

Violin Maker Otis Tomas

Exploring the Link between the Trees and the Tunes

By David Papazian

Otis Tomas, originally from Rhode Island, has made Cape Breton his home for the past twenty-five years. Otis' violins are valued and played by many traditional fiddlers, including Brenda Stubbert and Paul Cranford. Also an accomplished musician and composer, Otis understands the important relationship between his raw materials and the end goal — music. This interview took place in Otis' workshop in St. Ann's, Cape Breton.

How did you get involved in violin making?

Well, I started out actually in my late teens...I began making guitars, and I still make them. I was about twenty when I started playing the violin. The more I got into the violin world, my interest started shifting more and more to violin making.

So it grows out of your own passion for traditional music?

Oh, yes, definitely. I think if I didn't play it, I wouldn't have the same kind of connection with it.

You used to work in the house there, for years, in slightly smaller confines...

Yes, the house started out as one room, and I had a bench in the corner, so I started on the kitchen table with a trunk of tools I'd pack away under the bed every night. Gradually as the house grew, I was on the porch for awhile, then I built a room on the back... Finally, when we got tired of sawdust in the bed and in our dinner [laughs], it was time to move out... Probably five years ago, I built this workshop, about seven steps off my back porch. We've had a lot of good sessions out here — many wonderful players and wonderful tunes have passed through these walls. That's all part of [my] violin making — there's good acoustics in here, very alive sound.

Is a violin more than simply a tool to play music?

Yes, it's not strictly functional. Like the music itself, it's a whole aesthetic experience... You spend the time trying to make a nice varnish, to make it look good and feel good — that's all part of it, too. Certainly, it has to play [well] and the voice is the first thing... But it has more dimensions than that — the artistry, the conception, the methodology. That's why I like to play around with the designs, the circles, the proportions...

Could you tell me a bit about those shapes and proportions?

