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PERFORMING THE MUSIC OF ALONSO MUDARRA: AN
INVESTIGATION INTO PERFORMANCE PRACTICE
IN THE MUSIC OF THE VIHUELISTAS

by

William Bernard Hearn

A Document Submitted to the Faculty of the

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In Partial Fulfillment of the Requirements
For the Degree of

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WITH A MAJOR IN PERFORMANCE

In the Graduate College

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ABSTRACT

This paper re-examines and attempts to expand current scholarly knowledge concerning correct performance practices for sixteenth-century Spanish vihuela music, with a focus on the Tres Libros de Música en Cifras para Vihuela by the vihuelista Alonso Mudarra. The study is organized into five areas: fretting and temperament, stringing, technique, rhythm and tempo, and ornamentation.

The study on fretting, based on an analysis of Mudarra's music for signs of either meantone or Pythagorean temperament, presents evidence pointing towards the Tres Libros' use of a meantone temperament, as well as a practical approach to the use of a meantone fretting in performances of Mudarra's music. The results of this analysis are compared to conclusions reached in similar studies of Luis Milán's El Maestro. Evidence of use of meantone temperament in Enríquez de Valderrábano's Silva de sirenas is also quoted.

The study on stringing challenges the current scholarly assumption that all vihuelists used unison-strung basses. A case for some use of octave-stringing by vihuelists is presented via re-interpretation of literary evidence in Diego Pisador's Libro de Música and Juan Bermudo's Declaración; comparisons to stringing on the viola da mano, Renaissance guitar, and Renaissance lute; and an examination of fingerings in Mudarra's Tres Libros and Miguel de Fuenllana's Orphénica lyra.

The study on technique attempts to determine the probable use of thumb-out or thumb-under technique by each of the vihuelistas and discusses the technical and musical implications of Mudarra and Milán's use of dedillo.

The study on rhythm and tempo focuses primarily on the suitability of extempore rhythmic liberties described in Tomás Sancta María's Libro llamado Arte de tañer Fantasia in performances of music by Mudarra. Similarly, the study on ornamentation describes and examines the suitability of ornaments given by sixteenth-century Spanish theoreticians, such as Luys Venegas de Henestrosa and Juan Bermudo, for use in the performance of music from Mudarra's Tres Libros.

Introduction

The composers of the seven surviving books of music for the Spanish vihuela de mano, a group often referred to as the vihuelistas, occupy an important position in the history of European music. Musicologists routinely praise both the high quality of the vihuelistas' music and their many innovations in its notation and presentation, so it is not surprising that the music itself has been the subject of much study and scholarly discussion.¹ However, this attention to the vihuela repertoire has not been matched by an equally intensive study of issues involved in its actual performance. As a result, several hypotheses which are supported by arguably inconclusive evidence are now accepted as fact in the scholarly literature. The aim of this paper and its associated recital is to re-examine and augment accepted scholarly opinion on sixteenth-century vihuela performance practice and apply these findings to the music of the vihuelista Alonso Mudarra.

The subject matter of the paper is meant to reflect the priorities of a performing musician. A modern performance of Mudarra's music claiming historical accuracy would need to be performed on an instrument built, fretted and strung in a manner consistent with practices prevalent in Spain during the middle of the sixteenth century. The player would also strive to use techniques, ornamentation, phrasing and any unwritten but expected rhythmic liberties appropriate to the period.

¹ Vihuelists were the first musicians to clearly indicate varying tempos and the use of rubato. Vihuelists were also the first musicians to publish instrumentally conceived songs for an instrument and solo voice, and the first musicians to publish books designed as both tutors and sources of repertoire.

A few of these areas fall outside the scope of this paper. The actual building of the instrument is more in the luthier's realm than the performer's; what little information there is surviving from the sixteenth century is readily available from several other sources. For those completely unfamiliar with the vihuela, it is perhaps sufficient to say that it was an instrument shaped somewhat like a modern guitar and tuned with the same intervals between courses as a Renaissance lute.² However, standard scholarly opinion (which will be questioned in this paper) holds that the instrument used a different stringing than the sixteenth-century lute in that the first course used two strings,³ and the fourth, fifth and sixth courses were strung in unisons, rather than having the second string of the course sound a pitch an octave above the fundamental, as was usual for the sixteenth-century lute.

The vihuela repertoire, like the instrument itself, has also been discussed in other sources in great detail. For the purposes of this study, however, a brief overview is necessary in order to judge the applicability of practices implied by the music or writings of the other vihuelistas to the performance of Mudarra's music.

The vihuelistas themselves came from remarkably disparate backgrounds. Documentation about their lives is derived in most cases from various Spanish municipal records and small new pieces of information arise with regularity. The excerpt below from a recent

² From the highest-pitched course down: fourth, fourth, third, fourth, fourth.

³ The word "course" usually denotes a pair of strings, although it is often used to describe the single first string of the lute.

article by John Griffiths is a quick summary of the current biographical knowledge:

Luis Milán was a courtier at the court of Germaine de Foix in Valencia . . . Narváez was employed by the house of Castile where he trained and looked after the choirboys. . . . Mudarra spent the last thirty-four years of his life as a canon at the cathedral of Seville after having been raised by the third and fourth Dukes of the Infantado. . . . Enríquez de Valderrábano. . . . is mentioned by the theorist Bermudo as a musician of the Conde de Miranda . . . but this could well have been an assumption from the dedication printed in Silva de Sirenas and is possibly incorrect. Diego Pisador was an amateur vihuelist whose passion for the instrument . . . caused him to publish his own book at home. . . . he was employed by the municipal authorities as a mayordomo of the city. The blind Fuenllana was employed as a musician by the Marquesa de Tarifa and later to Isabel de Valois, the third wife of Philip II. . . . Esteban Daza, a university graduate, was the first of fourteen children born to a prominent Valladolid family. He was sustained by depleting rents from a family land and property holdings and appears not to have practiced any other profession. . . . We have then, among this group, a sample that includes professional musicians, a courtier, a cleric, a civil servant, and a person of independent means, who operated in relative independence in Castile, Andalusia, and Aragon.⁴

Several features of Mudarra's life and background are worthy of particular notice. His birthdate has been estimated as anywhere from 1506 to 1520.⁵ Whether or not he was actually "raised" by the Dukes of the Infantado, he seems to have grown up in close proximity to their highly important court, and probably traveled to Italy in 1529

⁴ John Griffiths, "At Court and at Home with the Vihuela de Mano: Current Perspectives on the Instrument, Its Music, and Its World," Journal of the Lute Society of America 22 (1989, actual pub. date 1992): 10-11.

⁵ Emilio Pujol, preface, Tres Libros de Música en Cifra Para Vihuela, by Alonso Mudarra, Monumentas de la Música Española, vol. 7 (Barcelona: 1949) 26; John M. Ward, "The Vihuela de Mano and Its Music (1536-1576)," diss., New York Univ., 1953, 375.

along with the fourth Duke, Inigo Lopez de Mendoza, and Charles V.⁶ Mudarra's professional career in the church began in October of 1546, thereafter the primary source of information about him comes from the Actas Capitulares of the Seville Cathedral.⁷ These records show Mudarra to have been an important administrator in matters pertaining to church music.

Mudarra's only extant music comes from the vihuela book Tres Libros de Música en Cifras para Vihuela [Three Books of Music in Tablature for the Vihuela] published as one volume in Seville, Spain in December of 1546.⁸ The book consists almost entirely of music for solo vihuela, solo four-course guitar, or voice and vihuela notated in Italian lute tablature, the one exception being a piece in an original form of tablature for harp or organ. As in the other vihuela books, several different musical forms are present, including solo fantasias, diferencias on ground basses, tientos, and intabulations and glosas based on vocal works by other composers. The music contained in the Tres Libros is generally considered one of the high points in the vihuela repertoire.⁹

⁶ Robert Stevenson, "Alonso Mudarra." New Grove Dictionary of Music and Musicians, vol. 12 (London: 1980) 757-758.

⁷ Stevenson, "Mudarra" 757-758. Relevant excerpts from the Actas Capitulares are reprinted in Monumentos vol. 7, 34-35.

⁸ Stevenson, "Mudarra" 757-758. For a modern facsimile edition, see Alonso Mudarra, Tres Libros de Musica en Cifras Para Vihuela (Monaco: Editions Chantarelle, 1980).

⁹ James Tyler, introduction, Tres Libros de Música en Cifras Para Vihuela, by Alonso Mudarra (Monaco: Editions Chantarelle, 1980) 3.

Since the publication date of Tres Libros was so close to the beginning of his church career, Mudarra's experiences before he became a cleric in Seville were the most relevant to his surviving music. Both this background and the inclusion of settings of Latin and Italian texts in Tres Libros point to Mudarra having had a thorough humanist and cosmopolitan education. The inclusion by Mudarra of an (unattributed) intabulated song by Hofhaimer also attests to a surprisingly wide knowledge of sixteenth-century European music.¹⁰

Given both this biographical and musical evidence, performers of Mudarra's music should be aware of the possible effect of musical influences from outside Spain. The usual scholarly view of the vihuelists as standing apart from musical developments in the rest of Europe often has been overstated. As the American scholar John Ward points out:

Though there has been a tendency, particularly among Spanish scholars, to view the music of Milán, Narváez, Cabezón and the others as a strictly national phenomenon . . . the indebtedness to Italian and even German music is not difficult to find in the Spanish sources.¹¹

Stylistically, the music of the vihuelists falls into several categories. The music of Milán, widely viewed as the archetypical vihuelista, is actually the least typical of the repertoire. Milán's El Maestro, published in Valencia in 1536, is the only vihuela tablature not to include motet and mass intabulations and the only tablature printed in the Aragonese area of Spain. The influence of improvisation is also

¹⁰ Ward, "The Vihuela" 376.

¹¹ Ward, "The Vihuela" 246-247.

apparent in Milán's constant interspersion of scales and ornamental instrumental passages; his primarily instrumental style is evident in his use of two primary textures, "a two-voiced polyphony, normally of the greatest simplicity, the other a three- or four-voiced homophony, characterized by a remarkable sense of harmonic direction."¹²

The next two vihuela tablatures after Milan's were Narváez's Seys libros del Delphin de música (published in Valladolid in 1538) and Mudarra's Tres Libros, both of which Ward compares stylistically to the "second generation" of lute music epitomized by Francesco da Milano.¹³ Narváez and Mudarra use more three-part and sometimes four-part writing than Milán, but idiomatic and virtuosic runs and divisions are still common.

The music of the vihuelistas after Mudarra¹⁴ shows a still more polyphonic and vocal conception.¹⁵ The difficulty of dealing with four-, five- or even six-part writing on the vihuela is reflected in an increasing lack of instrumental textures. Save for occasional short runs to fill in a wide interval and decorated cadences; the music of the later vihuelists often appears on the page as a long succession of half-note chords, which only close examination reveals to be the result of

¹² Ward, "The Vihuela" 249.

¹³ Ward, "The Vihuela" 247.

¹⁴ The vihuela books after Mudarra's Tres Libros were: Enríquez de Valderrábano, Silva de sirenas (Valladolid, 1547); Diego Pisador, Libro de Música de Vihuela (Salamanca, 1552); Miguel de Fuenllana, Orphénica lyra (Seville, 1554); and Esteban Daza, El Parnasso (Valladolid, 1576).

¹⁵ For a comparative style analysis of several fantasias by different vihuelists, see Ward, "The Vihuela" 210-284.

independent polyphonic lines.¹⁶ Also notable is a decline in the amount of ornamental figures, an even greater emphasis on intabulations, and a greater emphasis on conforming strictly to other composers' original intentions in arrangements. Thus the chief musical trend in vihuela music is a move from an instrumentally conceived style with a remarkably improvisatory and informal approach to counterpoint (typical of Luis Milán) to the much more contrapuntal, less instrumentally conceived style typical of the later vihuelists.

Readers interested in checking, recreating, or rebutting my research and conclusions should be aware of several pitfalls inherent in the current literature on the vihuela. The most confusing problem is encountered in comparing examples notated in tablature to modern editions which use transcriptions in standard musical notation. Tablature by itself only gives fingering and rhythmic instructions; it conveys no specific information about pitch, and the tuning instructions left by the vihuelistas only specify intervallic relationships between courses. Standard mensural notation by its very nature must assign pitches, and editors of lute music usually consistently assign one pitch to each course throughout their editions. However, in many scholarly editions of vihuela music, including the “standard” Mudarra transcriptions by Emilio Pujol in Monumentas de la Música Española, the editor will assign different open-course pitches to different pieces

¹⁶ For example, see Miguel de Fuenllana's “Fantasia del author” compás 93-112, Orphénica fol. 54^r. A compás is the visual (though not the musical) equivalent of a barline in the tablatures.

throughout. In one piece, the transcription may assume open-course pitches of G, c, f, a, d', g'. In the next piece, the editor will transcribe assuming pitches of E, A, d, f#, b, e'. In the first instance, a small notation at the beginning of the score will usually give the instructions "Vihuela in G" (after the pitch of the open sixth course); in the second case, the editor will usually include a short instruction for "Vihuela in E." This modern editorial practice has its origin in some vihuelistas' habit of attaching musical clefs to tablature lines. Almost invariably, if one assigns the "pitch" given by this clef to the open-course or fingerboard location in question and then assumes tunings for the rest of the strings in the usual interval pattern, a transcription into standard mensural notation will show a use of accidentals and modal transpositions within Renaissance norms. Assigning invariable pitches for the strings throughout an edition of vihuela music, including Mudarra's, often causes the transcriptions of some pieces to be at pitch levels that require accidentals and modal transpositions considered theoretically unacceptable or unlikely in the Renaissance.

The procedure of (at least mentally) transposing the instrument rather than the modes may seem like strenuous intellectual gymnastics to modern musicians, but it was probably no more difficult than our modern practice of memorizing 12 different transpositions for each major and minor scale. A modern musician is liable by training to consider enharmonic accidentals as identical in pitch, while at the same time considering the pitches represented in notation as representing a universal constant. Renaissance musical

training seems to have predisposed musicians to consider certain accidentals as theoretically inexplicable¹⁷ and to treat notation as a system mainly serving to denote intervallic distances and having only an incidental relation to a fixed pitch. Thus it was probably more natural for a Renaissance musician to mentally transpose the pitches of the vihuela than to violate the theoretical norms regarding accidentals and modal transpositions.

