Return to Auca Mahuevo with Premji Paulina

Premji is with Rodolpho Coria's Carmen Funes Museum in Neuquen, Argentina, and she is a graduate of the National University of La Plata, Argentina.

Paleontology, by Premji Paulina
(translation by Art Ballard)

In a beautiful tourist city called San Carlos de Bariloche, in the south of Argentina, there lived a little girl who loved nature: rocks, plants and animals. As with other children of the world, she thought fossils were very interesting and, why not say it, especially the great Dinosaurs. So much did she like them that, not content with bringing home the bones of a cow to assemble them, shovel in hand, one day she began an excavation in her patio searching for a dinosaur! But she was not alone; her understanding father did not wish to ruin her dreams with a cold "it's impossible, there are no dinosaurs in the patio", and he patiently helped her to dig the holes (which of course he had to fill later) in those Tertiary sediments deposited long after the extinction of the dinosaurs. The idea of becoming a paleontologist would not cross the little girl's mind for many more years later, when the reality of those fossils would overtake her powers of imagination, and interest in evolution would spark her interest. She could not imagine that 20 years later, she would once again be with shovel in hand, making holes in the ground, but this time there actually were

dinosaurs down there!

My name is Premji, and I am still in part that little girl who gets excited about each fossil she sees, and who loves to spend long seasons in the field, without much contact with civilization. And I am a new paleontologist. Well, I am learning to be one. My family accepted with resignation that I would not choose a more lucrative career, and has always given me moral support for my choice, and over time seeing the results has recognized that I am happy doing what I do.

I studied at the National University of La Plata (in the Province of Buenos Aires), in the beautiful surroundings of the Faculty of Natural Sciences and Museum, affiliated with the Museum of Natural Sciences of La Plata. Paleontology is a long, difficult, and….exciting subject! If I learned anything, it is you don't have to be a genius to be a paleontologist, just have perseverance and desire. The museum is a beautiful building, imposing, with two enormous saber-tooth tigers guarding the entrance; it is located in a park which is called "The Forest". The largest group of paleontologists of Argentina work and teach there. Students go to the museum and contact the researchers in the area that interests them. I went straight to the Vertebrate Paleontology Department, whose director then and now is Dr. Rosendo Pascual (emeritus), in the basement of the building, which we students call "the catacombs". In the catacombs are all the specialists in the groups of South American megafauna, principally mammals, birds, fish and marine reptiles. Those interested in studying dinosaurs have to travel to Buenos Aires to the Argentine Museum of Natural Sciences where the paleontologists Jose Bonaparte and Fernando Novas work. So once again the dinosaurs were out of my reach. The best option at that time was the study of marine reptiles, so I began my first incursion into paleontology under the tutelage of a great woman and paleontologist, Zulma Gasparini, for whom I have great admiration and affection, and to whom I am grateful for what I am today as a professional.

It was toward the end of 2001, when I only had three more courses to

complete the major, when my life had an abrupt change. I call it being in the right place at the right time. I met Rodolfo Coria, who is a paleontologist and director of the Carmen Funes Museum in Neuquen, a place where there are a lot of dinosaurs. He had invited me to participate in a field campaign in the Province of Neuquen which he was managing together with Phil Currie, a Canadian paleontologist. Both are recognized specialists in carnivorous dinosaurs. We worked for days on the excavation of one of those dinosaurs. Some months later, Rodlofo called me with a great proposal; how would you like to come to Neuquen? I didn't hesitate. I graduated, I packed my bags, and here I am! In a little oilfield town in the middle of the Patagonian Desert; it's called Plaza Huincul, and it is here that the largest dinosaur in the world was found, the Argentinosaurus huinculensis. It is in this place that Rodolfo is teaching me to work with fossils of carnivorous dinosaurs, and I continue to study hard.

But perhaps you want to know how field work is. Our last field campaign, in November of 2002, found us working in the area of Auca Mauida, famous for its eggs and embryos of titanosaur dinosaurs found there. Dr. Luis Chiappe of the Los Angeles County Museum of Natural History had been working in this area for many years, since the discovery of dinosaur nests in 1997. The area is very arid and the hills of layered reddish sediments of the Cretaceous stretch out of sight in all directions. There are practically no trees and the dominant vegetation is the "jarilla", which in this season is full of clusters of yellow flowers which add more color to the landscape. Our group was composed of paleontologists, geologists and students from several places, including Argentina and the United States, directed as always by Rodolfo and Luis. Our work consisted principally of mapping the eggs and nests (i.e. number and distribution of the eggs), and in the exaction and collection of the embryos. It sounds verrrrry easy!

