



Orfeo

N°22

MAGAZINE

**Gernot Wagner,
pioneer of the
double-top**

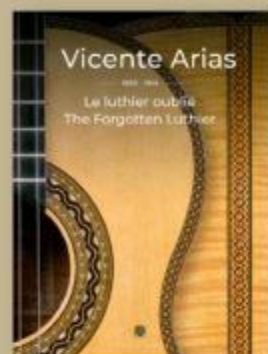
**The new German
generation:**

- Dennis Tolz
- Friederike Linscheid
- Adrian Heinzelmann
- Stefan Nitschke
- Lisa Weinzierl

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English edition

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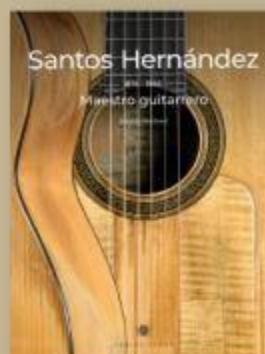
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From the Editor

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The demand for more powerful instruments from many classical guitarists performing in great concert halls, or playing chamber music or concertos backed by an orchestra, prompted luthiers to seek solutions for building guitars offering more volume.

In Germany, in the 1990s, research by luthiers Matthias Dammann and Gernot Wagner culminated in a carbon fibre composite soundboard: the double-top.

Thirty years on, it was interesting to interview one of its creators and gauge the impact that this innovation has had on the younger generation of German luthiers.

Three trends have emerged: some continue to develop and improve the double-top system, like Dennis Tolz; others seek all-wood solutions, like Friederike Linscheid and Adrian Heinzelmann; still others continue in the Spanish guitar tradition with solid tops, like Stefan Nitschke and Lisa Weinzierl.

Enjoy,

Alberto Martinez



Gernot Wagner, pioneer of the double-top

In the 1990s, the research conducted by Matthias Dammann and Gernot Wagner culminated in the creation of a laminated soundboard featuring carbon

fibre known as the double-top. We asked Gernot Wagner to tell us how this technology has evolved over the last thirty years.



Two types of hexagonal structure: regular and elongated.

Tell me about the origins of your composite top construction.

Gernot Wagner – In the nineties, Matthias Dammann and I were searching for ways of building guitars with greater volume. Considering that the vibrating mass of the soundboard should be kept as low as possible and keeping in mind that the strings have a relatively low mass and low tension for moving the guitar's soundboard, we concluded that the solution was to make tops with the same stiffness but lighter.

At that time, I was experimenting with extra light red cedar for my solid wooden tops and Matthias was making double-top soundboards with two wooden skins and thin wooden strips in between.

I discovered Nomex in a catalogue for aircraft building, a light carbon fibre honeycomb material developed by Du Pont in the sixties. Matthias immediately made a guitar, keeping his lamination method but replacing the wooden strips with Nomex. In 1997 I made my first composite top using this new material as well.

Nomex seemed to be ideal for this purpose as it has a very good strength-to-weight ratio. It only weighs 29 kilograms per cubic meter: ten times lighter than the lightest cedar!

Because of its excellent strength-to-weight ratio: the mass of the soundboard could be reduced by up to 40%, the stiffness required to withstand the string tension could be maintained and the transfer of energy could be made easier.

How have your double-tops evolved over the last 20 years?

G. W. – I also made some guitars with a kind of foam named Rohacell, which has been used in the aerospace and automotive industries. But the results were not very convincing: the foam had a greater damping effect than Nomex and absorbed a lot of glue.

I experimented with the Nomex layer itself, changing the designs and distribution arrangements in the top.

One of the problems that I encountered was the damping effect of the glue. I performed a test, gluing together two pieces of cardboard using different glues and letting them dry overnight: epoxy, polyurethane, PVA (polyvinyl acetate) and hide glue. The next day I bent the cardboard and the epoxy cracked; so did the PVA. The hide glue and the polyurethane, however, didn't crack and proved to be more flexible than the others. The conclusion was that you can't



The current layout of Nomex in Wagner's guitars.



Gernot Wagner has experimented with different Nomex layout patterns in his guitars' soundboards.

“I can use spruce or cedar for the outer skin, but it is best to use cedar for the inner layer because it is lighter.”

use PVA because of its brittleness and thermo-plasticity (softens with heat), or epoxy because of its brittleness or hide glue which simply dries too fast. The use of polyurethane and vacuum gluing was absolutely determinant.

The next step was to reduce the quantity of glue. Initially, when I applied glue directly onto the honeycomb with a roller, there was too much of it because it poured into the cells. So, I instead spread the glue evenly with a roller onto a piece of tracing paper and then carefully placed the Nomex on the paper for a few seconds. In this way, the amount of glue actually adding to the soundboard's weight constitutes a mere 4 to 6 grams per layer. The total weight of my tops, complete with bracing, is around 100 grams.

Another conclusion I reached was that I can use spruce or cedar for the outer skin, but that it is best to use cedar for the inner layer because it is lighter.

The total weight of my guitars is about 1.5 kg, but some luthiers are now making the wood layers even thinner – as low as 4 or 5 mm – to reduce the guitar's overall weight to about 1 kg. Nomex flexes differently lengthwise and cross-wise. So, you can either imitate the anisotropic character of wood (more resistant in the direction of the grain than across it) by using Nomex the same way, or you can stiffen your sound-



His CNC milling machine (Computer Numerical Control) is an invaluable tool for preparing the tops.



His linings are broad and comprise several layers.

board from one side across to the other, as you could with bracing.

How to repair a damaged composite soundboard?

G. W. – A Spanish guitarist who played one of my guitars had a typical accident: a microphone stand hit the top. I cut out the damaged piece and replaced it with solid wood.

Some guitar players have found the trebles too short on double-tops, with a lack of sustain that makes vibrato difficult.

G. W. – Trebles have a lower amplitude anyway and a faster decay rate compared to the lower frequencies. If there is just one note with a noticeably faster decay it may be due to body resonance or stronger coupling (the string is not telling the

soundboard what to do, but rather the other way round). Overall, though, it is difficult to simultaneously achieve greater volume and more sustain. The best example is the banjo: it's very loud but its notes are short. With a double-top, the listener gets the impression of a shorter sustain whereas, in fact, the duration of the sound is the same as, or even longer than, a traditional guitar. The difference is that the initial volume

of a traditional guitar is lower, giving the impression of a more even decay rate.

That's why I added these cantilevers to the ends of my bracing: to eliminate the extreme amplitudes which quite often appear in these areas. These small struts increase the sus-



His assembly mould with ribs set in place.



He makes tiny additions to the bracing's outer reaches in order to enhance the sustain of the top E-string.



For the construction of his guitars, he uses numerous bespoke machines and accessories.

tain of the high E-string, albeit at the expense of volume. My whole bracing has changed; now the fan braces go almost parallel to the wood grain, favouring soundboard response. Another detail of my construction is that I don't put any Nomex under the bridge area. I prefer to leave this area more flexible. As you know, luthiers generally make the edge of the tops thinner than the rest. In so doing, a larger part of the top is activated which means a bigger mass has to be set in motion. If the edges are made thicker, and therefore stiffer, the mass which has to be set in motion will be smaller. Less mass, more mobility.