Once opinion was divided on whether the "transposing vihuelas" implied by the clefs reflected a real or merely a theoretical change of pitch: some modern writers (foremost among them Emilio Pujol) felt that sixteenth-century vihuelists actually changed tunings and/or instruments from one piece to another. Others insisted that this was an anachronistic opinion based on twentieth-century conceptions of fixed notational pitch. Most modern performers now firmly belong to the latter camp, that is, while they admit that vihuelas came in different sizes to suit different vocal ranges or ensemble functions, they see no historical inaccuracy in playing a work for "Vihuela in G" and then one for "Vihuela in C" on the same instrument without retuning. A very thorough scholarly case against the actual use of

¹⁷ For example, a Db would need to be the syllable fa in a Guidonian solmization, which would require that its hexachord start on the "fictitious" note Ab, which in turn was considered an impossible note since it could only be reached by starting a hexachord on the ficta Eb. "Legitimate" Renaissance accidentals could only be reached from a hexachord starting within the Guidonian gamut. However, in actual practice performers and composers frequently rode roughshod over this theoretical nicety.

multiple vihuelas has been made by Ward, and his arguments have essentially gone unanswered in the twentieth-century literature.¹⁸

Nonetheless, almost all twentieth-century scholarly editions continue to assign variable pitches to open strings in their transcriptions into mensural notation, since this is important in recreating the composers' conception of the music. As Ward aptly points out:

Pujol's transcriptions for differently tuned vihuelas, though not supported by 16th-century practice, result in a faithful rendering of the pitches as conceived by the vihuelists. For the 20th-century musician it is less unsettling to read the beginning of Narváez's fantasia in the fourth mode as a a c d, than to find the same phrase transposed to b-flat b-flat d-flat e-flat, which it would be in a G¹ tuning [the tuning usually used in transcribing lute music]. . . . Unless the modern reader is acquainted with the problems involved, d-flats in a transcription of a 16th-century composition will assume an irrelevant importance.¹⁹

To summarize this dilemma: while mensural transcriptions based on differently pitched vihuelas present an accurate picture of the vihuelists' musical conception of each piece; transcriptions assuming a vihuela with unvarying open-string pitches usually present a more accurate picture of the vihuelist's instrumental conception.

Since the primary function of most musical examples in the following paper will be to discuss fingerings and their instrumental implications, I have chosen to transcribe most musical examples in the body of the paper into mensural notation on one staff assuming a "Vihuela in E" throughout. This results in a musical notation that can

¹⁸ See John M. Ward, "Changing the Instrument for the Music," Journal of the Lute Society of America 15 (1982) : 27-39.

¹⁹ Ward, "The Vihuela" 125.

be easily read by guitarists. For the convenience of lutenists and vihuelists, I have also included the original tablature notation in each example. When the usual scholarly transcription assumes a differently "pitched" vihuela, I have referred to the mensural transcription by the term "guitar notation" or I have included a note indicating the most likely "imaginary" tuning of the instrument for comparison with scholarly editions. Because of this procedure, some examples may contain accidentals or modal transpositions not usually encountered in Renaissance music.

An exception to this practice occurs in musical examples illustrating possible meantone temperament or in those where an intabulation is compared to a vocal original. While I have tried to choose examples for the body of the paper which originally used a "Vihuela in E," in a few cases examples have been transcribed assuming other "tunings," since the sudden introduction of accidentals outside Renaissance common practice or a transposition of an intabulation to a key differing from the vocal original would confuse an already complicated subject.

Additionally, I am sure that readers will find it tedious to be continuously reminded that these transpositions are probably imaginary. My occasional unqualified use of phrases such as "Vihuela in F#" or "Vihuela in B" is not meant to signal a sudden acquiescence to their actual existence.

A final word is in order regarding my discussions of earlier research, particularly John Ward's dissertation "The Vihuela de Mano

and Its Music (1536-1576)." This dissertation is considered the primary scholarly source on almost everything pertaining to the vihuela and is continuously (and occasionally erroneously) quoted in other research. The document's reputation is well deserved; I have found its usefulness, accuracy and scope to be astounding. Unfortunately, Ward's reputation is such that a writer who chooses to disagree with any of his conclusions must attempt to specifically refute Ward's arguments or risk being dismissed out of hand. If I have singled Ward out for special attention in my discussion of vihuela stringing; I cannot overemphasize that I have done so precisely because his reputation as an authority on the vihuela is so deservedly high.

Part One
Mudarra's Practices in Fretting,
Tuning and Temperament

If sixteenth-century vihuelas had used fixed metal frets instead of movable gut ones, vihuela temperament would not be an issue, since the temperament of a fretted instrument can be easily deduced by examining its fret placement. Unfortunately the movable gut frets on the extant vihuelas have long since rotted away, therefore knowledge of the vihuelists' tuning practices must be based on literary and musical evidence. Mudarra is not particularly helpful on this issue; he gives neither fretting nor tuning instructions in the preface to Tres Libros; as a rule the other vihuelists are similarly unenlightening.

An almost comic contrast to the vihuelists' skimpy or nonexistent instructions is presented by the abstruse and detailed fretting calculations of sixteenth-century theorists. Spanish theoretician Juan Bermudo, after proposing two possible systems, writes about the typical vihuelist's aural rather than mathematical approach with obvious frustration, saying, "not all ears are capable and therefore suffer hard labor in placing the frets . . . and in the end the frets are not as true as when placed by mathematical proportions."²⁰

Despite Bermudo's condemnation of an aural approach to fretting, there are a number of unpredictable variables that may have predisposed Mudarra and the other vihuelists to set frets as much by

²⁰ Juan Bermudo, Declaración de Instrumentos Musicales (Osuna, 1555) fol. 95^v-96^r; trans. in Ward, "The Vihuela" 30.

ear as by mathematics. These variables must always be kept in mind when discussing intonation on a fretted instrument. One unavoidable factor is that the act of fretting a string tightens it as well as decreasing its vibrating length. The exact amount of resultant sharpening can vary from string to string even in man-made materials such as nylon. Since the variance in gut is even greater, a fret placement that is in tune for some strings will need to be slightly altered for others.

A second factor that can influence a fretted note's pitch is the pressure of the player's finger. Despite the assertions of several writers that finger pressure can only raise the pitch of a fretted note,²¹ a few moments' experimentation shows that with longitudinal pressure the pitch can be raised or lowered. By pushing a string back towards the bridge, a finger can effectively loosen the tension on the vibrating portion of the string (at the same time increasing the tension between the finger and nut). The opposite procedure will raise the fretted note's pitch. On a tightly strung modern guitar a fretted string's pitch can be moved almost a quarter-tone in either direction; pitch can be affected on a lower-tension gut string to an even greater extent. Lateral pressure (pulling or pushing a string sideways) can also change a fretted note's intonation, but only in a sharp direction.

That some sort of "in-flight" intonational adjustment was common among vihuelists was also noted by Bermudo, who complained of a

²¹ Antonio Corona-Alcalde, " 'You Will Raise a Little Your Fourth Fret': An Equivocal Instruction by Luis Milán?" *The Galpin Society Journal* 44 (1991): 34.

“not small error which is daily practiced among some players. They say they have some strings on which they can raise or lower notes [my emphasis].” Bermudo went on to compare these players to

secretly bad Christians . . . their badness does not show until someone places a hand on the string and finds that either the fret on which the strings are stopped is not equal, or that the player did not press down the finger equally when he touched the strings [my emphasis].²²

Whether Bermudo disliked the practice or not, there obviously was some intonational flexibility applicable to fretted notes. Thus it must be remembered that a few minor intonational discrepancies cannot rule out the use of a particular temperament or the fretting scheme appropriate to it.

Fretting Possibilities

In his 1984 book, Lutes, Viols and Temperaments, Mark Lindley has given an admirably brief and clear description of each type of temperament which is worth quoting in full:

pythagorean intonation, in which the 5ths and 4ths are untempered (tuned quite pure) and as a result most of the major 3rds and 6ths, including those among the open strings, are nearly 1/9 tone larger than pure, and the diatonic semitones (those forming part of the diatonic [sic] scale, such as C#-D or A-Bb) are smaller than the chromatic ones (such as Db-D or A-A#);

equal temperament, in which the octave is made up of twelve equal semitones, and the 5ths and 4ths are slightly tempered, but much less so than the 3rds and 6ths;

²² Bermudo, fol. 107^r; trans. in Ward, “The Vihuela” 34. It is interesting that Bermudo’s dislike of this practice is not based on any audible musical result (“their badness does not show”); instead it seems to be a theoretician’s distaste for a practice that eludes logical explanation or analysis.

meantone temperaments, in which the 5ths and 4ths are tempered rather more than in equal temperament so that the 3rds and 6ths will be only moderately tempered (indeed, the major third may even be pure in one well-known form of meantone temperament), and the diatonic semitones are larger than the chromatic;

just intonation, in which not only most of the 5ths and 4ths are untempered, but also the major 3rd at fret 4 and between the two middle courses. Two sizes of whole tone (9:8 and 10:9) and several sizes of semitone are involved. Also if one of the open string 4ths is not tuned some 1/9 tone larger than pure, the double octave between the first and sixth courses must be left smaller than pure by that amount.²³

In considering these four fretting possibilities for Mudarra's music, one can be quickly rejected. That just intonation presents almost insurmountable problems on the vihuela can be seen in Lindley's description above. Using the standard intervallic pattern there is no way to tune even the open strings of a lute, viol, guitar, or vihuela to pure, beatless intervals. Lindley later accurately sums up the impracticality of just-intonation fretting schemes as follows:

A weighty tome could be filled with theories ill founded upon a faith in simple ratios. For the purposes of this little book, however, an ounce of just intonation schemes critically examined will be worth a pound of such schemes enthusiastically entertained.²⁴

Another fretting scheme, equal temperament, can never be wholly dismissed as a possibility. In this same book, Lindley observes that "As far as music specifically for lute or viol is concerned, the use of an

²³ Mark Lindley, Lutes, Viols and Temperaments, (Cambridge: Cambridge UP, 1984)1-2. Lindley's fret references here and the following open string references are equally applicable to lutes, viols, and vihuelas, since all share the same interval pattern between the six open strings or courses.

²⁴ Lindley, Lutes 67.

instrument fretted for equal temperament is never historically 'wrong.' ²⁵

This may seem like a rather startling assertion, given that many early Renaissance theorists considered equal temperament a theoretical impossibility.²⁶ But proving that use of equal temperament is "wrong" is impossible, at least through purely musical analysis, because equal temperament produces tolerable results in any musical situation.

Evidence that a composer used meantone or Pythagorean temperament is usually of the negative variety. If certain problems rarely occur, odds are good that a musician used one of these schemes; situations in which these frettings create difficulties are common enough that their avoidance is unlikely to be a result of mere chance.

Oddly enough, although the overall sound produced by the meantone and Pythagorean systems is radically different, the notational traces of their use are identical. The basic difficulty in using both meantone and Pythagorean fretting schemes comes from their use of two types of semitones. Both types of tuning make an actual pitch distinction between half-steps involving a change of note name (for instance A to Bb) and those using the same note name (for instance A to A#). The first type of half-step is called a diatonic semitone, the second a chromatic semitone. In practical terms, in

²⁵ Lindley, Lutes 93.

²⁶ Lindley, Lutes 20.

Pythagorean temperament the A# would be higher than its “enharmonic” Bb; in meantone temperament the A# would be pitched lower than the Bb. The practical result on a vihuela fretted for either system is that the first fret on a string with an open pitch of A would require a different position for A# than for Bb.

This was usually an inconsequential problem on keyboard instruments since single pieces using both A#'s and Bb's are rare in the Renaissance. The number of usual sixteenth-century modal transpositions was also limited, resulting in a fairly standardized use of accidentals. The Spanish theorists Thomás de Sancta María and Bermudo both concurred that the only truly “allowable” accidentals were Bb (not really considered an accidental or ficta, since it is contained in the soft Guidonian hexachord) Eb, C#, F#, and G#. ²⁷ This lack of enharmonicism was not a problem on a meantone- or Pythagorean-tempered keyboard instrument as long as the correct functions for the black keys were observed in the music. However, on a fretted instrument the same fretting scheme must serve for several different strings which start on different pitches. Consider the plight of a vihuelist wishing to play a piece in G Dorian in a meantone temperament with a vihuela in E (tuned E A d f# b e'). G Dorian will require a Bb, and one of the most common ficta applications will be F#. Both accidentals are acceptable in Renaissance music, but a Bb on the

²⁷ Warren Hultberg, “Sancta María's Libro llamado Arte de tañer Fantasia: A Critical Evaluation,” diss., U of Southern California, 1964, 31, 214; Charles Jacobs, “The Performance Practice of Spanish Renaissance Keyboard Music,” diss., New York U., 1962, 177- 178.

third course is played on the fourth fret, and the fourth fret will need to be placed in the correct position for a diatonic semitone above the third fret. This fourth-fret position works out to be sharper (i.e., closer to the bridge) than the fourth-fret position required for an equal-tempered Bb. An F# on the fourth course is also played on the fourth fret, but will require that the fourth fret be placed in the position for a chromatic semitone above the fourth course, third fret F. This works out to be flatter (i.e., further from the bridge) than the fourth fret required for an equal-tempered F#. Since a fret of necessity forms a straight line, one fourth fret cannot serve both applications in an unequal temperament. Renaissance theoreticians recognized this problem, and their fretting instructions routinely designate some frets as "mi" frets (i.e., as "sharp frets" usable only for sharps and natural notes) or "fa" frets (as "flat frets" usable only for flats or naturals).²⁸

This dilemma can also affect unisons and octaves. Suppose the vihuelist chooses the correct fourth fret position for a Bb and decides that an F# that forms somewhat sharp (in meantone terms) thirds and fifths is bearable. However, if this note is used to form an octave with the F# on the first course, second fret, this octave will also be out of tune. The second fret cannot be moved to accommodate this octave, since that will also affect the notes played on the second fret on the other courses. The vihuelist must either somehow fudge the fourth fret's intonation (perhaps by the sort of finger adjustment discussed earlier) or avoid playing the note with the F# on the first course.

²⁸ Ward, "The Vihuela" 33.

Given the difficulty of changing a fretted note's intonation, it is reasonable to assume that a sixteenth-century vihuelist who used a temperament requiring unequal semitones would compose music that avoided such contradictions whenever possible.

