In Search of Origins:
The Evolution of the Medieval Vielle

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This project consists of two parts: the first involved research into the history of the medieval vielle through a 13th-century manuscript—the *Cantigas de Santa Maria*. The illustrations were used to give a sense of the different types of bowed stringed instruments in use at the time in the area of Castile, and secondary sources were used to help understand and explain the illustrations found in those pages.

The second part was a recreation of one of the instruments which was illustrated in the *Cantigas*. The direct application of the previously-completed research served to solidify it as well as expand it into realms which literary research falls short. Through making this recreation, the playing qualities, the tone, and the 'what' and 'how' of the materials were all explored.

Part I

The Evolution of the Medieval Vielle

"By the end of the seventeenth century, it had rerouted the course of both instrument and music making, leaving a trail of musical forms and ensembles—orchestra and string quartet, symphony, concerto, and sonata—that reached around the world. The violin still defines the musical landscape three centuries later."[1]

The impact of the violin on modern music would be difficult to overstate. It has shaped music through the centuries in its use by troubadours and minstrels, and by quartets and orchestras. The vast majority of cultures in the world have adopted the instrument for their own use. The violin has defined composers, musicians and musical eras and it played a pivotal role in the formation of group music—orchestras. The violin is easily one of the most influential instruments in all of music history, and yet its origins are obscured in a fog created by a lack of documentation and of surviving instruments. According to David Shoenbaum, French musician and composer Jean-Benjamin de Laborde had intended to include in his *Essai sur la musique ancienne et moderne* a history of the origins of the violin. Yet, despite a year of searching and sending out scholars to scour old texts, nothing came of it and the volume was published in 1780 still lacking that section.

Since Jean-Benjamin's time much research has been done into the more ancient history of the violin, and much has been discovered. A number of modern scholars have put together studies of the violin's predecessor, the medieval vielle—Montagu, Shoenbaum, and Duffin have all made significant contributions to our understanding of the vielle—but this section in music history continues to be overhung by a fog. The lack of surviving instruments makes discovering the technicalities of vielle making less than an exact science. Few texts make mention the instruments, and those that do give little by way of practical instruction. In order to discern some

1 David Schoenbaum, *The Violin: A Social History of the World's most Versatile Instrument* (New York: W.W. Norton & Company, Inc., 2013), xviii-xix

of these technical aspects, the artwork of the middle ages provides the greatest amount of content to study and discover. One of the best sources of this sort is the illustrations within the *Catigas de Santa Maria.*

The *Cantigas* is a collection of medieval music from the 13th century. It was written in Galician-Portugese in the area of Castile under the reign of King Alfonso X. In addition to the lyrics to many songs, the *Cantigas* includes many illustrations of instruments, from horns to harps to vielles, and it is from these pieces of artwork that much of our modern understanding comes. By studying these primary works and incorporating the works of other scholars, three different forms of the medieval vielle can be seen, slowly transitioning in both structure and use from early to later types. These illustrations also give hints at technical aspects such as the nature of vielle bridges and the bows with which they were played. Through the study of these illustrations and the application of secondary research, I hope to provide some basis for a greater understanding for the interpretation of medieval music.

History of bowed instruments

Bowed instruments of all sorts owe their origins to ancient roots. Documents are insufficient to explain exactly when or where came the idea of drawing horsehair across a string to create sound, but speculation by several scholars points to central Asia—from there to the Arabian cultures, through Byzantium, and by the eleventh century it had penetrated all throughout Europe.[2] Bowing looked very different for different cultures and in different times. Some examples of instruments range from the tiny rebec to violin-sized pieces to large upright

2 Ross W. Duffin, *A Performer's Guide to Medieval Music* (Bloomington: Indiana University Press, 2000), 293.

viols, all based on the same techniques and forms. One of the difficulties in interpreting the documents and works surrounding medieval bowed instruments is the confusion of the names—Duffin writes that, "Because of the scarcity of source material, it is not possible to make a clear distinction among the various medieval string instruments.".[3] The terms fyddle, fiddle, vielle, viol, are essentially interchangeable; due to the variance in in one source could refer to an instrument no larger than an 18" rebec, while in another source to one so large it must be played upright. A viol could have three, four, five, or even six strings. A fyddle might be oval shaped or box shaped or have waisted sides. Literary texts, in this way, can actually set up obstacles in the way of understanding.