One of his guitars, with a rosette inspired by Simplicio.

A man with dark hair and a beard, wearing glasses and a white t-shirt, is sitting at a wooden workbench in a workshop. He is holding a large, circular, black-rimmed object (the "WaveGuide") up to his eye with his right hand. The background shows shelves filled with various wooden materials and tools.

Dennis with a
"WaveGuide" in his
workshop in Kiel,
northern Germany.

Dennis Tolz, the successor

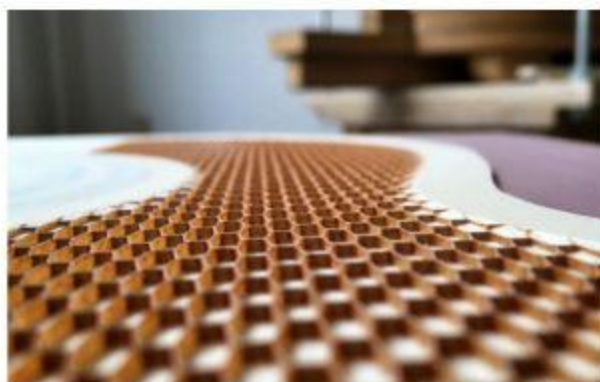
He is furthering the research commenced by Matthias Dammann and Gernot Wagner. His guitars are very light and their sound is channelled by a small tornavoz, which he has named the "WaveGuide".



He has studied and measured the guitar and its dynamics a great deal.
Photo and diagram of a guitar with his reference points.

You first learned guitar-making in Newark and then in Markneukirchen; what was the difference?

Dennis Tolz – They are totally different schools. Whereas you can go to study in Newark without any prior knowledge of lutherie, the same is not true for the latter. In Markneukirchen, you have to show instruments that you have made in order to be accepted. A total beginner cannot simply turn up; applicants need to have two or three years' experience working with a luthier, or come from another school. So, for me, the combination of the two schools worked very well. Neither of these two schools taught us much about double-top construction, but once I had the opportunity to play on a Gernot Wagner guitar, I really enjoyed it and got interested in this type of construction. Now, I use a combination of building techniques: some traditional Spanish methods as well as modern techniques, e.g. using composite materials in my soundboards.



Nomex with elongated cells, arranged in the same direction as the woodgrain.

Double-tops reputedly have some drawbacks – shorter notes, lack of colour and modulation capacity – compared with a traditionally-built guitar. Why go in this direction?

D. T. – My aim is to make a guitar that is loud enough to be played on the big stage while preserving the qualities of a traditionally-built guitar. Some double-tops have a very strong mid-range, offering great presence, but they lack overtones, and can sound somewhat aggressive. Yet I have also listened to fantastic double-tops. Let me explain the way I work. I use Nomex with elongated cells, meaning that the cells are longer than they are wide (whereas normal Nomex cells look like regular honeycomb). The natural behaviour of wood, like spruce for example, means that it is about ten times stiffer along the



Woods for lutherie: a stunning palette of colours.



The inside is every bit as beautiful as the outside.

“The wood is ten times siffer along the grain than it is across the grain.”

grain than it is across the grain. But if you use a composite material you change this ratio. When I use the elongated cells, my finished top is closer to the original ratio of solid wood, but about 40 g lighter. By adjusting the angle of the fan struts, I can further calibrate this ratio. Like Daniel Friederich, I think that one of the most important measures in recreating a guitar is to achieve a similar ratio of longitudinal and transversal flexibility, as well as similar mass and stiffness when the tops are braced and finished. I prefer to use Nomex rather than balsa for my tops. For me, Nomex is a very predictable material; the main problem is the glue. In my opinion the lack of overtones and sustain in some double-top guitars is due to the damping effect of excess glue used when bonding the composite

Understated elegance and flawless finishing in this 2020 guitar.





No purfling
down the
back seam.



Dual benefit:
more refinement,
less weight.

top. One of the major challenges is to apply just enough glue in between the soundboard's layers to prevent it from delaminating, and yet to minimise any damping effects.

Another problem is that having too light a top can lead to lower impedance at the bridge, resulting in guitars that sound quite percussive, with shorter sustain.

My double-tops are always of cedar on the inside because it's easier to find lower density cedar than spruce. The wood for the outside skin depends on the customer's order. I am always hunting the lightest pieces of wood, as it constitutes the main mass of the soundboard's components, even if each layer is only half a millimetre thick.

How do you make the rest of the guitar?

D. T. – The whole box is very light and responsive and acts as a resonator; my completed guitar weighs around 1.3 kilos.



The headstock
is a modern
take on
traditional
shapes.



Compensation is achieved by saddle inclination alone.

I use laminated sides, totalling 1.6 mm in thickness, to ensure a sweeter tone while at the same time retaining the structural advantages of the lamination. For example, once laminated, Brazilian rosewood remains really flat and is more resistant to cracking.

