Cary Clements
Luthier

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COVER STORY

An institution recently ended in Fern Hill, Washington, the neighborhood which includes both *Vetus Pigmentum* and Higgy Towers. Harvey Bottiger, the postal carrier (or "mailman" in the local vernacular) who has delivered the daily mail to G.A.L. Headquarters for 7½ years, has been moved to a new route. Harvey, who has got to be the nicest guy who ever lived and the most cheerful mailman of the modern era, has been moved to a route one block away. For an incredible 29 years, Harvey has trod the sidewalks and lawns of 98408, delivering a whole lot of letters and making friends and fans wherever he goes. On this issue's cover Harvey is shown with his biggest fan, namely Peg, Tim and Deb's 3-legged cat. Poor Peg! She waited for Harvey every morning, rolling around on the sidewalk and mewing, if you can call her airy little gasp a mew. David Fisher took the picture.

Good luck, Harvey!

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Picture Credits

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CORRECTION: The chart appearing on page 10 of Vol. 8, #3 should have been credited thusly: "Reprinted with permission from the Catgut Acoustical Society Newsletter."

FACTORY LIFE

by John Judge

IN JANUARY, 1966, AFTER RETURNING TO Rhode Island from a year in California, I saw a small article in the *Westerly Sun* about a theft at the Guild Musical Instruments Plant on Mechanic St. in Westerly, RI. Being unemployed, I decided that I might check out the possibility of working there. I was hired immediately, mostly because I had played guitar for ten years at that point and knew what they were supposed to look like. It seems Mr. Drange, the company pres., had bought a furniture factory and was trying to transfer his plant from Hoboken to Westerly, for numerous business reasons. Considering how much the Hoboken operation was costing, Avnet (Guild's parent corporation) made out well. A lot of the older, higher paid employees stayed in New Jersey and the Rhode Island workers got very low wages. I was hired at $1.60 an hour, minimum wage at the time.

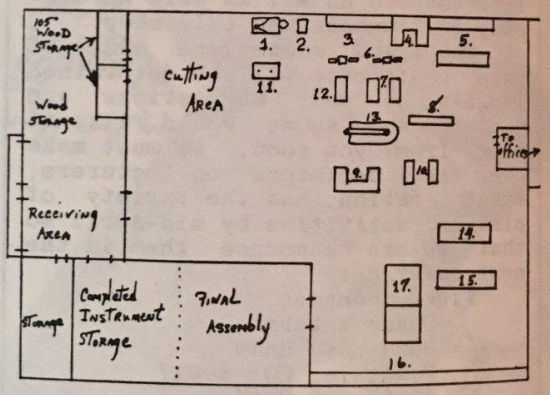
The plant is laid out so that the material-to-guitar transformation is carried out in a U shape. This is an excellent layout. A straight line might isolate dust a bit more, but heating and air conditioning would be more expensive, and you'd end up with two loading docks. The light was from a series of north facing skylights (also excellent) augmented by flourescent work lights (horrendous). For machining, flourescents are good, cheap, cool lights. But for final sanding anything they'll drive you blind. You really need natural or filament light. The large windows on the side of the building were textured, and all views of "outside" were obscured. For production and safety this was probably for the best but after a few months it lent an air of captivity to the work.

My first month there was strictly jig work and gluing up tops and backs. The second day I was there I was put on an overhead shaper, a massive and very loud machine that shapes the braces for the tops on acoustics. It utilizes a cutter, shaped something like a yo-yo, and a jig to cut the back of the braces. The cutter hangs over a table, like a drill press, and one jig does one half, another does the other half. (See Data Sheet 169)

After three hours on the machine I asked my instructor why the jig didn't slide so good, and the table was all stained. He said the guy I replaced lost two fingers on the machine the day before I was hired. After that my respect for the machines and my consciousness of exactly where my hands were increased dramatically.

The first couple of months were full of excitement. The top I was gluing up might be played by Eric Clapton or Charlie Bird (both of whom played and endorsed Guild at the time). If the braces had any curley grain or knots I would throw them out. Anything that was off was out. My production was very high--I was into the job.

