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Restoration of Circa 1900 Concert Zither



Completed by Ron Cook

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For Clare Schurner

Background

Tens of thousands of concert zithers were manufactured in both Europe and the United States in the late 1800s and early 1900s. There were many shapes and styles, with the number of strings often ranging from 31 to 46.

Clare's zither is one of the most common styles. The oval sound hole was used more often on German and Austrian instruments. Only a few U.S. made zithers had oval sound holes, and they were often decorated more ornately. Many zithers have lost their manufacturer labels, making it difficult to determine maker and place of origin. Sometimes there are signatures or stamped labels hidden inside, but not that often. Small differences in shape, tooling, styles of bracing, and types of woods used can sometimes give clues as to the maker, but that's a research area that requires many years of study. Museums, like the National Music Museum at the University of South Dakota, are better staffed and equipped to research instrument makers.

The following photos show Clare's "unknown maker" concert zither on the left compared to an "Alpine zither" on the right, from the National Music Museum, and made in Munich between 1880-1890, and attributed to Johann Halswanter. The museum's description calls the shape the "Salzburger form". Its maker's label is missing, and another label, "Made to order/for/Prof. J. Schwemberger, is in its place. Clare's zither has an old studio photo of a woman in gypsy costume holding a Neapolitan mandolin in place of a maker's label.



These two zithers are not by the same maker as evidenced by the size of the sound holes, and the tooling on the fingerboard gear covers. Also, the metal used on the gear covers is different on each zither. Clare's has an unusual golden color and the museum zither has the more common silver color.

Valuation

Many similar zithers show up on online auction sites and prices vary according to condition, style of instrument, and amount (or lack) of decoration. I've seen zithers like Clare's go for under \$50, and sometimes for over \$300. Very ornate, larger zithers can go for \$1000 or more. Because of the number of instruments coming up for auction and the variation of prices, valuation is difficult. This zither has no decorative inlays or custom work and was probably sold as a standard model. The top cracked, not from string tension stress, but from wood shrinkage, which is a fairly common occurrence, since the top is a thin hardwood veneer over approximately 1/8" pine. Pine is susceptible to moisture, and if stored in a warm, dry area for a long time, the wood will dry and shrink. Fortunately, all glue joints are intact and the frame appears to be in good condition. The fingerboard shows normal wear from extensive playing.

Day 1: Assessment



On the first day, I always look over an instrument to see how much work is needed to repair or restore it. When I first unpacked this zither, it looked to be in very good condition. The fingerboard showed some wear. The first few frets were “scalped”, where finger pressure on the strings wore indentations into the hard wood. This isn’t a problem at all, so I didn’t have to do much work on the fingerboard at all. The main problem was the top cracks which ran the length of the soundboard on both sides of the sound hole.

Most of the remaining strings were brittle and corroded, so it was agreed to restring it with a new set.

The photo inside was placed where the label would normally appear. With a little inspecting, I determined that the original label was not underneath the photo. The name at the top of the photo, what looks like Miguory, was probably the name of the photo studio that took the picture. No references to the photographer could be found on the internet.

Day 2: Unstringing and Removing Gears & Pins



On Day 2 I took the strings off and explored the zither inside and out for any additional problems that might show themselves. The external glue joints looked solid. I used my new inspection mirror to look around inside and could not find any maker's marks, and, fortunately, all the bracing looked intact.

I removed all the tuning pins and the tuning gears and plate and set aside for cleaning.

Days 3: Cleaning



Today was cleaning day. I began by using a paste-style metal polish on the tuning gear plate and the metal part of the gears themselves. A little work with the light-abrasive polish took all of the old dirt and corrosion off the plate, bringing out its original “German-silver” shine. Note that German silver is not silver, but a combination of copper, nickel, and zinc that produces a silver looking metal. It’s also called nickel silver.

Next I took some water with a little liquid dish soap and cleaned the surfaces of the zither.

Day 4: Fixing Top Cracks



The spruce or pine under the thin walnut veneer shrunk enough to split the veneer. The cracks on each side of the sound hole were quite large, almost 1/16 of an inch at the widest points. Clamping the side of the zither would not close up shrink cracks. Only stress cracks can sometimes be closed by clamping the sides. For this zither, I took thin, tapered pieces of walnut and forced them into the cracks with glue. On one side of the crack, the surface was slightly higher, so I used a wooden clamp to force the sides to be as even as possible.