Many years ago, the mathematical Pythagorean structure was seen

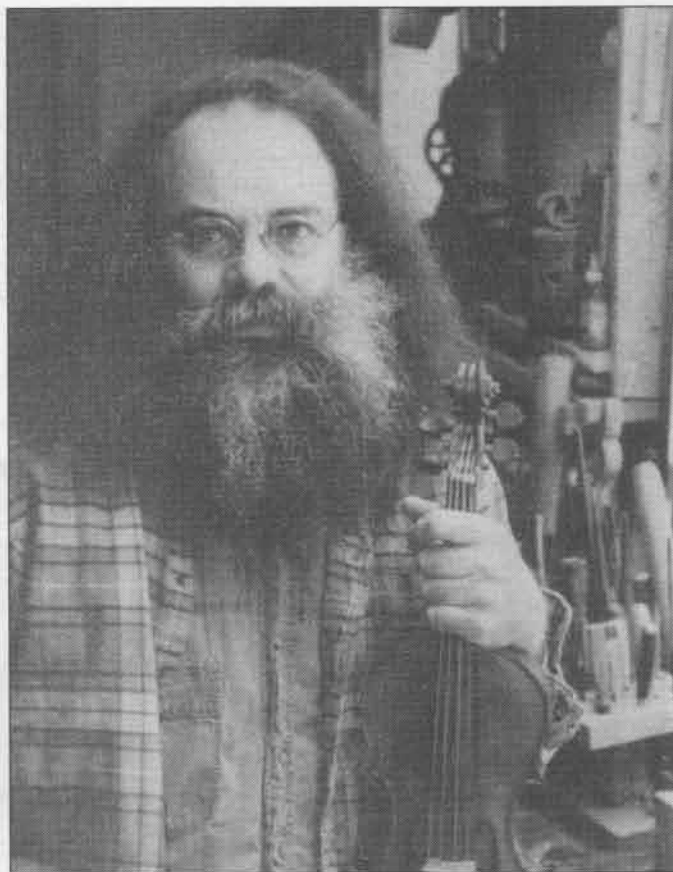


Photo: Deanie Cox

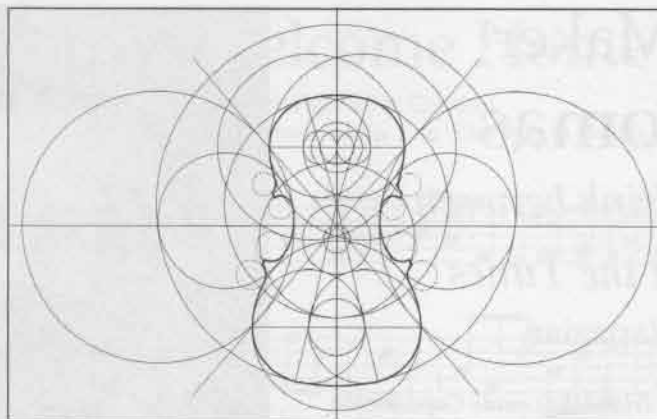
as an order that went through everything. Do you know that old story of Pythagoras hearing a blacksmith banging on an anvil with his hammers, and they were playing intervals in the ringing of the hammers? He asked the smith about it and found that the weights of the hammers were, for example, two pounds, four pounds, and eight pounds. They had a nice simple ratio in the weights of them, giving out tones that played this musical scale. He took that as a mathematical harmony that went through all of nature and [theorized] that it ordered the planets and the heavens — this archetypal harmony. He mathematized the ideas of music and harmony that describe our musical scale of today.

So you played around with some of those ideas?

Yes, you can take those same numbers that generate the musical harmonies and treat them visually or geometrically in these simple ratios; the curves and the arches can be built out, an arrangement of circles, describing the lower bouts — composing with them the same way you'd compose a tune, something that has nice little echoes and resonances. You see them and work with them mathematically. I'm not claiming these aesthetics have any direct relationship to the way an instrument plays and sounds — that's a whole other side of it.

Violin making seems to involve a compromise between opposing characteristics, hard and soft, rigid and elastic... Do you agree?

Yes, I think with any kind of instrument making, you can look at it as a balance between the structure and its function. You need a certain strength to withstand the pressures that it's put under, but what you're looking for is that point which optimizes the acoustical efficiency...it wants to be very vibrant and alive and free and



Clockwise, from left: old maple tree that grew a few minutes' walk from here, now upstairs in my shop; geometric drawing of a recent violin model; old red spruce from Windhorse Farm in New Germany, N.S.; cello with a newly cut maple log of potential fiddles. — Otis

light, but if you take that to an extreme, obviously it's going to collapse. So you try to balance that point where you have the strength you need but still the lightness and freedom that you look for in projecting its voice. Every instrument has an individual voice; there's no single answer of what a good violin is — no two sound alike. That's what's interesting, the uniqueness of each voice that comes from a particular tree. You have to make judgements along the way; a little thicker or thinner, arch it a little differently. Spruce that is used on sound boards of just about all stringed instruments, pianos, guitars, fiddles, has the highest ratio between its stiffness and weight, of any other wood. So, it's very strong, but light in mass and that gives it the freedom to vibrate. The top is the most vibrant and responsive part. But the whole instrument vibrates in ways more complex than anyone can really understand or explain with a simple formula.

I've heard you refer to "the school of a thousand mistakes." What did you mean?

It's kind of a long process of digestion of all the things you learn, you see, feel and experience — to take something as it's taught to you, until you question it and make the mistakes to understand why something works. It doesn't become a part of that unique whole you create; it comes out in unpredictable ways. You ask more challenging questions of the piece of wood in front of you, explore a little more the mysteries that happen between all the different parts of the violin. The varnish, the design, the shape, the arching... these separate elements that work together — the mystery keeps you trying again and again.

You like to use the local woods found here in Cape Breton?

Oh, very much. Using the local materials is very important to me now. I'm interested in discovering what I can find right here. Look at the maple in that fiddle [points to his own fiddle]. It's made out of firewood — a friend of mine found it in his woodpile. Lately I've been using the two trees pictured on my website [www.fiddletree.com — also shown above]. The sugar maple is local, certainly, about a five minute walk from here. I knew this tree long before I cut it down. I'd looked at it for a long time. I knew it had this quilted grain that was figured. I didn't take it lightly, you know, going out and cutting it down. The center of it was rotten, but it was still growing. The trunk at the ground was six feet across.

You have spruce from Nova Scotia as well?

Yes, from the mainland. I've seen a little spruce in Cape Breton, but the woods have been cut over by the logging industry and now the pulp companies. Good spruce is especially hard to find. The log I have came from Lunenburg County south of Halifax, an old wood lot, which is run as an eco-forestry school; the farm represents a wood lot that's been under careful selective management for over 150 years, since the first settlers came there. It's never been cut over — a mature forest of two and three hundred year old red spruce, grown slow and straight and tall... A healthy forest should grow cellos, I always figure. Lately, I've taken to collecting the resin from the balsam firs for my varnish. It's quite tedious. The little blisters that appear on the bark are full of resin — just a

"[The wood] is nothing like it was after spending two hundred years growing straight up, feeling the wind blow through it and the seasons change....[It] has to get used to these new stresses and has to come to a new equilibrium..."

few drops here and there. It makes a lovely gold-brown colour after it's been cooked and reduced. For me, it puts more integrity into the instrument, to know all of its parts intimately.

