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Repair of Amezcua Guitar

from Paracho, Michoacan, Mexico

Performed by Ron Cook

April, 2006

For Suzanne Chonette of Santa Cruz, California

Background

Suzanne and I met at the Santa Cruz Art League during the Open Studios Art Tour Preview Exhibit in October, 2005. When she found out what type of art I did, she asked if I could take a look at her classical guitar to see if it could be repaired. The head had broken off about one inch up from the nut. All too often, guitars are thrown away when the head or neck gets broken. When Suzanne brought the guitar over, I was struck by the large single-cutaway design and all the beautiful abalone inlay.

I've repaired four guitars with broken heads, and I knew that this type of repair is possible. This is the first time I was to fix one with a slotted peg head. It would be a challenge.

I did some research on Amezcua guitars and on the luthiers of Paracho, Mexico. The following is an excerpt from *The Christian Science Monitor* of an article by Monica Campbell:

Guitar Makers Play to Tradition in Mexico's Mountains

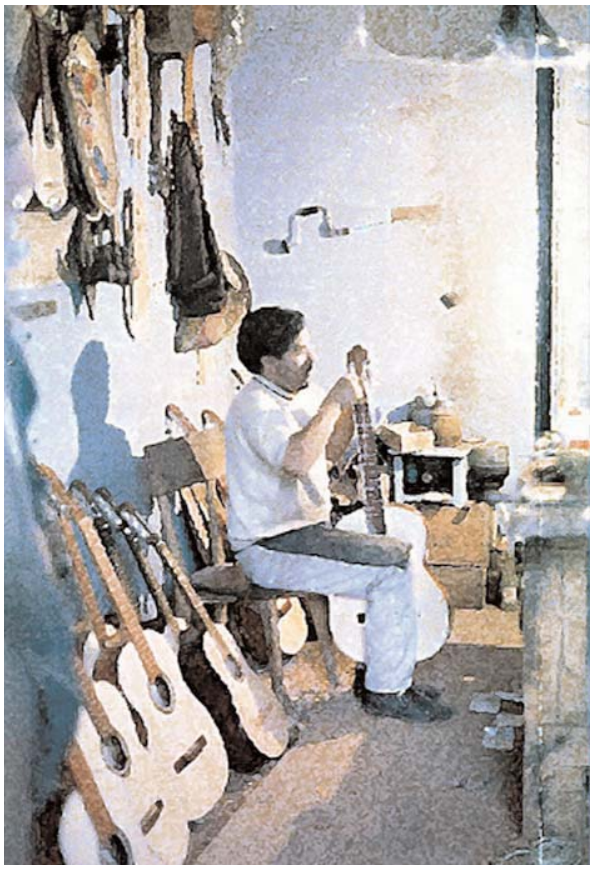
PARACHO, MEXICO - Adjusting his stocky body on a low stool, Gerónimo Amezcua begins hand sanding a classical guitar in his cool, stone-floored workshop. He works patiently, with tools passed down from his great-grandfather's era, until the instrument meets his standards of perfection. "I know there are faster and more exact ways to build a guitar, but I like to work puro ojo, puro pulso," says Mr. Amezcua, referring to his practice of working by sight and feel rather than with the precise, mechanical devices preferred by his counterparts in Spain and the United States.

Like others in Paracho, set high in the mountains of central Mexico, Amezcua prides himself on sticking to a way of life that dates back to the 16th century. Local legend has it that Vasco de Quiorga, a Spanish monk, brought the stringed-instrument trade to Paracho to promote culture and build a self-sufficient economy. The town has evolved into Mexico's guitarmaking capital and today is something of a living museum, where visitors can buy anything from cheap children's guitars to high-end classical models, while peering into old-world workshops.

But remaining loyal to tradition, some warn, may leave craftsmen here unable to compete on the world economic stage, where their products can increasingly be mimicked by foreign hands. China is already building cheaper, factory-made guitars. Mexico's artisans are the latest victims of a wave that's washed tens of thousands of jobs to the Far East. For years, maquiladoras, or factories that assemble such goods as clothing or electronics, which dot the US-Mexico border, have headed to China, which offers a cheaper workforce and laxer regulations. In all, 500 of Mexico's 3,700 maquiladoras have been shuttered since 2001, costing more than 200,000 jobs, according to the Mexican government. Even traditional Mexican items - from Virgin de Guadalupe figurines and colorful blankets to nativity scenes and marimbas - increasingly carry a "Made in China" label. Oswaldo Castro, a mariachi musician, surveys Amezcua's showroom. "The Chinese guitars are cheaper, but not so great," he says. "They don't know how to make them yet."

But customer loyalty is not guaranteed in a country where shoestring budgets can override quality and country of origin. It is said that Paracho - which literally means "guitarmaking" in the Purepécha dialect - houses the world's biggest hive of guitarmakers, churning out about 80,000 guitars a year, priced from $50 to $3,000. Kenny Hill, an entrepreneur from California, headed to Paracho in the mid-1980s to set up a more export-oriented guitar enterprise. But he pulled out in 2002, frustrated in part by an apparent resistance from Paracho guitarmakers to adopt his more modern designs and production methods. Mr. Hill now has a guitarmaking business in China. "In Mexico, I ran into few people who really understood the value of capitalizing on something," Hill says. "In China, there is a real serious ambition and will to excel."