Mark Lindley has presented a very convincing case for Luis Milán's use of meantone temperament based on Milán's avoidance of fingerboard positions that would require sharps and flats on the same fret and in Milán's instructions in two pieces for moving the fourth fret.²⁹ The pattern of avoidance makes it likely that Milán used a fretting system with unequal semitones (i.e., either meantone or Pythagorean); his instructions clarify which of the two he used. Milán's fret-moving instructions are as follows:

raise a little the fourth
fret of the vihuela so that
the note of the said fret be strong and not flaccid.

alcareys un poco el quarto
traste dela vihuela para que
el punto del dicho traste
sea fuerte y no flaco.³⁰

you have to raise a little the fourth
fret a little toward the
[tuning] keys of the vihuela.

haueys de alcar el quarto
traste un poco hazio las
clavijas dela vihuela.³¹

²⁹ Mark Lindley, "Luis Milán and Meantone Temperament," Journal of the Lute Society of America 11 (1978): 45-62.

³⁰ Milán fol. D 6^r; trans in Lindley, "Luis Milán" 59.

³¹ Milán fol. Q 4^v; trans. in Lindley, "Luis Milán" 59.

The second statement is clearer than the first in that it clarifies that what Milán meant by “raising” the fret was to move it further from the ground, not raise it in pitch. His instructions actually result in lowering the pitch of notes produced at the fourth fret. The fourth fret is used exclusively as a sharp or mi fret in both pieces, therefore Milán evidently wished to make sure that the player did not inadvertently have the fret in a position for flat or fa notes. Thus the directions point to meantone temperament, in which chromatic semitones (for instance, the interval between C and C#) are smaller than diatonic semitones (for instance, the interval between C and Db) and thus a sharp is lower in pitch than its enharmonic flat.³²

Mudarra's Tres Libros has no instructions for changing the fret positions from piece to piece, but duplicating Lindley's procedure in looking for patterns of avoidance in the music is feasible. One additional complication in Mudarra's output is his greater use of “imaginary” tunings; like Bermudo, Mudarra seems to have felt free to mentally treat the vihuela as an instrument without a set pitch but with a constant set of intervals between the strings; to recreate his probable mental picture of a piece requires that some pieces be treated (from a point of view of temperament) as having been played on a vihuela tuned G, C, F, A, D, G (henceforth described as a “Vihuela in G”) and others as having been played on a vihuela tuned with the same intervals but starting on a different pitch, for instance: E, A, D, F#, B, E (a “Vihuela in E”).

³² Lindley, “Luis Milán” 60.

To arrive at a probable “tuning” the first step is to recreate Mudarra’s mental picture of the open strings used for each piece. This can be done by comparing the final cadence with the mode (usually specified by Mudarra) and adjusting the imaginary pitch of the instrument so as to result in a usual final pitch for the mode. These calculations have already been accurately accomplished by Emilio Pujol in his edition of Tres Libros. According to Pujol, Mudarra used vihuelas in seven different “tunings”: G vihuela (G, C, F, A, D, G); A vihuela (A, D, G, B, E, A); E vihuela (E, A, D, F#, B, E); D vihuela (D, G, C, E, A, D); F vihuela, (F, Bb, Eb, G, C, F); B vihuela (B, E, A, C#, F#, B); and a vihuela in F# (F#, B, E, G#, C#, F#).³³

After settling on a “tuning” for the piece, the next step is to create a fingerboard chart for a vihuela in that particular “tuning.” Some frets will produce a sharp on some courses and a flat on others. I have marked the problematic frets for a vihuela in G in the table below with an “X.”

Table 1.1: Fretting chart for vihuela in G
Using accidentals considered standard by Spanish Renaissance theoreticians

open		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6	G	G #	A	B b	B	C	C #	D	E b	E	F
crse 5	C	C #	D	E b	E	F	F #	G	G #	A	Bb
crse 4	F	F #	G	G #	A	Bb	B	C	C #	D	Eb
crse 3	A	B b	B	C	C#	D	E b	E	F	F#	G
crse 2	D	Eb	E	F	F#	G	G #	A	B b	B	C
crse 1	G	G #	A	B b	B	C	C #	D	E b	E	F
		X		X			X		X		

³³ Pujol, Monumentos vol. 7, 89-99.

The eighth fret in Table 1.1 contains examples of all the problems that can be encountered. On the seventh fret, all notes listed can be played with the seventh fret in one position. However, the pitch differential (and thus the fret distance) from the second-course, seventh-fret A to the eighth fret's B \flat must be set for a diatonic semitone. This is different in both meantone and Pythagorean temperament than the correct fret distance from the fifth-course, seventh-fret G to the eighth fret's G \sharp (a chromatic semitone). The same problem can occur with certain natural notes as well. The correct fret distance from the third-course, seventh-fret E to the eighth fret's F (a diatonic semitone) will be different than the correct distance for the fifth-course, seventh-fret G to the eighth fret's G \sharp (a chromatic semitone). The eighth fret in this diagram cannot give the an in-tune pitch for all these notes if the vihuela is fretted according to either a meantone or Pythagorean system. The first, third, and sixth frets of a vihuela in G present similar difficulties.

Therefore, a vihuela piece using a meantone or Pythagorean fretting would show a tendency to avoid use of a single fret to play both flats and sharps. It would also avoid using the natural notes B and E (which are a chromatic semitone up from the allowable accidentals B \flat and E \flat , respectively) on the same fret as a flatted note such as B \flat (a diatonic-half step up from the natural note A). Similarly, it would avoid use of the notes C and F (a diatonic half-step away from the next lower naturals B and E) on the same fret as a sharped note such as G \sharp (which would be a chromatic-half step away from the next lower

natural G).³⁴ In the case of the first fret of a vihuela in G, the composer would have to choose to use the fret exclusively for sharp notes, or almost exclusively for flat notes, as shown in the diagram below, or put up with some notes being noticeably out of tune.

Table 1.2: Available notes on 1st fret for a Vihuela in G, meantone or Pythagorean temperament
(unusable fret positions are left blank)

with first fret in sharp position			with first fret in in flat position		
	open	1st		open	1st
crse G		G#	crse G		
6			6		
crse C		C#	crse C		
5			5		
crse F		F#	crse F		
4			4		
crse A			crse A		Bb
3			3		
crse D			crse D		Eb
2			2		
crse G		G#	crse G		
1			1		

The blank fret positions above could be used for some notes and still be "in tune" in a meantone system. However, these notes (D# and A# for the sharp fret position, Ab, Gb, and Db for the flat fret position) were not usually recognized as valid accidentals by Spanish Renaissance theoreticians.

The easiest way to examine a tablature for these traits is to view them as tablature numbers. If the vihuelist used the first fret in the

³⁴ The "sharp" naturals (B and E, both usually solmized with a mi) can appear on the same fret with the "flat" naturals (C and F, solmized with a fa), but either the fa notes or the mi notes will have a fret position immediately below that cannot be used with the standard Renaissance accidentals.

sharp position with an unequal temperament, the following pattern would be observed in the tablature.

"Sharp" first fret results in an absence of 1's from
 3rd line from bottom (corresponding to third-course Bb)
 2nd line from bottom (corresponding to second-course Eb)

If the vihuelist used the first fret in the flat position with an unequal temperament, the following pattern would be observable instead:

"Flat" first fret results in an absence of 1's from
 Bottom line (corresponding to the first-course G#)
 4th line from bottom (corresponding to the 4th-course F#)
 5th line from bottom (corresponding to 5th-course C#)
 6th line from bottom (corresponding to 6th-course G#)

If the vihuelist used an equal temperament, a large number of "1's" would probably occur on tablature lines from both sharp and flat categories above.

Mere avoidance of the fret positions above would be meaningless if the "unplayable" notes were accidentals rare to that piece's mode in the first place. A second step in checking for a meantone or Pythagorean use of a particular fret is to see if the avoided notes commonly occur elsewhere in the piece. In the case of the first fret of a vihuela in G set in a flat position this would involve verifying some use of the following fret positions, (assuming that the listed frets were in a sharp position, in actual practice some of the listed notes usually occur on "flat" frets and become "unplayable" as well):

Table 1.3: Other occurrences of avoided sharps on 1st fret, Vihuela in G

C#'s on:	1st crse, 6th fret	G#'s on:	2nd crse, 6th fret	F#'s on:	2nd crse, 4th fret
	3rd crse, 4th fret		3rd crse, 3rd fret		3rd crse, 9th fret
	4th crse, 8th fret		5th crse, 8th fret		5th crse, 6th fret
	5th crse, 1st fret				
	6th crse, 6th fret				

If none of the above fret positions corresponding to notes avoided on the first fret were used then there is no reliable evidence from the piece as to temperament, since the avoidance of these positions may have resulted only from choice of accidentals. If the notes avoided occur often in the other positions, this is a good indication that their absence on the first fret was intentional and is an indication of meantone or Pythagorean fretting.

To determine the use of the sixth and eighth frets for a vihuela in G only requires repeating the process above. First, the probable use of the fret is determined by seeing whether sharps or flats are avoided on that fret. Next, the importance of this avoidance is verified by seeing if the avoided notes are common at other fret positions. This process must be repeated for each fret that could theoretically serve both sharps and flats, since the use of one fret in a "flat" position in no way precludes the use of another fret in a "sharp" position.

Exactly how strong a pattern of "wrong" note avoidance would need to be in Mudarra's music to prove meantone or Pythagorean fretting is problematic. Upon beginning the process outlined above, the initial impression was that a very strong case could be made for Mudarra's use of an unequal temperament. A strong pattern of avoidance of

certain fret positions could be seen in most pieces, and in most of these pieces at least some of the avoided notes were commonly used elsewhere on the fingerboard. A complete examination of Tres Libros confirmed that although some pieces did occasionally utilize fret positions that would result in out-of-tune notes in an unequal temperament, the same notes occurred in "correct" positions in the same pieces an average of 7.76 times more often, which seemed too high to be accounted for by mere chance.³⁵ The numbers in this regard confirm the initial impression. The piece-by-piece results of this complete tabulation are presented in tabular form in Appendix One of this document.

Another way of evaluating the importance of Mudarra's avoidance of fingerboard positions that would be out of tune in an unequal temperament is to compare his works to those of Milán, whose use of some form of meantone temperament is considered more or less proven by most scholars.³⁶ In his study of the functional use of the fourth fret by Milán, Corona-Alcalde placed Milán's pieces in three categories: pieces displaying consistent use of the fourth fret (the fret is used consistently throughout the piece for sharps, or consistently for flats); pieces displaying minimal inconsistency (the fret is used primarily for sharps, or primarily for flats, with no more than two exceptions); and pieces displaying maximal inconsistency (presumably

³⁵ Derived from the ratio of 118 total notes in "wrong" fret positions in all of the Tres Libros, compared to 916 total uses of the same notes in "correct" fret positions within the same pieces, converted to decimals and rounded.

³⁶ Meantone is here interpreted freely as designating a temperament in which thirds are tempered less than in equal temperament.

pieces where there are more than two exceptions to the prevailing use of the fret, if that can be discerned). His final tabulation is presented below:

Milán's El Maestro³⁷
(Analyzed for fourth fret only)

Book one

Consistent: 28

Minimal inconsistency: 0

Maximal inconsistency: 0

Book two

Consistent: 10

Minimal inconsistency: 7

Maximal inconsistency: 5

In order to provide some basis for comparison, Mudarra's pieces can also be divided into the same three categories based on the piece-by-piece analysis outlined earlier. However, since the analysis of the Tres Libros included possible discrepancies for every problematic fret rather than just one, the dividing line between minimal inconsistency and maximal inconsistency in Mudarra's music has been increased from two to six for a more accurate comparison with the more limited analyses presented for El Maestro.

Before comparing the two sets of numbers, it was necessary to correct still further for the fact that Corona-Alcalde only examined one fret in his analysis. In his study of Milán's use of meantone temperament, Lindley includes in his examples 16 occasions when Milán "wrongly" uses fret one for a sharp note, including uses in 12

³⁷ Corona-Alcalde, "You Will Raise" 22-23, 36.

different pieces in Book One.³⁸ Therefore a complete examination of Book One of El Maestro would have resulted in moving at least 12 pieces from the “consistent” category to the “minimally inconsistent” category, as in the revised tabulation below:

Milán's El Maestro

(Analyzed for fret one and four only)

Book one

Consistent: 16

Minimal inconsistency: 12

Maximal inconsistency: 0

Book two

(Analyzed for fourth fret only)

Consistent: 10

Minimal inconsistency: 7

Maximal inconsistency: 5

Mudarra's Tres Libros

(Analyzed for all problematic frets)

Book one

Consistent: 9

Minimal inconsistency: 7

Maximal inconsistency: 1

Book two

Consistent: 7

Minimal inconsistency: 8

Maximal inconsistency: 3

Book three

Consistent: 14

Minimal inconsistency: 11

Maximal inconsistency: 2

The percentage of consistent pieces (which present absolutely no problems for a meantone or Pythagorean fretting) in the portions of El Maestro analyzed by Corona-Alcalde and Lindley is thus no better

³⁸ Lindley, “Luis Milán” 48. Lindley apparently is prevented by space restrictions from giving complete tables.

than 52% and the percentage of consistent pieces in the Tres Libros is 48%. At least 10% of the pieces in El Maestro present significant difficulties for a meantone or Pythagorean fretting (maximal inconsistency), versus no more than 9.7% in Tres Libros. Given these roughly equal numbers, it seems safe to assert that the purely numerical evidence is as strong for Mudarra's use of a fretting other than equal temperament as it is for Luis Milán.

Despite the numerical evidence, it would be unlikely that Mudarra used an unequal temperament if frets had to be moved constantly in order to achieve a workable result. The next step in verifying the likelihood of an unequal temperament is to see if only a small number of standard patterns of fretting are discernable, and if these patterns are consistent within either vihuela "tunings" or within certain modes.

The ideal pattern of fret placement is obvious when a piece has no conflicts between sharps and flats on problematic frets, but in the few pieces where a fret is used in roughly equal numbers for both functions, certain priorities must be established. Musical common sense implies that the least noticeable use of an out-of-tune note would be a melodic use in a quick run. Use of an out-of-tune note in a chord or interval is more noticeable, and the occurrence of an out-of-tune octave would be particularly irritating. Probably the least likely use of an out-of-tune note would be in the final chord of a piece.

When these factors as well as the overall prevalence of sharps and flats on a particular fret are taken into account, fretting patterns for an

unequal temperament can be hypothesized for Mudarra's music that are consistent and workable in terms of the "tuning" and mode of each individual piece. Due to Mudarra's greater use of "imaginary" tunings a workable system for use in the Tres Libros initially appears more complex than the fretting changes needed for Milán's music, but the actual number of patterns required is small and their use can be consistently codified according to tuning and/or mode.

