



A UNIQUE *PEARL*

In the second of two articles, **Terry Borman** discusses the ribs, purfling and scroll of the world's most expensive instrument, with additional comments from its current player, Anne Akiko Meyers, and expert acoustical and technical analyses

Two months before his death in June 1881, Henri Vieuxtemps was considering selling his beloved 1741 Guarneri 'del Gesù' violin. He was no longer able to play, having suffered a stroke, and in a letter dated 9 April 1881 he told his friend, cellist Joseph Van der Heyden, that the instrument would 'cost the buyer a lot, but it will be well worth it because this violin is a unique pearl'. In early January 2013 the world found out how prescient his comment was, as the newspapers were flooded with reports about the violin's sale to an anonymous buyer for an undisclosed sum – stating only that it was in excess of \$16 million (£9.8 million). That made it, at the time and still five years later, the most expensive violin in the world. The news also stated that it was to be a lifetime loan to the US violinist Anne Akiko Meyers.

The moment of receiving the violin must have been as exciting for Meyers as the thought of parting with it was devastating to Vieuxtemps. At the time he wrote that losing it would 'cost me many tears and I already have a heavy heart just thinking about it. But when I look at it, it brings tears to my eyes that I can no longer converse with it, bring it to life, make it speak!' He first considered selling it, via his Belgian friend, to the Duke of Camposelice for the sum of 17,000 francs, to which the Duke readily agreed. However, when the time came to consummate the arrangement, Vieuxtemps changed his mind and raised the price to 20,000 francs. The Duke again agreed, and gave a cheque for this amount to Van der Heyden, who brought it to Vieuxtemps's residence in Algeria. The look that the violinist gave him was such that Van der Heyden wrote: 'It would be impossible to describe the despair on his face. He was crying and couldn't reconcile himself to the idea of being separated from his Guarnerius. He asked for 24 hours to think it over and in the end told me to leave with the cheque.' The Duke offered to pay even more, but was told that Vieuxtemps would never part with his violin at any price.

RIBS AND PURFLING

The ribs of this instrument have an attractive flame and may have been cut from the same wood as the back. There's no way to know if the flame direction shifts are intentional or lackadaisical but here we see a common characteristic of the work of Guarneri 'del Gesù' (GdG): his indifference ▶



ANNE AKIKO MEYERS
ON THE 'VIEUXTEMPS'

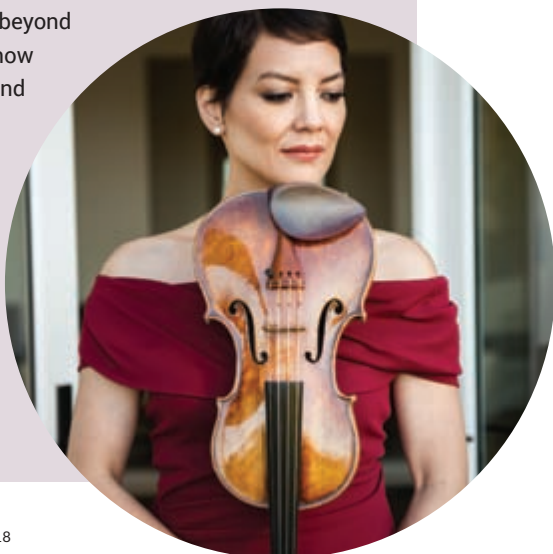
The US violinist, who has been loaned the instrument in perpetuity, discusses its tone quality and projection

I first got to play the 'Vieuxtemps' in 2012. I was already playing on two Stradivari violins, the 1697 'Molitor' and the 1730 'Royal Spanish', so I wasn't looking for a new instrument. I also knew that the 'Vieuxtemps' was on the market for a crazy price: it started at \$20m, then came down to \$18m, and I was afraid to play it in case I fell in love with it! And if I did, I thought there'd be no option for me other than to rob a bank, so I passed up the chance to try it. Then some sponsors wanted me to try out the instrument, so I did so with some trepidation – I was blown away by it. There was a depth to the sound that was so profound that I felt like I was a sailboat on top of a vast ocean of colour – and it was my responsibility to try and bring out as much colour and power as it gave me.

