DISPATCHES FROM THE SAHARA DESERT

Discovering dinosaurs adrift in seas of sand

By Paul Sereno
For The Chicago Tribune

JENGUEBI, Niger — Seas of sand form the core of the Sahara, the world's largest desert. Our expedition caravan wound slowly between dunes, probing for terrain hard enough to get us to our end goal — wind-swept rock with fossils from the youngest part of the dinosaur era in Africa, some 90 million years ago. Exposed as isolated patches, the target areas resemble an oceanic island chain, each patch decreasing in size before disappearing altogether under the sand seas.

Three years before, we had come to one spot long enough to find jaw pieces of the giant sail-backed predator Spinosaurus. We followed an intrepid guide named Abdoul Nassar atop his Honda motorbike on a 120-mile gambit that seemed fruitless until he pulled up to an eroding dinosaur skeleton. With a Tuareg sword slung over his shoulder, he had the aura of a Marvel superhero, dressed in a black trench coat, cheche headwrap and sunglasses.

On Day 1 of our return, like a slugger whacking a home run on the first pitch, Spanish paleontologist Dan Vidal thrust a fossil in front of my face that he lifted from the desert floor hours after our arrival. Vidal, a postdoctoral researcher in my University of Chicago Fossil Lab and conduit to Spanish paleo talent, had assembled half a dozen outstanding team members from various corners of Spain.

"What do you think about this?" he asked, eyes gleaming.

I recognized it — the top of the skull of the giant sail-backed predator Spinosaurus. But it was very different from the famed Spinosaurus of dinosaur lore. A long, scimitar-shaped display crest projected upward, definitive evidence that we had found a new species with a startlingly new profile. Found near this skull bone were pointed, fish-eating teeth, sections of the tall back spines and other bones of the unusual predator. With so many Spinosaurus teeth and bones lying about, we nicknamed our final field area the "Spinosaur Archipelago," otherwise known to locals as Jenguebi (jen-geb-ee).

Armed with the latest imaging techniques, Vidal snapped a photo montage of the Spinosaurus bones he and other crew members discovered, creating 3D digital renderings. On a laptop that night in the camp tent, the team high-fived in astonishment as he reassembled the skull of an audacious new species. The first day's dramatic discovery had come alive in real-time.

We visited Jenguebi's only temporary residents a few days later, an extended family of Tuareg nomads in tents near a hand-dug well, their lifeline to water. Mohamed, a boy of 11 who knew the Spinosaur Archipelago like the back of his hand, offered to show us interesting things he had spotted. He led us on a winding path between dunes and over rocky stretches, able to relocate scores of fossils at will. His final stop knocked our socks off — the bones and teeth of a saber-tooth dinosaur predator lay partially exposed. It was the skeleton of a Carcharodontosaur, the first ever found on Africa that associates the voracious jaws of the skull with the rest of its skeleton. After cleaning and reconstruction, it will provide the first look at Africa's independent line of T. rex-sized meat-eaters.

The textured skull of another huge predator, one that hunted underwater, came to light back near camp. Its gill cover, a shield-shaped bone the size of a frying pan, provided an immediate sense of the enormous size of this fish — something like the freshwater alligator gar of North America, but in this case more than 10 feet long.

Nearby, we labored to unearth the largest of our new beasts. It was a new long-necked plant-eating dinosaur, a sauropod called a Titanosaur. True to its group name, it was the largest animal I have ever exhumed on Africa. We burrowed around and under its 6-foot thigh bone and dug out its gigantic vertebrae, sealing them in field jackets on our last day.

We packed the truck to the hilt with field jackets and water tanks for the treacherous, two-day journey back to Agadez. With the final leg of the expedition coming to an end, we had accumulated a monumental tonnage of fossils in Agadez that filled two 40-foot containers. These fossils, when cleaned, studied, mounted and returned, will rewrite the history of dinosaurs in Africa and fill the halls of planned museums in their home country of Niger.

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.

Holding battery powered drill-breakers, Spanish team members Alvaro Simarro and Ana Lázaro take a break during the excavation of a dinosaur skeleton. **FILIPPO BERTOZZO**

Tons of fossils in field wrappings compete for space with water tanks aboard the team's truck for the return trip to Agadez in Niger, Africa. **PAUL SERENO**

A juvenile skull of a crocodilian predator is nearly the size of expedition leader Paul Sereno. **PAUL SERENO**