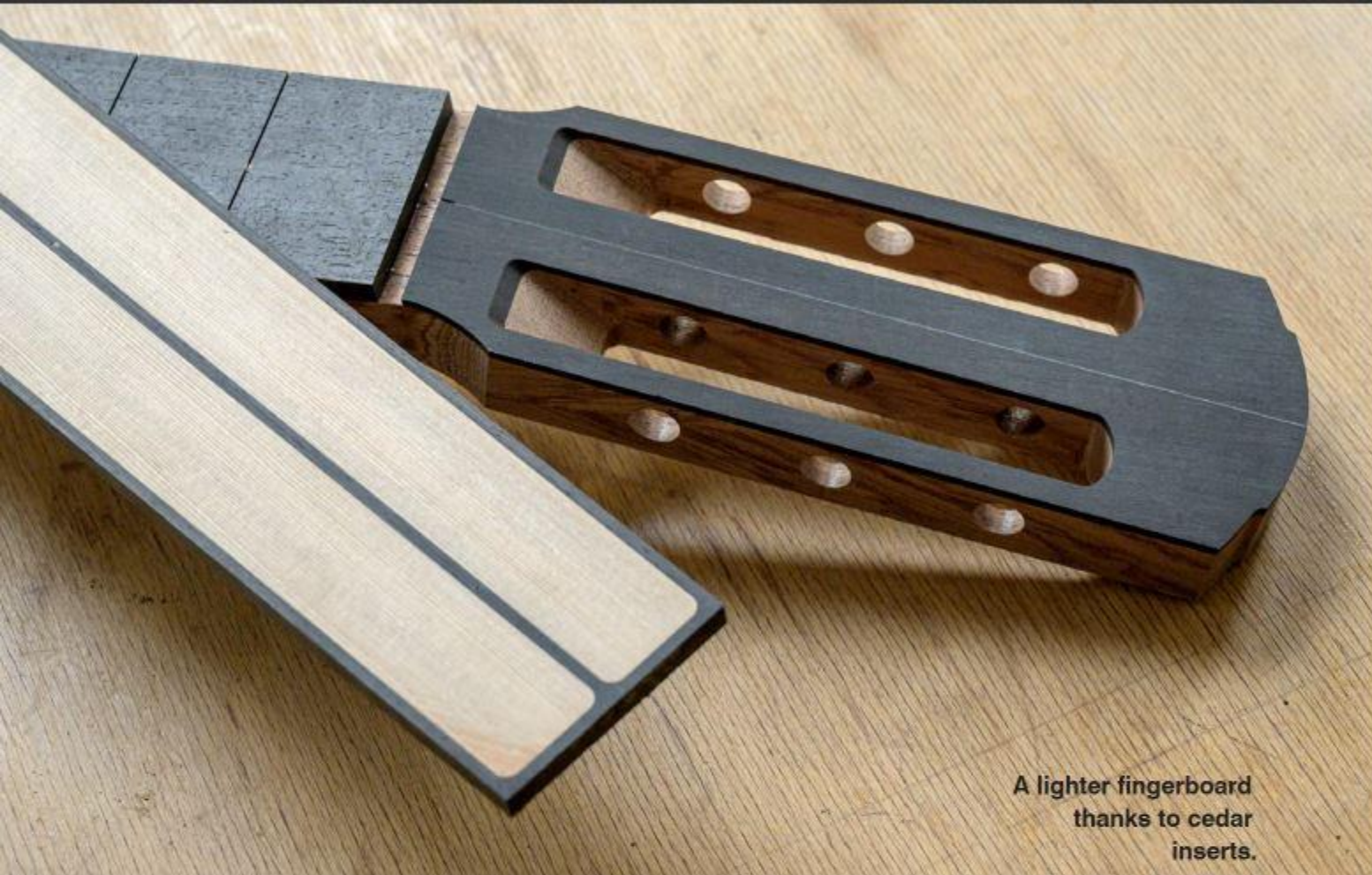
My bridges are made of low-density Indian rosewood and weigh around 16 grams. The string compensation at the bridge is done by tilting the bone rather than the whole bridge. As the bridge is part of the bracing, and the bracing is completely symmetrical, if I were to tilt the bridge, I would be changing the entire system. I'm not saying that you can't make excellent guitars with tilted bridges, but from an engineering point of

view, it makes more sense to tilt solely the bone. My fingerboards are made of ebony, with large cedar inserts so as to reduce their mass. This helps to achieve better balance between the mass of the body and the neck of the guitar.

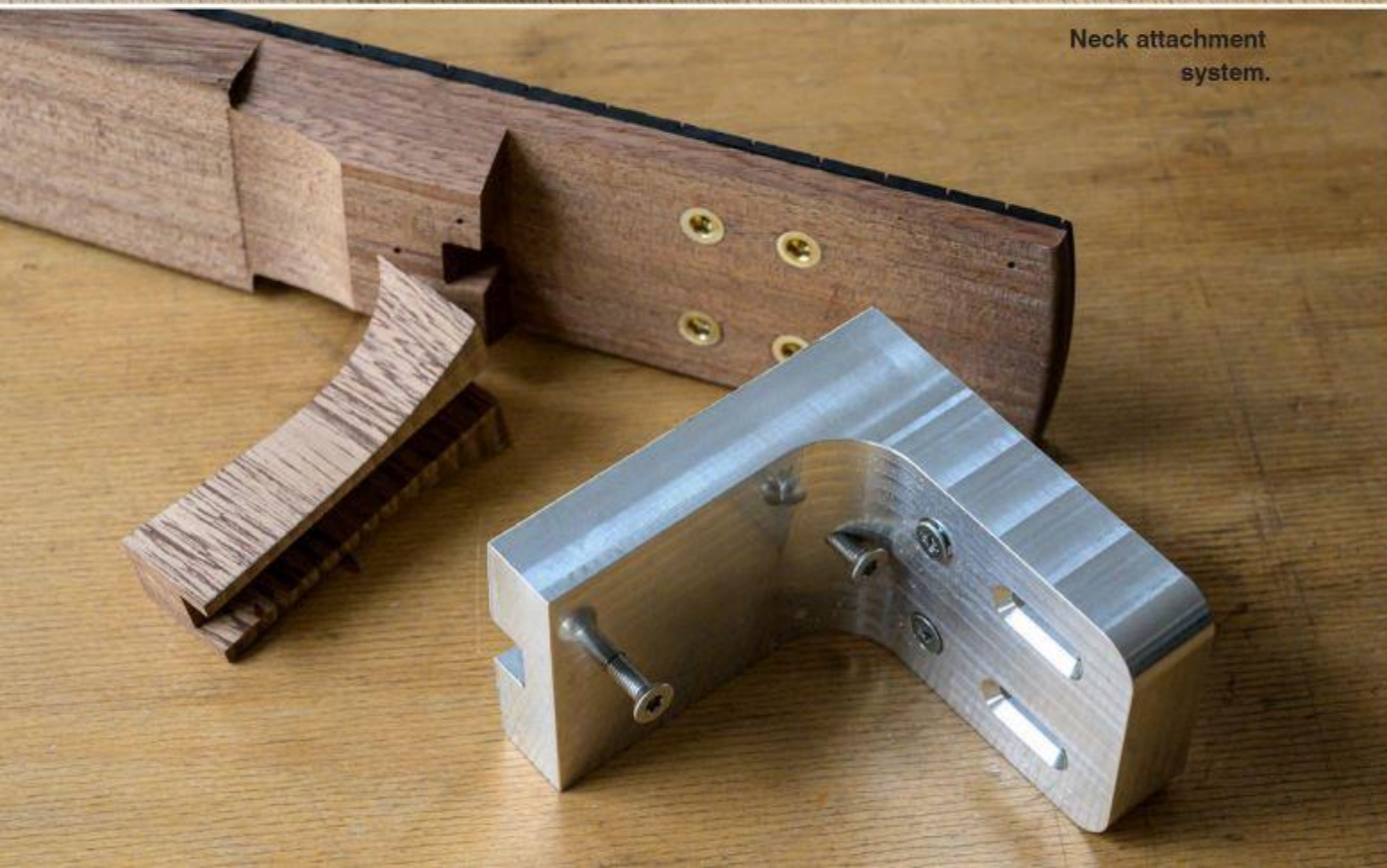
I received some advice from David Russell; he pushed me to work a lot on improving the playability of my guitars. I tried his Dammann guitar and it's a fantastic instrument – very easy to play. So I made my frets higher, and changed the fretboard geometry. I moved the lowest point of the relief (slight bowing along the fingerboard) further towards the nut, only on the bass side, which enabled me to lower the action at the nut. On the other hand, I kept the treble side of the finger-



Ribs that are lined
but very fine, using
mahogany.



A lighter fingerboard thanks to cedar inserts.



Neck attachment system.



