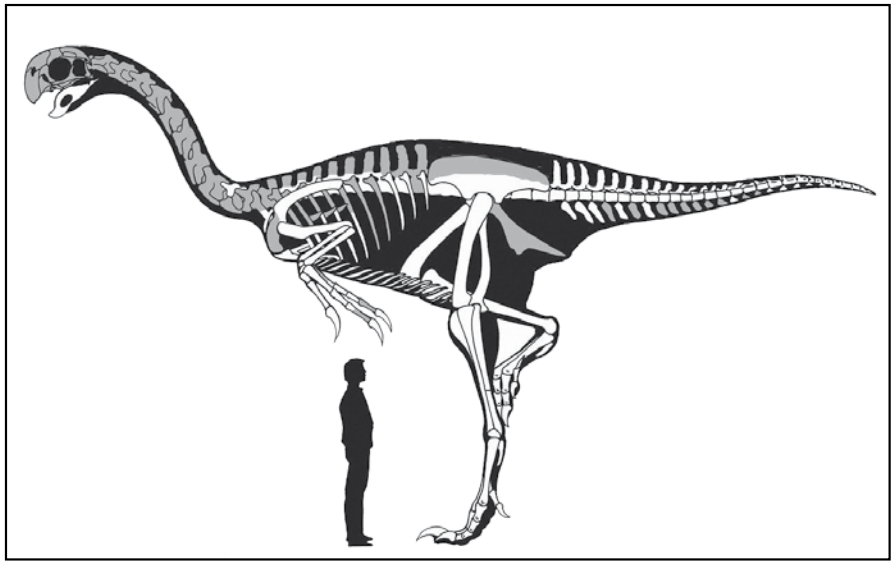

Image by Li Rongshaw/IVPP

Figure 1. Estimated size of *Gigantoraptor* in comparison with a man. The bones actually found by Xu *et al.*[3] are shown in white.

classed as an intermediate between dinosaurs and birds because the dates are all wrong. This is a common problem in dino-to-bird theory; the dinosaurs that have the most birdlike features are younger than the first true birds *in the evolutionists' own scheme*.[5]

One thing we can agree on with the evolutionists is that they've found a unique creature that's hard to fit into the traditional evolutionary picture. *Gigantoraptor* seems to be a new creature, which provides no problems for creationists but creates headaches for evolutionists trying to fit it into their conjectures on how dinosaurs evolved into birds. While the media have paraded *Gigantoraptor* as yet another feather in the cap of dino-to-bird evolution, by the evolutionists own admission the feathers are missing and *Gigantoraptor* is eating the cap.

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Naracoorte Caves: an archive in the dark

Emil Silvestru

Location and setting

Naracoorte Caves in Victoria, Australia, represent the only fossil site inside caves that is registered on the World Heritage list. Several of the 26 caves in the area contain fossils, Victoria Fossil Cave (VFC) being the uncontested star. Within it there are 5 chambers with significant fossil deposits: The Main Fossil Chamber, Grant Hall, Butch and Lake Chamber, Spring Chamber and The Ossuaries (Upper and Lower). There is also another bone deposit in the newly discovered NW section of the caves. VFC is the largest in the World Heritage Area (WHA), with approximately 4 km of surveyed passages and chambers.[1]

Geological and paleontological data

According to evolutionary thinking, the fossil record in the caves is believed to span about 500,000 years into the Pleistocene period. In several locations calcite flows (speleotherms) were found at the bottom of the deposits and covering them.[1] The speleothems have been 'dated' by two different methods (uranium-series through thermal ionization mass-spectrometry or TIMS, and optically stimulated luminescence).[2] The age ranges yielded are presented in table 1.

The fossil inventory of the caves is impressive, the largest on the entire Australian continent. It comprises 102 species of vertebrates, of which 5 are amphibians, 13 reptiles, 17 birds and 67 mammals.[1] Mammal fossils belong to both small species (rodents, bats, marsupials) and large species from kangaroos and wallabies (both extant and extinct) to the ferocious 'marsupial lion' (*Thylacoleo carnifex*). Carnivorous activity, evidenced by

bite marks on some bones, has been reported in several cases.[1] Fresh water shells have also been reported at several different locations.[1]

Evolutionary significance

Although too old according to radiometric dating to be direct evidence for one of the most cherished theories regarding the extinction of the large Pleistocene fauna, namely humans, it is still hoped that the fossil record in the WHA will produce significant support for this theory. According to table 1 and based on the radiometric dating of the arrival of humans (60 ka) the latest extinctions occurred about 16 ka before the arrival of humans. It will be interesting to see which of the two ideas, humans producing extinctions of animals or the infallibility of radiometric dating, will prevail.