Even our best source, the visual illustrations, can be part of the problem of obscurity. Duffin describes this problem accurately:

> The painter or sculptor may not have been acquainted with the instrument to the degree necessary to depict it accurately, nor may he have wanted to do so. He may have had aesthetic or symbolic reasons to include a fiddle in his work of art, or to elaborate and enlarge some parts of the instrument without regard to proportions and measurements that interest us.
> Furthermore, literary accounts that mention fiddle rarely deal with technical matters or issues of performance practice in an indisputable way.[4]

The artistic style, in particular, holds difficulties for the historian who is searching for answers—the figures of people are flat and stylized, so there is probably a certain extent of stylization of the instruments, as well. These are just some of the difficulties standing in the way of understanding the medieval fyddle.

The use of these instruments in the medieval world is rather varied, and in many ways the life of a medieval musician was remarkably similar to the struggles and victories experienced by

3 Duffin, *A Performer's Guide to Medieval Music*, 293.
4 Ibid.

modern instrumentalists. Gretchen Peters, in her work *The Musical Sounds of Medieval French Cities* delves deeply into the use of music and musicians in medieval southern France, and gives insight into the state and nature of their relationships with cities and sponsors. She looks at both the religious and secular aspects of the instrumentalist's life—some receiving consistent work and a salary for their expertise, and others living life on the road by freelancing. The later, according to Peters, was the most common way in which musicians made a living.[5] These freelance musicians were called by various names such as jongleurs and minstrels, and they filled needed musical positions for private events as well as for cities which could not afford to hire full-time entertainers.

Consistent employment was found in a city government or in the Church. These musicians, it seems, were paid "significantly less than the wages of many other civic employees and may have been only a portion of their annual income."[6] This small income the musicians would usually supplement with tips from the patrons of events at which they played.[7] Large cities would often hire official musicians to play for the many festivals and other events which required entertainment. There are many mentions of these musicians in historical texts, but very little is told about their construction or how they were played. In order to better understand the instruments that these minstrels used and the music they played, we must turn to the illustrations found in sources such as the *Catigas de Santa Maria*.

5 "For many professional musicians in medieval France, freelancing appears to have been the only means to an income." Gretchen Peters, *The Musical Sounds of Medieval French Cities* (New York: Cambridge University Press, 2012), 165.
6 Ibid, 29.
7 Ibid, 31

Observations on the *Cantigas de Santa Maria*

Analyzing the illustrations in the *Catigas,* it is most likely that the 13th century was one of great change for the vielle. There are three distinct vielle types in the *Cantigas;* an earlier form, a later form, and one which seems to be a transition between the two. The earlier vielles appear to have hide tops, or bellies. This, according to Jeremy Montagu, was common in earlier vielles and continued to be used by the Moors when most others had transitioned to wood tops.[8] The other sort is more similar to the modern violin, with a wood top, distinct tailpiece, and it is played from the shoulder. However, the body shape is oval, in contrast with the violin. The third form is one which incorporates aspects from both, and may well have been a transition to using newer materials and methods. It possess a wood top, but one which appears to have been cared for in a manner similar to the hide bellies. This indicates a few aspects that may have great influence in the investigation of the medieval vielle.

Hide Bellied Vielles

The earlier form shows up in fig. 1. The first aspect which comes to the attention is the fact that they are being held upright. This was not at all uncommon, especially due to the fact that in the Middle Ages, there was not quite as official a playing style as today, but it was instead quite personal and regional. According to Montagu, playing the fyddle in the lap or on the knee was

8 "Early and Moorish fiddles had bellies of skin, as can be seen in the plates from the *Cantigas*, but this was later replaced in northern European fiddles by a plate of wood; the use of skin for the belly seems never to have been popular north of the Pyrenees, probably because skin does not hold its tension in a damp northern climate and a soft belly gives a dull sound." Jeremy Montagu, *The World of Medieval & Renaissance Musical Instruments* (Woodstock: The Overlook Press, 1976), 24.

most common to begin with and continued to be used in the southern regions of Europe, while in the north it slowly became more accepted to play from the shoulder.[9] This same technique was used through the Baroque period and was possible because only first position was used—no shifting up and down the neck was done during playing.

Aside from simply being portrayed differently than others in the text, the lack of soundholes cut in makes a statement about the material; bellies made of hide simply could not function if they were punctured, either before or after being stretched. If cut while wet, the holes would expand, and if while dry, they would tear. Similar construction can be seen in use on modern banjos, and modern banjos makers have similar problems to work through.