The day starts with a breakfast in camp, located close to a tiny abandoned mining town. The municipality was restoring a building which had been used as a school, and offered its use to us, which allowed us a roof over our heads for our meals and a little less sand in our food. There were too

many alarm clocks; parrots which awoke us with their calls very early! Later, we go some 5 kilometers by truck to the quarry, which you arrive at after climbing a hill. Since there is not room for everyone in the trucks, we take turns riding in the back, among the backpacks, the water (which is brought from the camp) and the shovels. From the back, there is a better chance to see the fauna of the region, the running ñandúes (ostrich-like bird), hares, foxes and occasional turtles alongside the road. (The "maras", or Patagonian hare, is not so easy to see, but I think one of the Americans saw one, since he told me he had come across a hare the size of a dog.)

The first days in any excavation are tiring, since first you have to remove the overlying sediment or rock from the area you want to work. Sometimes it is only centimeters, other times it can be disheartening meters thick. This time it wasn't too much, and in a few days of pick and shovel work, we had outlined the quarry. Once the desired level is reached, the large tools are laid aside and we begin to work in detail, with very much smaller and delicate tools, such as small probes, brushes, hammers and chisels. This phase is slower, but none the less tiring. It is exciting to find a piece of shell and see the egg appear little by little as you remove the surrounding sediment. At the end of two weeks there were so many eggs that in order keep working we had to arrange ourselves in sometimes very awkward positions that at the end of the day leaves its effects….like numb limbs, painful backs, as well as one or more smashed finger. The sun, the wind and the earth do a job on the skin of face and hands, leaving it like dinosaur skin, dry, burned and cracked!

At noon, we enjoy a rest to eat and perhaps nap a little under the poor shade of an overhang. It is the hour of strongest sun and to avoid burn we use a lot of cream and long sleeves and pants in spite of the heat! Afterwards, it's back to work, interrupted from time to time for the obligatory mate (Argentine custom!) which is, until about 6 o'clock in the afternoon, when we pack everything up, cover the excavation and return to the camp. It was hot almost every day, and the wind would begin to blow punctually at 5:00 P.M., if not earlier. Anybody who might have happened by us would have been amazed to see us struggle to keep the enormous canvas from flying away as we covered the excavation. The canvas would shake violently and it was almost impossible to secure it while the wind blew and whirlwinds of red dirt rose in the air, filling eyes and carrying off anything that we might have neglected to put away, hats, brushes, foam mats, and washbasins. At those times, it was even difficult to talk. Our hands flew, placing rocks on the edge of the canvas to hold it

down. If it rained, the canvas would keep the delicate newly discovered eggs from being wetted and destroyed. We did this, putting the canvas over the quarry every afternoon and taking it off every morning, patiently every day, and it was a real pain every time! We always returned to the camp hoping to see the tents up (the wind broke many poles, but did not carry off any tents), and with the hope of removing the dirt with a good shower. We all gathered at the dinner table, a good time to chat, ask questions and share experiences with the rest of the team, since not all of us worked in the same place, or even spoke the same language. A peculiarity of this profession that I like very much is that it puts you in contact with colleagues and students from anywhere in the world who share a common interest; fossils, in this case, dinosaur fossils. The contact can be in paleontology meetings, or in field campaigns like this, and this is how I have met many interesting people, among them, Lowell Dingus, who proposed to me that I write this.

The work in the quarry continued, and as we uncovered them, we mapped them (i.e., drew them to scale) using a 1 meter by 1 meter scale. Afterwards, graphs would be made with this data which would reveal more information about the lives of these animals. We began to get to the final stages of the work, when we worked very carefully inside the eggs, searching for the presence of embryos which are very, very fragile, or the impressions of skin which may have been preserved. I would not like to mislead anybody, the embryos are not small complete dinosaur skeletons in the inside of the egg. Rather, imagine that the egg were used as a maraca (translator's note: maraca=musical instrument, usually a dried seed-filled gourd) and all the bones are piled and broken on the bottom. If the egg had been smashed, the embryo was smashed too, the broken remains preserved between the two shells! Additionally, you have to have a good eye to see them, and the hand lenses geologists use help.

We carried large barrels of water to the field in the trucks, and hauled them up to the quarry to make casts, made of plaster, paper and sackcloth, which allows the extraction and transport of the fossils without damaging them. When we are certain an egg contains an embryo, we make an individual cast for it. There were nevertheless a pair of enormous casts, with several well-preserved eggs inside. These weighed a lot, and we needed several people to get them down the hill on a kind of sled, and to load them onto the trucks. We spent the last days cataloguing all of the fossils and carefully packing them in boxes. The last night, we had a good-bye dinner of a barbecue under the open sky. The nights in the field are

beautiful, only in such places can you see so many stars!

I always get a little sad to return. Field work makes me happy and puts me in a good mood. But the campaign was over, and in the morning we broke camp, packed the trucks, and returned to our museum in Plaza Huincul where the eggs are stored and will soon begin to be studied. It takes a few days to get used to the change, even though it is delicious to sleep in a bed with clean sheets again after three weeks in a tent... And I am pleased in spite of everything, because working in the museum with Rodolfo is not at all boring and besides, I have the hope of going out again soon.