The same fretting scheme (in terms of order of diatonic and chromatic semitones and hence fret distances) will work consistently throughout the Tres Libros for four of the "imaginary" tunings. These four "tunings" (Vihuela in G, in A, in D, and in E for modes 3 and 4) are also the most commonly used in Mudarra's music.

Table 1.4: Fretting Pattern One: Notes playable (in tune) at each fret in unequal temperament in four most common "tunings" used by Mudarra. Order of diatonic semitones (indicated as DS) and chromatic semitones (unmarked) and hence fretting in each of these common tunings is identical.

Vihuela in G / Modes 1-6

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
<i>crse</i> 6 G		A	Bb	B	C		D	Eb	E	F
<i>crse</i> 5 C		D	Eb	E	F		G		A	Bb
<i>crse</i> 4 F		G		A	Bb		C		D	Eb
<i>crse</i> 3 A	Bb	B	C	C#	D	Eb	E	F	F#	G
<i>crse</i> 2 D	Eb	E	F	F#	G		A	Bb	B	C
<i>crse</i> 1 G		A	Bb	B	C		D	Eb	E	F
	<i>flat</i> DS		<i>flat</i> DS		DS	<i>flat</i> DS		<i>flat</i> DS		DS

Vihuela in A

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse 5 D	Eb	E	F	F#	G		A	Bb	B	C
crse 4 G		A	Bb	B	C		D	Eb	E	F
crse 3 B	C	C#	D		E	F	F#	G	G#	A
crse 2 E	F	F#	G	G#	A	Bb	B	C	C#	D
crse 1 A	Bb	B	C	C#	D	Eb	E	F	F#	G
	<i>flat</i> DS		DS	<i>sharp</i>	DS	<i>flat</i> DS		DS		DS

Vihuela in D

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 D	Eb	E	F	F#	G		A	Bb	B	C
crse 5 G		A	Bb	B	C		D	Eb	E	F
crse 4 C		D	Eb	E	F		G		A	Bb
crse 3 E	F	F#	G	G#	A	Bb	B	C	C#	D
crse 2 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse 1 D	Eb	E	F	F#	G		A	Bb	B	C
	<i>flat</i> DS		DS		DS	<i>flat</i> DS		<i>flat</i> DS		DS

Vihuela in E. Modes 3-4

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 E	F	F#	G	G#	A	Bb	B	C		D
crse 5 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse 4 D	Eb	E	F	F#	G		A	Bb	B	C
crse F# 3	G	G#	A		B	C	C#	D		E
crse 2 B	C	C#	D		E	F	F#	G	G#	A
crse 1 E	F	F#	G	G#	A	Bb	B	C		D
	DS		DS	<i>sharp</i>	DS	<i>flat</i> DS		DS	<i>sharp</i>	DS

This fretting pattern as applied to the vihuela in G has features that can be interpreted as additional evidence for a meantone fretting. The strangest feature is the lack of an in-tune G# anywhere on the fingerboard. A second surprising feature is the choice of a "flat" position for the sixth fret, which results in that fret having only one "usable" note. The most logical explanation for Mudarra's use of this mildly impractical fretting for the vihuela in G is convenience: it allows him to use exactly the same fretting pattern for the other three most common "tunings."

The implied fretting patterns (in terms of fret spacing) for two other "imaginary" tunings used in the Tres Libros, Vihuela in E (Modes 1, 2, 5-8), and Vihuela in B, are also identical in terms of order of chromatic and diatonic semitones.

Table 1.5: Fretting Pattern Two
DS= Diatonic semitone, nu= not used

Vihuela in E / Modes 1, 2, 5-8

	open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 E		F	F#	G		A	Bb	B	C		D
crse 5 A		Bb	B	C		D	Eb	E	F	F#	G
crse 4 D		Eb	E	F		G		A	Bb	B	C
crse 3 F#		G	G#	A	Bb	B	C	C#	D		E
crse 2 B		C	C#	D	Eb	E	F	F#	G	G#	A
crse 1 E		F	F#	G		A	Bb	B	C		D
		DS		DS	<i>flat</i> DS		<i>flat</i> DS		DS	<i>sharp</i>	DS

Vihuela in B

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 B	C	C#	D	E ^b	E	F	F#	G	?	A
crse 5 E	F	F#	G		A	B ^b	B	C	?	D
crse 4 A	B ^b	B	C		D	E ^b	E	F	?	G
crse 3 C#	D		E	F	F#	G	G#	A	?	B
crse 2 F#	G		A	B ^b	B	C	C#	D	?	E
crse 1 B	C	C#	D	E ^b	E	F	F#	G	?	A
	DS	<i>sharp</i>	DS	<i>flat</i>	DS		DS	<i>nu</i>		

The three remaining vihuela “tunings” used in the Tres Libros (Vihuela in F#; Vihuela in G, Modes 7-8; and Vihuela in F) also require different fretting patterns, but these tunings are used in a comparatively small number of pieces. Additionally, the first two patterns are identical except for the placement of the rarely used eighth fret.

Table 1.6: Fretting Patterns Three, Four, and Five

Vihuela in F

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 F	F#	G		A	B ^b	B	C	C#	D	E ^b
crse 5 B ^b	B	C		D	E ^b	E	F	F#	G	
crse 4 E ^b	E	F		G		A	B ^b	B	C	
crse 3 G	G#	A	B ^b	B	C	C#	D		F	
crse 2 C	C#	D	E ^b	E	F	F#	G	G#	A	B ^b
crse 1 F	F#	G		A	B ^b	B	C	C#	D	E ^b
	DS	<i>flat</i>	DS	<i>flat</i>	DS		DS	<i>sharp</i>	DS	<i>flat</i>

Vihuela in G / Modes 7-8

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 G	G#	A	Bb	B	C	C#	D	Eb	E	F
crse 5 C	C#	D	Eb	E	F	F#	G		A	Bb
crse 4 F	F#	G		A	Bb	B	C		D	Eb
crse 3 A		B	C	C#	D		E	F	F#	G
crse 2 D		E	F	F#	G	G#	A	Bb	B	C
crse1 G	G#	A	Bb	B	C	C#	D	Eb	E	F
	sharp	DS	flat	DS	DS	sharp	DS	flat	DS	DS

Vihuela in F#

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 F#	G	G#	A	Bb	B	C	C#	D	Eb	E
crse 5 B	C	C#	D	Eb	E	F	F#	G		A
crse 4 E	F	F#	G		A	Bb	B	C		D
crse 3 G#	A		B	C	C#	D	D#	E	F	F#
crse 2 C#	D		E	F	F#	G	G#	A	Bb	B
crse 1 F#	G	G#	A	Bb	B	C	C#	D	Eb	E
	DS	sharp	DS	flat	DS	DS	sharp	DS	flat	DS

Comparison of all the charts above will also show that some of the frets remain in the same place for any piece by Mudarra. The second fret's distance from the nut is the combined distance of a diatonic semitone and a chromatic semitone in each of the fretting patterns above, which can be expressed as: 2nd fret always = c.s. + d.s. Obviously this distance remains the same regardless of the order of the semitones, and thus the position of the first fret. Following this logic, several other frets remain fixed in Mudarra's music, as given below:

3rd fret always = c.s. + 2 d.s.
 5th fret always = 3rd fret + c.s. + d.s.
 7th fret always = 5th fret + c.s. + d.s.
 10th fret always = 7th fret + 2 d.s. + c.s.

Because these frets are fixed, any adjustment of the variable frets between pieces can actually be done quickly by using the fixed frets as a reference for tuning by either unisons or octaves. Thus it can be seen that the use of an unequal temperament in Mudarra's music does not require constant recalculations of fret placement between pieces, and would have been as workable in practice as in theory.

While the above analysis points to Mudarra's use of some fretting with uneven semitones, it does not settle the issue of whether he used meantone or Pythagorean temperament. Lindley was able to conclusively prove that Milán used meantone instead of Pythagorean tuning via Milán's fret-moving instructions, but Mudarra's book lacks any such clear-cut evidence. However, Enríquez de Valderrábano, whose book was published only a year after Mudarra's, also gave an instruction for moving a fret that points to a meantone fretting. Before playing his "Fantasia sobre un Pleni," Valderrábano instructs the player: "to lower the fourth fret a little towards the rose-hole,"³⁹ which results in a raise in pitch. The fourth fret in this fantasy is used as a flat fret, so the direction points to Valderrábano's use of meantone temperament, since in Pythagorean temperament a flat is pitched lower than a sharp. This literary evidence that one of Mudarra's contemporaries as well as one of his predecessors used meantone

³⁹ Valderrábano, f.74^v ; trans in Lindley, "Luis Milán" 60.

temperament implies strongly that Mudarra used this temperament as well.

On the other hand, Bermudo's Declaración discusses two types of fretting schemes at some length, Pythagorean and his own new system for a fretting which approximates equal temperament. Meantone is neither mentioned nor described.⁴⁰

However, in his continued advocacy of a Pythagorean system, Bermudo is a rather isolated figure. Mark Lindley has pointed out that most other Renaissance theorists described keyboard instruments as being tuned in meantone temperament, while Bermudo nonetheless states that keyboard instruments are tuned by a Pythagorean system. Since both systems have unequal semitones and other surface similarities, Lindley is of the opinion that Bermudo (with a Renaissance theorist's natural preference for anything associated with the Greek philosophers) simply confused the two systems.⁴¹

There is some inferential evidence both for and against this hypothesis within Bermudo's own treatise. Bermudo's calculations for Pythagorean fretting are correct in that they place fa frets (flat frets) higher than mi frets (sharp frets), which certainly does not argue for a confusion between the two systems. However, the difference in sound between a genuine Pythagorean temperament and equal temperament is extreme, while meantone and equal temperament share the feature of fifths tempered somewhat flat. Thus it initially seems odd that

⁴⁰ Bermudo's systems of fretting are summarized in Ward, "The Vihuela" 29-37; also in Lindley, Lutes 13-18, 27-30.

⁴¹ Lindley, Lutes 16.

Bermudo would advocate (via fretting instructions) two types of temperament with such widely varying sounds. However, at least one scholar has concluded that in actuality both of Bermudo's systems more closely approximate equal temperament than Pythagorean.⁴²

Another piece of inferential evidence can be derived from Bermudo's initial vihuela tuning instructions, intended for beginners:

For those who are new to music only one manner of tuning is recommended for these four instruments [this chapter also contains tuning instructions for the bandurria and rabel] and that is [tuning] by octaves. . . . If one fingers the fourth string [i.e. course] of the vihuela at the second fret, then with the sixth [course] open it will form an octave. The third string fingered at the third [fret] then forms an octave with the fifth [course]; and the second fingered also at the third [fret] then will form an octave with the fourth [course]. The first held at the second then [forms] with the third an octave.

Para los nuevos en la Musica sola una manera porne de templar los sobredichos quatro instrumentos: y sera por octavas. . . . Si hollays la quarta cuerda de la vihuela comun en el segundo traste: viene con la sexta en vazio aformar en octava. La tercera hollada en el tercero viene a formar octava con la quinta: y la segunda hollada tambien en el tercero, viene aformar octava con la quarta. La prima hollada en el segundo, viene con la tercera en octava.⁴³

What these instructions imply is that the third and fourth courses were initially tuned by ear, since two courses are tuned by reference to the third course and two to the fourth, but no instructions are given for tuning the third and fourth courses (which form an interval of a

⁴² Murray Barbour, "Equal Temperament, Its History from Ramis (1482) to Rameau," diss., (Cornell, 1932) 76-83; also his Tuning and Temperament (Michigan State College Press: 1951) 164-166. Barbour's conclusions are summarized by Ward, "The Vihuela" 32.

⁴³ Bermudo fol. 29^r, my translation. Bermudo also mentions on this page that most musicians begin tuning with either the third or fourth course.

major third) to each other. Since most musicians tuning an isolated interval by ear will tune it more or less pure, this conflicts strongly with a supposed fretting system (Pythagorean) in which the thirds are unpleasantly sharp. In addition, these instructions are almost identical to the following instructions for fine-tuning given by Milán, whose music has been shown to call for meantone. Milán's instructions differ from Bermudo's only in order and in omitting any reference to tuning the first course.

Place your finger on the third fret of the second [string]; and then play the fourth [string] open; and the fourth string has to be an octave below the second. And placing your finger on the third fret of the third [string], the open fifth [string] has to be an octave below the third. And placing your finger on the second fret of the fourth [string], the open sixth [string] has to be an octave below the fourth.⁴⁴

A possible explanation for the conflict between Bermudo's initial directions implying meantone tuning and his later more-involved instructions for a Pythagorean system is that Bermudo included some common methods of tuning conveyed to him by vihuelists, but failed to understand that the system thus described was not Pythagorean. Perhaps Bermudo's "Pythagorean" systems should be viewed in the same light as the many other impractical "improvements" on common practice proposed throughout the Declaración.

Another intriguing coincidence can be seen in a comparison of Bermudo's diagram for a vihuela in G on folio 106 and the meantone fretting pattern required for the same "tuning" in Mudarra's music.

⁴⁴ Milán, fol. A 4^v; trans. by Charles Jacobs, El Maestro by Luis Milán (University Park and London: 1971) 16.

When compared to Mudarra's pattern, it can be seen that Bermudo's proposed fretting uses opposite functions for each of the variable frets. In Pythagorean fretting, fa frets are lower than mi frets; in meantone fretting, mi frets are lower than fa frets. Therefore, it is possible that Bermudo saw but did not play a vihuela "in G" fretted for meantone in Mudarra's pattern, and assumed a Pythagorean fretting using opposite fret functions, since the positions of the frets in both patterns would have been visually similar. This admitted speculation is bolstered by the fact that when the fret distances are calculated for a 60 cm. string length for Pythagorean fretting according to the second of Bermudo's fretting instructions⁴⁵ and then the functions of the first, sixth and eighth frets are reversed, most of the fret positions are within 3.5 mm of the positions calculated for meantone.⁴⁶ Only two frets vary more: the fourth is off by 5.88 mm., the third is off by 4.7 mm. Thus the visual difference between a vihuela fretted for meantone temperament by Mudarra and one fretted for Pythagorean temperament by Bermudo would have been similar, and a theoretician could conceivably have become confused as to which system was in general use.