In particular, the violin has a colossal range. I found I could play the entire repertoire, from Vivaldi to Sibelius to modern works, just on this one violin. All the pieces I've dreamt about being able to accomplish are now within my reach! It feels as though there's colour in my fingertips: when I was recording Vivaldi's *Four Seasons* it was as though the violin's tone could emulate lightning, drunkenness, birds chirping and the rain pattering down. As for the projection: I never have to worry about playing a pianississimo in a large concert hall, because I know it'll just float to the back without being swallowed up.

In my view, the tone of a Stradivari is more glossy and crystalline: the E string sings with a special kind of brilliance. A Guarneri, on the other hand, has a deep, wide, rich tone, especially on the G string, which sometimes has the character of a viola or even a cello. It requires a special kind of bow stroke – if you press too much, it can choke the sound. One needs to sculpt the sound from the violin.

René Morel used to look after my instruments, and he always said that I was naturally a Guarneri player, that one day it was his hope that I'd have a Guarneri in my hand for ever. He would be thrilled beyond imagination to know that I'd finally found an instrument that was so compatible with my playing style. It's tragic to think that by the time I had it in my hands he'd passed away.



to norms. Most makers, classical and contemporary, follow the dictum that flame direction should flow uniformly around the instrument. Here we see the upper bouts and C-bouts having similar direction whereas the flame of the one-piece lower bout goes in the opposite direction. It's likely that the upper bouts were originally one piece as well.

GdG seems to have had a focused making methodology, whereby he chose the aspects of the instrument that were very important acoustically and spent considerable time finessing these parts (to name a few: the arching design and execution, the f-hole layout and the wood selection). Those components not deemed acoustically important (such as the purfling, scroll, centre seam alignment) were apparently completed without a second thought.

The purfling of this instrument is a wonderful example. It fulfils its purpose – to prevent end-grain humidity cycling that could cause cracks from extending into the body of the instrument – but does so in a manner devoid of any hint of finesse. GdG's goal was acoustical, not to impress fellow makers by attention to insignificant detail. The condition of the ribs is very good with only a few small cracks and no traces of doubling.

The scroll of this instrument is as bold as they come without becoming bulky. The maple is beautifully

TOP PHOTO: TERRY BORMAN, MEYERS PHOTO: DAVID ZENITZ



WHILE BOTH SIDES OF THE PEGBOX ARE RELATIVELY SIMILAR TO ONE ANOTHER, THE TWO SIDES OF THE VOLUTE COULD ALMOST BE FROM TWO DIFFERENT INSTRUMENTS

The scroll of the 'Vieuxtemps' is bold without appearing bulky

flamed and this is particularly visible on the treble side. The pegbox is quite large and deep, allowing the musician easy access to the pegs to facilitate changing strings. The volute is cut quite deeply, as can be seen in the close-up images. The scroll of a violin does not play a significant role in the projected sound so is an ideal place to enjoy the process of making a violin away from the rigours and constraints of more acoustically important areas. While both sides of the pegbox are relatively similar to one another, the two sides of the volute could almost be from two different instruments. The bass side is more graceful, whereas the treble side has an almost 'bring it on' quality. It's interesting to note that from the front and back the spirals line up quite well, which isn't to be expected given the variations between the two sides! Many scrolls from many makers are so excellently crafted that a quick look is all they demand, whereas this scroll has such a strong and multifaceted character that it's difficult to become bored studying this work. Somerset Maugham once said: 'Perfection is a trifle dull. It is not the least of life's ironies that this, which we all aim at, is better not quite achieved.'

The condition of the scroll is quite good with little to comment on, other than the usual peg bushings and neck graft. On the bass side there is a sliver grafted on to the transition area from the pegbox to the volute. >



