

**Reconstruction of a Sixteenth-century Vihuela with  
Historical Making Techniques**

Final Report

Student: Marcos Kaiser Mori  
Student number: 08029924  
MA by Project (Musical Instruments)  
Part-time mode

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## Introduction

Research aim	4
The Background and Research Question	5
The Form of this Report	6
The inspiration	7
Proposal of Ordinances for the craft of <i>violeros</i> of Toledo, 1617.	7

## Critical and Evaluative Report

1. Research questions	9
Definition of the field of study	9
2. Research Methods	10
On the use of visual and written sources	10
3. Contextualization	11
The Vihuela and Guitar	11
Analysis of visual and written sources, and choice of a time span	15
The occurrence of the terms <i>guitarra</i> and <i>vihuela</i> in primary sources	17
The differentiation of the terms according to the guild documents	20
Geographical Location	22
4. The known surviving instruments relevant to the research	23
Jacquemart-Andre vihuela	23
Chambure vihuela	24
Belchior Dias Instrument	25
Anonymous guitar from the collection of Robert Spencer	27
The similarities between the Belchior Dias and the Spencer guitar	29

## Reconstruction of a sixteenth-century vihuela

<b>1. Tracing of the template</b>	<b>30</b>
<b>2. Description of the parts</b>	<b>33</b>
<b>2.1. Rose, inlays</b>	<b>36</b>
<b>Parchment glue</b>	<b>38</b>
<b>2.2. Wood</b>	<b>39</b>
<b>2.3. Mould</b>	<b>41</b>
<b>Keeping the shape without a mould</b>	<b>41</b>
<b>2.4. The soundboard</b>	<b>48</b>
<b>2.5. Bridge and bridge position</b>	<b>48</b>
<b>2.6. Pegs and Pegboard</b>	<b>49</b>
<b>2.7. Finishing</b>	<b>50</b>

## Conclusion

<b>On the subjective evaluation of sound, loudness, beauty and other qualities</b>	
<b>The use we make of the techniques</b>	<b>55</b>

## References

<b>Technical Drawings:</b>	<b>56</b>
<b>Pictures:</b>	<b>56</b>
<b>Publications:</b>	<b>56</b>
<b>Sources:</b>	<b>58</b>
<b>Instruments:</b>	<b>59</b>

**Appendix 1. Written sources gathered by Antonio Corona-Alcalde.**

**Appendix 2. Musical instruments and experiments made during the course**

## Introduction

### Research aim:

My aim in coming to this university and taking this course was to achieve proficiency in building renaissance and baroque plucked instruments, whose use and tradition of making was interrupted at some point in history, and which, after their rediscovery, are still not completely understood. There is no consensus about which techniques to use in trying to reproduce these instruments, and although the modern revival of historically informed lute making has extended over more than 40 years, there is still a very mixed approach to technical issues.

During this two-year period I had the opportunity to build a wide range of different musical instruments in the workshop: theorboes, lutes, baroque guitars, a baroque piccolo cello, a hurdy-gurdy, a bagpipe, baroque bows; and midi controllers, experiments with synthesizers, distortion pedals, among other minor curiosities. This approach was profitable to build working skills, but soon the workshop practise laid bare the limits of my understanding of the fundamental differences between these instruments. The most intriguing were the ones, like the vihuelas and early baroque guitars, whose form was a matter of debate, and whose shape and use were unclear, sometimes sharing the same format or the same name, until the time when standards became solid, or a new development took place. I took time to see original instruments in different collections, and to vary copies, experimenting with different materials and building techniques. But all this, rather than sharpening my skills in perceiving the unique character of each instrument, just made more clear the common approach with which the Iberian sixteenth century makers treated it. In studying the primary sources in search for evidence in support of differentiation, I found instead an interesting convergence: the focus on the craftsman being able to design and make these instruments, details about the materials and finishes used, but yet little apparent concern about standardization of the dimensions. It is as if the makers did not care about standardization as the instrument was so common and well known, there was no need to state the exact dimensions; and as it was so tied to the dynamics of musical development, the making would reflect changes at the same pace, making pointless the freezing of a design. The focus of my interest then changed to the workshop practice. In particular, I was

attracted by historical descriptions of the process, the design of the instruments, the tools used, the simplicity and clarity in design, the speed and standards expected from the makers, and what we could perceive of these craftsmen's culture.

This led to the most valuable part of the experience in this university: the practical research with material support and the good will of all the staff. Experiments with making traditional sixteenth and seventeenth century oil and spirit varnishes, rosin, tool making, gilding, treating wood and materials with ultraviolet and chemicals, steam bending, etc., were possible, and benefited from the now faded exchange with other courses, including Violin making, Woodwind instrument making, and Restoration.

From the old techniques to the cutting-edge ones (laser cutting, 3D printing), this path showed me how to best use technology, and how to see the objects we make according to various crafting perspectives. Using old traditional techniques is a choice, I aim in this report to demonstrate and explain some of the reasons why this choice still makes sense.

## **The Background and Research Question**

In the fifteenth century, following the emergence of the craft Guilds, as organized bodies of artisans; the profession of 'instrument maker' starts to appear as a full-time occupation in the Iberian Peninsula. Before the fourteenth century, artisans of other crafts, or the musicians themselves made the instruments. The regulation and protection afforded by the guilds made possible a relative standardization of the craft, the design (as musical instruments and the technical terms to describe them were developed), and the living, as guild exclusivity protected the makers and gave them more secure control over their trades and social conditions.<sup>1</sup> The craft of instrument making became an urban occupation, and communities of makers could be found in Spanish cities from the late fifteenth century.

Musical instrument makers were expected to be able to build a wide array of different instruments, in very short time, and in great quantities. A solid tradition was established early, and the system of apprenticeship was the usual way of preserv-

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<sup>1</sup> Jose Luiz Romanillos Vega and Marian Harris Winspear, *The Vihuela de Mano and the Spanish Guitar. A dictionary of the Makers of Plucked and Bowed Musical Instruments of Spain (1200-2002)* (Guijosa, Guadalajara: The sanguino Press, 2002).

ing this tradition. Few instructions concerning techniques were preserved in documents. Instead, the knowledge was shared and acquired through practise. In sixteenth-century guild examinations gathered and published by Jose L. Romanillos Vega (reproduced in the appendix of this report), it is recorded that the 'master-pieces' would be made in front of the examiners, using the minimum of tools. The shape of instrument would be traced in a template with a ruler and dividers, using contemporary notions of harmony and proportion.

In order to achieve this, a high level of understanding of the behaviour of materials, such as timber, strings, resins, and varnishes was necessary, as well as skills in carving, tool making, and playing. The level of literacy, or understanding of the tools of language of those craftsmen would necessarily have been high, as music making implies knowledge of rhetoric, speech, graces, mood, and the verbalization of such concepts, even if known only in an empirical way. It is possible that these professionals were highly qualified men, versed in a kind of universal knowledge – perhaps something like we now call 'the renaissance man'.

### **The Form of this Report**

I envisaged a format for this report as a register of the process of making a vihuela using traditional techniques. This structure is used as a background to introduce and develop the various subjects.

In essence, I would like, in presenting a finished instrument, to undergo a symbolic examination that encompasses all of the theoretical and practical aspects of my project, and also the side benefits of this training, the thinking skills gathered during my apprenticeship here at London Metropolitan University.

## The inspiration

### Proposal of Ordinances for the craft of *violeros* of Toledo, 1617.<sup>2</sup>

In the Town Council of the Imperial city of Toledo on the sixteenth day of the month of January in the year sixteen hundred and seventeen and in the presence of the Town Council in their chambers as it is customary, I Ambrosio Mejía, as chief town clerk of the Town Council, read to the Council a petition made by Rodrigo de Ayllón and consorts, all master vihuela makers, as well as several chapters and ordinances –in the following manner.

Rodrigo de Ayllón, Francisco Rodriguez and Miguel Puche, master vihuela makers stated that in order to maintain and properly carry out their craft and trade [of vihuela making] it is necessary to propose and make ordinances of the said craft [to serve] as guidance for the masters and journeymen in their work and the production of all things related to the trade in order to protect the republic [Guild], and, to that effect we have drawn up the chapters that we present and from which it would seem appropriate to make ordinances...

Chapters from which ordinances must be made for good running and practice of the craft of *violeros* and that must be kept by the residing masters and journeymen of the city of Toledo.

Firstly, because it is proper that those who are to be masters and have a shop on the said craft and so that [they] become capable and able [in their craft], it is instructed and ordered that no one can have a shop of the said craft without being examined but [he who] has a certificate of examination when he was first examined must be given a certificate of examination [to show] that [he] knows how to make the following instruments<sup>3</sup>.

The first [of the] three instruments is a plain, six-course vihuela with its [due] proportions, rules and [due musical] range and it is understood that first of all [he] must make a paper template, which must be done in the presence of the overseers and examiners so that [they] can see it being made and it must be done only using a knife, [in front of him] a pair of compasses, a ruler and a set-square without recourse to any other pattern, but only drawing on his experience and understanding of the said craft.

Item: That this instrument [vihuela] has to have inlaid rings, an ebony fingerboard and boxwood rose with thirty-six points.

Item: that [he] has to make a double-course harp with great precision using walnut for the strips, arm and fore-pillar.

Item: That every hole that the head of the said harp must have for fitting the tuning pins has to be bored in the presence of the examiner and overseer and to do the holes [he] must not mark them beforehand to guide him in any way; for he must do them free hand.

Item: That [he] has to make a violin like those in use, and to give the plans already drawn for the others that are required to make up the complete set, which are: a

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<sup>2</sup> Jose Luiz Romanillos Vega and Marian Harris Winspear, *The Vihuela de Mano and the Spanish Guitar...*

<sup>3</sup> Here the translation could also be: “ Because it is convenient that [those] who are to be masters and have a shop be sufficiently able, it is instructed and ordered that nobody be allowed to open a shop of the said craft without being examined and in possession of a certificate, and when examined, that he is given a certificate of examination showing proficiency on the following instruments:”

viola, a cello and a double bass<sup>4</sup>.

Item: that for making the three instruments [he] must be given a period of six months and that [he] has to make them in the home of the examiner and not in any other way.

Item: That the shops that have not been open for one year and one day must be closed and cannot [be] used for the craft without [the user] having been examined, and [he] cannot carry out any work that is not commissioned by a master of the said craft.

Item: That if anything made were not made for a master [of the Guild, the person who made it] must be reported and [must] pay a fine of one thousand maravedies to the judge, the informer and the walls of Toledo, and if [the person] relapses and does it again he must pay a fine of two thousand maravedies to share out as already stated and serve thirty days in jail.

Item: That any [the word person crossed out] vihuela of any quality that has the back and neck of old pinewood and with a spruce soundboard, and not of any other type of wood, must have each rib lined inside with three linen strips four fingers in length, and, on failing to do this, [the maker] would be fined one thousand maravedies with the fine shared out as already stated.

Item: That any vihuela that has to have a new soundboard fitted must not retain any part of the old soundboard, for it must be all made with new wood.

Item: That the vihuela with rings around the rose must have the points and fingerboard of ebony.

Item: That if anyone were to bring an ebony vihuela to have a soundboard fitted, this [soundboard] must be of spruce with a rose of boxwood and not parchment.

Item: That all journeymen to be examined must have had a period of apprenticeship of four years and two [years] as a journeyman) before [they] can be examined, and must present notarial testimony [of it] as any other way would not be acceptable to take the examination.

Item: That the son of a master maybe examined on his father's craft and that he cannot make any other instruments until he has been examined on all the required instruments.

Item: That on visiting a shop and finding faulty items, for every faulty item found [he] must be fined one thousand maravedies and the fine shared out as already stated.

Item: That any wife of a master of the said craft, on becoming a widow, may keep the shop for one year only and after that year she must close it unless she has an examined journeyman [to work for her] –in which case she may keep the shop until she marries again.

Item: That every year the City appoint overseers superintendents as in other [Guilds], and to name overseers and to bestow upon them the same jurisdiction as in other trades

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<sup>4</sup> In the original '*tiple tenor contraalto y contraavaxo*' could be translated also as treble, tenor, alto and bass.



## Critical and Evaluative Report

### 1. Research questions

Mutually illuminating research projects:

How can the use of early historical making inform a better understanding of the design, the processes of making, and other characteristics of early stringed musical instruments?