With its bracing completed and "WaveGuide" set in place, the body is ready to be closed with the guitar back.

board fairly flat. This, coupled with the higher frets, improved my guitars' playability.

What is the aim of the little tornavoz which you called WaveGuide?

D. T. – Before the WaveGuide I was not happy with the sound of my open 6th string. The main air resonance was between E and F and this resulted in a rather short fundamental and quite a boomy open E-string. To overcome this, I wanted to move that resonance to D#, since it is a less important note. The simplest way to achieve this would be to add a tornavoz, but I found that the traditional tube-like tornavoz reduced the amplitude too much. I was about to scrap the whole idea when I started looking into fluid dynamics, and experimented with different geometries in order to reduce the turbulence and subsequently

also reduce amplitude loss. The final result is quite a complex shape that is visually integrated into the rosette of my guitar. It permits me to tune the main air resonance to D# without any loss in amplitude. I decided that the WaveGuide had to be small enough to let my hand fit inside the guitar in the event of any future repair work.

Can you repair a damaged top?

D. T. – It depends. If it is a crack that goes all the way through the top, I would prefer to replace the top, rather than repair it. If the damage is only to the external layer, I can usually fix it. Of course, this is a problem with double-tops. That's the



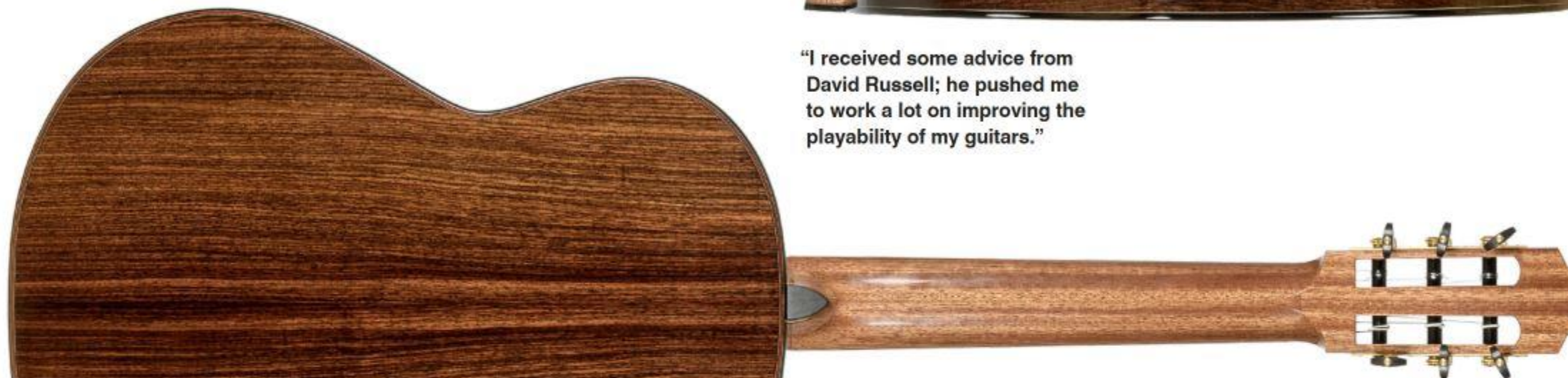
The "WaveGuide": freshly milled and finished product.

reason why I changed my construction method to a bolt-on neck. I used to build the Spanish way on a solera, but replacing a broken top was quite complicated. The advantage of a bolted neck is that if I receive a badly damaged guitar I can remove the neck and fingerboard and replace the top more easily.

In my experience, it doesn't matter which assembly method you use when building, as long as all the parts are fitted together very snugly. Moreover, my chosen method allows me to experiment with different necks (types of wood, geometry) on the same guitar body.



"I received some advice from David Russell; he pushed me to work a lot on improving the playability of my guitars."



Kris Barnett's tuners give the head yet another modern touch.



The Empty Library, by sculptor Micha Ullman, is dedicated to the remembrance of the book burning that took place in this square in Berlin in May 1933.



Friederike Linscheid and Adrian Heinzelmann

Partners both
in life and in
the workshop,
Friederike and
Adrian make
guitars with
laminated tops.

They use
modern working
tools but no
composite
materials,
preferring to
build purely
with wood.