The use of hide in the area of Castile makes sense with regard to the history and geography of the area. Montagu states that Moorish fiddles in particular utilized hide bellies, but that in the more northern areas of Europe they were rarely seen, probably due to the damp weather severely inhibiting their efficacy.[10] All of the rain found in Northern Europe makes the landscape bright and green, but wreaks havoc on instruments such as these. Were the hide to be dampened by the humidity or rainfall, it would stretch and grow limp, resulting in a useless instrument. Further south, Andalusia maintained conditions ideal for hide instruments—warm and dry. Thus it was the climate that primarily made it possible for the

9 Montagu, *The World of Medieval & Renaissance Musical Instruments*, 27.
10 Ibid, 24.

Moors to continue the tradition of hide-bellied fiddles. Thus, culturally and geographically, the presence of hide-bellied vielles fits well with the overall historical context of the *Cantigas*.

The use of hide would have other influences on the construction of the instrument; the type of bridge used, if there was one, has great implications for the interpretation of medieval music, and many of the qualities of the bridge would have been affected by the hide tops which are shown in this illustration. To use hide as the reverberating surface results in an instrument which we can closely relate with a banjo, and many of the practicalities of using this material are carried on in this tradition. On such a weak and flexible material, a bridge such as a modern violin's would easily puncture it. Therefore, the maker is left with two options—do away the bridge entirely or modify it so that less pressure is put on the hide. In order to maintain the integrity of the hide, if a bridge were to be used, it would have to be moved from the middle to the edge, and, possibly, made much wider to avoid putting too much pressure on a concentrated area. The vielles in this illustration clearly show that the makers had this in mind, and therefore both lack a bridge in the middle. It is not a far stretch, though it cannot be asserted from the illustration, that the tailpiece also acted as a bridge, and thus served to reduce the stress on the hide in the ways listed above. If the bridge were high enough for modern melodic playing, it would puncture the belly, therefore the bridge was almost certainly flat. This single aspect could dramatically affect the playing style and have much influence on the debate of flat vs. curved bridges.

Whether a bridge is flat or curved influences the way that the instrument is played, and this difference can be seen in comparison to the modern violin. The modern violinist has a highly curved bridge which allows the bow to touch each of the strings individually and in this way play

a melody without ever touching more than one string at a time. A flat bridge, however, would mean that the bow would be drawn across all strings at once, creating a chord rather than a singular melody. The resulting sound would have been similar in tone to a bagpipe: a melody on top of several drone notes. Primarily for these reasons, whether a bridge is flat or curved would have great repercussions on our interpretation of medieval music.

These instruments do not appear to have bridges of any sort, much less bridges high enough to permit single string playing. Due to the width of the vielle's body, in order for a bow to touch an individual string, an extremely high bridge would be necessary and, as has already been noted, the integrity of the hide would be seriously compromised by such pressure. Therefore the conclusion must be that a large part, at least, of early vielles did not have curved bridges and thus did not play individual notes. Rather, they utilized flat bridges, which necessitates drone strings and playing chords. Montagu agrees, saying that flat bridges "appear to have been normally used until the late 14th century,"[11]

This chord-type playing was used by bards for centuries to accompany the human voice in the telling of stories, and these early vielles would likely have been used for the same purpose.[12] These flat-topped instruments were probably what was used for dramatic recitations of epic poetry in small-scale or solo performances. Christopher Page writes that this concept of drone strings is certainly not to assert that they *only* played chords, but rather that the musicians would "benefit from weaving a texture of heterophony (especially the drone) around the single skeins of their melody."[13] The method of drone notes supplementing the melody was used

11 Montagu, *The World of Medieval & Renaissance Instruments,* 27.
12 Christopher Page, "Medieval Strings," *The Medieval Times* Vol. 127, No. 1715 (1986) p. 11. Accessed 11/02/2014.
13 Ibid.

commonly enough that, according to Page, "the term *bourdon* (meaning 'drone' in instrumental contexts, as witness Jerome of Moravia) found its way into the terminology of almost every medieval string instrument."[14] The implication, then, is that these hide bellied vielles were members of this early (and persistent) form of accompanied minstrel song, and were not used for their own melodies.