How can the study of the design and other characteristics of early stringed musical instruments, in conjunction with other historical evidence, inform the practical reconstruction of historical making techniques?

### Definition of the field of study

The effort was to approach the field in a broader way than just as the place of collection, encompassing the cultural politics and history. The musical instrument was read as a symbolic object as well as a musical tool, whether in museums or still in use, existing in a web of culture, entangled in a range of discourse and political intrigues, and occupying engendered and status defining positions<sup>5</sup>. The organologist was understood as a fieldworker in this sense, caring as much about the study of culture and society as it is about the science of measurement and manufacture.

The meaning and scope of the term organology are still matters of discussion. Some authors<sup>6</sup> define it as “science of sound instruments”, rather than the “descriptive and analytical study of musical instruments”, as the New Grove dictionary of Musical Instruments. Kevin Dawe, on the other hand, puts it in broader terms:

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5 Kevin Dawe. *People, Objects, meaning: Recent work on the study and Collection of Musical Instruments*, in Galpin Society Journal, Vol.54 (may, 2001), p. 221.

6 Sue Carol DeVale. *Organizing Organology*, in *Selected Reports in Ethnomusicology vol.8* (California,1990-University of California Press)

DeVale also defines “music instrument” opposed to “musical instrument”, as the adjective musical refers to a human quality, and inert objects are not “musical” in themselves.

[Organology] can enhance our knowledge of the meaning of measurement as much as reveal things about the science that informs museum culture. It studies the lives of performers and instrument makers...

In my view, the context and purpose of a reproduction of an early musical instrument is then the study of its original environment, and the work of an instrument maker is to make one of the tools necessary to address the question, an object with acoustical properties, whose form and use derived in equal parts from social, cultural, ergonomic and commercial needs.

## **2. Research Methods**

Early making techniques are used here;

1. As a strategy to identify technical (as opposed to cultural) reasons behind the physical form and musical qualities of a musical instrument that is no longer played or understood
2. Practically: To 'reverse engineer' physical or acoustical details of a musical instrument in order to draw conclusions about whether aspects of the design were intended to be decorative or were born out of musical or practical needs.

### **On the use of visual and written sources:**

The approach to the use of visual and written sources, following the suggestion of Antonio Baldassare<sup>7</sup> was to interpret it to the point of a broad understanding of the picture, not directly related to the musical object. Thus, in the process of tracing, the visual references were read with awareness of the symbolism that shaped the idealized instrument. The written descriptions were used to back the choice

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<sup>7</sup> The author draws the attention to the analysis of the methods and topics of methodology. Mainly a concern of philosophers, the scientific methods, or 'the means of obtaining rational knowledge from an initial hypothesis' gain prestige after Descartes. In criticizing the undeveloped field of music iconography, only addressed by music scholars (and therefore lacking the interdisciplinary development that would derive of the joint effort of art historians), he points to a lack of agreement on how they should be used. For him, music iconography is still lacking a theoretical basis, a "scientific body of knowledge in which facts and hypothesis are thoroughly integrated". Furthermore, he dismiss much of its value if not used having a full consciousness about the subject and an in-depth knowledge of all related disciplines which may help to understand and interpret a visual source and to discover its message. His "method" is defined as a means to acquire knowledge and cognition beyond mere sensory perception, and suggests that different fields require different approaches; methodological principles must be developed in relation to the subject that is investigated. (Antonio Baldassare. *Reflections on Methods and Methodology in Music Iconography in Music in Art*, vol.XXV 2000)

of a few technical features in the reconstruction of the instrument, and the literary accounts helped to visualise the style of playing and the musical environment. The numerous accounts of sales and inventories contributed with the description and the value of the object in commercial terms.<sup>8</sup>

### 3. Contextualization

#### The Vihuela and Guitar

The guitar and the vihuela are similar instruments: chordophones, with a neck protruding from the body, extending the length of the strings by up to half the total length of the instrument. Generally with a flat or nearly back and shaped as a figure of 8, these instruments coexisted from the sixteenth to the eighteenth century. From the seventeenth century onwards, the vihuela gradually disappears, and the guitar evolves to a new form.

According to James Tyler, the typical sixteenth-century guitar was a small, figure-8-shaped instrument with four courses (pairs of strings). These were called by the Italians *chitarrino*, *chitarra italiana*, and *chitarra napolitana*. Around the third quarter of the sixteenth century a larger version, with five courses appeared.<sup>9</sup> The Italians called this the Spanish guitar.

The broadly similar six-course instrument known as *vihuela*, *vihuela de mano*, *viola da mano*, *bigüela*, *viguela*, etc, appears in the early fifteenth century (at which time there were typically only four or five courses), in a figure-of-eight-shaped form,

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<sup>8</sup> Pablo Minguet writes in his method *Reglas y Advertencias generales...*(1752) about the way he started to play the guitar, and curiously, he starts buying a book, then making a mock guitar with a piece of wood to practise, and only later buys the instrument. As a complement to the study of the commercial value of the objects, Corona-Alcalde mentions the “enormous expenses” necessary to buy a book at that time, and the lesser price of pamphlets. (Antonio Benigno Felipe Corona-Alcalde. *The Players...* (Ph.D. Dissertation) p.105

<sup>9</sup> The oldest known written music for the 5-course guitar dates from the 1554 *Orphenica Lyra*, published by Miguel de Fuenllana. According to Tyler, visual evidence of 5-course guitar-like instruments comes from at least the end of the fifteenth century, but without the music to match it, the publication date of Fuenllana’s book is accepted as the first unequivocal evidence.

played by plucking or strumming or, perhaps with some adaptation to allow it, by bowing. By the end of the fifteenth century the instrument typically had six courses (pairs of strings), tuned in the same manner as the lute.

The vihuela names are etymologically related to medieval Spain, and originally designated string instruments of various sorts, from plucked to bowed, with different body shapes. Gradually the denominations gain in precision, and the qualifier *de arco* (of the bow) is frequently attached to the bowed version of the vihuela, while *da mano* (of the hand) appears to qualify the plucked version. By the sixteenth century it is then implied that the plain *vihuela* (unqualified) is plucked by the fingers or played with a plectrum.<sup>10</sup> As John Griffiths points out, even with these qualifiers, vihuelas in paintings appear to be largely versatile, the adjectives referring to the position in which they are being played, not to their physical characteristics.<sup>11</sup> Griffiths dismisses the terminology, and proposes the focus on the generic nature of the vihuela, a concept stranded over the modern systems of organological classification, which do not acknowledge such versatility. Other authors, like Corona-Alcalde,<sup>12</sup> dispute this generic nature, pointing that a bowed instrument makes the best use of its strings if they are single, and the double strings in the courses therefore must have been plucked by hand or played with a plectrum. Either way, some versatility is not definitely rejected.

The term vihuela starts to appear in literature around the middle of the fifteenth century, in collections such as the *Cancionero de Baena*, a Castilian poetic anthology dating from circa 1445, where the vihuela appears in poems, alongside the lute and rebec.<sup>13</sup>

The earliest description of a plucked vihuela is provided by the theoretician Johannes Tinctoris (1445-1511), in his *De inventione et usu musicae* (published in Naples, circa 1480). Tinctoris mentions a *viola sine arcu* which is described in comparison with the lute and has, apart from the many similarities, a flat back and curved sides.<sup>14</sup> The invention is clearly attributed to the Spaniards.<sup>15</sup> The bowed vi-

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10 Joël Dugot, Introduction to *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004), p2.

11 John Griffiths. *L'essor et le Déclin de la Vihuela*, in *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004). p9.

12 Antonio Corona-Alcalde. *The Players...* (Ph.D Dissertation)

13 Antonio Corona-Alcalde. *L'organologie de la Vihuela* in *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004). p16.

14 "This *viola* differs from the lute: the lute is bigger and has the shape of a turtle, while the *viola* is flat, and most commonly, curved in the sides".

15 Joël Dugot. Introduction to *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004). p2.

huela (not mentioned by Tinctoris) later leads to the development of the viol, while the plucked vihuela survives, essentially in Spain, for disputed reasons.

Some authors have proposed that the reason for the ubiquity of the lute elsewhere in Europe, in comparison with the massive presence of this flat-backed version of the same instrument in Spain, is due to some kind of reaction to the Moorish occupation (which ended in 1480), and the shape of their *oud*. There are traces of the use of the lute in Spain, and it was far from being absent from musical life there, but it is in the realm of music publishing that the vihuela stands out: there are no surviving lute methods from Spain, while vihuela sources are numerous.<sup>16</sup> Counting the Spanish colonies in the New World, up to fifteen lengthy, important Iberian manuscripts and printed sources of vihuela music are known, and many more descriptions and literary references.

From the lute-style plucking of the strings used in the vihuela, the guitar incorporated a more polyphonic approach to playing, with re-entrant tuning and bourdon strings.<sup>17</sup> Variations on these features were developed according to taste in different countries, and the construction of the instrument reflects this, each region having its preferred model. Evidence points to a similar technique of construction of both instruments – the vihuela and guitar – each fine-tuned towards a specific playing technique, to the point that when finally the new aesthetic of music favours the guitar over the vihuela, the remaining vihuelas were converted into guitars without major technical difficulty.

In seventeenth-century Spain, Portugal and the New World, the string arrangement serves specific idiomatic techniques, among them the *rasgueado*,<sup>18</sup> only playable on the guitar, and the *campanelas*,<sup>19</sup> used rarely in the vihuela but common on the guitar.

In general, the printed repertoire of the vihuela is dominated by the style and aesthetics of the vocal music of the time, using forms indebted to rhetorical discourse,

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16 Idem

17 A way to tune the courses of the instrument so as to have the strings not ordered from the lowest note to the highest, but in mixed places.

18 Literally “cut over”, meaning a way to play over the strings with fast up and/or down strokes, frequently also involving percussive strokes on or close to the soundboard. Later associated with the *flamenco* style.

19 ‘Little Bells’: A technique consisting in strumming a chord that arranges the notes in an upward or downward sequence similar to the arranging of the bells in a carillon. Campanelas are also similar to the sliding of a chord in a harp. A very well known piece written for vihuela by Alonso de Mudarra (1510-1580) specifically asks for the vihuela to be played in the manner of a harp. (*Fantasia que Contrahace la Harpa a la manera de Ludovico*)

by means of imitative polyphony. Dance music and variations constitute a mere 5% of the vihuela repertoire.<sup>20</sup> With a different use and repertoire, the guitar gradually incorporates features that improve agility and versatility of playing. Among them, the use of a single first string, a feature already used on many lutes and some vihuelas, but not adopted as widely as with the guitar. The adoption of a single top string on these instruments may have been due the difficulty in finding similar quality thin gut, generally of complex make (a different twisting that allowed more resistance and evenness, known as *Venice catline*). The price of such strings was also an issue; but with the guitar, apart from the same difficulties in price and quality, the way of playing demands a single first string for rapid passages.

The first published tutor on guitar playing from the Iberian region, by the Catalan Juan Carles Amat in 1596, describes the guitar as having a single first course and bourdons (bass strings) on the fourth and fifth courses.<sup>21</sup> Several other contemporary authors give their instructions for tuning. In general, the re-entrant tuning appears in the early methods, and shapes the idiomatic character of the guitar.<sup>22</sup> This is later a source of difficulty for harmonic lines, especially in using the guitar as a *continuo* instrument from the seventeenth century onwards; but virtuoso players find a way around it, and the re-entrant tunings survive the baroque period, and are replaced with a linear pitch sequence only towards the Romantic period.

Later developments of gut-core strings, gimped (embedded) or wound with metal during the mid seventeenth century, provide the technical solution for a powerful bass from strings of a short length. However, the re-entrant tuning proves to be a choice, not a technical necessity, and survives this period into the eighteenth century.

John Griffiths explain the quick decline of the vihuela on the last years of the sixteenth century, focusing on the repertoire and arguing that the *vihuelistas* were impermeable to the new tendencies, incapable of responding to change.<sup>23</sup> The *fantasia* genre had reached such a level of perfection and complexity that only a handful of highly accomplished musicians could perform it. The vihuela could not answer the new cultural or artistic impulses, notably the raise of the Italian *canzona*, for which a lighter accompaniment was needed. The answer was a reaction: the five-

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20 John Griffiths, *L'essor et le Déclin...*

21 Guitarra española de cinco Ordenes la qual enseña de templar...

22 A tuning where the courses are not ordered from lowest pitch to highest, but features a re-entry, or break in this structure. The baroque guitars frequently had the lower strings put an octave higher, making the instrument unsuitable to monody or any use where ordered pitch sequence was necessary.