Several different mechanisms are believed to have brought the animals into the caves but accidental falls into mostly vertical shafts is considered the most important. As the caves most likely formed in epiphreatic conditions (close to the water table) many vertical solution tubes eventually opened to the surface becoming pitfalls for the unwary fauna. It is speculated that hopping animals like some of the marsupials would have more likely fallen into shafts hidden by the undergrowth.[1] Not much is being said about the fresh water shells inside the caves. It is unlikely that it was their normal habitat; they could however have been washed in by flash floods.

The sediments are generally fine silts, with alternating colors from lighter, assumed to reflect drier climate, to darker, assumed to reflect a wetter, vegetation-rich climate.

Some problems

It is interesting that, using other criteria, including radiocarbon dating, the initial age estimates, before the discovery of time-marking speleothems, was well within the one estimated for similar extinctions recorded in caves of the northern hemisphere, especially of large mammals like the cave bear (*Ursus spelaeus*), the cave lion (*Panthera leo fossilis*) and the cave hyena (*Crocuta spelaea*).[1] It makes more sense to postulate a global cause for these extinctions and thus question the U-series datings in the WHA.

Attributing the large number of dead animals in the fossil deposits to accidental falls into the caves should be tested against what one can see in present similar situations if, indeed, the present is the key to the past! The reality is that nowhere, even in equatorial jungle karst, have even a fraction of the number of fossils discovered in the Naracoorte Caves ever been found. In fact none of the recorded fossil sites inside caves comes close to the WHA. Even in the case of massive cave ossuaries like Pestera Ursilor (Bears' Cave) in Romania where hundreds of cave bear skeletons have been found, the sedimentary sequence is much thinner, covers a smaller area and the fossils are almost mono-specific. Why is Naracoorte so different? And why is it unique even in the wider local/regional setting? The pitfall trap seems too easy an explanation.

There is also a lot to be explained regarding the sedimentary sequence. The climate-driven differences is a rather generic interpretation and is definitely not referenced to present-day situations. Virtually all of the caves in vegetation-rich areas today have significant organic sediments composed of vegetation debris. Of what I managed to see in Naracoorte, there are no such sediments and nothing within the existing ones that would suggest such sediments existed before. The literature I consulted does not mention it either.[1–3] The silt looks a lot like authigenic epiphreatic endokarstic sediment (formed inside the cave, usually from the insoluble fraction of the limestone), rather than epigenetic (derived from outside the cave).

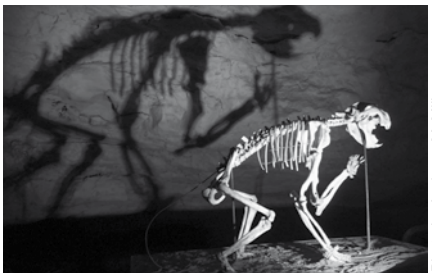

Photo by Andrew McMillan

Thylacoleo carnifex is one of the many fossils found in Naracoorte Caves.

An alternative explanation

It is possible that the vast accumulation of fossils inside the caves of the Naracoorte WHA is the result of a unique event of catastrophic proportions. It could have been a fire that had set the animals in a vast area on the run for life which could have resulted in many of them plunging to their immediate or agonizing death inside the caves. Or it could have been a tsunami that ran deep inland with the same effect. In this case, a significant amount of water could have been 'swallowed by the caves', carrying with them the animals that had already been killed, including fresh water shells. Some surviving carnivores may have fed on some of the carcasses, hence the bite marks.

