MUSEUMS

Dispatches from the Sahara: Unearthing Africa's giants — and an ancient calamity

By Paul Sereno
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Geologist Jahan Ramezani (left) and paleontologist Paul Sereno dig rocks in Niger, Africa, in October 2022, looking for signs of tiny volcanic crystals that help reveal past events. (Keith Ladzinski photo / HANDOUT)

TCHINEKANKARAM, NIGER — One mile long, rising as barren rock no more than 10 feet above a parched plain of patchy grass and thorny acacia, is an area known as Tchinekankaran (chin-kan-karan), or "place of insects" in Tamasheq, the language of Tuareg nomads. True to its name, voracious scorpions, wind spiders and praying mantises dueled under our camp lights, but we came for the sea of fossil bones peeking from rocks nearby. Strings of

vertebrae the size of frying pans and human-sized bones comprise the skeleton of an unnamed giant from Africa's deep past.

Four years ago, we followed a local nomad on a motorbike to the first skeleton, unearthing just enough to outline its 60-foot length. The intervening COVID pandemic delayed our return, and we wondered whether the find remained

Not only were the bones as we had left them, but in the days that followed we discovered nearby several more skeletons of the same creature, a new long-necked plant eater we call a sauropod. We nicknamed our new-found graveyard 'Sauropod Island' and its plentiful inhabitant 'Ipod' (short for "Irhazer Plain sauropod)."

Our success in finding multiple skeletons of Ipod created its own crisis. How to excavate many tons of fossils with only three weeks available? Massive six-foot thigh bones were locked into the hard rock. Removing them would be a gargantuan task even for a large team armed with tons of plaster, jackhammers and all manner of tools.

A panoramic photo of the team excavating a small skeleton of the long-necked dinosaur Irhazer Plain sauropod, or "Ipod," in Niger in October 2022. (Paul Sereno photo)

"Born diggers" are people who have known ever since their earliest memories that they want to dig fossils, dinosaurs in particular. Take Grace Broderick, our youngest team member at age 24. Latching onto a stuffed T-rex at age 6, she dressed it in American Girl outfits. At 12, she penned me a letter asking to volunteer in my Fossil Lab. For years she spent after-school hours in the lab, cleaning fossils beside professional preparators and graduate students. Grace packs the greatest punch at the dig site, with the grit and adventurous spirit to thrive on a Saharan expedition.

Francesc Gascó, a brawny six-footer who goes by “Pako,” also knew from his earliest memories that he had a love for fossils and dinosaurs, growing up in a small community outside the Spanish coastal city of Valencia. His relentless fossil passions led him to a doctorate about long-necked dinosaurs from Spain and, at 33, a university job teaching paleontology.

Team members Francesc Gascó and Grace Broderick dig around a thigh bone (femur) of a dinosaur on what they dubbed "Sauropod Island." (Paul Sereno photo / HANDOUT)

Trench warfare is how I describe the process of unearthing a petrified giant, much less three of them. One must carve through solid rock using hand tools, power drills and jackhammers, trenching downward as much as 3 feet or more to each side of fragile bones and then tunneling under them. We cocoon multi-ton blocks of the dinosaur's bones in wood-reinforced plaster jackets, enclosing as little surrounding rock as possible. After each day, we hauled our bruised, exhausted bodies back to camp. It was an Olympic test of mental and physical fitness we were not sure we would endure. But in the end, we left Sauropod Island for Agadez in the dark of night, with some 30 tons of Ipod's bones strapped aboard a heavy loading truck.

Before leaving, we took a side trip to a towering cliff of sandstone not far from Sauropod Island. Massive, petrified tree trunks were lodged in its walls. The cliff line separates the mudstone plain with Ipod's bones from an endless plateau of sandstone bearing other dinosaurs, like the sail-backed Ouranosaurus we dug up earlier in the expedition. Something dramatic, perhaps catastrophic, happened in this part of Africa during the dinosaur era to instantaneously change accumulating sediment from mud to sand.

We spotted a patch on the side of the cliff that exposed the contact between these two geologic regimes. There we found a thin green layer of volcanic ash, the gold-standard material used by geologic time tellers. Scraping the ash and its tiny volcanic crystals into vials, we celebrated the prospect of understanding with precision when a volcanic catastrophe separated two of Africa's most distinctive dinosaur eras.

Back in Agadez, we loaded the massive haul of fossils into a 40-foot container before repacking for our final leg of the expedition — to an even more remote area of the desert.

The Tribune is following the progress of University of Chicago professor Paul Sereno and his team over several months on an expedition in Niger in Africa. They are uncovering the traces of a human civilization that lived some

10,000 years ago in what is now the Sahara Desert. For more information, also see Africa's Lost World and NigerHeritage.

- *Meet Paul Sereno, the Indiana Jones of paleontology (published Sept. 18).*
- *Launching a sojourn to uncover Africa's past — but first a wait in Agadez (published Sept. 25)*
- *Dispatches from the Sahara: Exploring Gadoufaoua, known as 'the place where camels fear to go' (published Oct. 18)*