23 John Griffiths, *The Vihuela Fantasia: A comparative Study of Forms and Styles* (PhD) Monash University, 1983.

course guitar, with its simple, vertically oriented music, of popular spirit, supplants the court tradition of the vihuela. After a very vigorous development, the *fantasia* reaches perfection only to die of obsolescence and cultural inadequacy.

### **Analysis of visual and written sources, and choice of a time span**

The main bulk of visual evidence gathered by authors who have studied the vihuela dates from the sixteenth century. Earlier sources are fewer, and are more open to interpretation. The fifteenth-century instrument, shown in paintings is a matter of debate: there is no agreement on a common name, an average playing position or constant number of strings. The multiplicity of shapes and variations in fifteenth-century paintings is disheartening, and raises doubts about the suitability of drawing conclusions based on material from this period

Antonio Corona-Alcalde and Florence Gétreau have made extensive visual analyses of the shape, number of strings, playing position and proportions of the Iberian vihuelas appearing in paintings and other visual sources. Their conclusions however, are vague. The diversity in respect of number of strings, position, accuracy in depiction of the visual sources render their study very rich in details for reference; but they are confusing to makers, especially in comparison with the surviving instruments.<sup>24</sup>

The quest for a generic form to guide the design of a vihuela to reconstruct is more rewarding if concentrated on the mid to late sixteenth century sources, both visual and literary: with the growing use of wood-block printing to illustrate books and profane pamphlets in the sixteenth century, the vihuela is spotted more easily in visual sources; and these images show a more uniform characterization of the instrument.

The vihuelas appearing in these prints differ from the representation on the fifteenth and beginning of sixteenth centuries in the shape of the body: instead of the interruption in the form of a “C” along the sides, a smooth curve shapes the waist of the instrument throughout the following century. This configuration appears first in Castilian publications, and later spreads to the rest of Spain.

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<sup>24</sup> Antonio Corona-Alcalde. *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004)



Similarly, from poems and complaints in the fifteenth century, the vihuela is not sufficiently described; but when it comes to comparison with the guitar, during the period when both were competing for space, the sixteenth century offers a more generous amount of detail and, strikingly, of uniformity

In the sixteenth century, the nobility (the patrons of the paintings) favoured the vihuela above the guitar. In visual sources, this precedence can be seen in the way the instruments are depicted. Vihuelas appear along Greco-roman gods and mythical figures, being part of a re-creation of a mythology suited to the contemporary taste. Orpheus, the Greek hero who could enchant the gods with music, was represented not with the lyre but with a vihuela. In religious paintings, the place of the instrument was among angels: it was a symbolic object, and its place in the Greek pantheon or Christian hierarchy was high. In seventeenth century painting, still-life paintings and the interior scenes substitute the mythical words with a bourgeois environment in which the instruments are still symbolic, representing wisdom, detachment or the immateriality of music; but the guitar predominates in these paintings. Its place is nobler than in the previous century, and the vihuela has disappeared.

The first representations of five-course guitars where there is no doubt of their character are the engravings in methods, the earliest known published by Juan Carles Amat, dated 1596.<sup>25</sup> In these, the instrument is represented in its most technically important details along the disappearing four-course guitar.

The symbolic opposition in use and representation that arose in the sixteenth century fades in the following century, with the obliteration of the vihuela. The introductory texts in the methods offer important information about the change of roles. Amat composes sonnets with Apollo, and Orpheus now plays the guitar in the Parnassus. Briceño (1626) brings to attention the suitability of the guitar for the Spanish gentleman, being appropriate for expressing high passions, singing and dancing.<sup>26</sup> Amat, on the subject of Spanish character, writes his method for “the choleric Spanish”, who would wear out the patience of any teacher in three days, and therefore would need a method to teach themselves. The inclusion of guitar

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<sup>25</sup> Juan Carlos Amat. *Guitarra española*, 1596. There is controversy around the correct date, as some editions state an earlier date, possibly incompatible with the composer’s age. Generally the date of 1596 is accepted as true, according to Tyler.

<sup>26</sup> Luis de Briceño. *Metodo Muy Facilissimo para aprender a tañer La Guitarra a Lo Español*. (1626)



pieces in vihuela books of Miguel de Fuenllana<sup>27</sup> and Alonso de Mudarra<sup>28</sup> suggest that the aristocracy, providing that the repertory was sophisticated enough, also used the instrument on occasion, alongside the vihuela.<sup>29</sup> Earlier, Mateo Flecha the Elder (? -1553) writes in one of his vihuela pieces a complaint against the common people, who would rather listen to the guitar than to 'delicate' music.<sup>30</sup>

The primary sources suggest that in the sixteenth century the newly invented guitar was more suited to a singular type of musician: those interested in more strumming possibilities, more immediacy and versatility. The technique of the vihuela was elaborated and subtle, similar to the lute in the plucking of strings with the soft tips of the fingers, and focused on elaborate written music. The vihuela was naturally closer to the pomp and grandeur that the religious paintings represented, but the guitar is taken up by the amateur musicians, and appears in the interior bourgeois environments of the genre painting.

### **The occurrence of the terms *guitarra* and *vihuela* in primary sources**

Certain documents clearly make a distinction between the *guitarra* and the *vihuela*, as is the case of Juan Bermudo's *Declaración de Instrumentos Musicales* (Osuna, 1555), and most of the published musical sources. Luiz de Narvaez in his *Delphin de Musica* (1538) for vihuela writes a variation on a ground where the vihuela has to imitate the guitar,<sup>31</sup> and Alonso de Mudarra publishes a few pieces for the 4-course guitar in his 1546 *Tres Libros en cifras para Vihuela*.<sup>32</sup>

An exception happens in the use of the term *vihuela de cinco ordenes* to define the guitar in Miguel de Fuenllana's 1554 book, *Libro de Musica para Vihuela, intitulado Orphenica lyra*, with compositions for vihuela, 4-course guitar and *vihuela de cinco ordenes* (five-course vihuela). This instrument is considered to be a guitar, as the music written uses the guitar tuning interval pattern.

This name appears also in guild documents and in a late seventeenth century Mexican manuscript by Sebastian de Aguirre.<sup>33</sup>

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27 Miguel de Fuenllana. *Libro de Musica para Vihuela, intitulado Orphenica lyra*, 1554

28 Alonso Mudarra. *Tres Libros de musica en cifras para Vihuela*, 1546

29 Antonio Corona-Alcalde. *The Players ...*(PhD Dissertation) pp. 105.

30 idem.

31 'contrahaciendo la guitarra'

32 James Tyler, *The Early Guitar, A History and Handbook* (Oxford: Oxford University Press, 1980). p. 5.

33 James Tyler and Paul Sparks, *The Guitar and its Music. From the Renaissance to the Classical Era* (New York: Oxford University Press, 2002). p. 151.

Bermudo writes in his *Declaración de Instrumentos Musicales* that the common vihuela has six courses, and provides the tuning intervals, which are exactly as in the lute. The guitar tuning is described later, with four courses, making clear the difference in character between the two instruments.<sup>34</sup> He later adds 'Nothing else is this guitar than a vihuela without the sixth and first courses'.<sup>35</sup> A few lines later, he testifies to the occurrence of a five-course instrument also: 'Five-course guitar we have seen in Spain'.<sup>36</sup> On *folio XXX*, Bermudo describes the number of frets a vihuela should have, and although he says the instrument could have as many frets as the musician desires, 'even two hundred, if having space for so many', his views on symmetry are expressed in writing that the vihuela with twelve frets is out of proportion, and seldom fits more than eleven. For him, ten frets is a good measure for both the vihuela and the guitar.<sup>37</sup>



Detail of page from Bermudo's book *Declaracion de Instrumentos Musicales*

34 FolioXXVII, recto: La vihuela comun tiene seis ordenes de cuerdas... [the common viuela has six courses...]

FolioXXVIII, verso: La guitarra tiene quatro ordenes de cuerdas las quales cuerdas fe pueden lamar quarta, tercera, segunda y prima...[the guitar has four courses...]

35 Folio XCVI recto...No es otra cosa esta guitarra fino una vihuela quitada la sexta y la prima..

36 '...guitarra habemos visto en España de cinco ordenes...'

37 How many frets has the vihuela: There is no fretting determined for this instrument: if not as many as one may wish to put. The music is so fulfilled that if for the vihuela two hundred frets one wished to put, having space for so many, that many one could put.

Commonly the use is to put ten frets, and this is a good measure, and in the well-proportioned vihuelas, seldom more than eleven may fit. The vihuela where twelve frets can be arranged is out of proportion. Not only ten frets is a good measure for the vihuela, but for the guitar as well (translated from the original Juan Bermudo. *Declaracion de Instrumentos Musicales* (Osuna 1555. Biblioteca de Catalunya, M486)

Cristina Bordas-Ibáñez mentions one occurrence, in a guild examination taken in 1698, where the *vihuela* to be made had five courses.<sup>38</sup> Another example comes from the examination of Francisco Lipuste in 26 August 1619, when he makes a *vihuela* for his guild exam, but strings it as a guitar, to achieve a better commercial value.<sup>39</sup>

The name of the trade in written documents varies. The name *violero* is replaced for *guitarrero* in many cases. Bordas-Ibáñez provides examples of this in the region of Madrid, by means of a letter from Gabriel de Murcia from 27 July 1690, where he demands some aide for himself and his family from his employer. In it, he denominates himself *guitarrero*, but describes his work as a *violero* for the royal chapel (the term *viola* meaning at that local and time, the *vihuela*). The author suggests that the *guitarra*, being commercially more important at the time, was used as a means of guaranteeing the financial survival of members of the guild of the *violeros*.<sup>40</sup>

Corona-Alcalde, who compiled references to the instruments in literary evidence, from court tales to novels and pamphlets spanning the fifteenth to the seventeenth centuries, was able to draw some conclusions, taking into account the restrictions the fictional character of the documents impose upon the authenticity: ‘The *vihuela* almost disappears from fictional sources from the second half of the sixteenth century, although still in use according to other evidence. The guitar’s popularity rises at this time, and the instrument was initially associated with servants and the middle-class, and only in the seventeenth century did it enjoy better acceptance among the nobility and clergy.’

Although the phrases ‘the aristocratic *vihuela*’ and ‘the popular guitar’ are common among authors who have dealt with this matter more recently, and the division of instruments according to a social criterion has been accepted by most, Corona Alcalde points that it should be recognized as the product of speculation, proposing

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38 Cristina Bordas-Ibanez. Du Violero au guitarrero: l’activité de la corporation des violeros de Madrid in *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004)

39 Declaración de los examinadores del gremio de los violeros sobre el examen de Francisco de Lipuste. ‘en orden de guitarra para darle mas despacho’ (*Aux Origines de la Guitarre...*p.38)

40 Gabriel de Murcia, Guitarrero de la Reial Capilla de Vuestra Majestad y sobrino de Juan Hidalgo, arpista que fue de dicha Capilla, dice que está sirviendo el oficio de violero de dies años a esta parte. Y hallarse cargado de obligaciones de mujer e hijos y no hallarse con medios para sustento suplica[...] alguna ayuda de costa (Cristina Bordas-Ibanez. *Du Violero au guitarrero*. p 38)

the change: 'aristocratic lute, popular guitar and ubiquitous vihuela.'<sup>41</sup>

Map of the occurrence in the literary references compiled by Antonio Corona-Alcalde:<sup>42</sup>

- Fifteenth century: lute and occasional vihuela [predominate] over the (fourth-course) guitar (fourth-course)
- 1501-1580: Preponderance of the vihuela and similar incidence of lute and four-course guitar. First references to the five-course guitar.
- 1581 onwards: preponderance of the five-course guitar, and decline of the incidence of the vihuela and four-course guitar.