Transitional Form

The second distinct form is shown in fig. 2. Filling the gap between more recognized 'versions', This vielle combines some qualities of the more ancient hide-bellied form and those which are seen commonly in later vielles. The overlap seems to come in through older techniques being applied to newer materials. Instead of a hide belly, this vielle has one made of wood, but in many ways, it is treated as if it were hide. It possess soundholes which are not present on hide bellies, but, for reasons suggested by the bridge, it appears that the top is likely very thin and lacked the structural integrity of later members of the vielle family. The makers here were breaking from the older tradition of using hide and incorporating wood instead. However, there were aspects which they were not yet ready to rethink, that being the purpose of the belly in supporting a high bridge.

The placement of the bridge suggests the thinness of the top. Just as with the hide vielles,

14 Page, "Medieval Strings," *The Medieval Times*.

a thin wood top would not be structurally sound enough to support a high bridge, and therefore it must be modified in the same ways: made wider and/or closer to the edge. This instrument exhibits both. A wide bridge is placed near the end of the body, spreading out the force which is applied to the belly and making it secure enough to avoid damaging the wood.

This one characteristic could have much to say about the possible existence of soundposts in medieval vielles. Hide bellied instruments would certainly not have utilized them—they would have served no purpose other than to rip or otherwise break through the top. However, on the other extreme, the modern violin relies quite extensively on the existence of a sound post to avoid the bridge from doing the same thing. The question which scholars debate, then, is the point in history that this simple piece of wood began to be used in the construction of vielles. No texts exists to tell us that the instrument makers used them, and because they are placed within the body of an instrument, they clearly cannot be shown in the illustrations that we have. There is one surviving instrument in Bologna dating from the 15th century, and it lacks a soundpost.[15] However, the soundpost could have simply rotted out, fallen out, or been otherwise displaced. Therefore we are left to speculate. This single illustration, though, could help to answer that question, at least for the earlier forms of the fyddle. In this artist's depiction, the bridge differs from a modern bridge in that is wider and lower. The placement of the bridge is just right if one was making sure it would not push through the top. If the maker was concerned about the bridge causing the top to collapse, then he probably did not have any alternate means of supporting the thin wood belly—that is, a soundpost.

In order to place the pressure of a high bridge on such an instrument, the mindset of its

15 Duffin, *A Performer's Guide to Medieval Music,* 293.

maker would have to change from viewing the belly simply as a reverberating top like the hide instruments to a vital structural aspect. And this, it appears, had not yet happened. This transitional form does not assert that soundposts were not used at all in the medieval fiddle, but it hints that they came about in the late 13th, if not 14th century.

Additionally, the bridge's placement and width suggests a flat string arrangement similar to the hide vielles mentioned above. This and the musician's playing form and pose suggest that he is a bard of sorts, a storyteller, relating dramatic tales accompanied by his music. Thus, the purpose of the vielle did not seem to differ much from its use in earlier times, but continued to accompany vocalists through a combination of drone and melody.

Movement toward the modern violin

The third and final form is the most similar to the modern violin. It exhibits a wood top with soundholes cut in, a large tailpiece and what is probably a high (at least relative to those earlier) bridge in the middle. The body shape differs, though, from the waisted sides of the violin and is, instead, a single oval shape, and this makes important statements about the use of the instrument as well as the type of bridge it used. A modern violinist needs the pinched sides with which violins are made. If they were to be made wide at the center such as these vielles, the outer strings could never be touched with the bow—it would, instead, hit the

edge of the instrument. It is a logical progression, then, to conclude that waisted sides were a development which came in conjunction with curved bridges and melodic playing style. All three influenced each other and influenced the development of the other. As the desire for melodic tunes grew, curved bridges were invented to enable single-string playing; as the curve of the bridges increased, the need for narrower sides became apparent and the form of the vielle was then modified.

All of the vielles in the *Cantigas* exhibit oval body shapes, not a more modern-looking body with waisted sides. The waisted sides became more common in the late Middle Ages, further on in the instrument's development. Early on, these vielles more closely resemble a modern mandolin in their front-view shape. Montagu states that the varying shapes and sizes of the instruments would commonly dictate how the body was likely to be fashioned. "The oval instruments with straight necks, such as can be seen in the *Cantigas*, probably had bodies carved from one piece of wood with a separate rod inserted to act as the neck. The larger bodied instruments with comparatively shorter necks...are more likely to have been carved from one block.".[16] The single piece of wood and separate rod for the neck are carryovers from the earlier hide-bellied vielles, when the top did not serve a structural purpose. Although it still had many changes to undergo, the medieval vielle was one step closer to the violin of later centuries.

