

Jack Holcomb
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Interviewer: Jim McConnell

Jack Holcomb (JH): Hello. I'm Jack Holcomb. I'm the regional hydrologist for the Forest Service here in Atlanta. I started my career in 1979 on the Shasta Trinity National Forest. I started out as a field hydrologist, working in soils, geology, and hydrology on the Weaverville Ranger District, and did that for about eleven years. Three years before leaving to come to Atlanta I became the resource officer where I worked, in minerals, lands, range, and archaeology. I've been in Atlanta about eleven years; I'm now the regional hydrology and watershed management program manger. Probably will stay here until I retire.

Jim was asking me to talk about guitar building, which is a real love of mine. Some people call it a hobby, but actually I think it's more of a passion. I'd like to tell you a little bit about how I got started in guitar building. I probably built my first guitar when I was about, I would say four years old living in the hills of West Virginia. I took a board and some nails and string and put it together and tried to make a sound, because I had seen a guitar on television. Well, I started playing guitar in high school, and kind of put that down when I went in the military. And when I started college, back in the early '70s, I met a classical guitarist and asked him where his teacher, where he learned, and he told me where his teacher was located, so I started taking lessons. And I'd been playing classical all along, when I could. I had a family and career, and kind of put it on the side burner. And then I was on a trip to a regional hydrologists' meeting in Albuquerque back in 1998, and I visited a guitar-making shop by the name of Pimentel and Sons. And Lorenzo Pimentel, the master guitar builder, gave me a tour of his shop. And he showed me how the sides were bent, and how he planed the wood and built the rosettes, and how the different woods make different sounds, and I got very fascinated with the whole process. So I had him build me a guitar out of Brazilian rosewood. That was kind of the start. I decided that, well if he could do it, maybe I could do it. So I bought some woods and got started here in Atlanta. I hired somebody to kind of help me through the process, and I used this guitar-making book called *Tradition and Technology*, by William Cumpiano. He's up in Northampton, Massachusetts.

Jim McConnell (JM): Hold it up so we can see it.

JH: So I bought the woods, and... If you'll excuse me a minute I'll grab a couple pieces of wood here. [Walks off-camera; returns with pieces of wood] When I bought the woods they looked much like this. This is actually Brazilian rosewood, but I want to use it as an example. I get it, it's about a quarter of an inch thick, and then I plane it down. This would be the back, and these would be the sides of the guitar. The neck actually comes in a piece of mahogany; just straight mahogany. And I'll right now kind of go through the process of how I built these guitars. This starts out as one straight piece of wood. And I take a [back/hack?] saw or [Japanese dovetail] saw and cut a curve here. And then I cut these blocks and glue them on, and then I cut slots for the sides, and then I glue rosewood and maple and ebony on the top. And this basically is the

block that I use to form the neck. Once I do that I start working on the sides and the top. As you can see, with these guitars [indicates unfinished guitars on table behind him] I've just left these until I get to the point where I actually need to start using a chisel to make the different form on the neck, to make the heel and the head [stalk]. These are the... The tops just come in a flat, again a quarter inch piece of board. This is actually Englemann spruce from Canada, which I use for my classical guitars. I join these; use a hand plane to... that I've set up as an actual joiner to put these together. And then I take a hand planer and plane these tops down to about two millimeters. I use a hand circle cutter to cut the hole, and then inlay this rosette, which I buy because it takes hours and hours and hours to make one of these by hand, and I can buy them fairly cheap. Anyway, I inlay these into the top of the guitar. Once I do that—let me put this back up here—I'm going to use this steel string guitar as an example, but once I do that I start bracing the top of the guitar. These braces are glued onto the top, and then they're shaped with a chisel. And it's very important, in terms of the shape, the thickness, and stiffness, of gluing these on the top, because it basically determines what the sound of that guitar's going to be like. If you don't remember anything about guitar-making, the most important thing is the top is really the key. The stiffness of the wood, the bracing pattern. A lot of people think that tighter grains make a lot more difference, but really it's more stiffness of wood than anything else. And then once the braces are on [taps the wood] you kind of tap it and you're listening for a particular tone out of that top. You can shape these braces or then sand the outside. So once the top is braced-- I've already glued the sides together [indicates the guitar frame he's using for demonstration]-- I glue the sides onto the top, and then put this [crooking?] material to hold the back and the top. And I built a form board here that I use. I use rubber bands and different types of clamps to glue those sides on the top. Now the back is done similarly, but it's very bold, large bracing, because of the strength. There's also a very slight arch in the back, and that's done by making an arch in the braces before they're glued on. So then you have kind of a nice oval shape. The reason that's done is for strength. If you put a slight arch in the back, then it gives strength to the guitar. Once that's done, then the back is set up and glued on the top. The neck on my classical—I'm going to go back to the classical guitar, because that's where I've had most of my experience—this neck is shaped, as I said earlier, in kind of a rough form. Once the neck is glued onto the side of the guitar, I take an old, one of the old brace and bit drills, and I cut out this slot, and then use a coping saw to cut the center, and then I use chisels and files and small saws to make these cuts and to do this kind of shape. So basically, this is what the neck looks like as a blank [display the unattached neck form in one hand]; this is what it looks like after I have done the carving [displays the completed neck in the other hand]. And when it goes onto the guitar. One of these necks takes me about fifteen to twenty hours to do. It's a very slow, tedious process.