The strongest evidence against Mudarra's use of a Pythagorean tuning is its insuitability to the music. Though both systems have a superficial resemblance in their use of unequal semitones, in actuality, Pythagorean and meantone temperament have radically different

⁴⁵ Summarized and trans. by Antonio Corona-Alcalde, "Fray Juan Bermudo and His Seven Vihuelas," The Lute 24.2 (1984): 77-86.

⁴⁶ See tables given by Eugene Dombois, "Varieties of Meantone Temperament Realized on the Lute," Lute Society of America Journal 7 (1974): 84, 88.

musical sounds. In Pythagorean tuning, while fourths and fifths are "pure," major thirds are so altered from their ideal "beatless" state that most listeners (in the twentieth-century at least) find them intensely unpleasant.⁴⁷ In fact, use of this sort of tuning in the *Ars Antiqua* and *Ars Nova* may be one reason that thirds were long considered a dissonance unsuited for the final sonority of a piece. In the various varieties of meantone temperament, fifths and fourths are tempered slightly from their beatless state with the benefit of more euphonious thirds.⁴⁸ Thus, a Pythagorean tuning is unsuited to music with a large proportion of thirds, a typical trait of much late Renaissance music including Mudarra's, while a meantone system favors these intervals. Given this historical context, the conflicting evidence within Bermudo's own treatise, and the example of Milán, it is most likely that Mudarra used a meantone fretting system, and quite unlikely that he used a system that we would describe as Pythagorean.

Practical Application of Meantone Temperament to Mudarra's Music

In order to arrive at a meantone tuning scheme on an instrument with moveable frets, one can either set the frets to that scheme by mathematical calculation and then tune the open strings via the frets, or one can tune the open strings and set the frets to them.

⁴⁷ Lindley, "Pythagorean Intonation," New Grove Dictionary of Music and Musicians (London: 1980).

⁴⁸ Lindley, "Mean Tone," New Grove Dictionary of Music and Musicians (London: 1980).

In tuning the open strings without use of the frets, the fourths and/or third will have to be sharpened from pure, since the sum of four pure fourths and one pure third is less than two octaves by an interval known as a "syntonic comma."⁴⁹ A workable meantone tuning can be achieved without reference to mathematics if one begins by tuning the major third between the third and fourth courses relatively pure by ear (as implied by Milán's tuning instructions and the first instructions given by Bermudo). An alternative would be to tune the third course to the fourth by reference to the harmonic at the fourth fret, fourth course. Either procedure will then require that the fourths between the other courses must be set sharper than in equal temperament. The exact degree of sharpness required can be found by moving the fifth fret until a position is found where the double octaves of the outer courses are in tune after tuning the fourths between courses by reference to the fifth fret (taking care not to disturb the previously set pitches of the third and fourth courses). Since the fifth fret will affect all strings equally, setting the fourths via the fifth fret will sharpen each fourth by the same amount, and the octaves formed by the outer courses will not be in tune until the fourth is tempered correctly. Some frets can then be set by unisons and octaves with the open strings and the fifth fret. The remaining frets can then be set by unisons and octaves to these frets. Although this procedure seems overly simple in comparison with the complicated mathematical directions usually given by theoreticians, it actually

⁴⁹ Lindley, *Lutes* 7.

works well with practice and has the additional advantage of automatically compensating for the sharpening produced by fretting a string. Slight deviations from a pure meantone temperament's pure major thirds and severely tempered fourths and fifths can be achieved if one begins the process by tuning the initial major third slightly sharper than pure, but still flatter than an equal-tempered third.

The frets can also be set before the strings by calculating distances from the meantone fretting tables as given in articles by Eugene Dombois and Mark Lindley, marking them with pencil on the fingerboard, setting the frets to the pencil marks, then tuning the strings to each other via unisons at the fifth and fourth frets.⁵⁰ This approach will work better on instruments with very low action, since no adjustment has been made in the tables for the sharpening effect of fretting a string.

In both cases above, the musician must retain an awareness of whether a particular fret is being set to a sharp or a flat position, and remember not to adjust out-of-tune octaves between sharp and flat frets.

Given that the correct "historical" fretting for Mudarra's music is one based on meantone temperament, a performer must still deal with the relatively rare occasions when Mudarra used sharps on a flat fret, or flats on a sharp fret.

Eugene Dombois presented several possible solutions to these problems in his article on meantone fretting. His most important

⁵⁰ Dombois 84, 88; Lindley, *Lutes* 66.

observation is that these intonational problems can be significantly reduced if the “pure” meantone temperament is altered only slightly. In a pure meantone temperament, a pure, beatless major third (at 386.3 cents) is achieved by significantly tempering the fifth from its pure value (702 cents) to 696.6 cents. When translated into fretting distances, the sharp and flat frets at each position are quite far apart. By tempering the fifth less (say to 698 cents) and the third more, the sharp and flat fret positions are much closer, and hence the intonational problems encountered when playing a sharp note on a flat fret or vice versa are lessened. The “698 cents” temperament still has much more attractive sounding major thirds than equal temperament.⁵¹ An approximation of this temperament as well as a strict meantone can also be achieved by ear, if the practical tuning instructions given earlier are followed with the one exception of tuning the third slightly sharper than pure, but still with fewer beats than in equal temperament.⁵²

In addition to slightly altering the meantone temperament itself, Dombois offers several other solutions to out-of-tune notes. These can be summarized as follows:

- 1) Tolerate the “wrong” tones.
- 2) Move the fret in question to an intermediate position mildly out-of-tune for both sharp and flat functions.
- 3) Set the fret in an oblique position.

⁵¹ Dombois 87.

⁵² Another method of approximating 1/5 comma meantone by counting beats on the open strings is given by Lindley, *Lutes* 65.

4) Install two frets.

5) Glue temporary short sections of fret material to supply the "missing" notes.⁵³

To these suggestions can be added the possibility of pulling on the string affected to raise or lower its pitch, as mentioned by Bermudo. Another possibility would be to mask the intonational problems by applying vibrato to the chord or notes in question. Use of vibrato is one possible interpretation of an ornament given in Venegas de Henestrosa's 1557 Libro de Cifra Nueva, although the specific use of vibrato to mask intonational problems is not mentioned.⁵⁴

Of the seven approaches above, Dombois' first suggestion is obviously the easiest. Before succumbing to this temptation, it is worth asking: how "intolerable" are these "wrong" notes? An examination of individual instances shows that the impression of "out-of-tuneness" varies according to how the note is used. In a few cases the problem is completely illusory; for instance in the example below Mudarra is not actually using a sharp note on a flat fret, he is using a flat outside the gamut of "accepted" Renaissance accidentals.

⁵³ Dombois 87.

⁵⁴ Philip Pivovar, "Ornamenting Vihuela Music," Guitar and Lute 18 (1981): 35.

Example 1.1: # 17, "Gallarda," compás 21-22.⁵⁵ Circled notes function as flats and thus present no intonation problems.

In 15 instances in the Tres Libros, notes that would be out of tune in the probable meantone fretting pattern occur in a basically melodic context. In several cases, a sharp pitch on a "flat" fret is used melodically as a leading tone.

Example 1.2: #14, "Romanesca o guardame las vacas," compás 40-41.⁵⁶ Circled notes occur on "flat" fourth fret.

In meantone tuning, these notes would be pitched too high for euphonious harmonic use, but in Lindley's opinion: "the smallness of the melodic semitone . . . can be turned to advantage if the note is a

⁵⁵ Mudarra fol. 20^r; Chantarelle edition 63. A compás is visually (though not musically) equivalent to a bar line in the tablatures.

⁵⁶ Mudarra fol. 17^r; Chantarelle edition 57.

leading tone and the performer makes a slight rubato to emphasize the melodic context.”⁵⁷

In the other melodic instances, a “wrong” note occurs in a very quick run and is over so quickly that its incorrect intonation is hardly perceivable.

Example 1.3: # 51, “Respice in me Deus” (Gombert) compás 54-55.⁵⁸
Circled note occurs on a “flat” fret.

Somewhat more perceptible, but not painfully out of tune, are the 49 instances in the Tres Libros where a wrong note functions as part of a vertical sonority, but its sounding does not occur simultaneously with the other notes. This sort of semi-melodic/semi-harmonic use has been designated a “delayed harmonic” use in the tables in Appendix One of this document.

⁵⁷ Lindley, “Luis Milán” 48, 57.

⁵⁸ Mudarra fol. 4^r; Chantarelle edition 137.

Example 1.4: #24, "Tiento" compás 10.⁵⁹ Circled note is on flat fret, but delayed sounding makes its mis-intonation less noticeable.

The image shows a musical score for a vihuela. The top staff is a treble clef with a key signature of one sharp (F#). The bottom staff is a six-string guitar-like fretboard with strings numbered 1 to 6 from top to bottom. The notation includes a circled note on the 4th fret of the 5th string. The text "Vihuela in E" is written to the right of the fretboard.

This sort of harmonic use of a "wrong" note is less bothersome than sounding the notes simultaneously, probably because the initial notes have slightly decayed by the time the problematic note is sounded.

Genuinely harmonic types of "wrong" note use do sound out of tune to modern ears, at least if played slowly. In 52 cases Mudarra uses a note that would be out of tune in a meantone fretting in these harmonic situations.

Example 1.5: #24, "Tiento" compás 19.⁶⁰ Circled note occurs on flat fret simultaneously with other notes.

The image shows a musical score for a vihuela. The top staff is a treble clef with a key signature of one sharp (F#). The bottom staff is a six-string guitar-like fretboard with strings numbered 1 to 6 from top to bottom. The notation includes a circled note on the 4th fret of the 5th string. The text "Vihuela in E" is written to the right of the fretboard.

⁵⁹ Mudarra fol. 1^r; Chantarelle edition 75.

⁶⁰ Mudarra fol. 1^r; Chantarelle edition 75.

If the fretting patterns given in this paper are used, out-of-tune octaves occur in only two chords in the Tres Libros. The intonation in these chords can be corrected by pulling the third course to the side with the little finger, although the technique does take some practice.

Example 1.6: # 33, "Glosa sobre un Kyrie...va sobre Pange Lingua," compás 52-55.⁶¹
Circled notes (on sharp fret) clash strongly with octaves on flat fret.

Vihuela in E

For the musician who finds some of the intonations above too grating, Dombois's other suggestions also bear examination. Moving the fret in question to an intermediate position is certainly a possibility. This increases the number of out-of-tune situations, but lessens their severity. In combination with a judicious amount of string pulling, good intonation can be achieved. Setting the fret in an oblique position is condemned by Bermudo; so we know that this was an actual solution used by vihuelists.⁶² An additional point about this practice should be made; if notes from only two courses occur on a given fret, both positions can be given the precisely correct intonation with one fret if they are separated by several other courses.

⁶¹ Mudarra fol. 9^r; Chantarelle edition 92.

⁶² Bermudo, fol 107^r; trans. in Corona-Alcalde, "You Will Raise" 33.

Setting two frets at one position, for instance a first fret for sharps and another first fret for flats, was also advocated by Bermudo,⁶³ and more humorously by the Neapolitan theorist Bartholemeo Lieto Panhormitano, who wrote:

And please note this new observation about frets in accordance with science: you should have those two frets twinned as one fret . . . if someone says this subtlety does not happen [i.e., is not needed] give him this answer: that he who does not know or cannot have bread eats herbs.⁶⁴

However, this solution is not mentioned in surviving records by any major Renaissance lutenist, vihuelist, or viol player.⁶⁵ In all likelihood Renaissance practical musicians considered playing lute or vihuela as sufficiently difficult without the added physical and intellectual nightmare of choosing between two frets for some notes while actually playing.

⁶³ Bermudo, fol. 107^v

⁶⁴ Bartholemeo Lieto Panhormitano, Dialogo Quarto di Música...per Viola a Mano o ver Liuto (Naples, 1559) fol. D4^r; trans. in Corona-Alcalde "You Will Raise" 32-33.

⁶⁵ Corona-Alcalde, "You Will Raise" 33.

Part Two/ Chapter One
A Critical Examination of Current
Scholarly Views on Vihuela Stringing

Constant reiteration can make a reasonable conjecture seem a thoroughly proven fact. One "fact" that we have "known" for a long time is that vihuelists, unlike sixteenth-century lutenists, did not use octave-stringing on their bass courses. This has been stated and restated so many times that current scholars usually let the assertion stand as a complete certainty.⁶⁶

On the other hand, current opinion on correct stringing for the sixteenth-century lute repertoire is in favor of using octave-stringing on the bass courses. The usual rationale for using octave-strings on the lute is that plain-gut bass strings (believed to be the only type available in the sixteenth century) are generally rather dull and have an extremely limited sustain. Twentieth-century lutenists using gut basses find that an octave pair in the bottom three courses livens up the sound and it is generally theorized that sixteenth-century lutenists used octave strings for the same reason.⁶⁷ The acceptance of vihuela unison-stringing as a proven fact would seem to require that these problems with plain-gut basses were somehow not applicable to the instrument, either because of some Spanish improvement in strings unavailable to the rest of Europe, something in the nature of the vihuela's sound (or Spanish taste in

⁶⁶ For recent examples of the standard view on stringing, see Griffiths, "At Court and at Home" 1; also Donald Gill, "Vihuelas, Violas and the Spanish Guitar," Early Music 9.4 (1981): 458.

⁶⁷ Ian Harwood and Diana Poulton, "Lute," New Grove Dictionary of Music and Musicians, vol. 11 (London: 1980) 349.

sound) that rendered such stringing unnecessary, or something in the music itself that made octave basses undesirable. In the absence of evidence of any of the above, one would expect the literary proof of unison vihuela basses to be clear and unequivocal before it was wholeheartedly accepted.

However, there are some basic problems with trying to prove anything about stringing within a course from Spanish sixteenth-century literary evidence. Most arguments on stringing are based on either the prefaces to the seven printed vihuela tablatures or on the writings of the sixteenth-century Spanish theoretician Juan Bermudo. Both the vihuelists and Bermudo constantly use the Spanish term for course (ordenes) and string (cuerdas) interchangeably. Only one vihuelist says anything in his instructions about tuning within a course; the other vihuelistas are so vague on this subject that without other evidence one might not even suspect that the vihuela had doubled strings. This is not surprising if the tutorial purpose of the vihuela books is kept in mind; their authors were writing in part for new students with previously strung vihuelas in hand—they certainly were not writing for twentieth-century musicians lacking even the most basic information about the instrument. Bermudo is somewhat more illuminating since he was writing for a broader readership, but nonetheless the “proofs” derived from Bermudo on vihuela stringing also require considerable extrapolation.