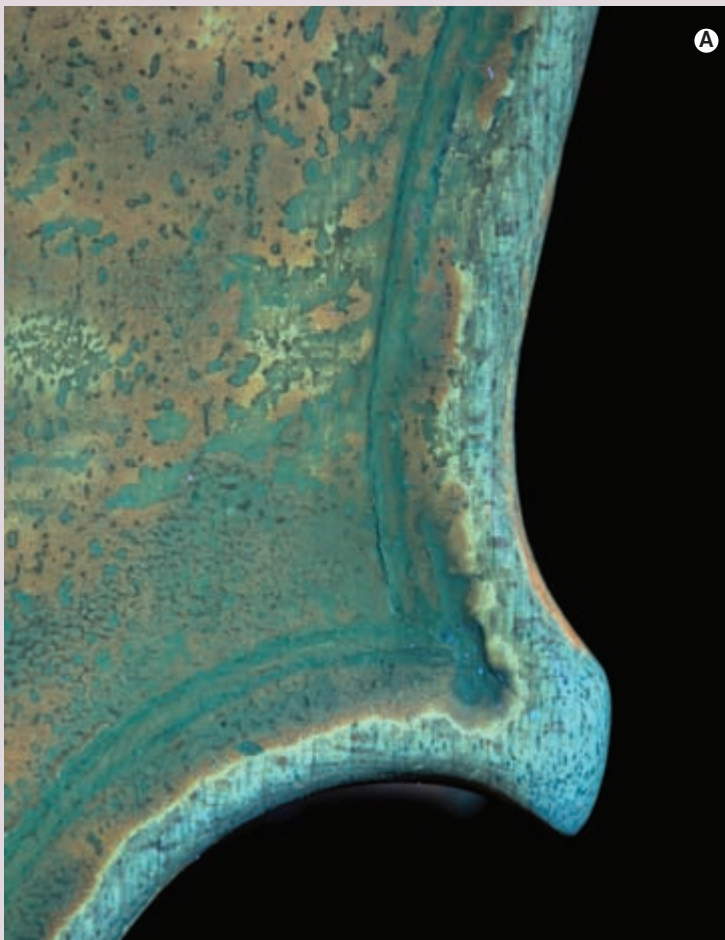
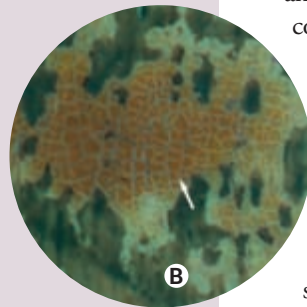
GUARNERI'S VARNISH

Brigitte Brandmair gives a technical analysis of the 'Vieuxtemps' varnish and ground

This instrument has a typical Cremonese-school varnish on all its parts. The pores contain remains of colourless varnish. Crateriformed spalling of varnish from the wood appears in largely abrupt transitions. This is a typical feature of this maker. The original varnish has the salmon-coloured fluorescence common to most makers of the classical Cremonese school (**image A, below**). With the exception of areas with mechanical ablations the colourless varnish is almost entirely preserved. Reticulate craquelure and net fissures of the original varnish are intact in many areas (**image B, right**).

Global UV examinations

Viewing instruments under UV radiation is among the basic methods of varnish examination. While emitting, the absorbed UV radiation undergoes a shift in frequency towards the visible range of the spectrum. Specific areas, each coded with a specific fluorescence colour, can be discerned in much greater detail and therefore evaluated much more reliably than in daylight. Depending on the state of conservation, the varnish profile is exposed on the margins of the worn-off areas, enabling stratigraphic evaluation.



Ultraviolet light analysis shows that this was done prior to varnishing.

In many of the instruments of GdG there is little or no colouration added to the varnish. One could feasibly make the argument that the varnish itself was not very expensive (and was probably the same as that used by cabinet makers and other artisans) but the colour red was expensive and reserved for instruments that were not built on speculation but had an intended buyer, so the maker could recoup the cost upon sale. For a maker such as Stradivari this wouldn't have been an issue since the vast majority of his instruments were commissioned, but for a maker with limited resources this could have been a significant consideration.

The application of the varnish is done in what is considered the 'classical' Cremonese style: under UV light one can clearly see the ground coat, the intermediary layer, and finally the upper, coloured, varnish. On close examination it is interesting to note that what appears to be significant wear is in reality the impact of either the weather (humidity and cold weather slowing down the drying process) or something that altered the way the initial varnish dried. This is notable because the vast majority of the dark markings on the varnish are not due to impact or abrasion; rather, they are from the actual drying process. This caused pitting in the plates (**figure 1**, page 36), which over time became filled with dirt or other particulates. This instrument has had very little polishing done to the surface so these pits are quite evident topographically.

