, Martin said, created havoc as they spread through the Americas, wielding spears to annihilate animals that had never faced a technological predator. But this period of extinction wasn't comprehensive. North America kept its deer, black bears and a small type of bison, and South America its jaguars and llamas.

C What happened to Australia's large animals is baffling. For years scientists blamed the extinctions on climate change. Indeed, Australia has been drying out for over a million years, and the megafauna were faced with a continent where vegetation began to disappear. Australian paleontologist Tim Flannery suggests that people, who arrived on the continent around 50,000 years ago, used fire to hunt, which led to deforestation. Here's what's certain, Flannery says. Something dramatic happened to Australia's dominant land creatures – somewhere around 46,000 years ago, strikingly soon after the invasion of a tool-wielding, highly intelligent predator.

In Flannery's 1994 book called *The Future Eaters,* he sets out his thesis that human beings are a new kind of animal on the planet, and are in general, one prone to ruining ecosystems. Flannery's book proved highly controversial. Some viewed it as critical of the Aborigines, who pride themselves on living in harmony with nature. The more basic problem with Flannery's thesis is that there is no direct evidence that they killed any Australian megafauna. It would be helpful if someone uncovered a *Diprotodon* skeleton with a spear point embedded in a rib – or perhaps *Thylacoleo* bones next to the charcoal of a human campfire. Such kill sites have been found in the Americas but not in Australia.

D The debate about megafauna pivots to a great degree on the techniques for dating old bones and the sediments in which they are buried. If scientists can show that the megafauna died out fairly quickly and that this extinction event happened within a few hundred, or even a couple thousand years, of the arrival of people, that's a strong case – even if a purely circumstantial one – that the one thing was the direct result of the other. As it happens, there is one place where there may be such evidence: Cuddie Springs in New South Wales. Today the person most vocal about the site is archeologist Judith Field. In 1991, she discovered megafauna bones directly adjacent to stone tools – a headline-making find. She says there are two layers showing the association, one about 30,000 years old, the other 35,000 years old. If that dating is accurate, it would mean humans and megafauna coexisted in Australia for something like 20,000 years. "What Cuddie Springs demonstrates is that you have an extended overlap of humans and megafauna," Field says. Nonsense, say her critics. They say the fossils have been moved from their original resting places and redeposited in younger sediments.

E Another famous boneyard in the same region is a place called Wellington Caves, where *Diprotodon*, the largest known marsupial*, was first discovered. Scientist Mike Augee says that: "This is a sacred site in Australian paleontology." Here's why: In 1830 a local official named George Rankin lowered himself into the cave on a rope tied to a protrusion in the cave wall. The protrusion turned out to be a bone. A surveyor named Thomas Mitchell arrived later that year, explored the caves in the area, and shipped fossils off to Richard Owen, the British paleontologist who later gained fame for revealing the existence of dinosaurs. Owen recognized that the Wellington cave bones belonged to an extinct marsupial. Later, between 1909 and 1915 sediments in Mammoth Cave that contained fossils were hauled out and examined in a chaotic manner that no scientist today would approve. Still, one bone in particular has drawn extensive attention: a femur with a cut in it, possibly left there by a sharp tool.

F Unfortunately, the Earth preserves its history haphazardly. Bones disintegrate, the land erodes, the climate changes, forests come and go, rivers change their course – and history, if not destroyed, is steadily concealed. By necessity, narratives are constructed from limited data. Australia's first people expressed themselves in rock art. Paleontologist Peter Murray has studied a rock painting in far northern Australia that shows what looks very much like a megafauna marsupial known as *Palorchestes.* In Western Australia another site shows what appears to be a hunter with either a marsupial lion or a Tasmanian tiger – a major distinction, since the marsupial lion went extinct and the much smaller Tasmanian tiger survived into the more recent historical era. But as Murray says, "Every step of the way involves interpretation. The data doesn't just speak for itself."

Glossary

marsupial: an animal which carries its young in a pouch
e.g. kangaroos and koalas