Creatures of the Cradle

It's the human factor that tends to get all the focus in Gauteng's Cradle of Humankind. But this area regularly disgorges fossils of extinct creatures that are just as fascinating. Gillian Scoble went fossil hunting.

If you think walking in big-game territory gets your heart thumping these days, just imagine what it must have been like for our distant relatives. During the Plio-Pleistocene period, one to three million years ago, there were many more mammal species roaming the earth.

Given the diversity of fierce predators then, it's surprising we're here today. Nowadays in Africa, there are two species of really dangerous cats – lion and leopard. A million years ago, there were six, including 215-kilogram felids with enormous sabre teeth. There were also many types of hyenas, including one that could sprint like a cheetah.

Fossils of carnivores are interesting to study because modern humans are partly products of attempts to adapt and survive

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ing eaten by them. There were also ny other types of mammals, includ- massive, 2 000-kilogram short- cked giraffes, giant buffaloes with ee-metre horns, three-toed horses l a variety of gigantic antelope species.

"Extinction is the norm," explained ofessor Lee Berger, reader in Human olution and the Public Understand- of Science at the University of the itwatersrand in Joburg.

Not far from where I tracked him wn were thousands of boxes con- ning over a million animal fossils m the Cradle of Humankind. Al- ough Berger is usually out in the ld searching for groundbreaking minid remains, he is just as ani- ted talking about extinct animals.

"We don't know exactly why one oup gets through and another esn't. Changes occur in the climate, the prey species, in the predators l in things we can't see. The factors olved in why one species survives l another doesn't are tremendously mplex. There're lots of creatures t made it through the last Ice Age, h its global climatic changes, that ply shouldn't still be here.

"It's a mystery why mammals such the cheetah escaped extinction, ile mammoths didn't. Cheetahs t got lucky," says Berger.

During the Plio-Pleistocene, sev- l types of hyenas roamed the Cradle Humankind, about half of which ame extinct.

'Hyenas may have developed their anced bone-cracking abilities to cess the carcasses that the sabre- th cats, with their exclusively meat-slicing teeth, left behind," says Berger. "Extinction in one part of the food web will affect other parts of the ecosystem. It has been hypothesised that when the sabre-tooth cats went extinct, some of the hyenas followed suit, since the carcasses they depended on were no longer available."

Berger finds carnivores fascinating to study because he sees them as engines which drive the environment (while other scientists might say that herbivores, or insects or bacteria have the greatest impact on the ecosystem). The fact that predators are less frequently found than prey species and some, such as extinct sabre-tooth cats, have no living relatives to compare them to, adds to the intrigue.

"The big birds of prey, such as the giant extinct eagle, are the most mysterious," says Berger. Besides a few fragmentary pieces, there's not much to show of their remains. We only know they were there because of predatory evidence, for example, the puncture marks in the eye orbits of the Taung child."

LEFT: There's nothing small about a sabre tooth. However, since primates are bony animals and an attack on them by the sabre-toothed *Homotherium* might have risked serious damage to their large canines, it's considered unlikely they were a major threat to hominids.

The theory that an eagle had killed the child is something Berger spent 10 years working on (see his website www.profleeberger.com).

It seems animals that are the most specialised are the most vulnerable when times get tough. Evolution tends to favour the simplest model. This might explain why the African elephant, *Loxodonta africana*, survived as it eats both trees and grass, while its relative, the extinct *Elephas recki*, with its specialised diet, didn't.

"Extinction is always out there waiting," quipped Berger. ›

LEFT: Prof Lee Berger compares the skulls of a modern hyena with that of the extinct giant hyena (illustrated right). **OPPOSITE:** There was great excitement over the recent discovery of a near-whole skeleton of an extinct wolf-like dog (*Lycaon esabagyus*). It was a large animal, about the size of a modern North American wolf, and is thought to represent the oldest evidence for wild dogs in South Africa.

Extinct giant buffalo *(Pelorovis antiquus)*
The giant buffalo was considerably larger than modern buffaloes, with enormous horns stretching to as much as three metres from tip to tip. Their body size may have exceeded 1 000 kilograms. The large horns would have made movement in closed environments difficult, so it was probable that they preferred more open areas. Their extremely high-crowned teeth signify that their diet was rich in grasses. Like modern buffaloes, they were probably dedicated grazers.

