

Martin Myths and Other Nonsense: *from the workbench of John Greven*

There are vast quantities of totally bogus information about Martin guitar construction details found all over the internet, particularly on the various guitar forums. Even builders who should know better promote inaccurate information either through lack of direct experience or perhaps as part of their marketing agenda. Whatever the root cause, the basics need to be discussed and better information provided.

I was fortunate enough to be the shop foreman at Gruhn Guitars from 1970 through 1976 during the very beginning of the vintage instrument renaissance. Nashville and Gruhn Guitars were the epicenter of this new movement for the country and the world.

It was a time when great old guitars came out of the woodwork daily and into our hands for repair and restoration. We took it for granted that on any given day we would be working on prewar Martins; 18's, herringbone D's, 42's or 45's as well as many one of a kind special models. It was during this time I restored Charlie Monroe's pre-war D-45 and Red Smiley's D-45 before they left for Japan. Both guitars were tonally awesome, iconic instruments, even by the best of pre-war Martin standards. (I will be posting a clip of one shortly on this site).

Many of the photos in the 1993 Carter/Gruhn, Acoustic Guitars and Other Fretted Instruments book are of instruments that returned to life from my workbench, like the insanely inlaid parlor guitar pictured on page 20 and 21. There was not a better place to be working on instruments then, or since. It was an unparalleled educational opportunity for which there is no modern equivalent.. From this perspective, along with fifty years of building instruments including 2100 acoustic guitars, I offer up these insights.

Structure:

Overview

Here is the thing to remember: Martin was a conservative, pragmatic small business. For them, warranty repairs were a major drag on their bottom line, and when guitars came in for service, someone from the line had to stop their work and attend to it as Martin had no dedicated repair department back then.

It is obvious to me after looking at hundreds upon hundreds of vintage Martin guitars, that every change in structure over the decades had everything to do with solving an engineering problem, and nothing to do with TONE.

Martin already felt that they had the best possible tone in the marketplace, but they could ill afford instruments coming back with similar structural problems and not address the issues proactively for the future. Martin was always thinking STRUCTURE, not TONE when changes were made.

The X Brace: The position of the crossing of the X relative to the bridge placement has two basic forms; the “Advanced” X which is closer to the soundhole and further from the bridge and the **Back Shifted X**, which moved the X much closer to the bridge. While this positioning of the X crossing is a tonal factor if one uses the same top material for both, the primary reason Martin altered the X position over time had everything to do with the changing structural qualities of their tops. The light, scalloped bracing of the 20's and 30's under stiff Adirondack tops gradually gave way to wider, taller less scalloped bracing as more top deformation issues arose. By the time Sitka replaced Adirondack, bracing was significantly heavier than before. Moving the X toward the bridge was just part of the solution for reducing excess top deflection. It was not a tonal consideration.

As a side note, the best sounding guitars from the 1930's represent a kind of perfect storm of great materials coming together with small shop production performed by highly skilled and dedicated craftsmen at a point where Martin's structural evolution hit a sweet spot of not too heavy, not too light.

The Tongue Brace: The tongue brace had but one function, to help prevent the top from cracking along the edges of the fingerboard, a very common problem. This upper bout region of the top is primarily structural, holding the rotational pressure of the neck at bay and preventing body collapse.

Between the heavy main cross brace by the upper soundhole and the dense, massive fingerboard-end glued firmly to the top, this is not a major tone generating part of the top. A 6 gram slip of quartered spruce is not going to have any measurable effect on the output of the instrument. **Think Structure, Not Tone.** Lloyd Loar was never on staff at Martin.

The T Bar: There is much ballyhoo about this little T shaped bar of high strength steel that Martin went to after the ebony neck support proved insufficient for heavy steel strings. Again, if it had worked so well, Martin would still be using it, but they don't. The same is true of all steel beams they changed to over the decades until they finally replaced all with adjustable truss rods. In this case, function is more important long term. The T bar is a relic to be noted and discarded. It is not a tonal factor in and of itself.

Braces: Contrary to the ongoing mythology, Martin did not use Adirondack bracing, it was always Sitka. Again, it was a simple decision on their part. They were way ahead of their time developing very local wood sources. The Adirondack came from nearby New York state and upper New England. All other spruce came from the suppliers to the shipyards of New York, where wonderful perfectly quartered Sitka was plentiful and cheap.