You make all the fittings for your violins as well?

Yes, I make the pegs and chin rest and tailpiece. It just doesn't seem right to use manufactured ones after following the process from a tree through to a finished instrument.

You have certain details that are unique in the carving of your violins, kind of a personal signature to you work...

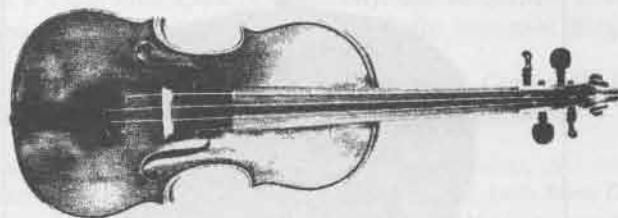
I'll usually make a little knot in the purfling just below the button of the heel where it joins the body. I don't go overboard — I try not to, anyway. The fiddle is such a classic perfect form as it is.

Does an instrument take years and lots of playing to mature its sound, its voice?

Yes, I think a lot of the magic of the great old instruments comes from the fact that they've matured that voice for three hundred years. I think an instrument, a violin especially, should just get better as it gets older...you like to think that something nice is left behind after you're gone. I certainly thought about mortality when I went to cut that big old maple tree. Music is the real eternal element. You take strips, the flesh of the tree, and you bend it around and carve it and put it under all kinds of stresses, stretch these strings across. It's nothing like it was after spending two hundred years growing straight up, feeling the wind blow through it and the seasons change. You try to build it in a way that all the parts are comfortable and relaxed, but even so, the wood has to get used to these new stresses and has to come to a new equilibrium...That all takes time and the varnish hardens and changes over the years. It's a bit difficult to send them off as soon as they're done. They're just babies and I don't get to know them very well.

Can we take a look around your shop?

Well, I have a wall here with a whole set of violin maker's clamps, different C-clamps and small detail clamps. Most of them came from an older fiddle maker, Roland Richards, who lived outside Sydney. He made and repaired fiddles for years — a wonderful old guy. I used to visit him quite often, but he died a few years ago. About a year later, his daughter called and asked if I'd be interested in any of his old tools. I got twenty years of *The Strad* magazine as well. His heart was very much in the violin-making world. I found some notes in a book of his, taken during a once-in-a-lifetime visit to Cremona, the home of Stradivarius. He was an



Glendale Ceilidh

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Brian MacDonald (fiddle)
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Sunday Concert, 4 pm

Features the best of local talent.
Fiddlers, Gaelic Singers, Stepdancers and more.
Emcee Daniel Rankin. Canteen services.
Outdoor mass at 3 pm.
Family Dance 9 pm Sunday with Shelly
Campbell (fiddle) and Mary Jessie Gills (piano)

inspiration to me when I first came to Cape Breton. Now here...This is Alexander Graham Bell's old band saw. This wonderful machine must be a hundred years old. When I got it, it was rusted, had been stored outside; it was still in use but it needed a fair bit of work to put it back in good running shape. There's a hundred years left in it, easily.

Do you think of the old man [Bell] — is that why you grew the big beard?

Well, no [laughs]. I didn't trust myself with sharp objects, that's all! Okay there, that's a picture from the Glendale Fiddle Festival [shown on the back cover of this issue]. All the fiddlers — you can see them on stage there — I think that's Jerry Holland there, and that's Father John Angus Rankin conducting, standing on a chair. That was 1975, when I first came to Cape Breton, and I think I was sitting right behind where the photo was taken at the time.

Let's go upstairs for a look around.

Now this is another log I got at one of the local saw mills. As you can see, it's got an incredible deep flame, a strong regular ripple going through the whole piece. That's red maple, a soft maple I use for the violins. I prefer what it gives compared to the hard maple, which tends to be a brighter but perhaps thinner sound.

Now, what are all these bottles and jars?

This is my little varnish room. Here's some seed lac, a primitive



Cello and violin by Otis A. Tomas

form of shellac, for spirit varnish or a sealer coat. Here's the madder root I use to make a red pigment. If I make a dark amber varnish, it gives a nice glow of red that comes through the brown varnish. It's made by a traditional process: it's dissolved in a lye solution and precipitated out with alum, so you're left with this very strong pigment in alum crystal, which when ground in oil becomes very transparent in the medium that surrounds it. It has to do with the index of refraction. The light doesn't see the boundaries between the two materials, and passes through without being bent — it just shines right through.

The effect it gives is quite remarkable.

