

How I earned the moniker, "The *Indiana Jones* of geophysics." Sheldon Breiner

My nickname in geophysical circles, "*Indiana Jones*", came about from one project, the search for colossal Olmec monuments buried for 3,000 years at San Lorenzo Tenochtitlan in the tropical lowlands of the Gulf in Southeastern Mexico.



After Science published my invited article on the use of magnetometers in archaeology, I received a call from Prof. Michael Coe of Yale University asking if I could find monuments carved from volcanic rock but now buried amongst a series of mounds in the



lowlands of southern Mexico. After receiving some rocks and soil in which they were buried, I tested them for their magnetic properties and agreed that it would be simple to find such objects, the soil being fairly non-magnetic and the monuments carved from naturally magnetic volcanic rock, making it one of the easiest such projects as there were no magnetically-competing ferrous rocks or man-made iron or steel debris.



In 1968, I flew to Mexico City, then to a quaint town, Minatitlan, near the gulf coast of southern Mexico. There, I boarded a boat, the only means of transport in that region, on a river, Rio Quatzacoalcos, aptly named "where the feathered serpent hides" (in Nahuatl). The boat was

taken right out of "*African Queen*" and used as a bus by the local peasants with pigs and chickens, women on the banks naked from the waist-up while washing clothes, all very primitive and scenic. After about 6 hours, the boatman turned into this smaller Rio Chiquito. Finally, he let me off at a mud bank with a small stick marking this archaeological site, called San Lorenzo Tenochtitlan in the very southeast corner of Veracruz state. I climbed up the bank with my electronic equipment including the magnetometer and came upon some thatched-roof huts where these people have lived for eons, literally.



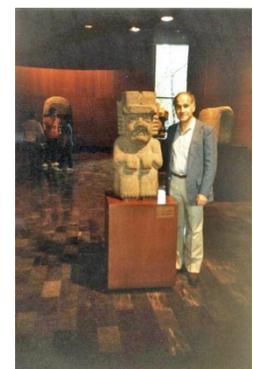
There, I got on a horse and rode with some villagers leading the way through the flat river flood plain through a 10 foot-high jungle (la Selva) with monkeys, parrots in the trees, iguanas, armadillos and much-feared snakes. Finally, we got to a mesa that overlooked the entire flat river flood plain for 50 miles in all directions.



While still on the horse, with the magnetometer turned on (since the horse did not have steel horseshoes), I noted a magnetic anomaly. I got off the horse to quickly sample a few profiles of the magnetic field to note the surface location of the source of that anomaly. Using my knowledge of magnetics, I was able to estimate the size and depth, about the size of a file cabinet at a depth of 2 1/2 meters. I marked the spot with a stake to return to it later for excavation. The local workmen took about two days to dig it up as the ground is tropical laterite, adobe-hard soil.



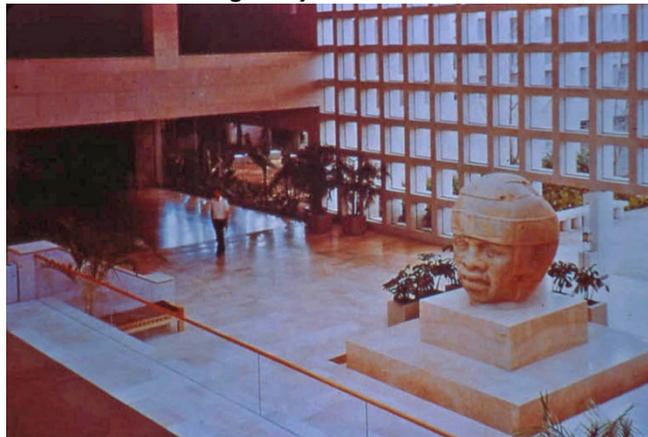
What appeared was a statue of the largest example of what Michael Coe judged was perhaps the most important Pre-Columbian example of art and sculpture ever discovered—the largest example of the chief god of the Olmec, a *were-jaguar* buried for over 3,000 years. That sculpture, shown here, is the theme-piece of the Olmec exhibit at the most famous museum in Mexico, the



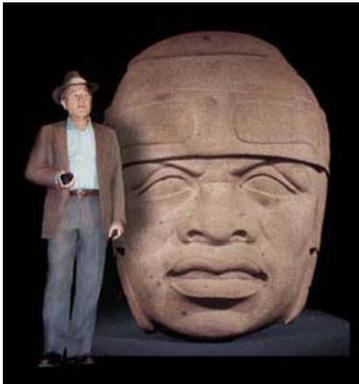
Anthropology Museum in Mexico City.



Among other objects of note was the best colossal Olmec head ever found, in full dimension (no flat back to be used as an altar) and in excellent condition as it was buried at a depth of 6 meters for 3,000 years. A museum, designed by Edward Durell Stone was later built in Xalapa (aka, Jalapa), as part of the University of Veracruz in the other end of this Veracruz state. At the entrance in a large atrium sits the head on a marble pedestal in all its regal splendor. This and another one hundred large objects were located--the oldest monuments in the Western Hemisphere.



Museum in Xalapa



Loaned to the US National Gallery of Art in 1996

Other aspects of the environment and living conditions at the site at that time that make it a real-life Indiana Jones experience: there were very dangerous snakes that killed half-dozen villagers in that area every year. Get bitten and you're a dead man in 6 hours. It also took 6 hours to get to a doctor, as there were no roads then. It is usually the kids who get bitten putting their hand in a garbage pile. The snakes are called jaunaca or bonioso by the locals; we call them, fer de lance vipers, said to pursue people and grow to almost 2 1/2 meters long. From a link, *"The fer-de-lance is the most dangerous snake of Central and South America, and causes more human deaths than any other American reptile. Its venom causes hemorrhagic bleeding and massive tissue destruction."* We found several while surveying.



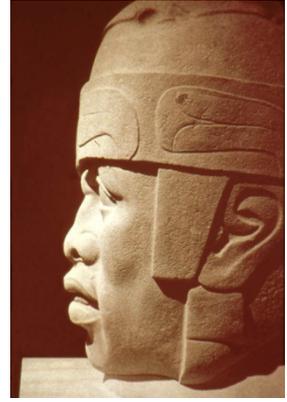
And, ticks --they were a real nuisance. I still had many ticks in my back a week after returning. These would drop down from the ceiling of the hut while sleeping and fill up on your blood. During the day while in the field working, it was 110 degrees and 99% humidity. We took showers using a suspended vegetable oil can filled with water with a string to dump it on command. There were jaguars in the area, though we didn't see any. The cook prepared such delicacies as armadillo, iguana and chicken, all tasting like the latter, but I was told not to ask what it was that we were eating. The project and its environment was, of course, very exciting.

And, for this, I am called the *Indiana Jones of Geophysics*.

I presented a paper about my experiences and received the Best Presentation Award at the International Meeting of the Society of Exploration Geophysicists (SEG). (This 10,000 person meeting, held every year in various oil centers in North America, is the world's principal assembly of those who use technology for oil and mineral exploration. That, not archaeology, is my specialty.



See this Powerpoint [presentation](#).
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SEG Best Paper Award