I think I'd like to talk a little bit about the guitars that I've made over this time in the last couple years. This is the first guitar that I built here in Atlanta, and it's made out of Engleman spruce and Indian rosewood. Indian rosewood and Brazilian rosewood are probably the most popular woods for guitars. The Brazilian rosewood is on the extinct list and you can't get it anymore. But this is all crafted by hand. I call this my kind of rough guitar because when I look at the detail compared to what I do now I can see my learning curve and how I've progressed. It's kind of a heavily over-built guitar, but it has a very nice deep sound to it. [Plays a few chords.] What you're looking for is a balance between the treble strings and the bass strings, when you build these guitars, so that they ring out, but the bass doesn't overpower the treble and there's a lot of... It's actually kind of an art that you have to work through and you kind of get a feel for it. The

fingerboard on this guitar is made out of ebony, and it's glued onto that neck, and onto the top, as one of the final steps that you do before you put the guitar together.

So this is guitar number one, and this would be guitar number three. And this is the fingerboard glued onto the neck prior to gluing the bridge on. I think I'd like to use the second guitar that I built to talk a little bit about this bridge placement. This bridge, and the placement of the bridge, and the saddle here, basically determines the intonation and how the guitar is going to sound in terms of being on key. So if you... There's a number of measurements that you have to take from this bone saddle up to the twelfth fret at different positions. So that when you play an 'E' down at the twelfth fret, it is an 'E'. And if this is off ever so slightly, the whole guitar will be off. So you might as well start over, or rip the bridge off, or... You can take the bridge off and re-glue it, but it's a lot of work. So it's best to get it done the first time. The bridge is made with chisels and files, and I cut these slots, first with a very fine saw, and then I chisel out the slots and glue this bone on to hold the strings. The nut up here is also made out of bone, and it's slotted in here. This guitar was made entirely in this room with hand tools. I use a plane like this to plane the top down to the two millimeter thickness. And I have some chisels. This is a... Well, let me see here. This is a gluing chisel, but it's just a typical chisel that I use for carving braces. A lot of the guitar making art revolves around the ability to use and understand tools. It's very important that they're razor sharp and the tools are, the chisels are shaped properly for guitar-building.

I built this second guitar last summer, and then in April of 1993 I went to Massachusetts, and I actually studied under William Cumpiano who wrote this book. I took a two-week individual class from him. And while I was there I built this guitar. This is a very, very special guitar for me. First of all because I was able to work right next to William. He built a guitar at the same time. I took my own woods up there. This guitar is made out of Madagascar rosewood, and you can see the difference in the color of this guitar. It's a really beautiful... Aesthetically it's very appealing, but it also has a very nice sound to it. It has a kind of a bell-like ring. The top again, the Engleman spruce is kind of my favorite top wood. The bridge is also made out of Madagascar rosewood as well as the head stalk. The process is the same. But this guitar has a lot more detail in it in terms of the binding and the way it was put together. It has a herringbone strip that was inlaid into the top as opposed to just the piece of rosewood.

One thing that I neglected to talk about which is really important is that you start with sides like this [picks up and displays examples of side pieces]—quarter-inch piece of wood—and you end up with a [bent?] piece of wood that's perfectly shaped. [Runs his fingers along the edge of the guitar.] Well, how do you do that? There's a couple different ways, but I need to step over here and grab something off of my tool bench. Excuse me. [Leaves the picture, then returns with bending iron.] This is a bending iron. And this is basically like a big curling iron. It's a heated aluminum block. It's oval shaped. You can see some of the redwood stains from when I bent my sides, but what I do is I heat it up to over three hundred degrees, and there's a way to kind of play with this until you get exactly the right temperature. Then I take these sides and mark them for the curvatures, and then I basically bend the sides over this bending iron. [Demonstrates holding the sides over the iron] That is one of the more difficult parts of this whole building process, because if they're not bent properly, then you end up with a guitar that has a very odd shape. If you bend it too quickly, sometimes the wood will crack. I've never had that happen. But that's basically how that is done. Okay, that kind of gets us up to the finishing of the guitar,

or at least gets us to... I have two guitars here. One that's unfinished and one that's finished. I'm trying a little different technique on this, using a water-based lacquer on the back. And I French polish the sides. I typically French polish the whole guitar, but I'm doing something different here. Okay, so what is this French polish? A few hundred years ago when they started making these guitars they used shellac to hand rub each layer into the guitar, and that's what I do. I take shellac, oil, and a little bit of alcohol after it am sanded down. And I rub this lacquer until it starts to develop a kind of fill coat. But it's very thin; it's like water. And the reason you do that is you don't want the thickness of lacquer or even shellac to build up and inhibit the sound. So to do this process and get this kind of finish—and this is not quite finished because I still have a final coat to do and some polishing; it really has not been polished yet. Even though it might look like it, this has just been hand-rubbed with shellac.