Guitarmakers in Paracho are well aware of the outside competition. Jesus Zalapa, who runs a guitar shop a few doors down from Amezcua's, is petitioning the Mexican government to provide more support to artisans. "Guitarmakers in China can be helped by government subsidies. Here, the producer is on his own. We don't do much for the economy, so there's not much value placed on our work." Although the Amezcua brand is respected in Mexican guitar circles, family members live modestly. "It's the slow making of the guitar that counts," says Amezcua. "That's how my father taught me."



Two luthiers in Paracho

Meanwhile, the migratory drain in Paracho, mainly consisting of younger men heading to US and Mexican cities in search of better pay, may be a more immediate threat to the instrumentmaking tradition. "The Amezcuas and other older families will probably plug away for some time. They are content," says Hill. "But it is hard to find any young kids in the business. The best and brightest are leaving town."

Valuation

Paracho is to the State of Michoacan in Mexico like Santa Cruz and Healdsburg are to the State of California: nearly every street seems to have one or more luthiers on it. And like California's multitude of guitar builders, a few are great (perhaps in popularity more than personal craftsmanship), while many are mediocre to poor (better craftsman, maybe, but relatively unknown). This often makes mass-produced guitars by well-known companies worth much more than a beautiful, single, one-of-a-kind instrument by someone in a home workshop. Very seldom does a guitar from a single-person shop increase in value as time goes on--like Martin guitars, Santa Cruz Guitar Company instruments, or Kenny Hill's guitars (some now manufactured in China, as mentioned on previous pages).

Putting a value on this Amezcua guitar is very difficult, because there are very few to compare to in the United States. Also, the Amezcua family of guitar builders is large, and this particular builder, Rodrigo Amezcua Gomez, is not listed on any of the current luthier lists in Paracho. He might have gone out of business, or moved out of the area... or passed away.

This Amezcua guitar is well made. It is large, much larger than a standard classical guitar, and has extensive abalone inlay around the oval soundhole and binding. The lacquer finish, like many Mexican guitars from Paracho, is a little too thick and has raised from the spruce top and cracked. The neck is a Central American mahogany, like Honduran mahogany, that was joined a little too thinly and without much support at the head. This is what probably caused it to break fairly easily.

Once repaired, this Amezcua guitar should have a resale value of around $750. If it was by one of the more prominent Amezcua family builders, it could be worth twice that in its repaired condition. There is the possibility, that, over time, the value of a lot of instruments from Paracho can increase as the world becomes more aware of their folk-art beauty and uniqueness.

Day 1: Assessment and Inventory

The first day I always check over an instrument to find out how much work is needed to repair or restore it. The jagged break on the head was the main problem. The slotted peghead is a very weak area and is prone to snapping off on many types of guitars. Just the instrument tipping over can cause nearly irreparable damage.

After checking it out, I removed the gears from the broken peg head. The gears are in fine shape, and I was able to re-use them on the new peg head.

Note: While moving the guitar around, I heard a "rustling" sound inside. I thought something had come loose. I stuck my hand in the soundhole and pulled out a one dollar bill. I left it there.

Day 2: Repairing the Head 1

The first thing I had to do was to check the angle of the original head-to-neck joint. I wanted to be able to cut through that joint smoothly and cleanly. To do this, I fabricated a special miter box with the slot pre-cut at the correct angle.

I supported the guitar with the neck clamped into place in the miter box, and took a sharp finish saw to slowly slice through the head-to-neck joint. The bottom picture shows the result.

The piece I cut off I re-glued to the old peg head so I could use it as a template for the new peg head.

Day 3: Repairing the Head 2

I recently acquired some Central American mahogany that came from an old desk. The wood was very similar to that on the original head and neck, so I resawed a few pieces to the right thickness to use on the Amezcua guitar.

Using the old head as a template, I scribed the shape onto two pieces of mahogany. I wanted to make two of them, one for testing, and one for the repair. After scribing, I went to my band saw and cut out the outside shape. I then layed out the sides for the tuning machines and drilled the holes.

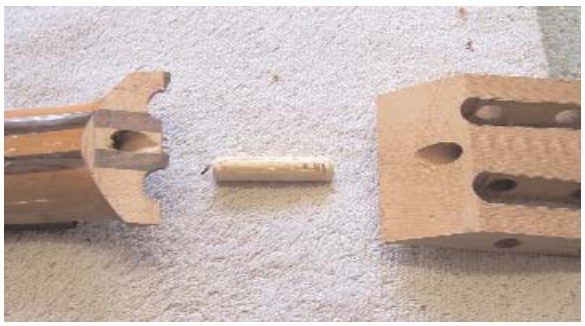
Using the template again, I scribed the slots, drilled a couple of holes and then cut the slots using a scroll saw.