Bow Design and Counterweights

16 Montagu, *The World of Medieval & Renaissance Musical Instruments,* 27.

While very little is written about the medieval vielle, there is almost nothing which documents the bows with which they were played. Partly, this is due to the lack of primary sources which explicitly state how they were made, and therefore we are reduced to using solely the visual sources such as are included in this essay. Clearly, not much can be determined by these vague illustrations. However, there are a few aspects of these bows which can be found in these works which have not been touched upon in the historical documentation of these instruments.

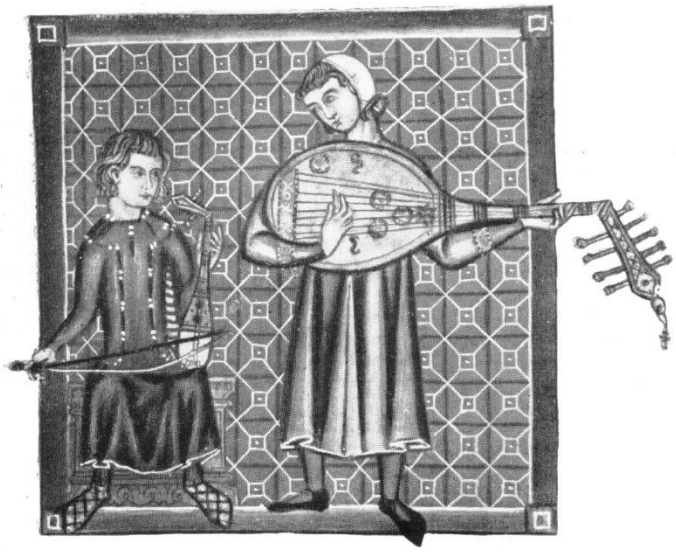

Figure 4

In studying these works, there seem to be two distinct types of bows which were used—one for upright, on the shoulder playing, and the other for playing across the lap. In every illustration which shows the musician playing from the shoulder (similar to a modern violinist), the bow is held at the very end. If, in the early middle ages, the bows were slender enough to be bent by the bow hair (the view held by Montagu[17]), then they would have been light enough to play while holding the very end. When compared to modern violinists who do not hold it *quite* at the end, it may have been an artistic oversight that an inch or two was not depicted beyond the bow hand. However, the difference is dramatic when one looks at the bows which are played across the lap. Unlike a modern cellist, the musicians hold the bow in a reverse hand grip with the palm facing upward. Outside the bow hand the artist shows what could be a decorative knob,

17 Montagu, *The World of Medieval & Renaissance Musical Instruments,* 24-27.

handle, counterweight, or some combination of all three of these.

The reasons to add a larger end to the bow may well have come from the lack of efficacy of a reverse bow hold. Holding the bow in a reverse grip is not as strong as the opposite because it does not use the muscles in the hand and arm as well. Turning the hand upside down results in a grip which is not nearly as secure, and therefore allowances must be made in order to use the bow effectively. The balance of the bow would be much more important to an upright player, and the large end is likely to serve as a bit of a counterweight to help the musician play without wearing out the hand and arm. Without a counterweight, the musician would have to fight the bow's tendency to fall forward, limiting the function.

Further, the reverse grip would have been much more uncomfortable were the end to be only a slender stick like the upright type of bow. Tucked close to the body as the hand was and with the palm facing upward, the fingers naturally have difficulty gripping a small object. It gets lost underneath the fingers rather than gripped by them. A wider and thicker handle on the end made for a more secure hold on the bow. A more secure hold means more control over the instrument itself and more precision in playing quality. Through a desire for excellence and the application of problem-solving, then, the method of playing certainly influenced the way in which bows were made in the middle ages. The same growth and change occurred in the creation of bows as it did in that of vielles.

Lasting Changes

Despite the fog which surrounds the origins of the violin, by studying the limited sources available, answers begin to reveal themselves. By reading sources and studying illustrations such

as are found in the *Cantigas de Santa Maria*, the form of these instruments begins to become a little more clear; by reading, studying, and practicing music of that era, the sounds of medieval cities can be faintly heard drifting through the centuries. We are still learning and trying to find the truth of this instrument, and while it is not yet fully explained, we are much closer than was Jean-Benjamin de Laborde when he assembled his history of music. Perhaps what he was missing were texts which detailed the history of the violin. Perhaps he lacked a preexisting basis of scholarship and study into the subject. Perhaps he skipped over the illustrations which are mostly all we have and which hold so much potential for insight into that time.