In short, the literary evidence on vihuela stringing is actually incomplete and vague, and the assurance of musicologists sometimes

seems due more to a twentieth-century tendency to consider octave-stringing inferior than to a preponderance of fact. Since all-unison vihuela stringing has been the standard scholarly position for so long, a case for octave-stringing must proceed in two steps: first, a re-examination of the current arguments “proving” unison stringing, and second, a search for overlooked evidence that specifically points to the use of octave basses.

Weaknesses in the Current Proofs of Unison Stringing

In a 1988 interview with Hopkinson Smith, Daniel and Jineen Krogstad-Heimann make a footnote reference to John Ward’s 1953 dissertation, “The Vihuela de Mano and Its Music (1536-1576),” referring to it as, “the principle source for information about and insights into this repertoire.”⁶⁸ This description of the dissertation’s scholarly importance is verified by the fact that most printed justifications for unison stringing either quote Ward or duplicate his arguments.

As a general overview of the vihuelistas and their relation to other sixteenth-century music, Ward’s dissertation is still unmatched, and his knowledge of connected repertoire is awe-inspiring. However, a tremendous amount of thought into practical aspects of playing early instruments has taken place since 1953, and certainly Ward’s thinking on matters relating to performance practice lacked the constant input from players, luthiers and stringmakers that scholars benefit from today.

⁶⁸ Daniel and Jineen Krogstad-Heiman, “An Interview with Hopkinson Smith,” Lute Society of America Newsletter 23.1 (1988): 9.

Ward arrives at his conclusions on unison courses on the vihuela from three sources that are widely separated in time, purpose, and reliability. I would like to review each piece of evidence and present alternate interpretations that I feel are equally likely. Ward's entire 1953 discussion of this question occupies only three paragraphs.

Ward's first paragraph argues from the single clear and direct instruction in sixteenth-century writing on vihuela stringing within a course.

That the pitch relationship between the two strings of a course on the vihuela was different than the lute's is indicated by only one vihuelist. According to Pisador, "the one fourth [string] has to be plucked easily in open, and then matched with the other [fourth string] which is not higher or lower...." ⁶⁹ This declares what other practical sources, by omission, assume, namely, that both strings of a course were tuned in unison and not in octaves, as on the lute.⁷⁰

This short quote from Pisador's instructions on tuning is Ward's most direct piece of evidence. Ward feels that by specifying unison stringing on the fourth course, Pisador intends this stringing on the other bass courses. However, the passage proves only one thing: that Pisador used unisons on the fourth course. It does not prove that he used unisons on the fifth and sixth courses, because Pisador does not give any instructions for tuning within any other courses.⁷¹ Even if Pisador used

⁶⁹ Pisador. fol. A2^v.

⁷⁰ Ward, "The Vihuela" 47.

⁷¹ In a later paragraph Ward follows the same reasoning and concludes that the Baroque guitar was also tuned in unisons, a conclusion generally considered erroneous by later writers who translated larger sections of the instructions. Ward says: "On the 17th-century Guitarra Española the five courses were tuned in unison, which suggests that this guitar derived from the six-course vihuela, not from the guitar of four courses.

unison basses, it does not prove that any of the other vihuelists did not use octave-courses, unless it can be proved that the vihuelists constitute a unified school.

Ward finishes his first unison-bass paragraph asserting that Pisador's tuning instructions prove "what other practical sources, by omission, assume, namely, that both strings of a course were tuned in unison and not in octaves, as on the lute."⁷² However, this line of reasoning is itself based on the assumption that readers in the sixteenth century viewed unisons as the norm, and octave-tunings within a course as a deviation in need of explanation. Much sixteenth-century evidence would indicate that it is an octave bass-stringing that is assumed, not unison; for instance, many early tuning instructions for the lute and the Renaissance guitar also fail to mention the presence of octave strings in the bass courses.⁷³ The most relevant omission is Bermudo's. His tuning instructions on folio 29 of the 1555 Declaración fail to mention use of octave bass courses for the vihuela. However, his tuning instructions for the four-course guitar, which follow in the very next phrase, also omit any mention of its octave-paired fourth course. The

The tuning of the two strings of a course is established inferentially by Briçeno, Método f. B, who instructs the student, 'First place the two third strings in unison,' and by Amat, Guitarra Española, p. 2, who makes the same recommendation." Ward, "The Vihuela" 49. For an example of the opposing (and now generally accepted) viewpoint on Baroque guitar stringing, see Sylvia Murphy, "The Tuning of the Five-Course Guitar," The Galpin Society Journal 23 (1970): 50-51.

⁷² Ward "The Vihuela" 47.

⁷³ James Tyler in The Early Guitar: A History and Handbook (London: Oxford 1980) 33, lists two four-course guitar tunings by Praetorius in which fourth-course octaves must be assumed. Christopher Page in "The 15th-Century Lute: New and Neglected Sources," Early Music 9.1 (1981): 11-21, gives several late fifteenth-century tuning instructions; in all of them octaves (and double strings) must be assumed.

similarity of syntax and procedure between the instructions for both instruments is striking.

For those who are new to music only one manner of tuning is recommended for these four instruments [this chapter also contains tuning instructions for the bandurria and rabel] and that is [tuning] by octaves. . . . If one fingers the fourth string [i.e. course] of the vihuela at the second fret, then with the sixth [course] open it will form an octave. The third string fingered at the third [fret] then forms an octave with the fifth [course]: and the second fingered also at the third [fret] then will form an octave with the fourth [course]. The first held at the second then [forms] with the third an octave. . . . The guitar a los nuevos [i.e. the guitar tuned in the modern manner, as opposed to the temple viejo or old tuning] can be tuned by octaves in the following manner. Hold the second [course] at the third fret, it will make an octave with the fourth [course] . . . [my emphasis].

Para los nuevos en la Música sola una manera porne de templar los sobredichos quatro instrumentos: y sera por octavas. . . . Si hollays la quarta cuerda de la vihuela comun en el segundo traste: viene con la sexta en vazio aformar en octava. La tercera hollada en el tercero viene a formar octava con la quinta: y la segunda hollada tambien en el tercero, viene aformar octava con la quarta. La prima hollada en el segundo, viene con la tercera en octava. . . . La guitarra a los nuevos se temple por octavas en la forma siguiente. Hollada la segunda en el tercero traste, viene con la quarta en octava . . . ⁷⁴

After reading the last sentence above, a musician using Ward's reasoning would probably assume that the Renaissance guitar used all-unison courses, since no mention of octave-pairing is included for the instrument. Bermudo does not get around to specifically mentioning use of the octave fourth course on the Renaissance guitar until folio 96 and this information is imparted more as a by-product of a discussion of the unusual term requintadas than for its own sake. Other Renaissance

⁷⁴ Bermudo, fol. 29. My translation.

instructions for octave stringing the guitar's fourth course are also included for peripheral reasons: for instance, Mudarra's Tres Libros gives instructions for use of an octave-strung fourth course on the guitar only because it was sometimes the custom to use a re-entrant tuning on the instrument.

The question of what sixteenth-century readers would view as the normal bass course tuning is thus important since instructions in the area of stringing tended to spell out only exceptions and variances, and to leave out precisely what everyone already knew. What would Pisador's readers have already known? The vihuela books were definitely aimed at beginners on the instrument, not modern musicologists or sixteenth-century theoreticians. However, the pieces classified as "easy" are often of quite surprising complexity.⁷⁵ Given this high level of beginning difficulty, might the books have had as part of their intended audience amateurs already familiar with the more plebeian four-course guitar? The inclusion of guitar music in the vihuela tablatures points in this direction. If we accept the premise that Pisador's intended audience included guitarists, his tuning instructions take on the nature of a warning, i.e., "Do not attempt to tune the fourth course in octaves, (as it commonly is on the four-course guitar) it should be tuned in unisons." Failing to mention the other bass courses could easily imply that they were strung in the "normal" sixteenth-century manner, with octaves.

⁷⁵ For example, see the fantasia listed as "facil" by Mudarra on fol. 7^r; Chantarelle edition 37.

Neither do Pisador's instructions rule out use of a fourth-course octave-pair by other vihuelists. It is doubtful that a beginning vihuelist would be sold an unstrung vihuela. If octave-stringing of all bass-courses were a common practice among other players, then Pisador's first-time reader might have had a vihuela in hand with octave-strung fourth, fifth and sixth courses. If Pisador had used octaves on the fifth and sixth courses but none on the fourth, the warning nature of his instructions may have been: "If your fourth course is strung for octaves (as it commonly is by other vihuelists), change it. I prefer the fourth course tuned in unisons." In other words, Pisador may have included only one instruction for tuning within a course (the fourth), because the fourth was the only course in which tuning varied from vihuelist to vihuelist.

Ward's second paragraph on bass stringing quotes a far less direct source than Pisador.

Adrian le Roy, Instruction, f. 40, cites an exceptional lute tuning which may reflect Spanish influence: ". . . Lutes, tuned after the maner of Fabrice Dentice the Italian, and of other his followers. Where those strynges that stand twoo and twoo together, be sette in one Tune, and not by eightes, which thei doe for a perfection of harmonie, in avoyding many unissons, whiche those eight would cause."⁷⁶ ⁷⁷

This argument is entirely inferential in that it nowhere mentions either the vihuela or the viola da mano. Its connection with the vihuela is based on the fact that Dentice almost certainly knew the instrument;

⁷⁶ (Ward footnote) "Dentice was a Neapolitan musician, mentioned by Cerreto, Della prattica musica vocale, et strumentale, 155-159; ten motets by him are preserved in a manuscript described by Anglés, 'El Archivo Musical de la Catedral de Valladolid,' p.78."

⁷⁷ Ward, "The Vihuela" 47.

he hailed from Naples (which was under the political and cultural influence of the Hispanic house of Aragon in the sixteenth-century) and a piece by him appears in Ramillete de Flores, a recently discovered vihuela manuscript.⁷⁸ Ward is thus theorizing that Dentice's adoption of unison-tuning comes from an exposure to the vihuela. However, Francesco da Milano had even more obvious ties to the vihuelistas since he published music for the Italian vihuela, also known as the viola da mano, and current musicological opinion is in favor of playing his works on octave-strung lutes. The word "followers" in regard to others using this tuning also implies that the idea of unison basses originated with Dentice, not that he received it from Aragon or Castile.

Ward's third and final paragraph on vihuela bass courses again creates an argument via another instrument by quoting from the definition for "guitarra" from Sebastien de Covarrubias's 1611 Spanish dictionary Tesoro de la lengua Castellano o Española.⁷⁹ Ward says:

On the four-course guitar the double-strings were tuned in octaves. [Ward certainly means only the strings of the fourth course.] In contrasting the courses of the guitar and vihuela, Covarrubias notes that the former "have the strings requintadas, which are not unisons, like those of the vihuela, but are tuned in fifths...."⁸⁰ His definition of requintadas is wrong. Fifty years earlier Bermudo had already found the term curious. "They used to put another string on the fourth course of the guitar, which they call requinta. I do not know whether, when they gave this name to that string, it formed a diapente, which is a perfect fifth, with the said fourth string: and for this reason it took over the name

⁷⁸ Ramillete de flores: Coleccion inedita de piezas para vihuela, compiled ca. 1593. Rpt. n.l. Seminario de Estado de la Música Antigua, n.d. Ed. Juan Jose Rey.

⁷⁹ Sebastien de Covarrubias, Tesoro de la lengua Castellano o Española (Madrid, 1611; Barcelona: S.A. Horta, 1943).

⁸⁰ Covarrubias 670.

requinta. Now they do not have this tuning, but both strings form an octave, just as on the laud, or vihuela de flandes. Since this instrument has the three or four courses of double strings, which form octaves between themselves, they say it has cuerdas requintadas.⁸¹

The important sentence is "which are not unisons, like those of the vihuela (my emphasis)." Although Ward hardly belabors the point, a later article by Corona-Alcalde considers this a "categorical affirmation" of unison tuning.⁸²

The Tesoro's evidence appears strong until examined with regard to date, reliability, and context. Covarrubias's statement can be questioned on each of these fronts. The first and most telling is date. The Tesoro was published in 1611, 75 years after El Maestro. Even if we interpret Covarrubias as Ward does, his applicability to the early vihuelists is suspect. Dowland advocates unison stringing on the lute and implies that its use is widespread in 1610;⁸³ we do not accept this as relevant information on the stringing practices of Le Roy or Da Milano. Covarrubias may merely be reflecting the vihuela stringing of 1611.

It could be argued that Covarrubias is basing his definition on his scholarly knowledge of an instrument (the vihuela) that was rarely played in 1611. In this case it seems logical to check his reliability on

⁸¹ Bermudo, fol. 96^r; Ward. "The Vihuela" 47-48.

⁸² Corona-Alcalde. "The Viola da Mano and the Vihuela: Evidence and Suggestions About Their Construction," The Lute 24.1 (1984): 17.

⁸³ John Dowland "Other Necessary Observations Belonging to the Lute," Varietie of Lute Lessons, ed. Robert Dowland (London, 1610; Rpt., Amsterdam: Walter J. Johnson, Inc., 1979) fol. D^v. Dowland says, "Secondly, set on your Bases, in that place you call the sixth string, or Gammu ut: these bases must be both of one bignes yet it hath been a generall custome (although not so much used anywhere as here in England) to set a small and a great string together, but among learned Musitions that custome is left, as irregular to the rules of Musicke. "

other musical issues. In the same sentence as his vihuela statement, he informs us (if we read the sentence literally) that the seventeenth-century guitar had courses strung entirely in fifths. No music for such a bizarre tuning exists, and Bermudo's explanation of cuerdas requintadas shows how Covarrubias has mistakenly applied a literal meaning to an accepted term among guitarists for octave courses.⁸⁴ The five-course Baroque guitar was an extremely popular instrument in 1611; Covarrubias's ignorance of this common instrument's usual stringing casts doubt on his reliability concerning an instrument (the vihuela) that was becoming a rarity. Proving anything with the Tesoro definition requires selective use of flawed evidence.