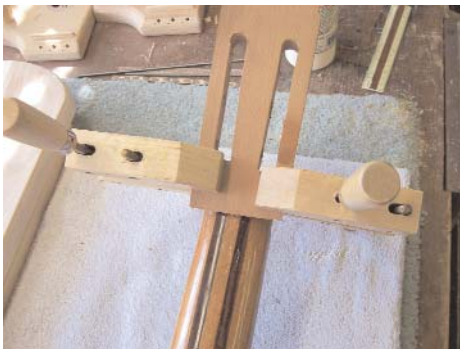
Day 4: Repairing the Head 3

Now that the new head is roughed out, I had to cut the proper angle in it so it would join to the neck in the correct position. I once again used my custom miter box, since the angle was already set.

After measuring and rechecking several times, I clamped the new head in the miter box and made the cut. The right picture shows me holding the test piece to check positioning. In the background is the final piece and the old head template.

Day 5: Repairing the Head 4





On day 5, it was time to join the new head to the neck. I always believe in over-engineering glue joint repairs a little. One thing I always do is add a length of hardwood dowel to bridge the joint. This is a 5/16 inch thick dowel about two inches long.

After careful measurements, I used my drill press to make the holes the proper depth and at the right angle. I had a little trouble clamping the angled joint, because the head kept wanting to slide off the angle. However, after a few moments, and with some additional clamps set so the head wouldn't slide, it held fine.

Day 6: Repairing the Head 5

On day 6 I was able to observe the results of the new head attachment. I was very pleased with the results, and was able to start shaping the new joint and blending it in to the neck.

One other thing I like to do to help strengthen the neck-to-head joint is to slot out the back and add a “cleat.” This, like the dowel inside, bridges the joint, but this cleat strengthens to protect from the upward pull off string tension.

Day 7: Strengthening the Head-to-neck Joint

Day 7 was a short work day, and I spent what little time I had available shaping and sanding the new head and getting it all ready for the next step.

Day 8: Nut and Inlay Gluing and Top Repair

I wanted to set and glue the nut before putting on the laminations. The old nut was in fine shape and only needed a little cleaning. The nut slot was still there on the unbroken part of the head, just above where the new head joined it. I scraped the old glue out, and used a white glue to attach the plastic nut to the neck.

After gluing the nut, I started preparing the pieces to laminate to the top of the head. Besides being decorative, the head lamination also helps strengthen by bridging the top portion of the glue joint where the head and neck meet.

At this point I also started a “mini” refinish of the top. There was a fairly deep gouge on the top under the fingerboard where either fingernails or a pick had scraped the finish and some wood off the top. There was another wear spot, not quite as bad, under a clear plastic pick guard. I was asked if it could be removed, and I wasn’t sure when I first looked at the guitar. Some pick guards have adhesive that is so strong it can pull up wood fibers when removed. Fortunately, this didn’t, and I was able to gently peel it off.

Because of the thick finish, the lower bout had cracked along the grain, probably due to moisture getting under the finish. The wood was not cracked, but the finish was and had raised up in little ridges. I scraped and sanded these down flat, and sanded where the wood grain was exposed.

Day 9: Head Laminations

Now it was time to add the head laminations. I started by gluing the center decorative inlay. I resawed a small piece of Madagascar rosewood I had that was left over from a previous guitar project. I cut two book-matched pieces, scribed them, and cut them out to fit on each side of the center inlay.

Day 10: Sanding Head and Prep for Finish

On day 10, everything was coming together. I did the final shaping and sanding of the head, and started all the preparations for putting on the finish, which included taping all the areas that I wanted to protect from getting any overspray or dripped varnishes.

Day 11: Varnishing

After a final dusting and cleaning, I tried using a spray lacquer on the top and head. Unfortunately, the bare wood didn't take the lacquer well and discolored. The head was fine, and I was able to put a couple of coats on it. Fortunately, this was one of the few sunny and fairly warm days we had between all the rain storms, so I was able to hang it outside to do the spray work.

Days 12 to 14: More Varnish

Applying finish often takes several days, and if there is any dampness, or if it's very cold, finishes take even longer to dry. And... the rains came again and kept me inside to do the rest of the finish work.

By this time, I had four or five coats on the head, and it was turning out quite well. I had to resand the top a little and restart the finishing process on it. This time I added some powdered coloring to the varnish and it blended in much better.

I spent the next couple of days adding to the finish, and then waited 24 hours before the final steps.

Day 15: Completion

I spent the last day on all the final steps to complete the repair. I first rubbed out the finish with pumice and rottenstone. These are very fine abrasives, applied with a pad and mineral oil, that take out any imperfections in the finish, like brush strokes, dust specks, or any slight scratches . After the rottenstone rubbing, the surface almost shines. With a little non-abrasive paste wax, it does.

I next installed the tuning gears. These slipped right into place quite easily. The last thing to add was a new bridge, since the old one was missing. I had a piece of bone blank that was long enough, cut it to size, and sanded it down to fit in the slot.

Note: This bridge is over 1/2” longer than most classical bridges. My regular bridge blanks did not fit. Hence the need for the longer bone blank.

Finally, it was time to string it up and try it out. Beautiful!

This was a challenging project, and I’m very pleased with the results. This Amezcua guitar can now be played and enjoyed for a very long time.