**Most of the machines
are in their workshop
basement.**





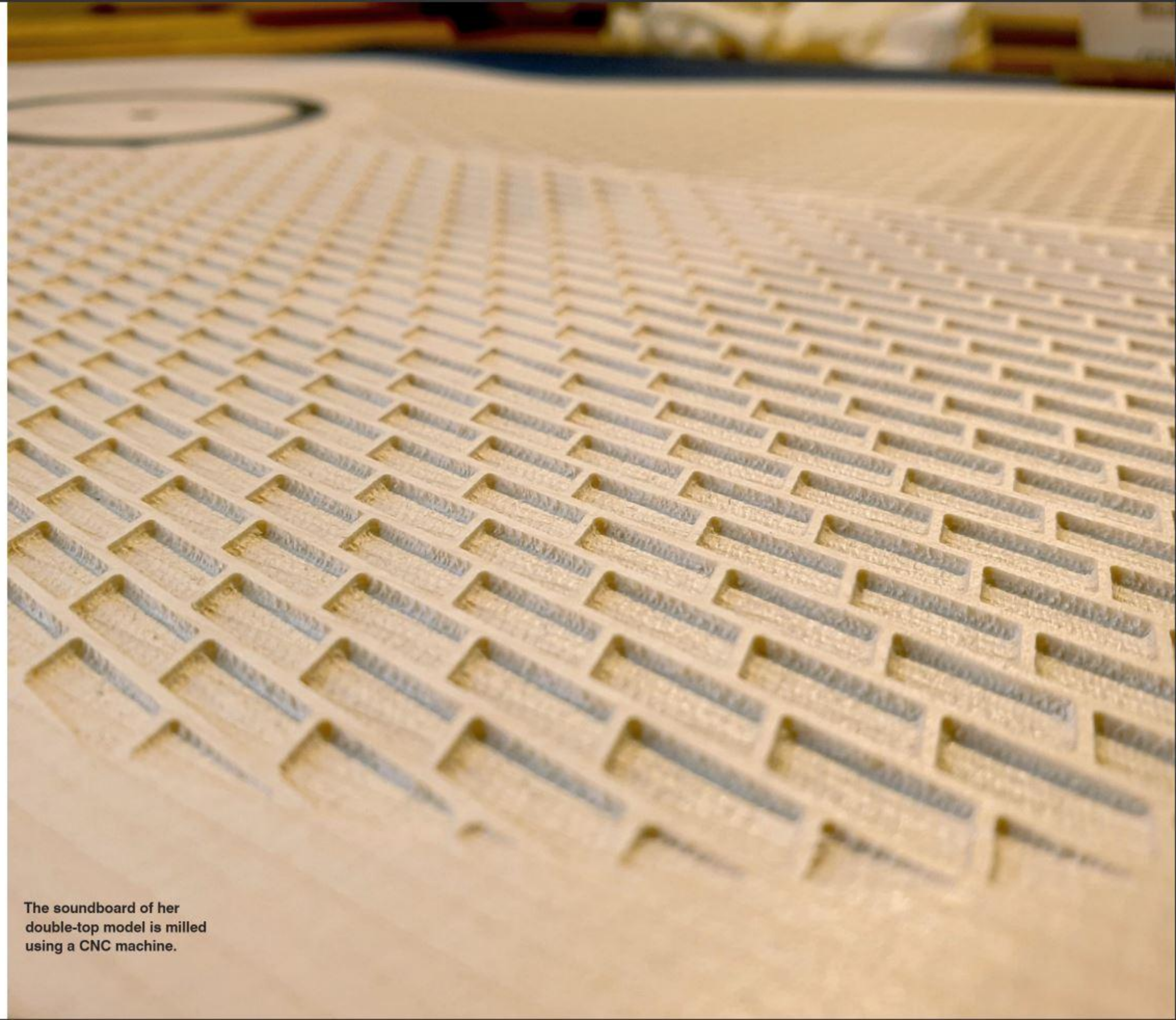
Friederike Linscheid

She began playing the guitar at the age of nine.

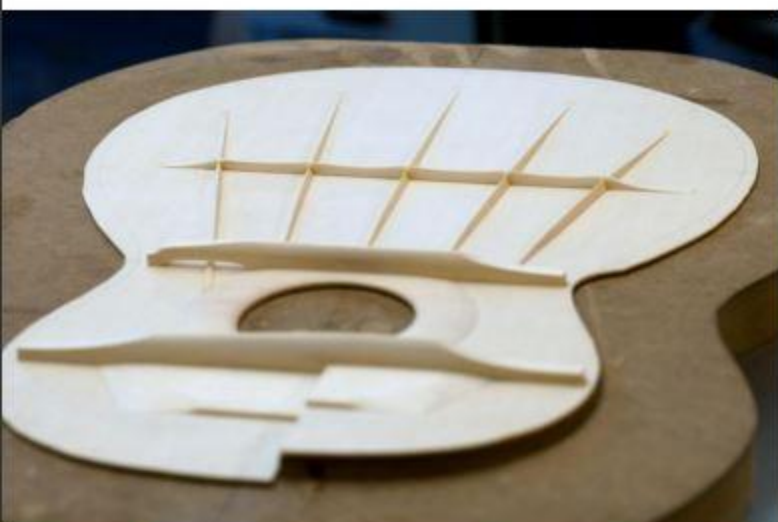
After graduating from secondary school, she trained at the Mittenwald School of Instrument Making. Today, Friederike lives and works in Berlin.

I'm familiar with your traditional guitars, but as of this past year you've been making a new model. Why is that?

Friederike Linscheid – Out of curiosity. I wanted to see if by making double-top soundboards I could gain power while retaining the qualities of my traditional guitars. I was happy with my guitars but, as I'm always looking to improve, making double-tops constituted a new challenge for me.



The soundboard of her double-top model is milled using a CNC machine.



When making her raised fretboard, she cuts the soundboard in the middle of the upper bout and adds a wedge that reduces height on the treble-string side before attaching the fingerboard.

In 2009, at the start of my career, my first contact with double-top guitars was through the work of Antonius Müller. But my construction these days is more inspired by Adrian's groove-top.

My soundboard is a real "double-top", but with no Nomex or balsa core. It's made with just two layers of wood. There's a slightly thicker outer layer, which is either cedar or spruce, milled using a CNC machine with a cell-like pattern. This is laminated with a second, very thin, inner layer, always of cedar for its lightness.

The pattern is tilted on an angle, avoiding having it run parallel to the wood grain. This soundboard structure is designed to save as much weight as possible, while retaining strength and keeping the same longitudinal and transversal flexibility as a solid-wood top. If we didn't have these digital milling machines today, it would be impossible to make this kind of soundboard. So, for a little while now, I've been making two guitar models:

a traditional one, which I have been developing since I was in Mittenwald; and another one with a double-top. Apart from the top, the con-

struction of my two models, in the Spanish style, is identical. Both have the same bracing, which is fairly traditional, with five fan-shaped struts and a Robert Bouchet-inspired bar under the bridge, albeit thinner than Bouchet's bar, and scalloped. I like this bar because it gives me good control over the transversal flexibility.

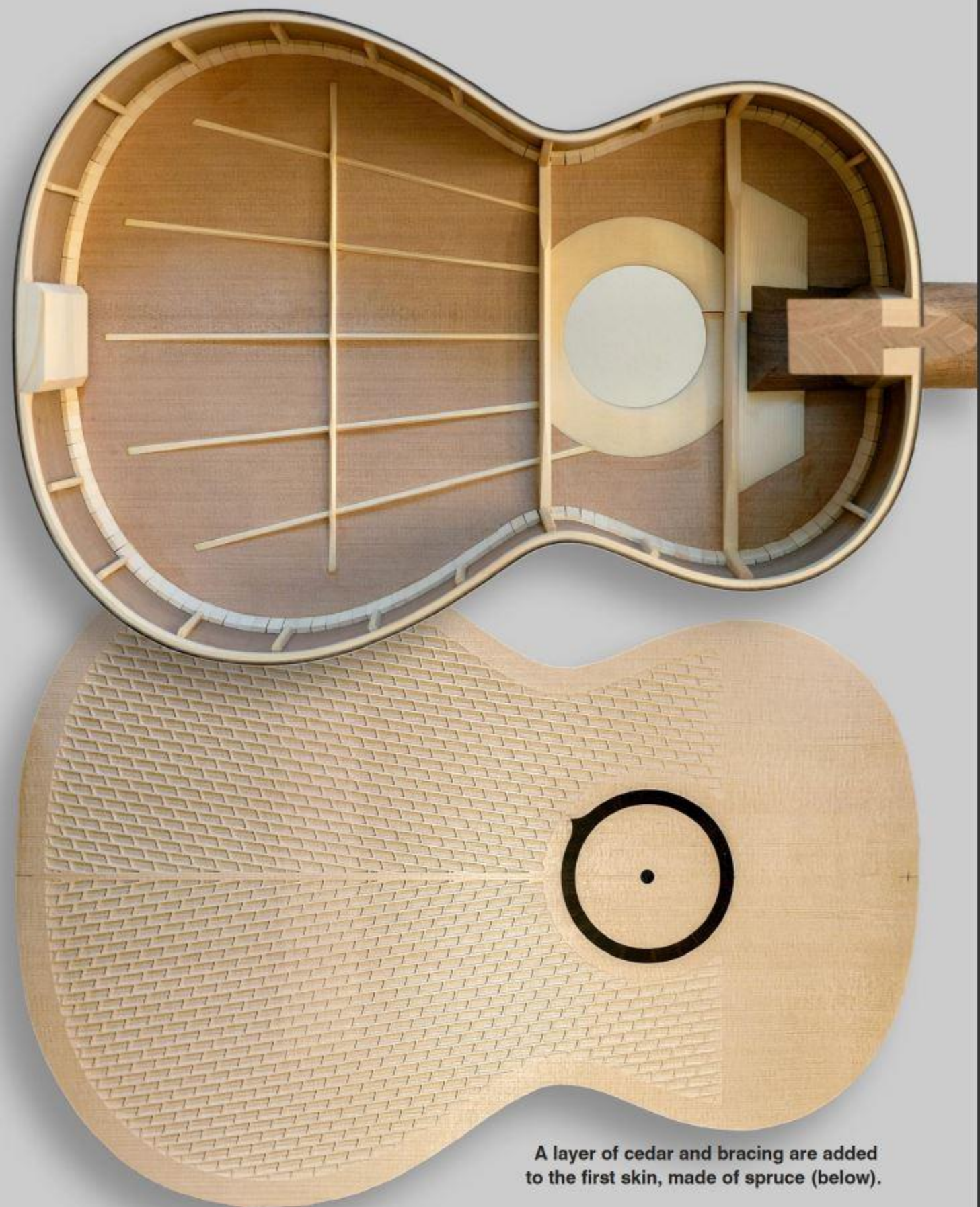
I'm quite happy with the result; the double-top model is a bit more powerful than the traditional one, but it still has qualities very close to the traditional model.

