

By TRICIA PARKER
Staff Writer

In Joseph Nagyvary, art and science are a successful blend. Nagyvary's job is teaching biochemistry at Texas A&M; his art, a love of violins. He is using his knowledge of both to discover the secrets of Renaissance violin makers.

Nagyvary says his fascination with violins has been with him all his life.

"I was always interested in violins," he says, "ever since I can remember hearing one when I was a child. I thought it was the most magnificent sound ever."

So for the last 20 years or so, he has been trying to duplicate the processes perfected by Renaissance violin makers like Stradivari, Guarneri and Amati, who are widely held to have produced the finest violins in the world.

"Only the old Italian violins are any good," he says. "All the others are mediocre in comparison."

What makes a violin good, he says, is clarity of sound, lack of noise and certain combinations of overtones. Nagyvary, who has been at A&M since 1968, says these tonal qualities depend not only on who makes the instrument but on what materials are used.

Nagyvary says the type of wood used by Stradivari and



Joseph Nagyvary, professor of biochemistry, has been trying to discover what finishes were used on Renaissance violins, so he can duplicate their tone. Currently, he is working with a finish made of bee wings.

his contemporaries is spruce or maple from Germany — no great mystery. But more difficult to discern has been what the Italians did to preserve the wood. They were so secretive,

that their methods were lost.

Nagyvary's job is made more difficult by the rarity of the violins he wants to reproduce. The problem, he says, is that there are only 500 or so Stradivaris

left in the world. They range in price from about \$400,000 to over one million, even if the owners were willing to sell it. And few owners of such an instrument are eager to have it taken apart for experimentation, he says.

So he, like others interested in the same kind of research, must wait and hope for a sliver from some old Italian instrument to come into their hands.

Nagyvary says people have been trying to resurrect the secrets of the Italian masters for 200 years without success. But with the help of complex chemical analysis and a little bit of sleuthing, Nagyvary says he is near to discovering their methods.

Several years ago Nagyvary got the chance he'd been waiting for. He obtained a sliver of wood from a Guarneri cello. When he examined the wood he found changes in the chemical make-up of the wood not solely attributable to the aging of the wood.

This sent him looking for clues as to where the wood came from. His breakthrough came when he realized that the wood used to make the violins had been floated down river to Italy. The waterlogging on the way accounted for the changes in the wood — changes which gave the Italian violins exceptional tone and resonance, he says.

Following his theory about the wood, Nagyvary pickled some wood himself and sent it off to craftsmen in Austria, Bulgaria and Salt Lake City

who made the boxes of the instruments.

But he's not finished yet. Nagyvary says the next problem is finding out exactly what was used as varnish on the violin after it was put together. A little detective work, a few educated guesses and a lot of experimentation and luck have brought him very close.

"The varnish is the second key element in an instrument," he says. "The varnish serves like a noise filter, the good varnish only filters out the noise."

Nagyvary says without a chemical analysis, he can only guess what the Italians put in their varnish. He is nothing if not creative in his theories, experimenting with a wide range of finishes, including one made from the hair of a female lab assistant.

"Right now, I make my own varnish from bee wings," he says. "It takes about one pound of dead bees to get the varnish for one to two violins."

Nagyvary says an extensive chemical analysis could tell him exactly what the Italians used.

"With chemical methods you could tell what was in it for \$100,000," he says. "We could reproduce it pretty well."

But the funds and facilities just aren't there. Nagyvary, who has financed most of his work himself, says that to get it exactly right he would need an accoustical laboratory, which doesn't exist at A&M.

"It's time that a big school like ours got one," he says. "From the recruiting budget at Texas A&M we could set up an accoustics lab."

Nagyvary, who makes about 10 violins every year, says he doesn't have to solicit buyers for his violins. He says several well-known violinists have expressed interest in his instruments. He will sell them to performers and students for the price he is offered, usually between \$2,000 and \$5,000.

Nagyvary doesn't build his violins for the money. He says he builds them to provide high quality violins without a prohibitively high price, especially for students.

And he builds them less for the audiences who will hear concerts played on his instruments than for those who will play them. The average ear couldn't hear the difference between the Stradivari and a fiddle, he says, but that doesn't matter to him.

"It's not the Aggie audience who could tell the difference," he says. "It is not the average person who could tell the difference at a concert. It is the player who needs a good violin, not the audience. It is much easier to play." [^]

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