Another process may also have taken place. If the varnish had only slight adhesion, then minor events could have caused noticeable varnish loss, probably early on in the instrument's life. With no trace of an abrasive event there appears to be a 'sloughing' of varnish in certain areas (**figure 2**, page 36). Sections of the belly also have areas where the late-growth grain lines are recessed below surface grade and this has let >

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ACOUSTICS OF THE 'VIEUXTEMPS'

Joseph Curtin presents a report on the instrument's acoustic capabilities

In 2010 Terry Borman and I spent several days at Bein & Fushi in Chicago doing acoustical measurements of the 'Vieuxtemps' and a number of other Old Italian violins. The results were summarised in a pair of articles in *The Strad* that year. I have since measured a great many other violins, and it is interesting to place the 'Vieuxtemps' within a group of 120 instruments, including 14 by Stradivari, 6 by GdG, and 76 by some 30 modern makers.

One measure of a violin is its *radiativity*, or how much sound it radiates across the frequency range, for a given force at the bridge. Radiativity can be plotted as a spectrum: a jagged array of peaks demonstrating just how dramatically sound output varies with frequency. In **Figure 1**, the spectrum of the 'Vieuxtemps' is laid over the average spectrum for all 120 violins. Note the two high peaks in the low frequency range labelled B1- and B1+. For the 'Vieuxtemps', these peaks are significantly higher in frequency than the average (see **Table 1** for details). B1 frequencies depend on the overall stiffness of the violin body in relation to its mass, which in turn depends on wood properties, archings and graduations. Thinning a violin's top – and to a lesser extent, its back – inevitably lowers the frequencies. The 'Vieuxtemps', with its generous and apparently original graduations, has one of the highest B1+ frequencies I've ever encountered. I believe it is the posthumous thinning of so much of Guarneri's work (and indeed, that of so many other Old Italians) that accounts for the relatively low B1 frequencies seen in Table 1. A chance to measure more classic violins with intact graduations would give a clearer sense of the acoustical consequences of re-graduation, and the extent to which they have influenced our current conception of 'Old Italian sound'.

A striking feature of the 'Vieuxtemps' is the cluster of high-amplitude peaks in the 4kHz region. As human hearing peaks in sensitivity around 3.8kHz, it is reasonable to assume this feature is tonally important. Known to researchers as the 'Upper Hill', the feature appears in some form in all violin spectra, though it is typically lower in amplitude and spread over a broader

frequency range. Among these 120 violins, only the 'Jarnovich' GdG has an Upper Hill of comparable shape and magnitude.

The sheer number of peaks and valleys in a violin spectrum can make it difficult to spot meaningful differences between instruments. A useful simplification is to divide the spectrum into frequency bands, then calculate an average amplitude level for each band. In **Figure 2**, the 14 Stradivari and 7 GdG violins are compared over four frequency bands. To the extent these instruments are representative, the two makers evidently gravitated toward different spectral balances. For GdG, levels are highest in the two outer frequency bands. For Stradivari, levels are somewhat lower than GdG in the outer bands, but notably higher in the third band. This band encompasses the so-called 'Bridge Hill', which, like the Upper Hill, is believed to stem from an interaction between the bridge and the central area of the top. Band-averages for new violins built on Strad and GdG models tend to exhibit these same spectral profiles, suggesting they are inherent to the model. By this measure, the 'Vieuxtemps' – with its strong low frequency peaks forming a 'woofer' and its remarkable Upper Hill acting as a 'tweeter' – seems a classic embodiment of Guarneri's tonal ideals.

| | B1- | B1+ |
|--------------------------|-----|-----|
| Vieuxtemps | 468 | 594 |
| 123 violins (average) | 448 | 541 |
| 14 Stradivari (average) | 430 | 540 |
| 7 Guarneri (average) | 433 | 516 |
| 76 new (average) | 446 | 545 |
| 45 Old Italian (average) | 435 | 536 |