[Sits with guitar]

That's basically what it looks like, and the more expensive classical guitars are done this way. And the reason you do it is you want the guitar to ring out.

[Plays a few chords]

So I really think, through my experience anyways, that the finishing of the guitar really has a lot to do with the way the guitar sounds. And that's what I strive for. I'm not sure what I'm going to do with this, where I'm going to progress to next. I really like the flamenco music, and I've been playing classical and flamenco for a number of years. So I think that's what I'll try next, in terms of my guitar building, and hope to do this when I retire. And that's all I really have.

Jim asked me to talk a little bit about the development of guitars. They really started back in the 1500s in Europe. And this book, if you can get a close-up here, shows some of the prototypes or different types of guitars. Some of these were made in Italy, and over the years they progressed. One of the things that really changed over the time was to go from these odd-shaped guitars with very little bracing inside, to some very sophisticated guitars that are played... Now this is the typical Spanish guitar that's played by Francesco Torrega, and also Segovia. So guitars started in the 1500s and then progressed into the 1900s with the influence of the Spanish. There was a man by the name of Torres who actually developed this guitar and the particular bracing pattern. And I hope you'll be able to see this, but this is one of my typical blueprints that I use. In fact this blueprint was used to build the Madagascar rosewood guitar. If you look down at the lower part, below the waist of the guitar, where it expands out, those fans that go down to the, through the top and expand out, are basically developed to pick up the different frequencies and the resonance of the guitar. And it kind of breaks it up. The guitar is really a very inefficient instrument in terms of sound. It only produces about five per cent of what it's capable of because it's not big enough. So what these fan braces do is they help kind of pick up on those frequencies do you can play from a low E to a high [word inaudible] through the register on the fingerboard.

The guitars of course today, a lot of people prefer to play steel string guitars. This is kind of a folk guitar, and solid body electric guitars, but basically they all started with kind of process in Europe. And most of the classical guitar players today... Segovia played a guitar like this, made for him. There was a German luthier that kind of skips my name right now, but he had Fleta

make a guitar for him, who was a famous guitar maker in Spain back in the early 1900s. But basically the process is the same. It's rosewood spruce top. That brings up another point I wanted to make. One of the things that got me very interested in guitar building was that different woods make different sounds. So this guitar being spruce, Englemann spruce—Sitka spruce is also a popular guitar that we get; of course the Forest Service provides that. I think they grow Sitka spruce in Oregon and Washington and we get some of it from Alaska. But the top really determines the sound of the guitar, and this spruce top provides a crisp individual note kind of sound, and I don't know if you can hear this difference, but this is just a [plays guitar]. So that's a spruce top guitar. [Gets another guitar] And western red cedar, which also grows on Forest Service land. The Ramirez family in Spain started using this cedar because it was cheap and available. But it has a different sound. [Plays guitar] So if you go back and listen to the first one and the second one, you're going to hear that this has kind of a warm, overriding sound; that one is more crisp. So for a classical player who wants to highlight individual notes, some people prefer the sound from spruce, some the sound from cedar. And because cedar is not as strong, the top is made a little thicker. Because about a hundred pounds of string tension is on this guitar constantly. And you can see on this very thin piece of wood. And there's no metal used in these guitars. It's all glue. So this has to hold for a hundred years or however long it is that this guitar will last. Sometimes you have to do some repair work on them.

[Inaudible on-screen question]

I use an instrument maker's glue that I get from a supplier. And I don't know how much is in this, but it's really great glue. A lot of people use [typon?]; just a typical [typon?] wood glue.

Let me see if there's any other tools or anything else I can tell you. Oh. The cost. That's important. The materials for the guitar, the woods, and I buy these tuners separately. These are about fifty dollars a set. This is also very important in terms of the quality of the guitar. These are all completely sealed. They're very fine-tuned. These are made in Germany by a company called Shcaller. These are ebony buttons. The materials generally run for me, what I buy, about four hundred dollars for one guitar. It takes me about, I would close to two hundred hours to build one guitar, and then another twenty to thirty hours to do the final finishing. So I've got about eight hundred hours in just these two guitars. So it's a long process but I love doing it, and that's what I plan to do for the rest of my life.

Okay, this is a Spanish guitar. I'm going to play a little flamenco, Spanish music to give you an idea how these sound. This guitar is still developing, and one of the things about guitars is that they improve over time. That's kind of a very mysterious thing. Depending on the wood again. Cedar kind of matures very quickly, but it'll take two or three years for this guitar to play in. So this one was finished, I put the shellac on it in July, August. So it's still kind of a baby. So it's maturing. So it'll sound a lot better than it does right now. This is something that I kind of made up.

[Plays guitar]

I'm a little bit rusty. I've been spending more time building than playing lately. But it kind of gives you an idea of the flavor of the guitar.

[Continues playing]

So that's about all I have to say..

END OF INTERVIEW