Sources regarding the ownership of instruments show that the guitar is absent from inventories of the fifteenth and sixteenth centuries, but it appears in great numbers in the next century. The data gathered by Michelangelo Lambertini about the makers in Portugal show early examples of viola makers in 1541 and 1551, but no use of the guitar at the court, a sign of a possible later adoption of the guitar in Portugal.<sup>43</sup> The earliest reference to a vihuela in Portugal is a compilation of music for keyboard, harp or vihuela published in 1578 by the son of Antonio de Cabeçon, an eminent musician attached to the Portuguese court at the time. Indeed, the Portuguese Kingdom is commonly put together with Galicia, Aragon, Castile, Catalonia and other Kingdoms and regions for the study of musical traditions, but very early isolated itself from the group that later would form Spain.

### **The differentiation of the terms according to the guild documents**

The recorded history of the guild of the *violeros de Madrid* spans the period from 1577 to 1808. The late appearance of this mark of commercial activity concerning musical instruments making may be due to the size of the town. It was only in 1561 that Philippe II made it the capital of the Kingdom. However, around 1565, an inventory from the *bigolero* Martin Ramirez lists fifteen *biguelas* and sixteen

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41 Antonio Corona-Alcalde. *The Players and Performance Practice of the Vihuela and Its Related Instruments, The Lute and The Guitar, from C.1450 to C.1650, As Revealed by a Study of Musical, Theoretical and Archival Sources* (Ph.D. Dissertation) (1999, King's College, University of London)

42 Antonio Corona-Alcalde. *The Players and Performance ...*

43 Lambertini, Michelangelo (org), *Industria Instrumental Portuguesa*.

*guitarras* among other instruments and materials.<sup>44</sup> In other places, the guild of *violeros* detaches itself from other guilds, such as the Carpenter's guilds of Seville and Granada, and gradually the examinations show a higher degree of specialization, where the *Violeros* end up with the task of making the harp, the vihuela, and in other places also the *vihuela de arco*, the *violon de arco*, and the *guitarra*.<sup>45</sup>

A document printed in 1527 concerning the rules for the different trades for the Kingdom of Castile lists the *violeros* under the general denomination of Carpenters, and gives the general rules for the guild's examination. A carpenter-*Violero* must have known at the time how to make a large vihuela with marquetry, smaller vihuelas, a *vihuela de arco*, and a lute, among other musical instruments.<sup>46</sup>

Later, in 1577/1578, in Rules for Guilds sanctioned in Madrid, the *Violeros* are mentioned as a category, and their examination lists one vihuela with a rose in layers, and a guitar with the same feature. Another set of rules from 1653 lists '*vihuela llana, arpa y violón de arco...*'<sup>47</sup>

In 1599, there is an account in Valencia of a split between the *violeros* and the guild of the carpenters. The document states the prohibition of carpenters taking the trade of *violero* and making harps, lutes, guitars, vihuelas *de mano* and plain vihuelas.<sup>48</sup> Similar laws applied in Seville, 1527, Granada, 1552, and Malaga, 1556. Towards the final collapse of the guild system, in 1761, the trades became very distinct, as shown in documents issued by, among others, the Guild of the *Guitarreros* and the Guild of the *Violeros*, against artisans who were profiting from the trades without having passed the exams.<sup>49</sup> But at this time, the vihuela was already forgotten, and the term *violero* was applied to makers of bowed instruments.

#### Catalan Instruments:

In Catalonia probably the local *violers* and *guitarrers* were integrated with the *fusters* (carpenters) from the beginning, as the general privileges of the last included exceptional rights over selling and buying timber, obligatory examinations by the guild in order to obtain a license for opening a workshop and exclusivity over the

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44 José Romanillos Vega and Marian Harris Winspear, *The Vihuela de Mano and the Spanish Guitar*. p.324.

45 Cristina Bordas-Ibanez. *Du Violero au guitarrero: l'activité de la corporation des violeros de Madrid in Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004) p.31.

46 'Un claviorgano y un clavecimballo y un monocordio y un laud y una vihuela de arco y una harpa y una vihuela grande de piezas co sus atarcees[marchetry] y otras vihuelas que son menos q todo esto...'

47 'una vihuela de lazo hondo y una guitarra de la misma manera' both in Bordas-Ibáñez, p.34.

48 '...harpes, llahuts, guitarres, violes de ma ni de arch ni ningún instruments de cordes de viola ni de citra...' (viola being the catalan name for the vihuela).quoted by Bordas-Ibáñez p. 35.

49 Cristina Bordas-Ibanez. *Du Violero au guitarrero...*p. 39)

construction of certain pieces of *ebenisterie*. These circumstances are not different to those enjoyed by instrument makers elsewhere, and indicate some integration between different professions among the guild, while the instrument makers were a group too small and could not form its own guild.

The statutes of the guild of carpenters, older than the laws of Castile, date from December 15<sup>th</sup> of 1393.<sup>50</sup> However, the first mention to instrument makers in the guild dates from 1543. The *Llibre de Consells de la Confraria de Joan i Sant Josep* of the city of Barcelona reads at the beginning of the session the date and place of the meeting, following this with the names and occupations of the board of the meeting, *guitarrers* and *violers* being present<sup>51</sup>. The official acknowledgement comes only in the 8<sup>th</sup> of March 1648 meeting report, signed by the council of the guild, extending to the *guitarrers* all the prerogatives and privileges granted to the carpenters.

From 1540 onwards the Guild books start mentioning more details concerning the instrument makers, and their position within the guild becomes clearer.

Different extracts tell that at least from 1544 there was an exam to pass, and no master could open workshop without approval from the guild.

In Portugal, the *Regimento dos Officiaes Mecanicos* (1572) account for the guild regulation, but in this case, the directives do not make clear the differences between the instruments made by the *violeiros*. Later revisions of directives (seventeenth century) make the distinction clearer.

## **Geographical Location**

The focus of the research was the group of Iberian tradition from the sixteenth to the eighteenth century, involving the territories of Portugal and Spain, were available material from Catalonia, Castile and Portugal was gathered. In common, these instruments have a slightly different structure and finishing, generally of fruitwood and light construction. Only a small quantity of Iberian guitars survived, in contrast with the large number of guitars from Italy, France and other countries. It is believed that the number of instruments in circulation was proportional to the

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50 Estatuts del Gremi de Mestres Fusters, (Romanillos Vega)

51 Ramon Pinto, Noves Aportacions a l'estudi dels luthiers catalans (seglesXVI al XVII) (Barcelona: Revista Catalana de Musicologia, 2001).p43

popularity of the repertoire. Therefore, the small number of surviving instruments might have another explanation. The most likely being the fact that big numbers and the simple construction could have given small market value to the instruments, and these were not treated as assets, but rather as tools, subject to normal wearing and eventual discard.

#### **4. The known surviving instruments relevant to the research**

##### **Jacquemart-Andre vihuela**

This vihuela is attributed to Johan de Guadalupe, from Toledo, and is believed to date from the sixteenth century. The soundboard is made of three central plates from the same tree, with two small wings added in each side to add width. It has five soundholes, each with a parchment rose. The body is relatively shallow, 77 to 66mms of depth against 581mms of length (measured without the neck). The whole body is covered with various patterns of marquetry. In some places, the missing veneer makes possible to see a base of mahogany. Rosewood and boxwood were used in small decorative details.

The neck is made with an assemblage of twelve slices of boxwood and rosewood alternated, and there is a false V-joint joining the headstock.

Jöel Dugot recently proved that the bridge has been relocated, and the neck shortened. Inscriptions on the soundboard (a guitar tuning noted with pencil directly on the soundboard) suggest that the instrument was used as a guitar, although the date of this use is not known.<sup>52</sup>

This instrument has been extensively studied in the past decades, but still remains a matter of debate. Its outlines resemble loosely the pictorial representations of vihuelas, and some modern makers have made copies of it. But apart from the study of proportions, little could be gained from this piece regarding the average techniques and contemporary workshops.

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<sup>52</sup> Joël Dugot, *Un Chef-d'oeuvre du XVIème siècle: La Vihuela du Musée Jacquemart-André*, in *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004), pp. 50.



## Chambure vihuela

Currently kept at the Musée de la Musique, Paris, under the number E.0748, this vihuela was thought to be a guitar, until recent research by Jöel Dugot lead to the new classification.<sup>53</sup>

The body is made with the same technique found in the Dias guitar: fluted and vaulted staves of thin wood, bent to this form by an unknown technique. The experimental tracing of this vihuela is very simple. The body length can be divided in five modules (M), and the upper and lower limits coincide with the circle traced with the dividers based on the opposite limit, with radius 5M. The sides can be found with radius 2M, according to instructions given by Dugot. The wood of the back was recently identified as Sisifo (*jujuba sp.*), original from Spain<sup>54</sup>. The neck is made of cypress, and the V-joint is false. The interior has reinforcements in parchment, and remains of textile between the sides and back. The headstock has 13 holes, but the extra hole is believed to be just the place for a hook or other device for hanging the instrument.

The soundboard has two transverse bars glued close to the soundhole, believed to be original. Analysis of the wood has led to a date close to the end of the fifteenth century.

The bridge is painted black, and the string length was probably 645mms.



Tracing of the Chambure vihuela at the Musée de la Musique, Paris.

<sup>53</sup> Carlos González, La vihuela anonyme du Musée de la musique de Paris, in *Aux Origines de la Guitare...* (Paris: Les Cahiers du Musée de la Musique, 2004), pp. 64.

<sup>54</sup> Carlos González, La vihuela anonyme... pp.66





### **Belchior Dias Instrument**

The Dias Instrument was made in Lisbon, in 1581, according to the written date in its interior. The soundboard is a later addition, the wood being dated 1724, according to dendrochronological measurements.





Details from the Dias instrument.

The instrument has a distinctive fluted and vaulted back of seven ribs in dark wood, shallow depth and heavy construction. Its neck is made of solid ebony, and has the proportion of approximately half the total length of the instrument. The proportion of 1:2 between these parts is believed to be one of the main characteristics of vihuelas and four-course guitars, as well as the shallow body (five-course guitars tend to have a bigger body). The headstock has space for five courses of strings, but a hole at the top end of the piece may have been used for an extra peg, which would allow the instrument to be strung with six courses, as a vihuela. The fluted and vaulted back is similar to the undated Chambure Vihuela recently found in Paris (E.0748).

Spanish inventories studied by Romanillos and Winspear list in many cases, similar features as found in the RCM 171 Dias and the E.0748 Chambure.<sup>55</sup> While the dates are very close to the one stamped at the Dias Instrument, the use of the terms may not be completely reliable.

1. Inventory and valuation of the workshop contents of the *violero* Mateo de Arratía of Toledo. 1575. (Extract):

Sixteen moulds, three to make citoles and the others for guitars and vihuelas.

Two new vihuelas in Portuguese Ebony, one with a sunken rose and the other with the rose in the soundboard.

2. Valuation of Instruments that belonged to the banker Andrés de Écija made by the *violero* Francisco Bejarano. 1588. (Extract)

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<sup>55</sup> Jose Luiz Romanillos Vega and Marian Harris Winspear, *The Vihuela de Mano and the Spanish Guitar...*

One vaulted-back ebony vihuela with a case and key, valued at five ducats.

Another fluted ebony guitar with a case, valued at fourteen ducats.

### 3. Testament of Pablo de Herrera. 1622. (Extract)

...I declare that the Marqués de Alcañices owes me... ...for a vaulted-back guitar worth...

### 4. Inventory of the workshop contents of Antonio de Medina at the time of his marriage to Catalina Rodríguez. 1674. (Extract)

One fluted guitar body in Portuguese ebony with strips of ebony and ivory with the soundboard already started...

One fluted maple body with strips of ebony and of Maria wood...

The inventory of Tomás Armengol of Mallorca lists a small guitar in 1591. Several others list ebony in quantity at the time. The rules of the Guilds of Lisbon edited in 1572<sup>56</sup> mention that good quality *pau preto* (black wood) should be used for making instruments. The inventory of the belongings of the banker Andrés de Écija in 1588<sup>57</sup> included a vihuela in ebony with vaulted back, and a guitar in ebony with a fluted back. Such a coincidence and early date could be another sign that the Dias instrument is a plausible model for both instruments.

### **Anonymous guitar from the collection of Robert Spencer**

This guitar was found altered to a nineteenth-century configuration, with shortened neck, steel strings and a new soundboard, featuring an angle after the bridge, designed to support the extra tension gained from the steel stringing. The strings rather than tied at the bridge, were tied at the bottom, with the aid of metal pins. The owner commissioned a restoration to what was believed to be its original form<sup>58</sup>.