Either of these scenarios should have left some sort of markers but, with the land-based, long-age scenario already in the mind of the rather few researchers that have investigated the

Table 1. Radiometric dates of speleothems in various chambers in the Naracoorte Caves.[1]

	Location		Age range in ka
01	Main Fossil Chamber, Victoria Fossil Caves (VFC)		min 213
02	Grant Hall, VFC		76–206
03	Spring Chamber, VFC	Upper layers	210–280
		Lower layers	327–350
04	Cathedral Cave (distal chamber within VFC)		159–399

area, it is quite possible they have been overlooked.

Whatever the cause of animal entrapment in the caves, at some point afterwards the caves were flooded, something that frequently happens in karst terrains either by a regional rise of the water table or by temporary plugging of a subterranean drain. Such episodes were characteristic during the Ice Age (a direct consequence of the Genesis Flood[4]) and especially towards the end of it, when rapid and major oscillations of the ocean level occurred.

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Katrina's splay deposits: a small example of the power of flowing water

Tas Walker

On the morning of 29 August 2005, Hurricane Katrina crossed the Louisiana coastline, creating a massive storm-surge that burst through several levees around New Orleans and flooded some 80% of the city.[1] Water derived from Lake Pontchartrain, located to the north of the city, poured through breached levees transporting sediment and debris, dumping it into adjacent neighbourhoods.

The flooding disaster happened quickly, inflicting much suffering on the people of New Orleans. As well as the human tragedy, there were geological impacts that have implications for interpreting sedimentary strata and our views about the past.

Geologists Stephen Nelson and Suzanne Leclair from the Tulane University in New Orleans documented the geological effects for one neighbourhood associated with a breached levee and subsequent flooding from Lake Pontchartrain.[1]

Description of the event and the deposit

At the southern end of the London Avenue Canal a thick accumulation of sediments splayed outward from a 61-m-long breach, the longest of the splay deposits extending some 400 m.[1] Generally the sediment lobes occupied the open areas, like the streets and the park, indicating that the water flow was obstructed by the alignment of the houses. The deposit had a volume of 26,380 m^3 and covered 54,670 m^2 of the neighbourhood (not including the areas occupied by the houses).

The levee breached between 7 and 8 am, and it was two days before repairs began,[2] by which time water in the neighbourhood had stabilized to the same level as Lake Pontchartrain.

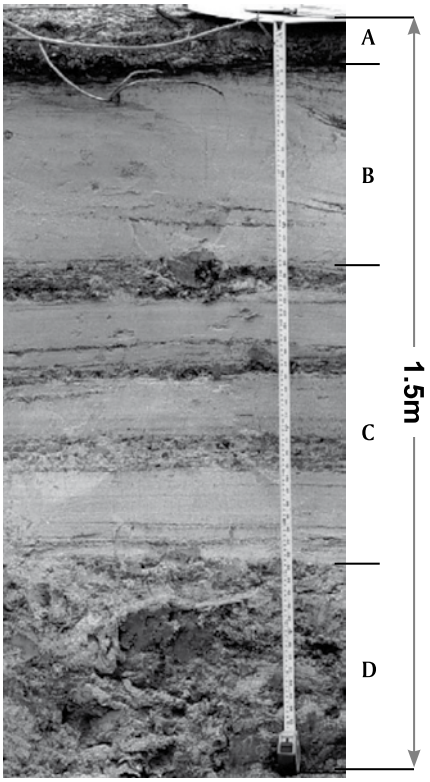

Figure 1. Vertical section through one of the thicker parts of the splay deposit. (From Nelson and Leclair[1]).

The neighbourhood immediately surrounding the breach is 1.0–1.4 m below sea level, and at the time of the levee failure, it was as much as 2.5 m below the maximum water level attained in Lake Pontchartrain.

This difference in elevation meant that the initial torrent of water pouring through the breach was incredibly powerful. The force of the moving water removed a house from its concrete foundation and propelled it 35 m into a tree, rotating it 137 degrees.[1]

Storm water also transported a mixture of sediments as it moved through the open space in the levee. The deposit appeared to be composed of sand but, as the sediment was removed during the clean-up, it could be seen that the sediment lobes consisted of distinct layers. The maximum thickness of the deposit was 1.8 m just north of the breach, and it tapered to less than 0.3 m at the ends. Most of the material has now been removed.

In the vertical section in one of the thicker parts of the deposit