Where does the shape of your guitars come from?

F.L. – My guitars are quite small; the shape is a personal design. I already created it when I was at Mittenwald. As the top is a little smaller than most modern Spanish guitars, its mass is reduced so as to encourage movement. It's always the same objective: to make a light soundboard.



Laminated ribs that are strengthened with slender braces.



A layer of cedar and bracing are added to the first skin, made of spruce (below).

The traditional model, with its rosette featuring small squares.



“I also like to work with European woods, like maple.”

I offset the small plantilla by making rather deep sides, to keep the dark basses and the air resonance rather low, close to F.

I also make laminated ribs, to increase sustain, with mahogany on the inside, but they remain light and quite thin, around 2.6 mm in total, (1.6 mm rosewood, 1 mm mahogany) because I often add little bars to the sides to make them even stiffer.

Which woods do you use?

F.L. – Always with the idea of building a very light top, I buy my spruce in Switzerland, where I find the quality with which I like to work. The cedar comes from a variety of sources.

For the back and sides, I like Indian rosewood, for its colour and structure, but I also like to work with other types of rosewood, such as Madagascar rosewood, or European woods, like maple. I use mahogany for my necks.

What are the other details of your guitars?

F.L. – I offer guitars with a traditional rosette or with a more modern design. For my traditional design I make a rosette with dozens of little squares combining different woods. The modern rosette, on the other hand, is inspired by the old German Markneukirchen guitars, like the ones by Weissgerber: rather simple, but very elegant. This modern type was actually my first rosette and I have made different versions of it. To compensate for the length of the strings, I don't tilt the bridge; I just tilt the saddle, as Adrian also does. The tie-block of the bridge (where the strings attach) has an unusual shape, mainly for aesthetic reasons, but in addition, it provides more uniform rigidity. I also make two versions





The modern model, with its rosette inspired by early German guitars from Markneukirchen.

of the headstock design and I always try to create aesthetic harmony across the entire guitar. An interesting detail is the way that I make the raised fingerboard: I cut the top of the soundboard in the middle of the upper bout and use a wedge to lower the part on the treble side. The result is a fingerboard raised only on one side, where necessary to facilitate access to the last frets.

In fact, what I try to achieve is a blend of tradition and modernity.





The lattice bracing made of cedar is bonded to the layer featuring milled grooves.



Adrian Heinzelmann

He studied lutherie in Mittenwald and then in Markneukirchen. After having taken a course with Gernot Wagner and attended concerts featuring guitars by Antonius Müller and Matthias Dammann, he developed his own guitar model: the groove-top.

Tell us about your unique way of making double-tops.

Adrian Heinzelmann – My interpretation of the contemporary double-top and lattice soundboard construction involves a combination of both methods. The top has a special grooved structure, furrowed by a CNC (Computer Numerical Control) milling machine. This structure is left open, facing the inside of the guitar and, unlike double-top construction, not enclosed by a sec-

ond skin of solid material. Instead of a second layer, I glue a very light cedar lattice bracing to it. The rationale for the grooves is that they lighten the soundboard, while the bracing gives it the necessary stiffness. With my technique, the gluing surface is very small, which minimises any damping effect of the glue.

I have been using this groove-top construction since 2014 and I have been developing it ever since. Currently, my tops weigh much less than traditional tops and, since I can control the stiffness by shaping the bracing, they offer the same flexibility as solid soundboards.

Any other notable details in your construction?

A.H. – The treble side of the lattice layer is slightly thinner, because I've found that asymmetry is better for the sound. The lattice bracing also offers good protection against any cracks appearing on the top. Moreover, since the structure is open to the inside and made entirely of wood, I will have no problems repairing the guitar if it suffers an accident resulting in damage to the top. It would be easier to repair than a Nomex double-top soundboard.

I use mahogany for the inner layer of my laminated sides. They were initially like Daniel Friederich's in terms of thickness – more or less 2 + 2



The glue is applied by roller, on one surface only.

“The weight of my guitars is coming down: they are now nearly down to 1.5 kg.”

millimetres of wood – now I’m trying to make them increasingly thinner: as low as 1.2 and 0.8 millimetres, respectively. The idea is to achieve a warmer and deeper sound and, after a lot of measuring and experimenting, I understood that the sides had a big influence on that. The air resonance of my guitars used to be around G; now it is around F to F#.

The weight of my guitars is also decreasing; they used to weigh around 1.7 kilos and now they are approaching 1.5 kilos. It depends on the woods, though; my Cocobolo backs, for example, even if I make them thinner, are 100 grams heavier than the Indian rosewood ones.

Which sound do you like?

A.H. – When I was studying in Mittenwald, a collector brought in three guitars for us to study and replicate: a Fleta from 2009; a recent Friederich; and a 1931 Simplicio. For me, the Simplicio was the most inspiring guitar; I really loved it from the outset. I made a copy with my classmates, and it was my first time making a rosette. Creating the mosaic is a lot of work, but I enjoy it. It is true to say that my rosette and purfling are inspired by Francisco Simplicio. I make an elevated fretboard if the customer orders it, but visually I think that it looks better without this. It is probably more comfortable for the player; I don’t think it changes the sound.

Which woods do you like to work with?

A.H. – Wood is never the same, so I try to select very similar boards using modern physical measurements: recording and evaluating different sound spectra. This can be done using an impulse hammer, a linear measuring microphone and spectrum analysis software. I also measure the density of the soundboards and only use light ones. These measurements give me information about the acoustic properties, such as stiffness and damping, which helps control the guitar’s tone.

The backs are jointed without any central purfling, so they look as if they were made from one single piece of timber. I mostly use Indian rosewood, but I also offer other woods if requested.