From these illustrations various arguments can be made regarding small, specific features found in different early and later forms. Small and trivial though the curve of the bridge or the thickness of the top may seem, these attributes have great influence on the way we understand the vielle. It is the in-depth study of specific, seemingly trivial aspects which advance our knowledge of the world of medieval music. Therefore, if we want to understand this world, it starts in the small things. The unfortunate truth about this study is that despite the scholarship which has been invested in finding out this history, most of it retains a slight specter of doubt. Unless a document is found that tells us, we can not know for sure that soundposts were not used in early vielles or when they began to be used. The best that can be made are educated guesses, but it is the goal of music historians to find, just like scientists, the best possible explanation. This results in a modern interpretation of medieval music which is colorful, alive, and varied, filled with lively discussion and debate.

Due to the obscurity in medieval texts and illustrations, the modern interpretation of the medieval fyddle remains, perhaps, even more true to the heart of medieval music. Without

guidelines, medieval bowed instruments took many different forms as suited personal preference, and without sure examples from the period, modern research necessarily results in a view of fyddles which relies heavily upon personal experience and personal study. This variance floods the field with vielles large and small, wide and narrow, high and low-pitched, just as it was those many centuries ago. The violin we have today was a combination and merging of different aspects from diverse various places and times and peoples which resulted in the highly influential instrument we have today. The violin has shaped modern music for centuries, and continues to lead and aid composers and musicians in shaping the music scene. The many various shapes and sizes of bowed instruments came from a tradition of the same, which was rooted primarily in personal preference and repertoire. If it were not for these variances, the violin would not have grown into what it is today, and music would be dramatically different in every aspect.

"The violin was not an invention but "A growth, a survival of the fittest," -Rev. H.R. Haweis.".[18]

18 Schoenbaum, *The Violin: A Social History of the World's most Versatile Instrument*, xviii.

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Part II

Crafting the Cantigas:
The Making of a Medieval Vielle

This variance in medieval instruments and the forms that it took are part of what convinced me to craft a vielle. I wanted to experiment with the merging of materials and techniques which all played into the violin's history. For this reason, the version I chose to replicate was the transitional form. The illustration showing the earlier form was a little too foreign and unlike the violin, and the later form is replicated quite often already (a quick search online for "medieval vielle" turns up many violin-like instruments played from the neck). The transitional form, however, is rarely seen and rarely discussed, but the implications of the materials and techniques have a lot to say about the playing style and thus the sound of their music. The specific illustration I worked from shows distinct characteristics in the bridge and tailpiece, which potentially and fundamentally change the playing style of the vielle.
It would be highly unique, particularly today, so I settled on that one.

The schedule I followed (though somewhat loosely) was divided by estimating the number of weeks for each major step and setting the end date for that step on the respective Tuesday, when I met with my advisor. The schedule looked like this:

Lay out dimensions
Rough cut (2-3 hours)----------10 February
Shape body (1 week)----------17 February
Hollow body (2 weeks)----------3 March
Glue, lay out, and cut out soundboard (1 week)----------10 March
Thin soundboard, cut sound holes (1 week)----------17 March
Cut out and shape fingerboard (1 week)----------24 March
Fit soundboard and fingerboard, glue, and shape (1 week)-----31 March
Make pegs (1 week)----------7 April
Fit pegs, check instrument, string instrument (1 week)----------14 April

This schedule allowed me an extra week after April 14 to make any finishing touches or do some catch up work before I was to present it on the 24th.

Size and Layout

The dimensions of the vielle were difficult to arrive at, and finding them was an interesting process. It began with approximating the length of the vielle in the illustration by comparing it to the player's body size and putting it side-by-side with pictures of violinists with their instruments on their knees. This allowed me to approximate its length to be about that of a modern violin, which is 23.5”. I rounded it up to 24”, and from there, proportional measurement inside the illustration itself was used to approximate the percentage of the width vs. the length, which was then applied to the initially determined length. The rest of the measurements were made using the same method. I finally got the measurements finished and drew it all together, spreading it over several sheets of paper to result in a 'life-size' draft of its actual dimensions. Overall, the total length is just over 20", with the body 10.5" tall and 6.5" wide. The thickness of the instrument was impossible to determine from the front-facing illustration, so that was dictated by the thickness of the lumber I found—just a shade under 2”.