Hide Glue: There is much to do about hide glue in today's market. It has been for many generations of wood workers of all stripes, the glue of choice. It was not the only glue available, but the other options, like fish glue and rabbit glue, all had limitations for wood applications and ended up in book binding, case lining and many other less stress related joinery. So how does it apply to the modern era.

Martin, along with all other makers of musical instruments as far back as you choose to look, used hide glue exclusively from their beginnings to the late 1960's, when they began experimenting with the Titebond like poly glues (but very limited applications). All body work and most neck work was held together with hot hide glue with great success. But because HHG is more difficult to work with in a production setting and takes longer to cure out than the modern "white" glues, even Martin is only using the HHG for the top of the line builds and charging extra for it.

My personal thoughts on HHG are that it is a fun and challenging material to work with but I do not find it to be stronger than the modern glues in terms of holding strength and it tonally a wash, despite many vociferous claims to the contrary. It does make for a nice addition to a maker's profit margin above and beyond the actual difference in production time involved.

There is one difference between HHG and all modern adhesives that is important. It cures hard like glass or flake shellac. Modern aliphatics and poly's retain a degree of elasticity when cured and are subject to stretching under load over time. With good wood to wood joinery, however, it is a moot point as the ultimate bond strength is at the molecular level in a super thin film between two surfaces. I use HHG if asked and do not charge extra for it, but prefer the carpenter's best friend, the yellow glues. Again, tonally, it is not a factor, there are far more important things that make up the voice of an instrument.

Tops: John Caulkin has often said: "spruce is spruce, get over it!" A great deal of truth to that. I only disagree to a small degree as I find different species of spruce and different tops within a given species do differ a bit both structurally and tonally, but only a little bit. I use this variation in my voicing process but coupled with brace material choice.

I talk at length with my top material sources and they all know what I like to see and hear in my top wood. I am all about the tonal outcome of an instrument, not just the visuals and I choose my spruce with that as my prime directive. That is also true of spruce brace stock, but that's a whole other story.

The thing to remember about tops is that the grading of them is essentially about cosmetics; how perfect the grain lines, how clean and defect free. Those clean, clear, fine grained, perfectly quartered materials command the highest prices and become AAA or Master grade. They are rare. Only a small portion of any group of logs will yield sets this perfect. (As time goes on, this quality of material will be virtually extinct due to ever diminishing resources world wide.) It is important to remember that in the end, it is the skill and experience of the guitar maker that will determine the quality of the sound the instrument makes, not the grade of the top material. A lesser build with a \$400 top is still a lesser build while a master maker can easily make an A grade top into an incredible sounding instrument. The appearance of a top is its least important characteristic tonally.

Conclusions: I estimate over my working life span of 50 + years that I have played about 5000 guitars. I have actually hand made over 2300. Of all of those many guitars, a handful stand out as exceptional sounding. There were many hundreds of really good ones and far more that were only quite average. All makes, all models, all makers, it didn't make much difference. Price was not a factor. Some killer cheap guitars sounded just as good as many of the more expensive ones. (Much of that is about the person PLAYING the instrument more than the instrument itself.) The conclusion I draw from this 50 year data base is, oddly enough, most guitars sound like guitars that sound like guitars etc., etc. and that there are only a very small percentage of instruments that stand head and shoulders above the crowd. Maybe 1% of the total.

From my work bench, hands on building perspective, I have come to the conclusion that a truly successful guitar has more to do with the luck of the draw, the confluence of materials and skills, the alignment of the stars perhaps, than the Intent of the Maker. We guitar makers have far less control over the final voice on an instrument that most will admit to. Certainty is an illusion. Speaking of our work as though we had any degree of absolute knowledge or control over the outcome is delusional thinking. There are too many variables at work both known and utterly mysterious to exercise much "control" over the tonal outcome. Structure, the nuts and bolts side of guitar building, no problem. Making it physically "perfect" is the relatively easy part. Making it into a singing, responsive, and tonally multi-dimensional Musical Instrument is far more difficult. History proves that.

I liken guitar making to cooking. Both the luthier and the chef seek out fine materials for a particular "recipe", assemble and work with them with skill and imagination, and prepare the "meal" for their client. Experience counts very heavily in both endeavors. Bon appetite.

A handwritten signature in black ink, appearing to be 'Jim', written in a cursive style. The signature is located at the bottom left of the page.