Ward also does not include all of Covarrubias's definition. Including more of the definition (as translated by Diana Poulton) raises other questions:

The guitar is a vihuela, small in size and also of less strings, since it has no more than five, and sometimes only four. These strings are requintadas, not in unisons as are those of the vihuela,

⁸⁴ There is a simple possible explanation for the term cuerdas requintadas that I have not heard mentioned. In temple viejo (the "old" four-course guitar tuning) the fourth-course bourdon was tuned a fifth below the third course, giving the tuning between courses (from the first course) of fourth, third, fifth. The fourth course might have become known as the "quinta" (fifth) because of this intervallic distance, not because of its order in stringing or the internal pitches within the course. Thus this term would have come to mean, quite specifically, "the fourth course of a guitar." Since the fourth course was also the only octave-strung course on a four-course guitar, the phrase "cuerdas requintadas" might mean "strings [like the] fourth-course of a guitar" i.e., octave courses. That the term was already baffling by Bermudo's time argues strongly that it dates from an older tradition of the guitar. A similar (but in my opinion somewhat less likely) explanation would derive this odd name for the fourth course from the octave-string, not the bourdon. In temple nuevo the octave-string of the fourth course would be a fifth higher than the third course, so perhaps this string was referred to as the "quinta." Cuerdas requintadas would thus retain the identical meaning stated above.

but they are tuned in fifths, except for the first, which in both instruments is single.⁸⁵

"These strings" can only refer to the four or five courses of the guitar, therefore Covarrubias's statement that the vihuela has unison courses quite possibly only refers to the vihuela's first four or five courses, given the context. One could even make a plausible argument that Covarrubias is contrasting the vihuela's second or third courses (which were undoubtedly unison strung) with his own mistaken conception of Baroque guitar tuning. Nothing in his statement rules out a vihuela with an octave-strung sixth course. Given the date of Tesoro and the similar direction towards unison stringing being taken by the seventeenth-century lute, this would hardly be surprising.

Ward's third paragraph also contains a passage from Bermudo that has been cited by other writers as another proof of unison-courses on the vihuela.⁸⁶ This argument is based on the last sentence: "They used to put another string on the fourth course of the guitar, which they call requinta....Now they do not have this tuning, but both strings [of the fourth course] form an octave, just as on the laud, or vihuela de flandes." "This tuning" refers to the literal meaning of cuerdas requintadas which has already been discussed; "but both strings form an octave" is self-explanatory. This passage as inferential proof for vihuela unison-bass courses rests on the fact that the vihuela is not mentioned (vihuela de

⁸⁵ Covarrubias 670; trans. in Diana Poulton, "Notes on the Guitarra, Laud and Vihuela," Lute Society Journal 24 (1976): 47. The fact that Covarrubias clearly states here that the vihuela has a single first course seems to have escaped the notice of many writers.

⁸⁶ Corona-Alcalde, "The Viola" 17. This is the most recent occurrence of the argument of which I know. I cannot definitely track its first occurrence.

flandes is here interpreted as being another term for lute). In other words, the fact that Bermudo chooses to compare the octave-strung fourth course of the Renaissance guitar with the lute rather than the better-known (in Spain) vihuela, supposedly implies that the vihuela, unlike the lute, had no octave-strung courses.

If one looks at the entire passage by Bermudo, however, it is apparent that his discussion again applies to only the fourth course. Therefore the passage does not rule out octave-courses on the vihuela, it only suggests that the fourth course of the vihuela was strung in unisons, whereas the fourth course of the lute and Renaissance guitar were strung in octaves. The statement does not even entirely rule out an octave-strung fourth course: if the stringing of this course were inconsistent from one player to another Bermudo would not have used the vihuela in the comparison since the reference would thus be confusing. Mention of the fifth and sixth courses is again conspicuously absent.

Other "Proofs" of Unison Stringing

A few additional arguments in support of unison tuning have been advanced by writers other than Ward. In the preface to his Orphénica lyra, Fuenllana tells how to derive two notes from one string.⁸⁷ This is done by "splitting" a course, i.e., fretting one of the two strings and leaving the other to ring open, thus producing two notes from one course. Charles Jacobs, in his introduction to a modern edition of Orphénica says of Fuenllana's "divided course": "Fuenllana's 'divided course'

⁸⁷ Fuenllana, fol. *5^v, *6^r.

provides further proof that the strings of a course on the vihuela were tuned in the unison."⁸⁸ On the same page, (fn 3) he qualifies this statement, admitting that it proves only that: "At least those [strings] of courses 2, 3, and 4, the only ones on which Fuenllana utilizes the 'divided course' symbol" were unison strung. Jacobs's "proof" in no way rules out octave pairs on the fifth and sixth courses.⁸⁹

In his 1981 article "Vihuelas, Violas and the Spanish guitar," Donald Gill repeats the unison bass theory and adds one new justification:

There is no reason to doubt that the vihuela was strung with unison courses paired throughout, the evidence being in Bermudo's text as well as the diagrams mentioned above. There is also the Paris vihuela, which has 12 peg holes. Pairing throughout usually goes with unison stringing.⁹⁰

Gill's footnote reveals that the idea that pairing throughout (i.e., a double-strung first course as opposed to the single-strung first course usual on the lute) implies unison stringing originates in an article by Dildja Abbot and Ephraim Segerman.⁹¹ The argument's validity depends on the vihuela having a double-strung first course. This assumption is also open to question.

⁸⁸ Charles Jacobs, introduction, Orphénica lyra by Miguel de Fuenllana, edited by Charles Jacobs, (Oxford at the Clarendon Press, 1978) xlv.

⁸⁹ Actually, Jacobs's stated argument is flawed and does not even rule out an octave fourth course. However, an examination of Fuenllana's musical use of the divided course confirms Jacobs's contention (if not his line of reasoning) that the fourth-course is strung in unisons. In each place where the divided fourth-course course appears, only a pitch transcription assuming fourth-course unisons produces a logical polyphonic result.

⁹⁰ Gill, "Vihuelas, Violas" 458.

⁹¹ Dildja Abbott and Ephraim Segerman, "On Single, Octave or Unison Courses in Early Stringed Instruments," Fellowship of Makers and Restorers of Historical Instruments Quarterly (1976): 4, 37-42.

The primary reason for asserting that the vihuela had a doubled first course rests on the number of pegs (twelve) in the surviving instruments in the Jacquemart-Andre Museum and in Quito, Ecuador.⁹² However, because of their extreme string-length, it is doubtful that either of these instruments were suitable for playing the solo vihuela repertoire, and doubled first courses are also common in bass lutes.⁹³

Two sixteenth-century diagrams of vihuelas, one in Milán's El Maestro⁹⁴ and another in Henestrosa's Cifra Nueva,⁹⁵ show vihuelas with twelve pegs. Bermudo includes a vihuela diagram that shows twelve pegs,⁹⁶ but unfortunately Bermudo's caption clearly states that the woodcut depicts a seven-course vihuela. Do twelve pegs always prove twelve strings, and hence a doubled first course? Consider James Tyler's description of the Renaissance guitar's first course:

Visual and written evidence confirms that this fashion for using only a single first string was quite widespread and also extended to the five-course guitar in the seventeenth and eighteenth centuries, even though virtually all the guitars which survive from this period were made to accommodate a double first course. [i.e., had eight pegs for seven strings]. This curious anomaly is nowhere explained, though we do know that it was very difficult to find

⁹² Donald Gill, "Notes and Information: A Vihuela in Ecuador," Lute Society Journal 18 (1978): 53-55.

⁹³ For instance, both instruments described as bass lutes in Ernst Pohlmann's museum instrument listings have doubled first courses. See Ernst Pohlmann, Laute, Theorbe, Chitarrone: Die Lauten-Instrumente ihre Musik und Literatur von 1500 bis zur Gegenwart (Bremen: Eres Edition, 1982) 329, 337.

⁹⁴ Milán, fol. A4^r; also in modern edition, El Maestro, edited by Charles Jacobs. (London: 1971) 16.

⁹⁵ Luis Venegas de Henestrosa, editor, Libro de Cifra Nuevas para tecla, harpa, y vihuela (Alcalá de Henares, 1577), fol. 7^r. Reprinted in Monumentos de Música Española vol. 2, edited by Higinio Anglés, (Barcelona: 1944) 160.

⁹⁶ Bermudo, fol. 110^r.

treble strings of gut with equal thickness throughout their length, a requirement for good intonation. The problem of finding two matching strings was even greater, hence a single first course was probably a matter of simple practicality.⁹⁷

Early Renaissance six-course lutes also often had twelve pegs, although almost all iconography shows lutes with single first courses.⁹⁸

There is also significant literary evidence for vihuelas having a single first-course. The "guitarra" definition in Covarrubias's Tesoro clearly says: "These strings [those of the five-course guitar] are requintadas, not in unisons as are those of the vihuela, but they are tuned in fifths, except for the first, which in both instruments is single (my emphasis)."⁹⁹

As stated earlier, Covarrubias is far from an ideal authority, but additional proof is available. Corona-Alcalde finds further evidence for a single first course in a riddle about a vihuela from Pedro del Pozo's 1547 Cancionero ("eleven dead I found inside, teased by one alive") and a poem by Antonio de Villegas ("like those who judiciously slacken the prima of the vihuela to save it for another day . . ."). Corona-Alcalde also quotes a 1591 inventory in Barcelona that speaks of "three viols, one of nine strings, [a five-course guitar?] and the other two are, one of eleven strings, and the other bowed."¹⁰⁰

Outside of Spain, a sixteenth-century inventory of Parisian instrument maker Phillippe de La Caniessiere includes "troy guiternes dont une a unze cordes et les deux aultres petites," in other words,

⁹⁷ Tyler, The Early Guitar 26.

⁹⁸ Lundgren, Robert, "Historical Lute Construction: The Erlangen Lectures," American Lutherie 15 (1988): 10.

⁹⁹ Covarrubias 670.

¹⁰⁰ Corona-Alcalde, "The Viola" 17.

eleven-string guitars.¹⁰¹ These instruments could easily have been imported vihuelas, although it is possible that they were rare examples of the elusive Renaissance six-course guitarra grande, an instrument mentioned only by Bermudo.¹⁰²

Returning to Fuenllana's use of divided courses, it is interesting to note that he never uses this device on the first course. Use of an "undivideable" single string is one obvious explanation.

This author is aware of only one Spanish vihuela painting done in enough detail to depict individual strings, the anonymous sixteenth-century "Panel of Angels" in the Barcelona Cathedral.¹⁰³ This painting shows a five-course vihuela with a single string as the first course.

Given the literary references to eleven strings and the lack of correspondence between provision for a double first course and its actual use in other Renaissance plucked instruments, it seems likely that the vihuela followed the general trend of its era and was usually strung with a single first string. If this is the case, then the argument proposed by Gill, Abbot and Segerman in relation to unison stringing is inapplicable.

¹⁰¹ Harvey Turnbull, The Guitar: From the Renaissance to the Present Day (New York: 1974) 17.

¹⁰² Bermudo, fol. 93^v.

¹⁰³ Dates given by Corona-Alcalde, "The Viola" 26. For an excellent reproduction see: Christopher Wilson, Vihuela Music of the Spanish Renaissance, Virgin Classics VC 7 91136-2, 1990. The painting does not depict any differences in string thickness within the bass courses or between bass and treble strings and hence conveys no information about unison or octave stringing.

Contrapuntal Complexity as a Rationale for Unison Stringing

In one of the earlier twentieth-century references to unison stringing, Emilio Pujol says: "Another difference [between the vihuela and the lute] was the arrangement and disposition of the strings; six courses tuned in unison on the vihuela, while in the lute the first was single, the second and third tuned in unisons, and the rest requintados, which signifies an interval of an octave tuning."¹⁰⁴ Pujol gives no footnote or justification for this statement until the next paragraph, where he states: "Because of the effect of octave-stringing on the lute, the melodic sense of some voices is forced to mix and cross with others, giving a confused sound that the vihuela avoids." The second statement is not phrased as an argument, but it may reflect the real reason Pujol was quickly and firmly convinced of unison-course vihuela tuning from the inconclusive sixteenth-century literary evidence.

Contrapuntal complexity as evidence for unison basses is an argument not equally applicable to all the vihuelistas. Milán's music in particular often has a homophonic texture; his "counterpoint," when it does occur, is of a very free sort that is hardly damaged by a few free-floating unisons resulting from an octave-stringing. The sort of rigorous, four-part counterpoint typical of Fuenllana and Daza is not characteristic of the more instrumentally conceived music of Narváez and Mudarra.

In the case of the most contrapuntal vihuela music, it is hard to deny that octave-strings in bass courses occasionally cause audible confusion

¹⁰⁴ Emilio Pujol, prefacio, Los Seys Libros del Delphin de Música, by Luys de Narváez, ed. by Emilio Pujol, Monumentas de la Música Española, Vol. 3 (Barcelona: 1945) 7. My translation.

in voice-leading. However, it is also hard to deny that plain-gut unison basses can lack sustain and brilliance. Deciding where a sixteenth-century musical ear might have drawn the line between improved voice-leading and an improved sound requires a consideration of both musical and acoustic factors.

An idea of sixteenth-century taste in stringing can be inferred by seeing if vihuela music was routinely played on instruments we know had octave-stringing. There are several instances of vihuela music appearing in sixteenth-century lute tablatures. Thirteen pieces by Narváez appear in a 1547 lute tablature published by Pierre Phalèse in Louvain,¹⁰⁵ and 14 pieces by Valderrábano appear in a 1552-53 tablature also published by Phalèse.¹⁰⁶ Since the vihuela was a rare instrument outside of Spain the music was usually destined for performance on octave-strung lutes. If the use of octave-paired basses in this music had offended the sixteenth-century ear of Phalèse, why did he choose to include it in an anthology aimed at customers who would play it on octave-strung lutes? In these pieces, any historical argument that this music was too contrapuntal to be played on an octave-strung instrument is refuted by at least one demonstrable sixteenth-century aesthetic decision. Of course it can be argued that musicians and publishers in the sixteenth-century could suffer from lapses in musical judgement as easily as those in the twentieth, but if the study of performance practice is not to become overwhelmingly subjective, a

¹⁰⁵ Ward, "The Vihuela" 383-384.

¹⁰⁶ Ward, "The Vihuela" 392.

demonstrable sixteenth-century taste should be given at least provisional credence.

Summary

Most references which seek to prove unison-stringing of bass courses in the vihuela either quote John Ward's 1953 dissertation or duplicate his arguments. A re-examination of Ward's arguments shows one piece of information undeniably relevant to the vihuela repertoire: Pisador's tuning instructions. These instructions show that Pisador wished a unison fourth course. However, an extension of this evidence to other courses or other vihuelists is an inference that requires further substantiation to be regarded as proof. One can either infer that Pisador meant his readers to extend his instructions to the other courses, or one can infer that Pisador was pointing out an exception (the fourth course) to the general sixteenth-century norm on other instruments of stringing bass courses with octave pairs. Since readers usually assume missing information in instructions is left out because it does not deviate from standard practice, the latter inference is arguably what Pisador intended, and results in a vihuela with octave-strung fifth and sixth courses.

