A violin needs a bow

Description

Pernambuco wood for violin bows. Source: Fiddlershop

The previous post looked at classic violins and the future of violin making. It's easy to forget, when delving into the world of Stradivari and classic violins, that without a bow a violin is – well, maybe just a fancy ukulele. Although the bow generally plays second fiddle to the violin itself (OK, sorry, I had to pun – I couldn't help myself), the quality of the bow also counts a lot towards the quality of the music produced.

And violin bows (and bows for cellos and violas) have their own story relating to the trees they come from. While the prized violins were made from trees that grew relatively locally, the source of the bows couldn't be more different.

As violins developed into their modern form, starting with the Amati family in Cremona, so too did bows change over time. The original folk instruments from which violins developed were played with bows that looked somewhat like a bow-and-arrow bow, with a distinct convex arch. As violins increased in sophistication, bows changed in shape, becoming straighter and eventually changing from a convex to a concave arch.

The modern violin bow can be traced back to the second half of the eighteenth century and the work of François Tourte (1747–1835) who introduced a number of innovations that greatly increased the performance of the bow. Tourte's bows, "like the instruments of Stradivari, are still considered to be without equal."

Pernambuco: Bows grow on trees too

Once again, the materials used also matter a lot. In the case of bows, experimentation showed that a wood called Pernambuco was found by the early French bow masters to have just the right combination of strength, resiliency, weight, and beauty. Pernambuco (*Paubrasilia echinata*), also known as Brazilwood or Pau-Brasil, grows in the Atlantic Rainforest of Brazil, the same place that Brazilian Rosewood comes from. Confusingly (as is often the case with species names), this species was previously called *Caesalpinia echinata*, and is still often referred to by this name. It was, however, changed in 2016.

Paubrazilia trees. Source: The Violin Shop

When Portuguese ships discovered the trees on the coast of South America, they found that the wood yielded a red dye—which made for a very valuable and lucrative trading commodity. They named the tree *pau brasil*, the term *pau* meaning wood, and *brasil* meaning red/ember-like. The vigourous trade in this wood led early sailors and merchants to refer to the land itself as *Terra do Brasil*, the "Land of Brazil"—and this became the name of the country.

Large amounts of the wood were imported into France and other European countries to make textile dye, which is why the bow makers of the time were able to experiment with it. Ever since it was identified as the best wood due to its high density, facility to bend, stability, durability, and beauty, Pernambuco has been the most important raw material for high-quality bows. It is still preferred by

bow makers and musicians, even in the face of alternatives including carbon fiber.

Past exploitation and future conservation

Because of past excessive overexploitation (not for the bow industry but for other purposes), Pernambuco has been listed in Appendix II of CITES since 2007, and categorized as a species that is highly vulnerable to extinction, unless strict trade regulations are applied. Although not the culprit to blame for the tree's current endangered status, today's global demand for violin bows has the potential to push the tree species to dangerously low levels in its natural range.

Given the perception that there is no other known wood that matches Brazilwood's quality and acoustic properties in bow-making, this creates a dilemma for bow-makers. The trade in the wood collapsed after the invention of aniline dyes in the mid-1800s, leaving bow making the only international industry still reliant on the pau-brasil tree. That reliance was small compared with the volumes of wood that had been needed to produce dyes, but it was big enough to confer an inescapable responsibility on bow makers. Even if they used relatively little wood, the wood they were using was rapidly disappearing.

This realisation has resulted in an exciting interaction between bow makers and people trying to conserve and restore the Atlantic Rainforest. Commercial Pernambuco plantations have been established and supported by violin makers, bow makers, and musicians, hopefully securing the future supply of violin bows. A not for profit organisation, the International Pernambuco Conservation Initiative , was established with the following aim:

"IPCI USA's mission is to promote the science-based conservation, replanting and sustainable use of pernambuco, which is so precious in nature and to stringed-instrument music, so that it will flourish for many generations to come".

Trailer for "The Music Tree"

As Russ Rymer wrote "The profound interconnection between a musical tool, a plant, an ecology, an economy, and a society and its history is a lesson of the forest." Perhaps more than any other story on this site, the dependence of music on the fate of the forests is made clear by the reliance of violins on bows made from an endangered Brazilian tree.

[*Thanks to my colleague Elisabeth Huber-Sannwald for first introducing me to the story of Pernambuco. Read some of the work she has been involved with, along with Silke Lichtenberg on ResearchGate.*]

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