The tonewood for the top was found online in the form of a ukulele soundboard. It was a cheap soundboard, but it turned out to be much higher quality than was to be expected. After the walnut was sawn and planed, the quality of the wood came out a bit. This wood also turned out to be better than first impressions would let on. The color was nice and it had a bit of figure in the grain, which is highly prized by instrument makers the world round.

The Body

Cutting the rough shape of the instrument was done with a bandsaw and then more closely refined with a belt sander. Even after the belt sander, I left the lines quite wide, to be

shaped with hand tools. I soon got the neck shaved down almost to its final dimensions and got a little bit of a backwards bend for the pegbox.

The largest task was hollowing out the body. For time's sake, I used a forstner bit in the drill press to get some of the heavy wood removal out of the way. The rough edges left by the bit were then removed by a set of gouges using a combination of mallet strikes and hand pushing. Slowly but surely I made progress, but I knew once I got relatively close with the gouges, I would need to transition to something else to smooth out those tool marks. I bought a small set of brass planes for about $10 as a kind of replacement for expensive luthier planes. They worked well for the outside shape, but their flat surfaces still wouldn't help me hollow out the inside, so I made a little curved plane out of thin red oak boards and used the hardware (after I rounded the blade) from the brass planes in that. It worked beautifully for smoothing and hollowing the inside of the instrument.

The final stages of hollowing out the body meant flipping back and forth between my small handmade plane and a set of cabinet scrapers, which were very useful for carefully removing small amounts of wood to make sure the body was thin and even. The scrapers were also used to smooth out tool marks on the rest of the instrument and get it to its final shape.

The Soundboard

I also made a small jointer plane out of those same red oak boards to be used for flattening the soundboard before gluing. Soundboards, 99% of the time, are cut in two bookmatched pieces, with the grain mirroring itself across a centerline. However, they need to be glued perfectly along that middle line. When it comes to hide glue, a hand-planed joint makes a

much better glue line than rough sanded edges. This plane was made to help me get that necessary tight fit. I used it to finally get a good fit on the two bookmatched pieces.

After attempting to glue it myself, I ran into some trouble and sent an email to conservator Rick Parker, whose workshop is just a short distance away. Rick was both a great encouragement to me and a wealth of knowledge and help as I waded through this project. During a morning visit to his shop we spread warmed fish glue on the joint and set the two halves of the soundboard in the clamps to dry.

Next morning I came back and after a little scraping we took a look at the joint, which turned out to be a perfect fit. After a little more scraping and smoothing, the little soundboard really started looking like a nice instrument top.

Laying out the vielle on the soundboard, I traced the outline with the glue line exactly in the middle. Using a jigsaw in the woodshop, I carefully cut it out, keeping the blade well away from the pencil line. I used some of the excess to make a small bit of bracing to go on the inside of the top. I glued them in place and, using a small chisel and two of my small planes set very fine, I began shaving away the corners to leave a ridge all along the middle, slowly thickening towards the center of the soundboard. Next, I laid out the soundholes equidistant from the center glue line and used a drill bit set in a wooden handle to drill some starter holes to work off of. I then scored a line straight down from one to the other, deeper and deeper until my thin knife blade popped through. Then I scored the curved line and used a chisel to help cut it out.

I applied a little bit of creative clamping to get access to the soundholes with some fine files which I used to finish shaping and clean them up. It was then ready for gluing. I had to find a way to get the body perfectly flat to make sure the glue line was a good one. I ended up using a

piece of glass for its flat surface, gluing some sandpaper to it, and running the instrument over that. I decided to back the glass on some particleboard to make it a little safer. A few strokes and the vielle was flat and ready to glue.

Gluing was done with fish glue, which is commonly used for instruments because of its complimentary nature with wood and the fact that it is easily reversible with heat and water. The nice fit with the glass & sandpaper resulted in a really tight glue line.

Varnish

The process of making varnish is a really simple and straightforward task, but very few people do it because it's a lot of work for very little material. Frankincense was a very common varnish for medieval instruments. It is nothing fancy, simply frankincense gum dried, crushed, and dissolved in an alcohol solution and strained for purity, but since it is a natural wood gum, it 'fits' with the wood much better than a polyurethane. And it’s very authentic.

