

Monday, September 2 – Moray and Moras

We start the day with another excellent K'yuchi Rumi breakfast and a not-so-early start. Today our guide is Carlos, Doris's partner, and he picks us up about 9:00. We drive out of Urubamba and through the countryside for about an hour to an Inca site called Moray near the town of Maras. The area is accessible only by a dirt road, which branches off from the main road through the Sacred Valley. It's a slow drive as the road is rough and we encounter the occasional herd of sheep, but the scenery is spectacular; always the beautiful, snow-capped Andes in the background.

Along the way we see a few birds, but Carlos is not the bird-spotter that Doris is and today's trip is not really about birds anyway. We do see an Andean Flicker, but more interesting to Ann is a flock of Mountain Caracaras in a plowed farm field. These are good-sized, hawk-like birds, large but insectivorous, and they are in the field hunting for insects.



above left: Flicker, *right:* Caracara

deeper into the earth than the previous one with a wide terrace area between, and therefore each circle and terrace gets smaller as they get lower.



Moray is noted for its unusual depressions of concentric terraced circles. As you approach it, you don't see it at all because it's all below ground containing three depressions into the earth, the largest of which is bigger than a football field. This was an Inca agricultural research facility ingeniously designed to help refine their "vertical archipelago" system.

Each depression is a series of concentric circle terrace walls, each one dug about 6-8 feet



The largest depression is about 100 feet deep at the lowest level. The location of Moray, on a plateau of about 11,500 feet elevation, and the pit-like construction creates a significant temperature difference, with the bottom always being about 30 degrees warmer than the surface temperature at any season.

Unlike Machu Picchu, Moray does not receive enough rain to sustain

agriculture. There is no moisture in the air here for most of the year. But this made for an ideal location for this research, since conditions could be controlled by the Inca experimenters without interference from the weather. Aqueducts were required for transporting water from three surrounding mountain springs. Reservoirs supplemented those aqueducts, which allowed for a steady flow of water despite the variable yields of the springs. Vertical channels drop water from one level of the terrace to the next, and the water runs slowly down to the lowest level, with side channels to irrigate each level. There is no drainage out at the bottom, so the bottom is very wet, almost marshy. This whole system creates varying degrees of soil moisture and humidity at each level as well as the temperature differences. This was designed to replicate the various climate zones within the Empire.

In this huge basin, they could plant many different crops and see what the optimum altitude and air moisture content was for each. It is generally thought that the Inca were trying to simulate conditions down the slope of the Andes and experimenting to see what crops were best suited for each level, and to help them select different types to grow in different locations within the Empire. Clever people they were. If only they had a written language we could understand and could have told us all that they knew.

It's a short stroll to one of the other, smaller circles that is undergoing reconstruction.





You get an idea of the size from the people walking down into the depression (lower left in the photo). The view on our walk back to the parking area gives another idea of the size of these installations. And this is the SMALLEST depression.

We see an agave similar to what is in our Tucson yard.



Not too far away, perhaps a 20 minute drive, are the salt mines of Maras. From ancient times, a stream with a very high mineral content, flowing from the mountainside has deposited copious salt, enough so that much of the salt used in Peru comes from these “mines”. Now, don’t think mine like boring into the earth. Rather, the stream is diverted into hundreds of large and small ponds where the water evaporates, leaving its salt behind as it dries out. The way they are worked, and referred to locally is more like salt "farms".



This is an impressive sight. The entire area is over half a mile long. We start from above the salt pond area and are surprised at how large the area is and how many individual ponds there are. Each one “belongs” to an individual or a family in the village but are often maintained on a communal basis by the village salt co-operative. All the ponds are necessarily shaped into polygons with the flow of water carefully controlled and monitored by the workers. The salt pools traditionally have been available to any person wishing to harvest salt. Usually there are many unused pools available to be “farmed” for salt.

Any prospective salt farmer need only locate an empty currently unmaintained pond, consult with the local cooperative, learn how to keep a pond properly within the accepted communal system, and start working.



The altitude of the ponds slowly decreases, so that the water may flow through the myriad branches of the water-supply channels and be introduced slowly through a notch in one sidewall of each pond.