On one of his trips up from N.Y.C., Mr. Drange decided that I would join



KEY TO GUILD FLOOR PLAN

1. OVERHEAD ROUTER/SHAPER
2. ABRASIVE PLANNER
3. TOP & BACK GLUE-UP AREA
4. KERFING AND LINING GLUED TO SIDES AREA
5. BODY ASSEMBLY AREA W/PNEUMATIC PRESSES
6. INFLATABLE DRUM SANDERS (2 OR MORE)
7. HORIZONTAL BELT SANDER
8. HORIZONTAL BELT SANDER (OVERHEAD, 20' X 8" BELT)
9. BINDING GLUE-UP AREA
10. BODY TO NECK ASSEMBLY AREA
11. 2 HEAD, 2 DIRECTION SHAPER TABLE
12. NECK SHAPING BENCH
13. VERTICAL BELT SANDER (AS IN D.S. 81, BUT 10' X 8" BELT)
14. FINAL DRY SANDING
15. WET SANDING AREA
16. FILLING AND LACQUER MIXING BENCH
17. SPRAY BOOTHS (2)

Bill Bishop in his weekly trips to Hoboken and learn other aspects of guitar making from the masters in the old factory. I would learn to shape necks, set up, and repair.

The Hoboken factory was much smaller and jammed with benches and machines. It was on the second floor, over a leather tanning company, and the smells and sights were quite an experience. There was a feeling of age. Guitars, some of them ten or fifteen years old, hung from the ceiling and I'd never seen so many high quality instruments in construction. I spent my first lunch hour playing all twenty of a batch of Mark 7 classic guitars.

The Guild workers usually didn't learn as many jobs as I did, in fact the average worker stayed at the same job for years. I learned as much as I did because of the unusual circumstances that surrounded the plant's move to Westerly.

My neck shaping would develop under the tutelege of a fellow named Miguel. The neck had already been bandsawn, truss rod installed, ears and head veneers applied, dovetail cut, slots in peghead cut (if classical), fingerboard glued on, peghead profiled on a shaper, and neck rough shaped on a shaper from first fret to twelfth. Now, this doesn't leave a lot to be done. I glued the nut on first, used a template to mark out and sand away the end of the classical fretboards to conform to the shape of the soundhole using a large vertical belt sander, sanded the heel to the width of the fretboard using the same sander, sanded the nut to the width of the fretboard and sanded the arch from the nut to the first point on the peghead; marked out the outline of the heel cap with a template that fit over the dovetail (already cut), shaped the heel to twelfth fret and first fret to first point areas with a pneumatic rasp (described later), final sanded the neck and delivered it to the neck and body gluing bench.

Miguel was shaping 28 necks a day, two cartloads of fourteen necks each. He was really good (and still is).

The plant manager in Hoboken was a fellow named Carlos. Reported to be very knowledgeable in guitar building, I found him to be prehistoric in management. The situation was this: 80% of the working people in Hoboken were Italian. They were in this country on working visas and, if they lost the job, back to Italy they went. I am Italian, so don't accuse me of ethnic slurs, please. The Italians would not stand up to Carlos or anybody else for fear of loss of job/citizenship. On the other hand, I felt that my countrymen (and myself) were being used and, seeing as I had made $9,000 the year before, I felt I should try, in a subtle way, to change things. Keep this in mind.

I commuted the 150 miles each way and spent three days a week in Hoboken and two days a week in Westerly. I was soon telling other people in Westerly how they did this or that in Hoboken. Soon after that I stopped going to Hoboken and was put in a position of producing necks in Westerly...18 or 20 a day.

After a few weeks, this routine became trancendental: I could have been making piano stools or orange crates. Meanwhile the pressures continued to build, the factory needed more necks per day than I could furnish. What a predicament!

With all this pressure on me, and the pressure of supporting a family on $1.80/hr. (I'd gotten raises), some other employees and I sometimes got out of hand. We had spontaneous parades around the coke machine or went swimming in a granite quarry instead of lunch and walked back in ten minutes late soaking wet. Some of the final assembly crew, Charles, Susan, and Jerry were my usual co-conspiritors, and, to their credit, it was usually their idea.