Table 1 Average peak frequencies (Hz) for B1- & B1+

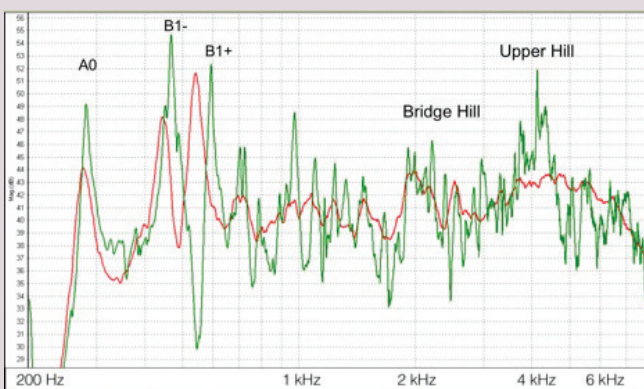


Figure 1 Spectrum for the 'Vieuxtemps' (green) and average spectrum for all 120 violins (red). Each instrument was measured by tapping the bridge with a miniature impulse hammer (horizontally, then vertically) while recording the response from 12 microphone positions, equally spaced around the instrument in the plane of the bridge, and 20cm from the instrument's central axis.

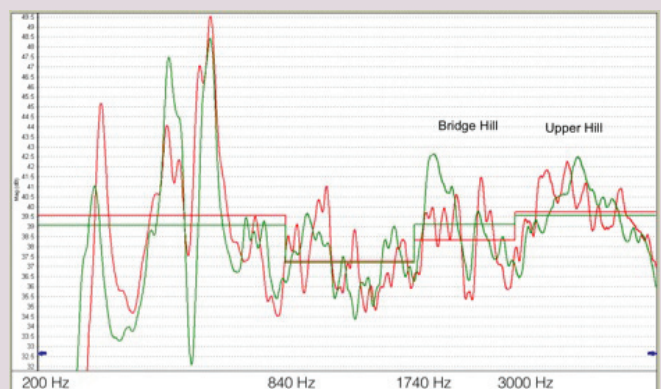


Figure 2 Average spectra for 6 GdG (red) and 14 Stradivari violins (green). Horizontal lines indicate average amplitude levels in each of four frequency bands.



FIGURE 1 The back plate shows signs of 'pitting' in the varnish

FIGURE 2 There is evidence of 'sloughing' of varnish on the front plate

FIGURES 3 and 4 The varnish of the 1742 'Dushkin' Guarneri appears similarly dark through changes to the varnish

dirt or other particulate to collect, making the grain lines almost black. None of the above is unusual for GdG's instruments, in particular those with coloured varnish. His varnish is often 'textured', either from pitting, craquelure, darkened grain lines and so on. To give another example, the 'Dushkin' GdG of 1742 (figures 3 and 4) displays similar early-onset, yet non-invasive, changes to the varnish that have a significant impact on the overall impression of the instrument. It is fairly dark but this is due to these varying effects, as well as to the occasional impact mark. For instance, a surface that is slightly brown will appear much darker as more and more black dots are added. The advantage to this method of achieving an overall dark-looking instrument is that the non-impacted varnish loses no transparency. The 'Vieuxtemps' provides a superb example of that.

In early 1880 Henri Vieuxtemps arrived in Algiers, Algeria, to live with his daughter and her family. Seven years earlier, aged 53, he had suffered a stroke that paralysed parts of his left side and even though it seemed that he might be able to play again, ultimately this was not the case. He was able to teach for a few more years but on 30 June 1879 he resigned from his posts, as it was too difficult for him to continue. His wife of 24 years had died of cholera in 1868, he could no longer play his violin, and he was

TIMELINE OF VIEUXTEMPS'S LIFE



1820 Henri Vieuxtemps born on 17 February in Verviers, Belgium

1827 Gives first concert in Verviers

1829 Moves to Brussels to study with Charles de Bériot

1837 Makes first tour of Russia, along with several engagements across Europe

1844 Marries pianist Josephine Eder

1846–51 Spends five years in Russia as a violinist and professor

1871 Appointed professor at the Brussels Conservatoire

1873 Gives last concert, aged 53, following a stroke

1880 Enters a sanatorium in Algiers

1881 Dies on 6 June aged 61

now in a country with few upper-echelon musicians to commune with, and no orchestras to play his compositions.

There exists a word in German that no other language seems to have an equivalent for: *sehnsucht*, an existential longing or craving for something unattainable in this life. Reliving the previous reality of being feted from Russia to the United States, hearing his compositions played to massive acclaim, and missing the intimate connection with his violin and constant companion for most likely 20 years, does it really seem so far-fetched that he might have considered being buried with his violin? And yet how fitting that through his violin and his compositions he does indeed live on. ●

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