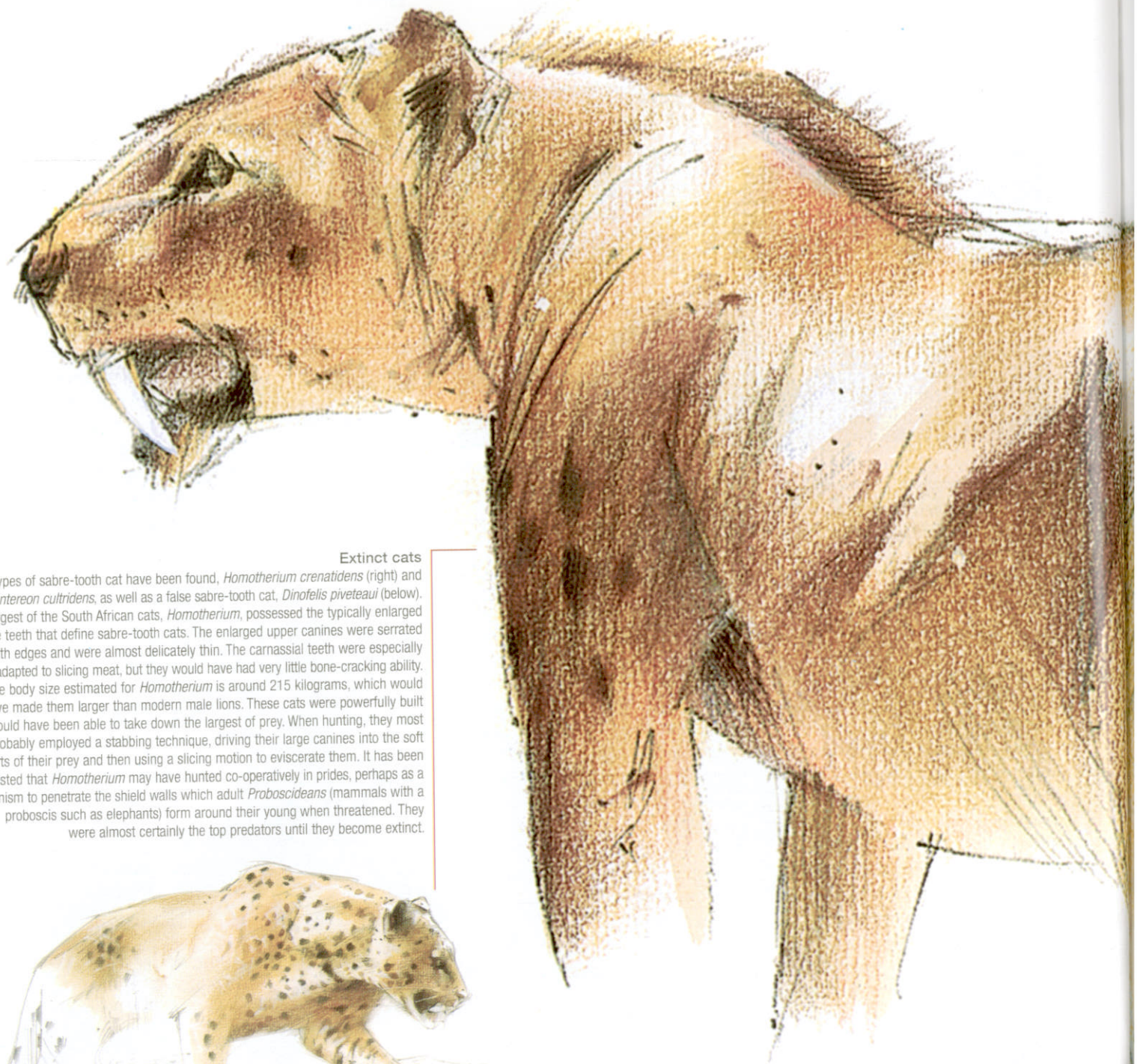
Extinct hunting hyena *(Chasmaporthetes nitidula)*
Chasmaporthetes has been referred to as a long-legged hunting hyena. They were considerably smaller than the 100-kilogram extinct giant hyena (*Pachycrocuta brevirostris*), with an estimated body weight of 40 kilograms. The long legs of these animals suggest they were more adapted to running than modern hyenas and may have engaged in more active hunting. Their teeth do not show the same specialisation for bone crushing as those of modern hyenas and they were probably about as adept at this task as large cats. *Chasmaporthetes* may have been pack animals and their meat-slicing tactics may have left significant scavengable carcasses in the palaeo-environment.

Extinct short-necked giraffe *(Sivatherium maurusium)*
The short-necked giraffe is the largest and most massive giraffe that ever existed in Africa, weighing up to 2 000 kilograms. *Sivatherium* probably lived in similar habitats to modern giraffes, ranging from savannah to woodland. Isotopic studies of their fossils show that this giraffe was a dedicated browser and may have been more dependent on water than modern giraffes and have fed at a lower level than them.

footnotes

Visit the museum at **Maropeng** and **Sterkfontein Caves** (tel 014-577-9000, web www.maropeng.co.za), the **Origins Centre** (tel 011-717-4700, web www.originscentre.co.za) and **James Kitching Gallery** (tel 011-717-6682, web www.wits.ac.za), the latter both in Yale Road, University of Witwatersrand, Johannesburg. ■

□ *All illustrations by Walter Voight and information from* Field Guide to the Cradle of Humankind *by Brett Hilton-Barber and Lee R Berger.*



Extinct cats

Two types of sabre-tooth cat have been found, *Homotherium crenatidens* (right) and *Megantereon cultridens*, as well as a false sabre-tooth cat, *Dinofelis piveteaui* (below). The largest of the South African cats, *Homotherium*, possessed the typically enlarged canine teeth that define sabre-tooth cats. The enlarged upper canines were serrated on both edges and were almost delicately thin. The carnassial teeth were especially well adapted to slicing meat, but they would have had very little bone-cracking ability. The body size estimated for *Homotherium* is around 215 kilograms, which would have made them larger than modern male lions. These cats were powerfully built and would have been able to take down the largest of prey. When hunting, they most probably employed a stabbing technique, driving their large canines into the soft parts of their prey and then using a slicing motion to eviscerate them. It has been suggested that *Homotherium* may have hunted co-operatively in prides, perhaps as a mechanism to penetrate the shield walls which adult *Proboscideans* (mammals with a proboscis such as elephants) form around their young when threatened. They were almost certainly the top predators until they become extinct.

win **Q: Which extinct felid weighed in heavier than a modern male lion at 215 kilograms?**

Getaway, in conjunction with Struik Publishers, is giving away five copies of the *Field Guide to the Cradle of Humankind* by Brett Hilton-Barber and Dr Lee R Berger, which is available at Exclusive Books. **SMS** Getaway, Cradle Creature, your name and answer to 34704; **post** your entry with name, contact details and answer to Getaway/Cradle Creature competition, PO Box 22, Howard Place, 7450, Cape Town, or enter **on-line** at www.getaway.co.za/competitions. Closing date is 19 February 2008. See Competition rules on page 204.