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56 Correia, Virgilio (org), Regimentos dos Officiaes Mecanicos da muy nobre e sempre leal cidade de Lixboa, 1572

57 Jose Luiz Romanillos Vega and Marian Harris Winspear. The Vihuela de Mano and the Spanish Guitar. A dictionary...

58 Restored around 1970 by Martin Bowers, this guitar is now in a particular collection in the U.S. I would like to thank Martin Bowers, the restorer of the guitar, for sharing the notes and pictures he took when working on it.

Substantial part of the decoration was lost, but it is believed that the three-layered parchment rose, coincidentally resembling one side rose of the Cathedral of Palma de Mallorca, dated from 1552, is original.

The neck had some added finishing in bone and ebony, and was completely removed by the restorer. The new neck was designed after preserved headstock and pattern, and the joint pattern was created by him.



All pictures of this guitar by Martin Bowers

## The similarities between the Belchior Dias and the Spencer guitar

Components	Material-Dias	Material-Spencer
top	Original is missing. Probably Pinus spp (spruce)	May be original. Pinus spp. (spruce)
Back	Dalbergia spp (rosewood)	Dalbergia spp (rosewood)
Sides	Dalbergia spp (rosewood)	Dalbergia spp (rosewood)
Internal Bracing	pinus spp. (spruce)	pinus spp. (spruce)
Internal Blocks	pinus spp. (spruce)	pinus spp. (spruce)
Neck	Dyospyros spp (ebony)	Ebony veneer on spruce
Bridge	Not original.	May be original. Ebony
Fingerboard	Dyospyros spp (ebony) and Ivory	Dyospyros spp (ebony) and Ivory
Internal linings and reinforcement	Parchment and pinus spp. (spruce)	Parchment and pinus spp (spruce)
Finish	Oil Varnish	Oil Varnish

The dark wood used at the sides and back of the instruments is probably a kind of Dalbergia, (Dalbergia Cearensis, or Kingwood). At that time, Portugal had the wood trade from Brazil substantially developed, and it makes sense that this indigenous wood from the Brazilian North-East coast may have been available, as well as the Indian Cocobolo or African Ebony possibly used on the solid neck, from other Portuguese colonies.

The great similarities between these two instruments in use of wood, decorative patterns and in the unusual heavy construction point to the possibility of both having been made at the same workshop. If the Dias can be considered a five-course guitar, then this ensemble may show the variety of shapes that the guitar took before establishing itself as the main accompanying instrument from the mid-Sixteenth century onwards.

No records of Belchior Dias were found in archives, although an earlier Dias was established as violero in 1536, according to the archives of the Portuguese National Library. The archives of the residents of the old street of *Violeiros* in Lisbon where this maker had his workshop show a long history of family traditions, and inheritance of privileges. This may account for the lack of Guild examinations and records, so exuberant in Spanish archives.

## Reconstruction of a sixteenth-century vihuela

Aim of this research:

To design a generic sixteenth-century vihuela according to information gathered, and to justify the choices made.

Methods:

Primary sources are used for reference.

Theoretical sources are used to guide choices in matters of subjective judgement.

Practical experimentation and empirical knowledge are used to solve technical issues.

To avoid idiosyncrasies, historical studies by other researchers are used in assessing the suitability of technical solutions.

### 1. Tracing of the template

... The first [of the] three instruments is a plain, six-course vihuela with its [due] proportions, rules and [due musical] range and it is understood that first of all [he] must make a paper template, which must be done in the presence of the overseers and examiners so that [they] can see it being made and it must be done only using a knife, \*in front of him\* a pair of compasses, a ruler and a set-square without recourse to any other pattern, but only drawing on his experience and understanding of the said craft... (Proposal of Ordinances for the Craft of *violeros* of Toledo. Translated by Romanillos Vega, 2002)

The design process starts with the general proportions of the vihuela, and the choice of a string length.

The instrument to be made will be a vihuela in A (top string a'), with ten or eleven tied frets, as shown in most sixteenth-century representations.

Commonly the use is to put ten frets, and this is a good measure, and in the well-proportioned vihuelas, seldom more than eleven may fit. The vihuela where twelve frets can be arranged is out of proportion. Not only ten frets is a good measure for the vihuela, but for the guitar as well. (Juan Bermudo. *Declaracion de Instrumentos Musicales*. 1555)



For the sake of comparison, a string setting similar to that of a renaissance lute was chosen. The average renaissance lute measures 60 centimetres in g'. To use the same strings, a vihuela in a' would have around 57 centimetres. With this string length, and the notion that a vihuela is depicted with a proportion of 1:1 between its body and neck, the following tracing was achieved:

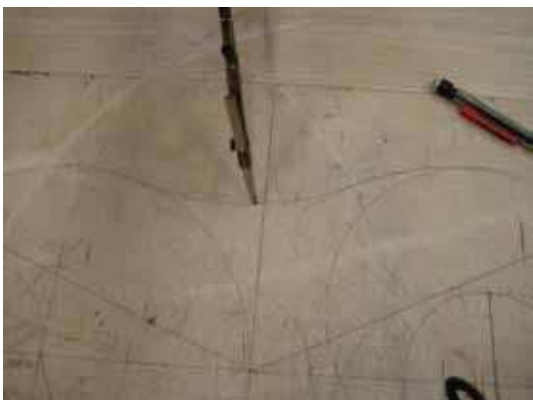


Then, with the dividers, and bearing in mind all what has been said about symmetry, this body shape is derived:



On symmetry:

The harmonic series of intervals was an ideal of proportions that guided the theorization of the arts of the *trivium* and *quadrivium*. Its use decreased after the renaissance but as Bermudo's writings point out, its use was common in the period studied. Although Baxandall, writing on painting, concludes that it would be an over-statement to imply that men at the renaissance looked for harmonic proportions in all objects,<sup>59</sup> even if the depictions of musical instruments fail to demonstrate that harmonic proportions were used, other human activities, of similar status, would make use of them. Around 1580, books were composed using harmonic proportions, and even if not entirely exact as a science, geometrical analysis of extant musical instruments frequently reveals golden ratios and exact proportions between parts<sup>60</sup>.



Tracing of the outlines

<sup>59</sup> Michael Baxandall. *Painting and Experience ...*

<sup>60</sup> "Take four pieces of string, 6,8,9 and 12 inches long, and vibrate them under equal tension. The interval between 6 and 12 is an octave, between 6 and 9 and 8 and 12 is a fifth, between 6 and 8 and 9 and 12 is a fourth, between 8 and 9 a major tone.- the basis of western harmony." Michael Baxandall, *Painting and Experience in Fifteenth century* (Italy: Oxford University Press, 1972).p101)





Location of the bridge and strings

## 2. Description of the parts

### Soundboard

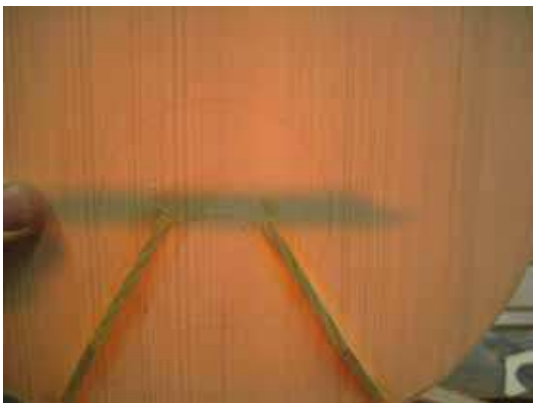
The average thickness for similar-sized lute and baroque guitar soundboards is around 2mm. For baroque guitars, less than 1.5 mms is rare, and the soundboard tends to be thicker around the lower end of the instrument, similarly to the lute, which typically has no less than 1.2 mms at the rose, tending to 1.7mms in average, and 2 mms maximum at the lower end, below the bridge. In general, soundboard thickness depends on the stiffness of the material, but these measurements were used throughout the sixteenth to the eighteenth centuries. Although isolated examples may depart from these prevailing measurements, they serve for this purpose as dependable, based on all the material gathered.<sup>61</sup>

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<sup>61</sup> Museum experts like Joel Dügöt (Musée de la Musique, Paris) refer to the discrepancies to this rule to initially identify nineteenth-century forgery.



Shaping of the transverse bars



Tracing of the position of the bridge

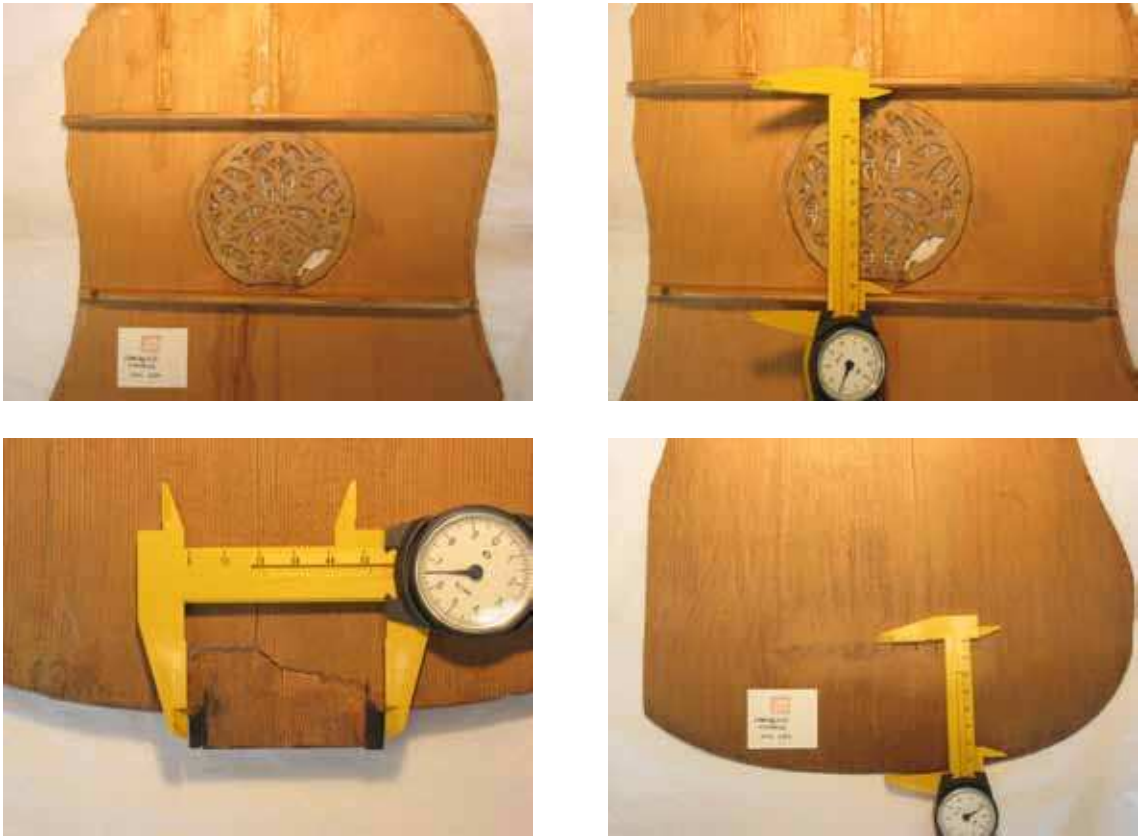


The typical thinning around the rose on the lutes has a practical explanation, to make the carving of the rose easier. In the case of the vihuela, whose rose is inserted, this thinning is not necessary. The example of early guitars shows instead a localized thicker area above the bridge, in the area which is subject to distortion, owing to the rotational pressure applied by the pull of strings on the upper edge of the bridge.

Martin Bowers, when restoring the Spencer guitar mentioned before, experimented with thicker soundboards. Having made several copies of the instrument, he arrived at a model with decreasing thickness, from 2.4 at the bridge to 2.2 at the rose, with similar barring. He described this configuration as stable and secure. No comparison was possible between the instruments, but his experience shows clearly a path to a more robust approach to the construction.

This may be a point of connection with the Dias Guitar. Both instruments are slightly heavier than normal, and use dense tropical wood. The resonating capacities of a bigger mass of material need to be triggered by a more powerful impulse, and this might be obtained with higher string tension. A thicker soundboard may be the answer for a possible bending due to tension.