The materials are modest: denatured alcohol, cheesecloth, and paint filters (and of course frankincense & jars to hold it in).

And the steps are straight-forward:

The plain, dried frankincense goes through a mortar and pestle, and is ground to a fine powder. It is then mixed with denatured alcohol.

After allowing the solution to dissolve overnight, I cut some cheescloth, put it in the paint filter, and poured it through into the other jar. The end result was a clear, yellowish varnish. I repeated the process a few times, and ended up with enough varnish for at least a few coats.

Fingerboard

The next step was to take a cello fingerboard for my vielle. I could have found a fingerboard somewhere, but the wood is expensive and I happened to have a cheap, poorly-treated student cello that I found for $10 at a thrift store. Removing the fingerboard on this instrument was an interesting job that that I had to research a bit, take my time, and do slowly.

I read a few articles and blog posts and watched a video or two about the process, and ended up going with a combination of using a lamp to heat the glue and denatured alcohol to dry it out and cause it to crack. With a little bit of denatured alcohol in a small bowl, I took a paintbrush and a knife blade and simply touched the filled brush to the blade to drip the denatured alcohol precisely into the joint between the neck and fingerboard. After about 10-15 minutes of work, I got the first bit to pull away from the neck, and slid a knife blade in the gap to hold it open and put a little bit of pressure on the rest of the glue. I would drip some alcohol down into it, put the lamp near the neck to warm everything up, and come back in 10-15 minutes to check. I'd maneuver the blade a little bit farther, then drip a little bit more in the glue line, leave it to a few minutes, and to the same. Soon, with the knife putting slight constant pressure on the glue and the lamp heating it up, I came out and found the fingerboard completely separated from the neck.

Cutting the fingerboard down, flattening it, and getting the angle right were all that was left before gluing it onto the neck.

Final Touches

The bridge was made out of a beautiful piece of figured maple, tapered toward the top and shaved down at the sides to flow smoothly into the soundboard, finished off with 600 and 2000 grit sandpaper to show off the grain. Very little could be determined from the illustration regarding the bridge, so most of it was simply crafted with practicality and tone in mind. The width was the most accurate measurement I had to work off of and, seeing its position and the fact that it crosses nearly the entire top, mine ended up being right about 6" long.

The holes were drilled for the tuning pegs and widened and reamed to make it tunable. In the absence of a power drill, this was all done by hand. I considered experimenting with five strings, since anywhere from 3-7 is traditional for these instruments, but four strings are what is shown in the illustration, and therefore what I went with.

I found and contacted a luthier in the UK who has worked on similar projects in the past, and he was able to give me some direction on a few aspects, not the least of which was the likelihood that my vielle would have had steel strings as a carryover from plucked-stringed instruments (lutes and such). I got help at a local music shop and, through a couple of discussions with the owner, settled on using flat-wound guitar strings, since they would be long enough (violin and even viola strings were too short) and they would be finer and more similar to violin strings than normal guitar strings.

In my initial research I came across a work by Jerome of Moravia which listed some of the more common and commonly-accepted tunings of vielles in the Middle Ages. Each of them had five strings, so I had to modify the tuning I chose to fit my vielle. I eventually decided on

DADA, with the lowest note on the left like a modern violin. Stringing it up was an exciting event, and I got to experience the instrument come to life when I strummed or bowed the strings. The vielle turned out to have a much better tone than I would have thought, and I had the opportunity to play a song from the *Cantigas de Santa Maria* accompanied by my replication of an instrument pulled from its pages.

From this project, I learned that the type of music in the Middle Ages was varied, the craftsmanship was varied, and music played with the vielle took a form of personal flavor and sound. It was about what worked, not about what was deemed 'right' or 'proper' by a single entity—luthiers made their instruments to suit a style of music and tone which did not have to fall into a specific spot in an orchestra or play in the exact same way as another. They were made to fit the music, not the other way around. In this way, the vielle experienced much greater development in the 200 years prior to early violin makers such as Amati and Stradivari.

Replicating the vielle was a valuable experience because it helped me to understand what those who read the *Cantigas de Santa Maria* would have seen and thought when they flipped through the pages of the manuscript. I can hold a piece of Medieval history in my hands, look at it and hear it. Creating this instrument allowed me to give life to more than just pieces of wood; it also made more real an artist's illustration, a scribe's manuscript, a musician's performance, and a people's memory.

Illustration on the left, finished recreation on the right.