This is South American amber I use for my oil varnish. I cook the amber down to evaporate off the more volatile elements, and you're left with more or less purified resins. Cooking it more will give a darker resin. It is then cooked with linseed oil and thinned with turpentine to give it a brushing consistency. Here is some turpene resin which comes from turpentine which is oxidized. I blow air through it with an aquarium bubbler. After three to four weeks, it will thicken into a syrup and finally it's cooked down to produce the resin. But lately, I've been working with the balsam fir resin I've collected from the trees around here. I apply it over a ground coat that is made from propolis collected from a neighbour's bee hives. Now, here's some copal resin from a species of New Zealand pine tree. I got it at the Gaelic College here in St. Ann's. When Rev. Norman MacLeod left Cape Breton for New Zealand in the 1830s, descendants of his clan became traders in this resin for the varnish makers of Europe and some of it made its way back here.

Do you feel isolated living here in Cape Breton, off the beaten track?

I never had any formal apprenticeship or training, but in this day and age, there are so many resources available, from detailed plans of particular historical instruments, to contact with other makers all over the world, through the internet — news groups discussing many issues, problems sharing their approaches. Before I had the computer, I'd go to the library and find all sorts of wonderful books about the classical makers. In the old days, the guild system of apprenticeship was the way a person would learn a trade. In the 20th century, those institutions aren't there in the same way, but we know more now about the makers in and around Europe than someone living at the time would have known.

Tell me about the new tool you got recently.

It's a measuring gauge, a magnetic caliper called a Hacklinger gauge, that measures the thickness of the wood. Basically, it's a spring that's sensitive to the pull of two little magnets, one that you put inside the instrument and it reads the thickness of the wood from the outside. I started out working with the tones that a piece of wood gives, matching my tops and backs to certain frequencies, all of which left me wondering what was the connection between the theory and the actual sound of the instrument after I built it. So, in an attempt to get at a more direct sense of that, I build the violin "in the rough," leaving the thicknesses a bit heavy, string it all up "in the white," and then I'll play it and do the final graduating from the outside, instead of letting the theoretical arrangement of the parts dictate to me the proper thickness. It seems a more promising and interesting way to approach the process of building and tuning a violin — a more direct connection between the way the wood is carved and the sound it gives.

Could you tell me about your experiments with bending the top?

I made a couple of instruments with bent tops rather than carved. Before the violin developed as we know it today, the earlier viols, it's believed, were made this way, with a thin piece of wood that was bent into a rough arch. We were talking earlier about the balance between the structural integrity and the freedom of voice the instrument needs. So, by bending the wood, you're allowing the natural fibers of the wood — the grain — to follow the curvature of the arch, rather than carving the ends off where a lot of those fibers will be running out where the angles become steep. It gives a stiffer and stronger top which allows you to achieve the same structural integrity with less mass. That's the idea behind it. The method can work well, and there are historical precedents for it — but for myself, I just prefer the process of carving. I like to visualize and think about the shape of the arch and what that means to the geometry and the structure, the acoustics. All these things run through my imagination as I'm carving. That's a part of it I really enjoy.

The violin music here in Cape Breton and the community around it must provide great inspiration for your work.

Yes, the music here seems so natural, it's always there in the background. There aren't the distractions there might be in a busier kind of environment. That suits my personality, to have the peace and quiet to do my work...I'm a bit of a hermit. I love to play music with my friends. You can go out to a session or a dance. The music is a fresh, constant spring flowing with water. Having that as a nourishing support is a great inspiration.

You make tunes as well as instruments, Otis...

Yes, and it comes from the same place all of my work comes from, I guess — music and art and violin making feed off one another, I think. Without the music, a violin is nothing, but the music is nothing without an instrument to play it on — they go hand in hand.

You seem to have a knack for both.

Well, it's that little spark of originality, that uniqueness of each person, each tune, each instrument. That's the important thing.

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A couple of years ago, my friends Bell Fraser and Stewart Applegath were married by the cliffs overlooking the Northumberland Strait, not far from Margaree on the west coast of Cape Breton. When Bell asked if I'd play for the wedding, I wrote this pair of tunes for them. — Otis

Bell's Waltz

By Otis A. Tomas

G Amin Bmin Amin G Amin Emin D
Emin Bmin C G C D Bmin D G
Emin Bmin Amin G D
C Amin G D C D Bmin D G

Stewart Applegath's Reel

By Otis A. Tomas

G Amin Bmin Amin G Amin G D
G Amin Bmin Amin G Amin D G
Bmin Emin Bmin Amin Emin
Bmin Emin Amin G D G