## The internal barring



The original soundboard of the Chambure vihuela<sup>62</sup> shows a simple combination of two bars; and the Jacquemart-André vihuela also shows similar bars, in broadly the same places. This system of bracing appears on extant guitar-shaped instruments only up to the early seventeenth century. Giorgio Sellas (Venice, 1624) uses four bars and two converging struts, and similar arrangement appears in three guitars attributed to the Voboam family of makers (circa 1600-1700).<sup>63</sup> The fan strutting is used to support the area between the rose and the lower end of the instrument, which tends to deform downwards between the bridge and the rose, and upward, between the bridge and the bottom end. Several systems were developed after the seventeenth century, mainly in Spain, but in general, the fan system addresses the tension of the board without dampening it as much as a transverse bar, the previous technical solution.

For the reconstructed guitar and the vihuela designs, a small fan consisting of two

<sup>62</sup> Named after its previous owner. Catalogue n. MM259. Musée de la Musique, Paris. Measured and traced in 2008. Discussed by various authors in *Aux Origines de la Guitarre : La vihuela de Mano*, Paris 2004

<sup>63</sup> Romanillos Vega, 2002

scalloped bars below the bridge was considered. Although not present in two of the three extant vihuelas studied, this small fan arrangement can be found in medieval Arabic and 16<sup>th</sup>-17<sup>th</sup> centuries European lutes in their treble bars.

## 2.1. Rose, inlays

... Item: That this instrument [vihuela] has to have inlaid rings, an ebony fingerboard and boxwood rose with thirty-six points.

...Item: That if anyone were to bring an ebony vihuela to have a soundboard fitted, this [soundboard] must be of spruce \*pinewood\* with a rose of boxwood and not parchment.

(Proposal of Ordinances for the Craft of *violeros* of Toledo. Translated by Romanillos Vega, 2002)

The position and sizes of roses and sound holes appear to be governed by tradition rather than by physics. In the early stages of this project, the most tempting solution was to establish the position of sound holes experimentally, according to Chladni patterns (readily obtainable with appropriate hardware). This approach was discarded after analysis of other experimental studies using these patterns: their conclusions are generally vague; and from this, the only useful insight gained has been the fact that these characteristics are not defined only by acoustical criteria. According to a similar approach, it is likely that an instrument would sound better without a lattice of wood and parchment cluttering its sound hole. Some considerations regarding taste and subjective judgement are more fully elaborated elsewhere in this text, but in short, this is an exercise in interpretation. The ultimate results were not solely focused on acoustical power or free vibration, but evolved in parallel with taste.

The roses, which served an ornamental purpose, were not dissociable from the character of the instruments. Soundholes appear to be located in the upper part of the body, after the waist. Although critical for the positioning of the bars, the positions of sound holes in the drawings are based on the average of those represented in the pictorial sources.

According to extant examples, the roses of guitars and vihuelas are mainly cut in parchment; but it is striking how the *proposal of ordinances* twice mention that they should be made of boxwood and not of parchment.





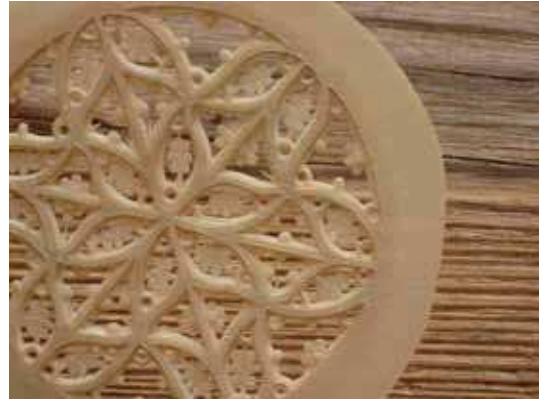
Detail of the Chambure vihuela rose, in wood and parchment

The Chambure rose uses a technique in harpsichord making, of superimposing layers of parchment and wood. It is probably to this technique that the *ordinances* refer; the proposed reading of it is that the roses should not be made purely of parchment. Other possibilities, like gluing a carved piece of solid boxwood as a rose, with the aid of linen, silk or any other material, could be attempted, but evidence for such solid roses is unknown, and parchment roses are known to have been used in earlier European instruments and the *oud*. The Chambure rose, whose pattern is very common for the period, is made in a similar way. The main structure is made of parchment and the first layer made with a thin sheet of an unidentified wood.



Details of roses in parchment made for other instruments





A harpsichord (left) and a vihuela rose(right)

## Parchment glue

In making the glue for the parchment roses, Cennino Cennini's (c.1370-c1440) traditional recipe was used:

Gently boil the proportion of one ounce of parchment scraps in a gallon of water for four hours. Spread the resulting gelatine onto a glass plate, and dry in open air. The flakes can be used as normal hide glue, heated<sup>64</sup>.

Experiments with isinglass, hide, rabbit skin, and even synthetic glues yielded no acceptable results. Parchment layers expand rapidly when wetted; and after gluing, shrinkage tends to distort the rose. The jellified glue obtained with this process allows a slow setting (other glues are applied hot and diluted).



parchment trimmings boiling in water (left) and drying (right)

<sup>64</sup> Italian painter, who wrote in the early fifteenth century (speculative date) *Il libro dell'arte*, a compendium of renaissance techniques for painting and preparing materials.



The dried extract of parchment.

## 2.2. Wood

(detail possibilities-Corona-Alcalde lists a few sources for material. The originals+Dias. Paragraph on the discovery of the Sisyphus wood in Paris.

The choice of wood for the instruments, according to the primary sources (see appendix) is wide. A compilation of all the extracts bore the following information on the materials for making a vihuela:

- Soundboard in spruce.
- Wood from Brazil, and white wood for the sides, with lines in ebony.
- Body made entirely in ebony, possibly not only veneered, but with a solid plate for the back.
- Body and neck made in cypress.
- Body and neck in pine (fir).
- Possible use of walnut for all parts.

In sixteenth century Spain the wood commerce was regulated, and details such as the acquisition and the surveying of the quality of the timber were delegated to a representative of the guilds, and the wood later shared among the members.

On the choice of wood for the instruments, the availability of a certain timber could have been an important factor, as there is a description of many violoncellos and bass instruments made with walnut around 1650 in Barcelona. Walnut was a very common wood for *ebenisterie*, but not for the instruments of the violin family.

An official document from Catalonia regards the appointment of the *violero* Joseph

Massaguer to evaluate and purchase a cargo of walnut.<sup>65</sup> This is repeated in another document from the Barcelona carpenter's guild, dated 1648. In this case, the appointed masters are all instrument makers.<sup>66</sup>

The sources of the wood can be traced to Germany (C.121), Brazil (C122). The original instruments studied give the following information about the use of materials:

Classification, to date.	Guitar	Guitar or vihuela	Vihuela	Vihuela	Vihuela
Instrument	Attributed to Belchior Dias. (Private collection, U.S.)	Belchior Dias. (Royal College of Music, London)	Chambure Vihuela (Musée de la Musique, Paris)	Jacquemart-Andre Vihuela (Musée Jacquemart-Andre, Paris)	Quito Vihuela (Museu Nacional, Quito)
Top	Spruce	Original is missing.	Spruce	Spruce	Spruce
Back	Solid ebony ( <i>Dyospyros spp</i> )	Solid <i>Dalbergia spp</i> (Rio Rosewood)	Solid <i>sisyphus</i> , <i>Sisifo</i> , ( <i>jujubier sp.</i> )	Mahogany ( <i>swietenia macrofilia</i> ) veneered with rosewood and boxwood	Solid cypress
Sides	Ebony ( <i>Dyospyros spp</i> ) and Ivory lines	Rosewood ( <i>dalbergia spp</i> )	Solid cypress ( <i>cupressus sp</i> )	Mahogany veneered with rosewood and boxwood	Solid cypress
Internal Bracing	Spruce	Original missing	Spruce	Spruce	?
Internal blocks	Spruce	Spruce	Cypress	Mahogany	?
Neck	Ebony veneered Spruce	Ebony and Ivory	Solid cypress	Alternated layers of rosewood and boxwood	Solid cypress
Bridge	Dyed wood	Missing	Dyed wood	Missing	?
Fingerboard	Ebony and Ivory	Ebony and Ivory	Ebony		rosewood
Internal Linings and reinforcements	Parchment and spruce	Parchment and spruce	Parchment		?
Finishing	Oil varnish	Oil varnish	?	?	?
Rose	3-layer parchment rose	Missing	Layers of parchment and wood	Parchment	Parchment mostly missing

65 Ramon Pinto, *Los Luthiers Españoles*, (Barcelona: edited by the author, 1988).

Ramon Pinto, *Noves Aportacions a l'estudi dels luthiers catalans (segles XVI al XVII)* (Barcelona: Revista Catalana de Musicologia, 2001).

66 The extract reads:

“ at the 21st of April on the year 1648 were elected the Master Violers Nicholau Perello, Llorenç Artigas, Rafael Guillamí and Andreu Villar for negotiating the purchase of a load of walnut...” (citar p44)



## 2.3. Mould

### Keeping the shape without a mould

Previous experiments (described in earlier reports) during the project involved bending baroque guitar ribs in the common way, with a hot iron. But instead of using a mould to hold the bent ribs, a single plate of wood was used, to which the ribs were glued temporarily. This plate already had a semi finished neck and block fitted to it, to which the ends of the ribs were glued permanently.



neck being prepared



Cutting of the groove





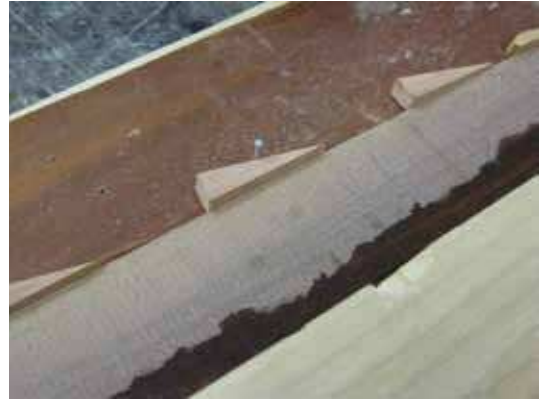
Neck attached to board, and bending of first rib

This method proved time-effective and gave the necessary support for shaping the sides of the instrument. A solid mould would be the normal choice for modern guitar makers, but this approach would not have been compatible with the historical research. In the inventories, testaments and descriptions, there is no mention of vihuela moulds. The reason for this seem to be that, as already mentioned, the shape of this instrument was in tune with a dynamic, changing environment of music making, and most importantly, the use of a mould is not necessary. With enough care, any shape can be achieved and corrected when working the sides over a hot iron, and with sufficient skills, a stable and smooth curve can be obtained. The use of a mould makes it possible to make corrections after the bending, using pressure from clamps, but seems to be related to a later tradition of instrument making, possibly generated in the violin workshops.



Sides before and after gluing

The finished sides are then glued to the neck, sliding their ends into thin cuts, made with a saw, and corrected with a thin knife. This has been attempted without the use of a small file, as fine tools like modern needle files are not mentioned among the tools of instrument makers. The saw cuts followed by use of the knife work well, leaving no marks on a neat joint, similar to the ones in original instruments.



Sides secured to board and back being glued with the help of wedges

The sides are held in place over the outline of the instrument traced on the board with drops of hide glue. These are difficult to clamp and hold, but after drying, they offer a very resistant bond that holds the sides in place during the subsequent stages of levelling, prior to the gluing on the back.



Back with transverse bars being glued



Trimming and shaping the transverse bars



After levelling the height of the body (trimming the edges of the ribs with a plane), the back is glued without clamping. Originally, it is possible that strips of paper soaked in glue could have been used to secure the back onto the ribs. This technique is based on scorching the paper with a hot iron, which causes the shrinkage of the paper and the melting of the glue.



Releasing the body from the plate

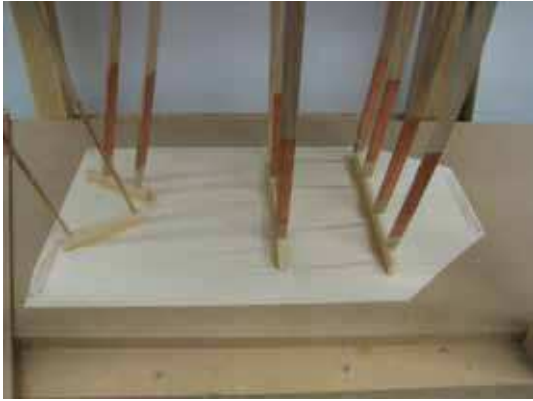


Trimming the edges



The glued body was then detached from the board using a chisel. The soundboard, thinned to around 2mms thickness by hand planing and scraping was marked with a pencil, using the body as template. This allowed the transverse bars to be glued and trimmed to final size according to the marks.