Carlos couldn't take too much of this. He knew that if we kept this up he would lose control, so he tried to make me buckle down to the job. He threatened to fire me. I told him my last job paid me over $600 a month take home, to which he said he didn't believe me. The next day I brought in my W-2 forms. He offered me a nickel raise. We continued to party and my production fell to 15 necks a day. Carlos came up and told me that Miquel was shaping 50 necks a day and I figured out that that was one neck every ten minutes, plus two necks. I handed him a blank and said "show me". He couldn't or wouldn't.

On another visit he picked up a finished classical neck and said "Reshape this, more off here and here." So I did this and made a big point of going up to

him in front of two or three other people and getting his approval. He said fine. I put a penciled X on the heel and put the neck under my bench. Near the end of that day he stopped by to inspect my work and I picked out the neck he had previously approved and said, "How about this one?" He started ranting and raving about how it was all wrong, not even close. In front of all these other people I showed him the X and told him it was the one he had approved earlier. He was so angry and embarrassed that he said nothing, stomped out of the factory and didn't return from Hoboken for two weeks. He never again got on my back.

Now, all of this has nothing to do with making guitars. Can you imagine trying to make quality instruments with these games going on? But the brains and hands were there. So were the jigs. When someone says that "handmade" instruments are the only quality instruments, I say let's see you hand-route the truss rod slot, or make a fretboard arch more even by hand than you can by using a shaper. Machines have their uses. Look at some of Guild's tricks:

1) A jig for gluing top and back braces. This is a pneumatic press with an air pressure regulator to adjust the gluing pressure. The braces are placed in a form, glued-side up, the top placed over two pins and the valve opened. Poof, all braces glued at once, perfectly.

2) A pneumatic shaper rasp for neck shaping. This was essentially an air motor, lever operated, with a barrel rasp (1 1/4" x 1 3/4") for a cutter. It's great for removing wood for heel shaping, and has adjustable speed through air pressure regulator and the lever action.

3) To sand the curves of a neck, a sander with an inflatable drum on each side was used, similar to Sand-Rite Mfg.'s model #DD-63. (Sand-Rite Mfg. Col, 1611 North Sheffield Ave., Chicago, IL 60614.) Equipped with 4" x 8" air-filled canvas drums, it was used to final sand and shape all the curves of the neck. Because the drums could be partially deflated, they fit perfectly. With a drum on each side of the machine the curves on both sides of the heel could be reached without interference from the stand. With a hard 6" diameter drum the sides of the acoustic guitars were sanded after the installation of bining.

There were numerous jigs for shapers, table saws, drill presses, and sanders such as that shown in D.S. 81 by Rolfe Gerhardt. Most of these have been written up in Data Sheets or are obvious.

What a way to learn instrument making! Technology was not taught at all. Theory of acoustics was the last thing management wanted the help to think about. That is not to say that that management didn't know the theory of acoustics--they certainly do. But management works for the Corporation and the Corporation wants PROFITS. Management hasn't got the time to give classes in wood structure or acoustics.

One of the main drawbacks to learning lutherie by working for a major manufacturer, besides the above paragraph, is that all of the operations are done with the best machines under the best possible conditions. I left Guild Musical to do repairs in my wood-heated guest room. My only machines were a radial arm saw and a hand drill. Because I had been taught how to build boats when I was a teenager, I knew how to use planes, chisles, spokeshaves, and other hand tools. In fact, I've found boat carpentry and its related services very useful to my lutherie endeavors.

In summary, some manufacturers think you should work for peanuts for years and be thankful for the training. You should ask yourself the following questions. Will I be involved in a comprehensive training program? Will I make enough money to survive for five years and buy tools and machines to open my own shop? Will I get a certificate or diploma or do I end up with five years employment on my record at minimum wage? (How will someone else know I wasn't just sweeping floors?) In my opinion I think you should consider all the ways to learn the craft, ask all the above questions and a few more, figure out how much time and money you can invest, and then come on in, the water's fine.

Monkey (Rhesus). (½)

One form of Sextant.