They construct the ponds, water diversions and channels by hand,

skim the crystals by hand, dig and bag the salt by hand and haul the huge bags UP-hill out of the pond area by hand to where they can be loaded onto donkeys and taken down the hillside and from there to market. Some of the salt is sold at a gift shop at the site, but we resist the temptation. They do all of the work in the ponds and harvest the salt with bare hands,

bare feet,
no eye
protection.

What would
OSHA say!



Various grades of salt are left behind as the water evaporates. El primo are the crystals that form as the water begins to evaporate, called "Fleur de Sal". This is skimmed off the top and sold at premium prices. After the pond has evaporated entirely, the other 3 layers are harvested. First after the "Fleur de Sal" is good white salt that is mixed with iodine and sold as table salt throughout Peru. Next layer is pink and is used in animal feeds, etc. And finally is industrial salt. They don't salt the roads here; never need to since the snow line is about 12,000 feet and snow almost never falls below that elevation. When it does, generally in mountain passes, they simply close the road.



These ponds originated long before Inca times and have been functioning (in exactly the same manner we guess) for hundreds, perhaps thousands, of years and who knows how many generations of people.



We walk through the pond area on a narrow path (9-12" wide at most) and the footing requires good balance or there will be a salt-water drench that would ruin our boots almost immediately. We're glad we brought our walking sticks today but still we watch our step! And no, Ann is not becoming hunch-backed, she has a shirt (sun protection) on over her pack!



Along the way we see a young man carrying bags of salt up to the path from the lower ponds and then along the path to a waiting wagon.

He can't be more than 5'5-6" at most and weighs perhaps 120-30 pounds. But he hefts each 125-150 pound bag onto his shoulders and walks quickly up to the path to the wagon. Wow we're truly impressed!

After we've walked through the salt ponds we still have about a 2 mile walk to the road where our car and driver are waiting.

Not the easiest of walks, the trail is rough, but at least it's all downhill. The alternative would be to walk back through the salt ponds and to the parking area, about a mile but all uphill with some fairly steep climbs. It's a hot day and a hot walk, but this is the better way. We



pass some exposed stones where the salt has weathered away and entered the streams that feed the ponds.



You can see the empty grooves where the salt was contained. These rocks must have a huge salt content!

Along the way we pass an area where they are manufacturing the crude mud adobe (made of clay, straw and Guinea Pig fur) bricks that are used in almost every building of one or two stories here in Peru. In many cases, such as here, the adobe bricks are made right on the building site.

We get to the car and then it's a short drive to a wonderful lunch at an old Peruvian hacienda on the river, a restaurant called Tunupa. It's a magnificent building, a vestige of the encomiando era when a few landowners owned all of Peru.



The restaurant is set up to cater primarily to tourists and day-trippers from Cusco who come on the bus. But there are many locals here too; the food is wonderful and plentiful. More excellent buffet food with a huge selection of meat and veggie dishes.

And we're hungry and ready to eat!



Ann makes herself a nice vegetarian plate, and Ed has more alpaca. Medallions in gravy again, but a different gravy, plus alpaca carpaccio and a variety of appetizers . . . and of course we start with quinoa soup. Good drinks, chicha morada again and some tasty limonada, which in Peru is made with tiny limones, really little limes. Ed has acquired a taste for limonada. Cool and comfortable with vases of fresh-cut flowers everywhere.



In the courtyard there were traditional Peruvian musicians, and some ladies selling beautiful woven alpaca wool goods.



And beyond the restaurant courtyard is a lovely lawn and gardens stretching down to the river bank.



Grazing on the lawn they had one of each of the four “Peruvian cattle”: llama, guanaco, vicuña and alpaca. Ann takes a walk in the courtyard and the upper part of the lawns and gets photos of the four different beasties.



left: llama

above: guanaco

left: vicuña

right: alpaca



We return to our casita full of good food after a couple of hikes that would not have been strenuous except for the altitude. And at K’yuchi Rumi, just relaxing the rest of the afternoon. Then a good “home-made” dinner in front of our fire, eaten late since we had a late, large lunch as usual. Ann boils some tiny Peruvian potatoes and mixes them with canned tuna packed in oil. It sounds weird but it is very tasty. It will become one of our frequent dinners.