The headstock design resembles a model that Simplicio used in some of his guitars.

I compensate the string length using only the inclination of the bone, not the bridge as a whole. The top is made of either spruce or cedar, and is always French polished, but for the body and neck I also offer a polyurethane varnish to professional guitarists who use their instruments intensively, because it is more hard-wearing.

I get the impression that – as concerns the construction of my guitars, at least – there are “thresholds”: for example, when I reduced the rib thickness from 4 to 3 mm, there was virtually



The grooves serve to lighten the soundboard while the lattice bracing adds the required stiffness.



no change, but when I went to 2 mm, everything changed and improved.

I have also noticed similar tipping points regarding other components, like the weight of the bridge.

One last detail: with Friederike Linscheid, my partner both at home and in the workshop, we are members of the Berlin Luthiers group. One of them, Kris Barnett, makes the excellent tuners that we use for our guitars.



KRIS BARNETT

He began making guitars in 2004 in Atlanta (USA) and moved with his wife to Berlin (Germany) in 2014. Kris is a member of the Berlin Luthiers, a group of guitar makers specialised in fine classical guitars.

In addition to his guitars, he makes excellent tuning machines for classical guitars. He currently offers four models: Square Plate, Landstorfer, Trinity and Simplicio.

With no decorative seam purfling, the back of the guitar looks as if it were made from one single piece of wood.





He also compensates string length by sloping the saddle only, rather than the entire bridge.

"My bindings and rosette are inspired by Francisco Simplicio."



A man with glasses and a black t-shirt is sitting on an orange stool in a workshop, playing a light-colored acoustic guitar. He is surrounded by shelves filled with stacks of wood. To his right, there are large wooden planks leaning against a workbench. The workshop floor is made of light-colored wood.

Stefan Nitschke, faithful to the Spanish tradition

He wears two hats: he is both a guitarist and a luthier. As a guitarist, he was trained in the Conservatories of Osnabrück and Darmstadt, whereas he honed his craft as a luthier under Gerhard Oldiges.

Stefan Nitschke – At the age of 11, listening to Julien Bream, I decided that the guitar would be my instrument and in 2002 I entered the Osnabrück Conservatory. My teacher, Ulrich Müller, who learned guitar-making with Antonio Marín, not only helped me to improve my guitar playing, but also encouraged me to build my first instrument. So I made a few guitars with him, working very simply with just a few tools, most of the time on the carpet in my student apartment. The



Gluing braces onto a back of maple.

His first guitars were built on the carpet in his student apartment.

results were not very satisfying but I loved the craft. In 2004, I continued my guitar studies at the Akademie für Tonkunst in Darmstadt with Olaf van Gonnissen. During this period, we moved to Marburg and, as I was still making guitars, I showed them to Gerhard Oldiges, who lived in the same region. This was my first contact with a top guitar maker and I was proud that he agreed to help improve my construction techniques. I realised later that Gerhard had been teaching me in the same way that he and Romanillos did in the famous courses. It was fantastic!

So, like Gerhard Oldiges, you had three main influences: Torres, Romanillos and Hauser.

S. N. – Yes. At first, I built in the Romanillos style, following his plans and with Gerhard's guidance and advice. Later, I switched to a style more like that of Hauser. As a player, I tested every guitar that I could lay my hands on and looked for inspiration. That's how I found my passion for the sound of the old masters and Spanish guitars.

In 2009, I completed my guitar studies and successfully passed my concert exam. In that environment there were many guitarists who were looking for loud guitars. To achieve that in my own instruments, I built some guitars with lattice bracing using balsa wood and carbon fibre. However, they lacked the old masters' sound that had fascinated me. So I decided to go back to the traditional way of making guitars.

Tell me about your current models.

S. N. – My main model, which is mostly inspired by Hauser, has a top thickness of about 2.9 mm. It is very balanced, and has a deep bass with singing trebles.

The Torres model has a soundboard about 1.8 mm thick. It produces a more explosive sound, and more of an "old sound", whatever is meant by that.

Since my roots lie in the Romanillos style, especially regarding aesthetics and rosettes, I decided at some point to build a Romanillos-inspired model.



Torres-style fan, with seven struts and two bars arranged in a V-shape.



A few years ago, I also started making a Santos model, with more parallel struts, without closing bars and with a thin top. Santos is interesting, because when you see all of the different bracings that he successfully used, you have to wonder: is a specific bracing style all that important?

One aspect that I love about my work is making the rosettes and decoration. It's very time-consuming, but I enjoy pairing the colours of the purfling and the rosette.

Do you have a Nitschke model?

S. N. – I have the feeling that if I build a Santos, a Hauser or a Torres model, the result is still a Nitschke! I try to capture their sound, and as Gerhard Oldiges said to me: "be confident and stay true to the main concept and the results will be better". So, as a luthier, I prefer to follow an inspi-



His main model is inspired by Hauser.



Beautiful Brazilian rosewood cut into 3 mm slices.



He enjoys mixing woods, colours and patterns in his rosettes.

“I love wood. Over the last few years, I’ve spent more money on wood than on anything else!”

ration and, for me, that is definitely the Spanish inspiration.

I have now built about 200 guitars, and I am always making little improvements to get closer to the sound in my head.

My model should have the balance and sustain of a Hauser and the spontaneous sound of the Spanish masters. I therefore have to work out how to combine the best of both: a thinner top with stiffer bars? A seven-strut fan with V-bars? I still play concerts and teach guitar at the University of Giessen, so the inspiration loop never stops.

Do you build in the Spanish way?

S. N. – Yes, definitely. I build the guitar in a solera, starting with the top and the neck, and my bracing is a typical seven-strut fan. One detail of my construction is that I never remove the guitar from the solera until the back is glued and finished. I feel more comfortable that way.

Also, my linings are quite wide, offering more

gluing surface and I put two small ebony strips inside the neck.

What about woods?

S. N. – I love wood. Over the last few years, I’ve spent more money on wood than on anything else! Once a year I travel to Austria to buy spruce tops. For aesthetic and tonal reasons, I love tops with bear claws, as long as they are not too heavy. I was very lucky to find a stock of old spruce with bear claws.

I always laminate the sides. Not too thick; around 2 mm in total for the Hauser model and 1.6 mm for the Torres. It’s stiffer, no heavier than a single side, I get more sustain and it reduces any deformations that can occur when bending Brazilian rosewood.

When I’m using Brazilian rosewood, I laminate the sides with another rosewood, a Brazilian or Indian veneer; when I’m using bird’s-eye maple on the outside, I would also use a maple veneer



inside. I don't want to see ribs displaying a different colour on the inside of the guitar.

Any final comments?

S. N. – Today, I split my time between guitar-making and teaching, one and a half days a week, at the University of Giessen. My motivation to build guitars, from selecting the wood to the final French polishing, is still very strong. I love my work.



His Romanillos model is a faithful tribute to the great Spanish luthier.



Frankfurt is
Germany's financial
capital, home to the
Bundesbank and
the European
Central Bank.