With the tips of the bars touching the internal sides of the body, the soundboard could be placed precisely onto the body, and the bridge position determined in accordance to the angles extended from the neck. The neck was slightly out of its intended place at this stage, due to natural accommodation of the materials and some twisting of the body (with a mould, this problem would not have occurred). The correct angle was achieved with the planing of the excess wood left on the neck width on purpose.

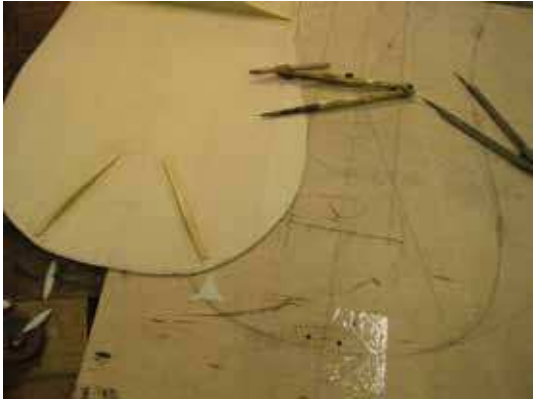


Soundboard and shaping of transverse bars

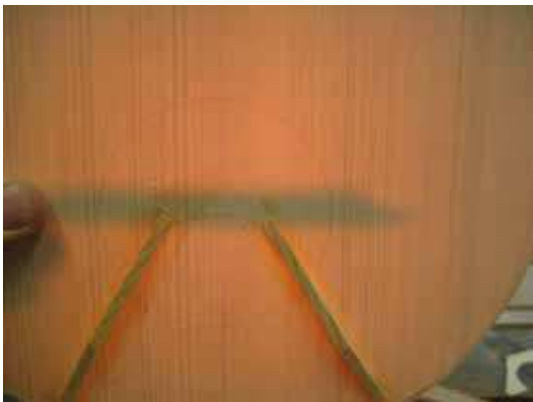
Here another easy step with the use of the mould needed a new technical solution. Without an external mould, the very light body, with thin sides, tends to yield and distort. The back holds the shape, but the upper edges still without any support, lose their shape, and the neck tends to move out of horizontal alignment. The same solution with two variants was used: after re-attaching the instrument to the board, the neck was levered with wedges.

The first solution for this was using a screw. It was possible to choose a specific point to make a hole for the screw that could later be used for inserting a pin, a feature common in some baroque guitars.

The second solution was to secure the back temporarily to the board with a drop of glue (the instrument can be safely detached by side twisting, when necessary). In both cases, the back arching disappears, and the alignment is fine-tuned using wedges, before the gluing of the top to the sides (the addition of which turns the whole assemblage into a rigid box).



Bridge being positioned and glued

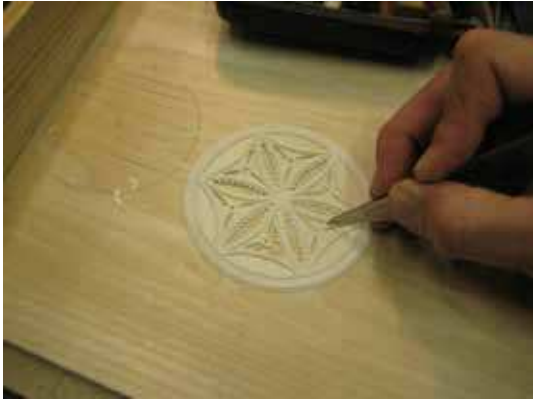


reinforcing the joints with linen and parchment

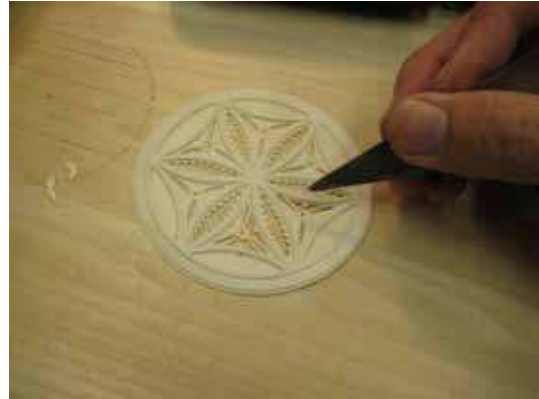


marking and cutting a curvature on the plane of the soundboard, designed to add clearance to the strings





Cutting of the rose



Soundboard being glued



The soundboard is glued with light pressure, with the aid of textile bands and weights.

The behaviour of the hide glue has been extensively studied by modern violinmakers, and it their methods played an important role in my experiences with vihuelas and guitars. The authors of violin making books in the early Twentieth century like Sacconi<sup>67</sup> believed that hide glue filled the pores of the wood with matter,<sup>68</sup> and this matter provided the bond. Recent research shows that there is a molecular bond, and therefore that thinner layers of glue between pieces of wood are stronger than thicker ones. There is also no need to create 'hooks' of glue, a technique developed with the earlier belief in mind: in order to fill the pores, various stages of glue soaking were taken, preparing the surfaces for the final joint. With the dismissal of this

67 Simone Fernando Sacconi, *The Secrets of Stradivari* (Cremona: Libreria Del Convegno, 1979) reprint by Eric Blot Edizioni

68 Hide glues are made with animal protein, through hydrolysis from collagen from animal tissues (skin, bone, nerves, etc). Specific types include hide, bone, fish and rabbit skin glue, among others. Each characterised by a degree of elasticity and bonding strength.



ill-informed process, a quick and clean gluing can be achieved, simply brushing glue and clamping the pieces together. Sometimes the technique of initial sizing is necessary, but only for large surfaces, where some pre-distorting and correcting makes the joint more precise. For guitars and vihuelas, no large surfaces are glued, and only a hot knife is needed to transport the glue at working temperature to the joint.<sup>69</sup>

## 2.4. The soundboard

The soundboard was made with one single piece of spruce. Although joining two halves of slab-cut wood was a normal procedure for earlier instruments, like the *oud*, and widely known at the time, no mention to matched halves was made in the inventories and guild documents. However, soundboards consisting of two pieces are more likely to have been used than single-pieced ones, as the splitting of a very large plate of wood incurs more waste, and is probably more time-consuming. The soundboards of some instruments, like the Jacquemart-Andre vihuela, are made with three parts. One of the key concepts of the practical research was economy of material, reflected in the choice of good timber and effective techniques. The joining of plates, if well done, in no way degrades the acoustic behaviour of the soundboard.

## 2.5. Bridge and bridge position

foto das pontes de vihuela.

The design of the bridge follows the details of the two bridges that seem to be original on the surviving vihuelas. In these, simplicity of lines and design is evident. Bridges for baroque guitars can be made with holes or slots, and the presence of slots again testifies to the ease of re-stringing that those instruments could have experimented. A slot can accommodate different thicknesses and numbers of strings, which are easily changed according to need or fashion.

The material chosen was pear, (a hard and dense wood). Immediate cleaning of the

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<sup>69</sup> Hide glue needs to be worked around 60°C., and applied before it turns to gel, and stops flowing. The amount of time the glue remains workable is crucial for the quality of the bond and is extended by heating the surfaces to be glued or the tools that transport it to the joint. The hot knife was the simpler of the two possibilities, the knife being left for some time on the hot water that warms the glue pot.

excess glue with a wet brush followed the gluing. This could have been done with a dry brush, to avoid staining the soundboard with diluted hide glue. However, sealing the wood with hide glue is a common step to varnishing with oil-based varnishes, and not an unknown technique for earlier lute makers. The finishing of this instrument took this into account and the stains disappeared with the glue sealing.

Positioning of the bridge followed the pictorial representations: the point chosen was an average taken from the woodcuts and sculptures. Owing to their condition, the surviving vihuela soundboards were disregarded in this case: On the Jacquemart-Andre vihuela, two stains corresponding to bridges glued are noticeable. The lower mark may be the original, but the extensive literature about this instrument still has conflicting theories about these marks. The Chambure vihuela shows clearly the mark of a bridge but is one of a kind, and although close inspection of the original at the museum showed divider marks on the back of the soundboard, undoubtedly used to locate the bridge, the shape of this instrument is so unusual that any conclusion based on this source alone would have little use for this project.

## 2.6. Pegs and Pegboard

The pegboard is usually made in the same material as the neck. In this case, walnut was used. No decoration was applied to it in the form of or scribing or veneering. Veneering is common in guitars, but is rarely represented in the paintings and woodcuts of vihuelas, and is not mentioned in the sources.



Shaping of the headstock



The attachment of the pegboard to the neck was made with a real V-joint. The Chambure vihuela uses a false one, and the other instruments vary. There are no details of jointing on the representations, and the matter seemed of secondary importance at this point. The pegs were turned from pear wood. Experiment has shown that if the pegs are made with a softer wood than the pegbox, the wear occurs on the pegs. These are easier to replace than inserting bushings of new wood into the pegbox.

They were stained with iron oxide and vinegar.



Cutting of the V-joint



The joint dries without clamping.



## 2.7. Finishing

### Varnish

A substantial part of the workshop time was dedicated to making a pine rosin varnish using traditional recipes and techniques. This experience ended by being very profitable in terms of general understanding of the finishing of instruments, and of the hardening of rosins using light.

The very basic recipe used had three ingredients: Pine Rosin, Linseed Oil and Turpentine. The procedure involved heating the Pine Rosin to around 250 degrees Celsius for 40 hours, and reducing its weight to a quarter of the original by evaporation. This was achieved with several sessions of 6 to 8 hours of heating. The remaining amount was then brought to 300 degrees, and mixed with 1.5 times its weight of Linseed oil. The mixture was kept at the same temperature until a state of



Natural rosins



high viscosity (measured by means of stretching cold drops of the varnish between fingers, up to 6 inches) was achieved. The varnish was then left to cool, and mixed with Turpentine when cooled to around 100 degrees. (This was the cause a fire incident in the chemistry lab, and later experiments concentrated on the use of cold volatile solvents).

## Finishing

In previous instruments, several coats of varnish were used, and different techniques tried. The most successful finishing was attained using traditional sanding methods, with horsetail grass and dogfish skin, alternated with 'grain raising', a process consisting of wetting the wood to make the loose fibres absorb, and thus be exposed to subsequent cutting by the sanding material. Dogfish skin differs from the other materials tried by having, instead of abrasive hairs or crystals, microscopic hooks, which only drag and cut in one direction, making it a very suitable material for sanding the soft spruce of the soundboard, whose grain, when not perfectly parallel to the surface, shows a tendency to warp in one direction. Avoiding sanding in both directions, and choosing the right direction when using dogfish skin, saves a considerable amount of time and gives a good finish. With modern abrasives, after the first stages of sanding, normal sandpaper (grit 600 and smaller) tend to get clogged, whereas the abrasive hairs of Horsetail grass slowly wear off, and the remaining material polishes and burnishes the surface of the wood.



Examples of the varnish

The varnishing starts with the application of a 'ground' of clear varnish mixed with fine pumice powder. A coat of this material is applied with a rag, rubbing the pumice deep into the wood, and the surface is subsequently cleaned. The embedded pumice later disappears with the succeeding coats leaving a smooth and sealed surface.

The drying time used was about 3-4 days in a UV chamber (a cupboard fitted with a ultra violet lamp, in substitution of drying the instrument under the indirect sunlight, as described in varnishing methods), after which the ground was sanded, with linseed oil as medium.

The next coats were applied the same way, starting with the soundboard and back, then the sides, and then the neck, using broad and repetitive brushstrokes. The hardening of the varnish after a few minutes of application made retouching an impossible matter, and any surface defects had to be dealt with sandpaper, after drying in the UV chamber.

Varnishing the instrument without filtering the air caused dust particles to accumulate in the surface, and this proved to be an issue. Sanding was usually enough to clean the surfaces again, but time would have been saved with a cleaner environment.

After the second coat of coloured varnish, the final finishing was done using only pumice powder and linseed oil. These proved to be the best materials for working the surface, as both are constituents of the ground and varnish. Pumice powder gives the varnish a glossy surface, and after the last application of varnish (using a rag instead of a brush), the pumice finishing treatment was applied once more.