Day 5: Touching Up Top Cracks



Now that the cracks were filled, I began applying some walnut stains to the new wood. This took several hours between coats using three different colored stains to get the new wood to look like the old.

Day 6: Gluing Cleats



For large top cracks, I glue small “cleats” to the underside that span the cracks. (Cleat pieces shown at top of zither in photo.) I installed three cleats on each side of the sound hole.

Days 7 through 9: Re-Ebonizing the Fingerboard & Coating the Top Cracks



It is obvious that at one time this zither was played quite a bit. The fingerboard is a hard, white wood, probably maple, and “ebonized” with a black stain to look like ebony. Because it was played a lot, much of the black stain was rubbed off, especially on the first five or six frets.

After putting painter’s tape around the fingerboard to protect the top and side during staining, I used some 0000 steel wool (very fine) to remove a few scratches and prepare the fingerboard for staining. With a small brush, I applied a couple of coats of water-based black stain, wiping any excess between coats with a cotton cloth.

Once I took the tape off, I applied some tung oil varnish to touch up the areas of new stained wood where the cracks once were. The re-ebonizing and tung oil applications took several days between coats.

Day 10: Rubout, Polish, and Install Gears



On Day 10 I used some rubbing compounds to begin polishing the zither. Because I applied new stains and tung oil to the new wood in the top, I had to rub it out to remove dust and application streaks and to match the original finish. I use pumice and rottenstone to start. Pumice is a light abrasive, and rottenstone is a very light abrasive. Each is applied with a pad soaked with mineral oil and rubbed in a circular motion.

After the pumice and rottenstone treatment, I polished the whole instrument using a paste wax. Then I reinstalled the tuning gears.

Days 11 & 12: Clean and Install Tuning Pins



With a fine wire brush attached to my drill press, I cleaned the corrosion off all the tuning pins. This process took a few hours to complete.

The next day, when I started to reinstall the tuning pins, the first one slipped in too easily. I knew that it would not hold the string in tune well, so I took it back out and dripped a special liquid into each tuning pin hole. This liquid is used to swell wood so the pins will fit tighter. It's most often used for chair rungs that have come loose, but works well for stringed instruments that have fine-threaded tuning pins.

After I let it soak in for a few hours, I reinstalled the tuning pins. They now fit tighter.

Day 13a: String Up and Tune



It was finally time for stringing. I had to wait another week until the new strings I ordered several weeks earlier arrived from Germany. Sometimes they come within two weeks after I order them, other times, it seems they get stuck in customs and take nearly a month to arrive. These took around three weeks.

As soon as they came, I started stringing up the zither and tuning it. I have a digital tuner that clips to the instrument and shows the notes as each string is plucked. I tuned this to the German “Munich” style of tuning. (Tuning chart is included at the end of this repair log.)

Day 13b: Completion



I always enjoy the challenge of restoring or repairing zithers. Every instrument is different and it requires quite a bit of thought and research to complete the task. Fortunately, this zither was fairly well taken care of and obviously played very often. Its only major problem was the shrinkage cracks on the top, which probably came from long periods of storage in its later years.

I find it very satisfying to be able to keep antique and family heirloom musical instruments in working order for future generations to enjoy.

Concert Zither String Diagram Munich Tuning

There are two zither stringing formats in use today: Munich and Vienna. Munich is the most commonly used because it incorporates every note in the chromatic scale encompassed by the scope of the instrument. The stringing pattern on the fretboard is like the violin family, a fifth apart. The open strings are in the circle of fifths, broken between Eb and Ab and laid flat on the zither, similar to a accordion layout.

Fretboard
Munich Tuning

a-440 - tuning fork or digital tuner

Accompaniment Strings 1-12

13 14 15 16 17 18 19 20 21 22 23 24

Bass Strings 13-24

25 26 27 28 29 30 31 32 33 34 35 36 37

Contra Bass Strings 25-37

In addition to the basic 29 fretboard, accompaniment and bass strings, zithers may have 2, 3, 5, 7, 9 or 13 contra bass strings - the full harp zither has 42 strings (5 fretboard and 37 open strings). In some early versions, and on perfecta zithers, the contra basses were arranged in the same circle of fifths as the accompaniment and bass strings. Munich tuning was often expressed in treble clef (violin key, or similar to guitar clef) but today is mostly written in bass clef.