Lisa Weinzierl, a young prodigy

She learned guitar lutherie in Mittenwald, worked on Romantic guitars in France and on violins in England, before ultimately returning to Bavaria.

Her talent, coupled with the wealth of training she sought, has given her pride of place among the rising stars of German lutherie.





Her guitar backs sport a fourth brace for strength.

Where does your interest in lutherie come from?

Lisa Weinzierl – I grew up in a musical family and was always surrounded by musical instruments. As a child, I started playing the zither, a traditional Bavarian instrument. When I was fourteen, I started searching for antique zithers and other instruments online and bought a few that needed minor repairs. This aroused my curiosity about the craft, the history associated with each instrument and the diversity of sounds, and thus my passion for instrument-making was born. At the age of sixteen, I enrolled in the Instrument Making School in Mittenwald where I had the opportunity to learn the craft from the ground up. During those three years, I developed a passion for classical guitars, which led me in that direction. After graduating, I had the opportunity to work alongside Christopher Schuetz in France, where I was first introduced to the world of French Romantic guitars. Upon my return to Germany, I engaged in exchanges with established guitar-makers such as Gert Esmyol, Gernot Wagner, and Solveig and Andreas Kirschner.

Following that, I worked for two years at Siccas Guitars, the dealer based in Karlsruhe, where I was in charge of repairing and maintaining their guitar stock. Siccas was the best place to study guitars and I was really happy because I had the opportunity to see instruments made by the old masters and many great contemporary luthiers. Prior to establishing my workshop in Bavaria, I started to work as a violin-maker at the renowned W. E. Hill and Sons workshop in London. There, I had the privilege of examining some extraordinary bowed string instruments which subsequently influenced my guitar-making process.

And when did you build your first guitar?

L. W. – I made my first guitars in Mittenwald, at the Instrument Making School, for my mother and for some friends, but I really started building with my label inside when I was at Siccas. Later, I was building guitars in London and in parallel here, in Bavaria. Now, I'm finishing number 64.

Have you been influenced by other luthiers?

L. W. – Of course, I have been influenced by other luthiers. Nevertheless, I can't say that my



The finished heel will have a round "button", in the style of violin lutherie.

inspiration comes from one maker only. I like the work of many renowned luthiers such as Enrique García, Santos Hernández, Daniel Friederich, Fritz Ober...

I also appreciate the discussions that I have with

my fellow luthiers today. We frequently meet at festivals, talk on the phone, share valuable tips and exchange ideas.

My guitars are built in the traditional Spanish way. My rosettes are inspired by some French and Spanish makers like Robert Bouchet and José Luis Romanillos. The mosaic design of my rosettes stays consistent, yet I often I introduce subtle shape, colour and wood variations for each individual instrument.

The design of the headstock is a modern interpretation of that of Manuel Ramírez. Furthermore, I mount the head with a V-joint in the German tradition. The V-joint means more work, but I'm used to doing it that way. A less obvious detail is the foot block inside the guitar which is inspired by a 1955 Manuel Velázquez.

Working with violin-makers has had a significant influence on my work, as they have a distinct approach to both aesthetics and sound. One detail I have incorporated into my maple guitars is the



Her bracing is a symmetrical seven-strut fan, with two closing bars.

round heel "button" (heel cap in guitar making) with its well-defined chamfers.

What is your bracing like?

L. W. – After observing numerous guitars with various bracing systems, I opted for a traditional approach. My bracing is based on a symmetrical seven-strut fan with closing bars. Sometimes, I add a small reinforcement under the bridge or create asymmetry by shaping certain struts. The plate under the rosette is about 1.2 mm thick at the edge of the sound hole and decreases to almost nothing at the outer edge of the plate. This shape reduces the risk of cracking and stiffens the edge of the sound hole. The "peones" are glued very close to each other. Based on what I have observed in some old gui-



Lisa in her workshop in Irschenberg, Bavaria.

tars where the backs have often collapsed at the lower bout, I chose to glue a fourth bar in that area. The weight of my guitars is around 1,300 to 1,400 grams, depending on the wood. In guitar-building, I think we have to be very humble and admit that there are things we don't understand. I can't always explain why I'm doing some-

thing. I follow my intuition.

Any modern details?

L. W. – I make a slightly elevated fingerboard because I think it's more comfortable for the player. Also, I add a twentieth fret. My guitars are built with double sides, a

She personally picks out all of the woods that she uses, travelling all over Europe to find them.

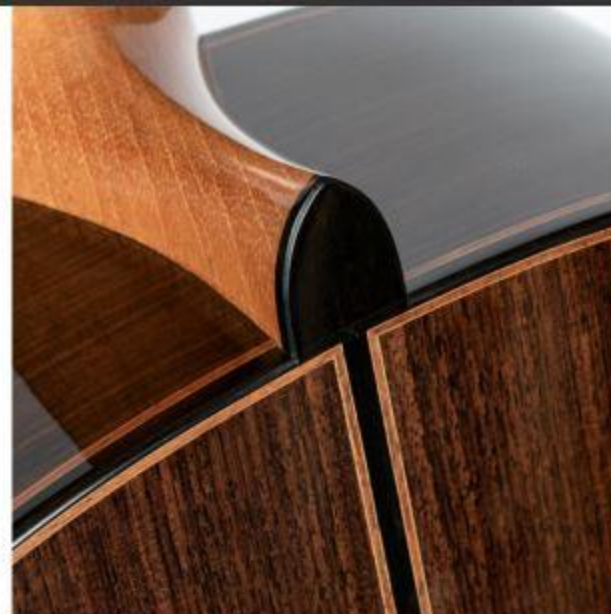


Laminated ribs and a headstock inspired by Manuel Ramírez.





She often includes subtle pattern variations in the rosettes.



thin sandwich made with the same kind of wood, maple with maple, rosewood with rosewood (or dyed mahogany). Above all, a perfect setup is of utmost importance, so I dedicate a lot of time to this step.

I see a violin influence also in the choice of woods...

L. W. – The quality of wood in violin-making is higher than in guitar-making. Very often, the wood available for guitars would not be good enough for cellos. When I'm choosing wood, I look more in the cello stock. Of course, the price is not the same... I have been lucky to find some excellent maple.

I personally select all my woods by travelling to Austria, Italy, Switzerland, Romania or Spain. I use cedar or spruce for the tops and I adjust the top's thickness and bracing depending on the wood's characteristics.

During my time at the violin-makers' workshop in London I naturally leaned towards making more maple guitars, because that wood was so ever-present. Varnishing has a huge importance in the art of violin-making. It takes a long time to prepare the wood before applying the first layer of varnish. These methods give the wood a remarkable depth and beauty. I try to mix this approach with the classic French polish.

Photos: Max Kirchbauer & Alberto Martinez





A few kilometres from
Lisa Weinzierl's workshop
stands the Wilparting church,
whose history stems from
one of Bavaria's earliest
Christian cults.

Paris, December 2023

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