As observed in the majority of surviving instruments to which access was possible during this research, baroque guitars were varnished with thin and clear coats, and the pine oil varnish is not common to all. Other kinds of finishing may include oiling and waxing (linseed oil, natural waxes). When not made of dark exotic woods,

baroque guitars were seldom darkened, and among the surviving instruments, the quest for contrast between dark and light colours is notable, as is the case of the common pairings with ebony, rosewood and tortoiseshell of sycamore, Ivory, and other contrasting materials.

## Conclusion

### **On the subjective evaluation of sound, loudness, beauty and other qualities**

In gauging the modern apprehension of past aesthetical values in the field of renaissance painting, Michael Baxandall challenges the modern notions of “taste” and “beauty”. For him, these terms are imbued with history, and the successive layers of meaning need to be carefully quoted with their own context. In what could be a good parallel with our current search for the meaning of the qualifiers in music, Baxandall describes the mechanisms of the fruition of a Renaissance painting for a contemporary viewer:

Much of what we call ‘taste’ lies in the conformity between discriminations demanded by a painting and skills and discrimination possessed by the beholder. We enjoy our own exercise of skill... If a painting gives us opportunity for exercising a valued skill and rewards our virtuosity with a sense of worthwhile insights about that painting’s organization, we tend to enjoy it: it is to our taste. The negative of it is the man without the sorts of skill in terms of which the painting is ordered: a German calligrapher confronted by a Piero della Francesca, perhaps.

He explains fruition without resorting to aesthetic or other subjective values, and for the purpose of studying past subjective values it has been elucidative to think on the terms put by him: the pleasures or perception being related to our egotist fulfilment, rather than apprehension of “beauty”.

In the same way, the perception of skills is also enhanced towards taught skills as opposed to “natural” skills. The formally absorbed, learned skills are more praised than the others. Taught skills also have rules, terminology. Have the means to be conveyed in language. And it was fulfilling to understand this language.

My conclusions here were based on taste – our contemporary taste, informed as well as possible about its cultural character. They are conveyed in written language, and describe what I have accomplished with my skills in trying to understand and partly reproduce the environment that shaped a tool for making music in the past. They are partial but aware of this.



## The use we make of the techniques

Our normal modern workshop practises are shaped by the abundance of material and variety of mechanical ways to accomplish tasks, and while this is by no means bad, it necessarily obscures the fact that many of the technical decisions that ultimately shaped the musical instruments in past times were motivated by a necessity to save on materials and effort, given the limited availability of timber, varnish supplies, etc.

There has been much discussion in the workshops I have had the chance to work in about how making techniques are perceived and used. Some modern instrument makers see the use of traditional techniques as necessarily time-consuming, and thus as a kind of luxury, only applicable to seldom-made top-quality instruments. In general, a system of values prevail which dictates that: use of machinery is bad, but fulfils the need for survival, while the use of traditional methods is good, but does not justify the effort most of the time.

My practical research has shown that both assumptions are incorrect: traditional methods are in accordance with the quickest and most time-effective processes, and (discounting large-scale factory mass production) still hold against generalised use of power tools in time, quality and output. The use of new technologies is not intrinsically bad; it just does not serve the purpose of studying historical instruments.

Yet, the original instruments I have been studying show that their makers made full use of whatever means they had available, such as steaming, bending and chemically treating. It is tempting to conclude that these makers would have been unreservedly keen on using new technologies to fulfil their needs; but this would necessarily lead to new ideas, new uses and new materials.

At this point, there is a clear division between the makers who dedicate themselves to instruments that never ceased to evolve, and those who make instruments that were forgotten and now are being researched. For the first group, a change in the processes of making can be generated by a new development in the use of the instrument, or a new way to save costs or time, and the music evolves in parallel with the instrument.

For the second group, there are the surviving instruments, and a kind of endless quest to find reasons to explain the features of instruments (while musicians, in parallel, do the same with written scores of music). This is when the use of the old techniques serves a purpose: their *limitations* may explain the choices made.

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Belchior Dias, 1581 . Royal College of Music, London. RCM 171

Attributed to Belchior Dias. Undated Private collection. Tracing and personal notes on the restoration of the instrument, made by Martin Bowers in 1974.

Vihuela Chambure. Musée de la Musique, Paris. E. 0748

Vihuela attributed to Johan de Guadalupe, Musée Jacquemart-Andre, Paris  
Vihuela Chambure. Musée de la Musique, Paris. E. 0748

Vihuela attributed to Johan de Guadalupe, Musée Jacquemart-Andre, Paris

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## Appendix 1. Written sources gathered by Antonio Corona-Alcalde<sup>70</sup>.

C276

Las Vihuelas sean do siete, seis ô cinco ordenes (que es la que llaman Guitarra Espatiola) no so distinguen en la materia, ni en la forma, ni en las proporciones do los concavos, como ni tampoco en la materia de que son las cuerdas [...] solo se distinguen en dos cosas, una es en ser do mas magnitud el cuerpo de la Vihuela de seis y siete ordenes, que la que llaman Guitarra Espanola, que tiene cinco. La segunda cosa, en que se distingue esta do aquella es en el temple, porque esta[n] en diferentes especes, y como no hay distincion en quanto a la fabrica do estos tres Instrumentos, lo mismo que digo para uno, so ha de emender para todos.

Pablo Nasarre, *Escuela musica segun la practica moderna* (Saragossa, 1724), p. 461.

C112

Yendose paseando por una sala un gentilhombre, famosísimo músico, traía unas botas blancas cortadas muy gallardas, sino que la suela do una de ellas estaba descosida. Pareciendo muy feo aquello, otro gentilhombre poeta, que le estaba mirando, le dixo de repente:  
De tantos puntos que dais  
sobrados en la vihuela  
echad tres en esa suela.

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70 Antonio Corona-Alcalde. *The Players and Performance Practice of the Vihuela and Its Related Instruments, The Lute and The Guitar, from C.1450 to C.1650, As Revealed by a Study of Musical, Theoretical and Archival Sources* (Ph.D. Dissertation) (1999, King's College, University of London)

Timoneda, *Buen aviso y portacuentos*, 1564 (Consulted in Julia Martinez, 1947), p. 300.

#### C121

1.708 Un cofre barreado pot dentro de frisa negra y en el seis bigüelas y un violin: la vna muy grande y las demas pequeñas, que las çinco dellas fueron de la Reina Maria, de madera de Alemania, que so tomaron dcl almoneda de su Magestad, que esta en el cielo, y las otras dos y todos los arquillos hizo de nuevo el dicho Hernando de Espejo, por quenta de so Magestad

From the inventory of the goods that Philip II gave to the monastery of El Escorial between 1571 and 1598 (Zarco 1930), p. 134.

#### C122

[10] biliuela N. 36. Una bigüela, las espaldas quarteadas de madera de Brasil y blanca, y el çerco de hebano, que entre las clabijas tiene escripto Don Diego de Rojas, tasada en ocho reales que balen doçientos y setenta y dos maravedis.

[II] arpa N. 37. Una arpa con una funda de cuero metida en una caja de madera, tasada en quatro mill y quinientos maravedis

From the inventory of the goods owned by Princess Joanna, after 1573 (Moll 1965), p. 22-23.

#### C131

Item, una vihuela grande con so area, funda [sic] de paño colorado.

Item, una guitarra de ébano, labrada de taracea,



con su caja de cuero negro.  
Item, otra guitarra de ébano con costillas, con  
so caja do madera blanca  
Item, una vihuela grande con su caja do cuero.  
Item, tres laúdes viejos con sos cajas.  
Item, una vihuela de ébano con sus costillas,  
con su caja de cuero.  
Item, una guitarra toda blanca, labrada de  
taracea la tapa. En una caja de madera blanca.

From the inventory of the goods of Diego de los Cobos, Marquis of Camarasa , 1576  
(Calahorra 1977) p. 64; (Calahorra 1978) p. 330-331.

C154

Item, en la archimesa que es  
detras la parte del corredor, hi  
ha tres violes, una de nou  
cordes, y las dues una de onze  
cordes y l'altra de arch bones.

From the inventory of the goods of Elizabeth Farrera, a lady from Barcelona,  
1591(Madurell  
1949), p. 220.

C169

pars que los musicos de la Guitarra de quatro  
ordenes (que es la de siete cuerdas) no me diessen  
culpa, pues en este librito no he Iratado tambien  
de su instrumento, he querido traér en este ultimo  
capitulo alguna cosilla acerca desto, diziendo...

Amat 1980, chapter 9, p. 37.

C252

... conside V S. si los Reyes principes y caualleros dexan  
la Guitarra por el Laud como dexan el Laud  
Por la Guitarra.

...La Guitarra es vn instrumento el mas fauorable para nuestros tiempos que jamas so bio porque si el dia do hoy se busca al ahorro de la bolsa y do la pena. la Guitarra es vn teatro verdadero deste ahorro. demas do esto es acomodada para cantar Tañer. dançar. saltar. y correr. baylar y Zapatear Ruando con ella cantando y representando mil amorosas pasiones con su ayuda. Es salsa pars el contento. desterradora do pesares y cuidados Pasatiempo a los tristes. consuelo a los solos. alegria a los melancolicos. templança a los colericos. da seso a los locos y enloquece a los sanos. es esclaua del tiempo. no la ofenden ninguna do las incomodidades que el delicado laud teme. no hay humo in calor. ni frio. ni humedad. que la incomode es como la rosa siempre viva. si presto so destempla bien presto se torna a templar. si se rompe con dos sueldos se acomoda. de suerte que la Guitarra segun mi opinion y de muchos lleba gran ventaja al laud. porque para hallarle bueno son necesarias muchas cosas. ser bueno. ser bien tañido. buen encordado y bien escuchado con silencio. pero la Guitarra Señora mia, sea bien tañida. o mal tañida. bien encordada o mal encordada. se haze oyr y escuchar. atirando con la breuedad de su çiençia y façilidad. los mas ocupados ingenios. y los haze dexar otros exercicios mas subidos por tenella entre sus manos.

Luis Briceño, Metodo mui facilissimo para aprender a tañer la guitarra a lo español, 1626 (Quoted in Arriaga, 1992), p. 62.

C268

La [noticia] que he podido hallar, es ser instrumento muy antiguo en España Si bien solo de quatro cuerdas [...] y que Espinel (a quien yo conoci en Madrid) le acrecento la quinta, a que llamamos prima, y por estas raçones la llaman

justamente en Italia, Guitarra Española

Nicolás Doizi de Velasco, *Nuevo modo de cifra para taller la guitarra con variedad V perfeccion* (Naples, 1640), fol. 2.

C274

Los Italianos, Franceses y demas Naciones. La graduan de Española a la Guitarra: la razon es, porque antiguamente no tenia mas que quatro cuerdas, y en Madrid el Maestro Espinel, Español, le acrecento la quinta...

Gaspar Sanz, *Instruccion de niusica sobre la Guitarra española*, 7th edition (Saragossa, 1697)

sig. ¶; see also Sanz 1952, fol. jjj'; Sanz 1976, fol. iii".

C276

Las Vihuelas sean do siete, seis ò cinco ordenes (que es la que llaman Guitarra Española) no so distinguen en la materia, ni en la forma, ni en las proporciones de los concavos, como ni tampoco en la materia de que son las cuerdas [...] solo se distinguen en dos cosas, una es en ser de mas magnitud el cuerpo de la Vihuela de seis y side ordenes, que la que llaman Guitarra Española, qu tiene cinco. La segunda cosa, en que se distingue esta de aquella es en el temple, porque esta[n] en diferentes especies, y como no hay distincion en quanto a la fabrica de estos tres Instrumentos, lo mismo que digo para uno, se ha de entender pars todos.

Pablo Nasarre, *Escuela musica segun la practica moderna* (Saragossa, 1724), p. 461.

C277

... los 230 restantes do una bihuela  
nueva, toda do ciprés de seis órdencs,  
encordada y enclavijada, incluso el  
importe de su cajón de pino con  
cerradura y llave para su custodia

Document concerning the purchase of several instruments by Manuel Sanchez  
Prieto from

Fernando Llop in Madrid, 1799, whereby Sanchez Prieto paid 1912 reales. Quoted  
in Casares  
1986, p. 437.

**Appendix 2. Some of the musical instruments and experiments made during the course**