Ward's second piece of evidence is the unison-stringing used by Dentice. The passage describing Dentice's stringing never mentions the vihuela, thus its connection with the subject is conjectural.

Ward's third piece of evidence is the guitarra definition in Covarrubias's Tesoro. This definition's relevance for most of the vihuela repertoire can be questioned on the basis of date alone. In addition, the

Tesoro's information on a known stringing (Baroque guitar) is wrong, and a careful reading will show that the passage does not rule out use of an octave-paired sixth course, and can even be interpreted as allowing octave pairs on the fifth and sixth courses.

Other evidence supposedly pointing to unison tuning can also be interpreted as allowing octave stringing of some of the bass courses. Bermudo's statement on the four-course guitar and the vihuela de flandes does not rule out octave-strung fifth and sixth courses, nor does it imply anything about the fourth course other than the fact that its stringing was not standardized. Fuenllana's use of split-courses also allows for octave-paired fifth and sixth courses. The doubled first-course argument advanced by Abbot and Segermann is undermined by new evidence that vihuelists often used single first courses.

Nor does the contrapuntal complexity of some vihuela music rule out the use of octave-stringing; some of the octave-strung lute repertoire is at least as polyphonic as the music of Milán and Mudarra, and the music of Narváez and Valderrábano was considered acceptable octave-strung lute repertoire by at least one sixteenth-century publisher.

In this author's opinion, no completely convincing argument proving unison-stringing on the vihuela has been advanced in the scholarly literature to date. Octave-stringing as the norm for double-strung bass courses is not clearly contradicted by any sixteenth-century literary reference concerning the vihuela; and the lack of an explicit, all-inclusive contrary instruction or proof from sixteenth-century Spain is in itself evidence that merits careful consideration.

Part Two/ Chapter Two

Arguments in Favor of Octave-Stringing

Since most twentieth-century scholars have been convinced that unison-stringing was the standard practice on the vihuela, little thought has been given to literary statements, iconography, string characteristics, or internal musical evidence that point to use of octave stringing. An examination of each of these areas uncovers evidence implying that vihuelists routinely strung some or all of their basses with octave pairs.

Literary Evidence

In addition to Bermudo's oft-quoted discussion of the vihuela de flandes, the stringing implications of another statement in the Declaración have not been discussed in the scholarly literature.

Bermudo writes:

If you wish to make the vihuela into a guitarra a los nuevos [a guitar tuned in temple nuevo, or the new tuning] remove the first and sixth [courses], and the four strings [i.e., courses] that remain are those of the guitar. And if you wish to make the guitar into a vihuela, put on the sixth and the first [strings].¹⁰⁷

When applied to intervals within a course as well as between courses, this comparison of vihuela and guitar tuning works only when the vihuela has an octave-strung fifth course, and thus by implication an octave-strung sixth course, given the usual acoustic reasons for including an octave pair.

¹⁰⁷ Bermudo fol. 96^r; trans in Ward, "The Vihuela" 5.

Table 2.1: Bermudo's comparison between the vihuela and four-course guitar in temple nuevo.

<u>Vihuela Courses</u>		<u>Guitar Courses</u>
single or unison first course	_____	removed
unison 2nd course	_____ _____	unison or single first course
unison 3rd course	_____ _____	unison 2nd course
unison 4th course	_____ _____	unison 3rd course
octave 5th course	_____ _____	octave 4th course
octave sixth course	_____ _____	removed

Only one assumption beyond the literal translation is necessary for this interpretation: i.e., that Bermudo's comparison is meant to include intervals within courses as well as between courses. The usual unison-stringing interpretation of Bermudo's discussion of the guitar's cuerdas requintadas and the vihuela de flandes requires two extrapolations: first, that Bermudo's failure to mention the vihuela conveys valid information about its stringing, and secondly, that this discussion of fourth courses should be extended to the other two courses of an instrument that is not mentioned. However, a narrower interpretation of the cuerdas requintadas passage (pointing only to unison stringing of the vihuela's fourth course) is perfectly consistent with the implications of Bermudo's above remarks on the guitarra a los nuevos.

Iconography / Vihuela and Viola da Mano

A complete and detailed iconographical study relating to the vihuela has never been published, and the discussion of iconography related to the instrument is somewhat cursory in most articles. The best-known depictions of the vihuela are in the woodcuts accompanying the vihuela books of Milán and Narváez. These are reprinted so routinely that it is easy to be left with the erroneous impression that other depictions of the instrument are rare or nonexistent. In actuality, there are several Spanish and Catalan paintings of the vihuela, as well as numerous depictions of either vihuelas or guitars in woodcuts.

Iconographical evidence in the matter of stringing needs to be approached with a great deal of caution for two reasons. The first is that a string is inherently a difficult thing to paint, draw, carve or engrave. Woodcuts in particular tend to use a random number of straight lines to represent the strings, and these lines rarely correspond to the number of pegs depicted. Painting and engraving allow more accurate string representation, but if the instrument is depicted on a small scale the limitations of either medium can still make a distinction between a thick bass string and its smaller octave pair technically impossible. Another practical problem is that most available reproductions of paintings are at too small a scale to discern details of stringing. Nonetheless, published reports by those who have seen the actual paintings are certainly worth consideration.

A third problem is encountered in discerning artists' intent. Suppose a large-scale painting depicts a vihuela with bass strings of equal

thickness (implying an all-unison stringing). We have no way of knowing whether the depiction represents a real sixteenth-century stringing or is instead merely a reflection of the artist's unwillingness to spend a great deal of technical effort on a small and rarely noticed detail. The ideal iconographical evidence for vihuela stringing would be a painting that also accurately depicted the strings of a different instrument (for instance, a lute) with octave-courses. We could then be relatively sure that the artist took the trouble to accurately depict the stringing of the vihuela as well.

Unfortunately there is no such depiction of a vihuela, if one assumes that a vihuela is exclusively a Spanish instrument.¹⁰⁸ There is, however, a painting by Girolamo dai Libri, now in the National Gallery in London, that includes a depiction of a viola da mano and a small octave-strung lute. The painting clearly depicts an angel playing a small viola da mano, which "shows six courses, eleven strings, and octaved basses exactly like its companion lute."¹⁰⁹ Other depictions of the viola da mano in which stringing can be discerned also show octave-strung basses and a single first course.¹¹⁰

Given this clear iconographical representation of stringing on the viola da mano, the issue of whether Italian depictions legitimately reflect a separate instrument or are merely paintings of imported vihuelas rendered by Italian artists is of obvious importance. There are no extant

¹⁰⁸ At least none mentioned in any published material known to this author.

¹⁰⁹ Gill, "Vihuelas, Violas" 458.

¹¹⁰ Corona-Alcalde, "The Viola" 9.

Italian “vihuelas” so all speculation about the viola da mano’s actual construction is based on Italian paintings and literary references. The apparent difference in names is an illusion: viola da mano (viola of the hand) is merely a literal Italian rendering of the Spanish “vihuela de mano.”

The vihuela’s point of origin was in the Catalan areas of the kingdom of Aragon; it apparently spread from there into Castille and also into southern Italian Aragonese possessions such as Naples.¹¹¹ The vihuela’s spread to northern Italy can be tracked in paintings and is also easily related to historical events. In 1492 Rodrigo Borgia was elevated to the papacy as Alexander VI. The first appearance of so-called viola da manos in northern Italian paintings, particularly in the Papal states, almost exactly coincides with this election of Rodrigo to the papacy.¹¹² Given this history, it would be necessary to prove that the vihuela was both adopted and significantly altered by Italian musicians before admitting that the Italian term viola da mano reflects a different instrument whose stringing has no relevance to the Spanish vihuela.

There is not much hard evidence to support this contention. Since the lateral peg placement often noted as the major distinguishing feature of the Italian viola da mano can also be seen in a few early Valencian paintings and at least one later Castilian source,¹¹³ the supposedly

¹¹¹ Ian Woodfield, The Early History of the Viol (Cambridge: Cambridge UP, 1984) 81.

¹¹² Woodfield 81.

¹¹³ See the “Madonna and Child with Angel Musicians” by Rodrigo Osona, reproduced in Woodfield, 46; and the woodcut of two vihuelists or guitarists in the Romancero historiado of Lucas Rodríguez, (Alcalá, 1582) reproduced in the Editorial Costalia.

"Spanish" headstock with posterior pegs depicted in Milán's El Maestro and later Spanish depictions may have become standard only after the completion of the Italian paintings, most of which date before 1520.¹¹⁴ Therefore it is possible that the differences in vihuela construction in these depictions are due more to chronology than geography. It should also be remembered that Italy gained cohesion as a political and cultural entity even later than Spain, and to draw distinctions between sixteenth-century instrumental types based on twentieth-century borders is dangerous. The vihuela could be viewed as a common and identical Aragonese instrument in both Valencia and Naples, since both cities were under Aragonese control, and its appearance in some northern Italian paintings may reflect a Catalan Pope's patronage more than a routine use by Italian musicians. Resolution of this question would depend partly on recreating the exact situation in which each painting was commissioned and completed (a study outside the scope of this paper) since in viola da mano depictions resulting from Papal commissions it is possible that the painter's instrumental models were derived from those used by the Pope's own Catalan musicians.

Ian Woodfield, arguably the most knowledgeable in this area of iconography, never specifically addresses the separate and distinct existence of an Italian form of the plucked vihuela (the primary focus of

Edición, estudio, bibliografía e índices por Antonio Rodríguez Monina, (Madrid: 1967) 201.

¹¹⁴ For instance, all of the viola da mano paintings (except one extremely atypical depiction) discussed by Corona-Alcalde in "The Viola" date before 1520. One engraving may have been done as late as 1530, but this is a reproduction of an earlier (now lost) painting executed before 1510.

his book is on the viol da gamba), but in his book he never uses the Italian term for the plucked instrument. That this is not an oversight but is instead a considered opinion is clear in the following statement from the chapter "The Introduction of the Viol into Italy":

Terms such as "viola spagnola", "viola a la spagnola" or "viola napoletana" normally referred to the vihuela de mano — understandably so, since this instrument retained its close association with Spain throughout the 16th-century, and remained to some extent a peripheral, "exotic" instrument, whereas the viol, having been very quickly assimilated into the very centre of Italian musical life, soon lost any association it may once have had with its Spanish ancestor.¹¹⁵

In perhaps the earliest reference to the viola da mano, Tinctoris also views both the Italian and Spanish "versions" as the same instrument:

The lyra . . . is now known everywhere as the lute, perhaps to distinguish it from the various other instruments to which it has given rise . . . that, for example, invented by the Spanish, which both they and the Italians call the viola, but the French the demi-luth. This viola differs from the lute in that the lute is much larger and tortoise-shaped, while the viola is flat, and in most cases curved inwards on each side.¹¹⁶

Links between the viola da mano and the vihuela can be found other than their near-identical depictions in paintings. The only music specifically designated for the viola da mano is in two books issued simultaneously by Francesco da Milano, Intavolatura de Viola o vero Lauto [Tablature for the Viola or the True Lute] published in Naples in 1536.¹¹⁷ The second book is written in a rare form of tablature known

¹¹⁵ Woodfield 95.

¹¹⁶ A. Baines, "Fifteenth-Century Instruments in Tinctoris's De inventione et Usa Musicae," Galpin Society Journal 3 (1950) 19.

¹¹⁷ Tyler, The Early Guitar 22.

as Neapolitan, which resembles standard Italian tablature except that the order of the strings is reversed and an open course is represented by a one instead of a zero. Luis Milán's 1536 El Maestro uses a similar tablature, the only difference being the use of a zero for the open first course.

In short, much of the available evidence suggests that the vihuela and the viola da mano differ in name only. No Spanish paintings are currently known that accurately depict vihuela stringing (probably because most Spanish paintings of the period are somewhat crude in comparison to the works of the Italian Renaissance artists), but the only clear iconographical evidence for stringing on the Italian vihuela (alias the viola da mano) shows it with octave-strung fourth, fifth, and sixth courses.

There is a seeming contradiction between this iconographical evidence implying the use of octave-strings on the sixth, fifth, and fourth courses and the literary evidence from Pisador and Bermudo, which allows the use of octaves on only the fifth and sixth courses. However, the conflict disappears when the evidence is viewed in an historical context. Most of the viola da mano depictions are from early in the sixteenth century, when vihuela and lute music was thinner and more instrumental in conception and the voice-leading problems caused by an octave pair on the fourth course would not be so extreme. Bermudo and Pisador's instructions come from the middle of the century when vihuela music was more contrapuntal and the musical liabilities of an octave fourth-course would logically outweigh its acoustic advantages. Both

iconographical and literary evidence thus fit a gradual move from use of octaves on the fourth, fifth and sixth courses early in the vihuela's history to a more prevalent use of octaves only on the fifth and sixth courses by the middle of the century. Mudarra's place in this historical continuum makes it possible that he used either stringing, so we stand in need of further evidence before deciding on a likely stringing for his music.

Musical Evidence Implying Octave Stringing

Donald Gill's 1981 article "Vihuelas, Violas and the Spanish Guitar" accepts without reservation the hypothesis of unison basses. Later in this article Gill notes:

The very obvious question of how the vihuela produced adequate bass tone with unison plain-gut strings, bearing in mind the many two- and three-part passages on the lower three courses that occur in the tablatures, has never been to my knowledge publicly aired. The best suggestion made so far is that only the gold- and silver-rich Spaniards could afford the high-quality Munich-made gut strings that would be required for such stringing,¹¹⁸ but one suspects that the shallow, flat-backed vihuela body had different acoustic properties from the lute's. This would be an interesting subject for investigation on historically based instruments that have been strung with high-twist gut.¹¹⁹

Gill's observation is well-founded; two- and three-part bass passages are a common occurrence in the music of Mudarra and the other vihuelistas. In addition to these polyphonic bass passages, the vihuelists were also fond of using the bass register for extensive runs and felt no

¹¹⁸ (Gill footnote) Abbot and Segerman, "On Single" 37-42.

¹¹⁹ Gill, "Vihuelas, Violas" 459.

compunction about using very high positions on these courses; at least one of Mudarra's fantasies in Book One uses the tenth fret on the sixth course.¹²⁰ Mudarra in particular seems to relish the use of the bottom three courses, often fingering runs in a manner that moves the notes onto the bass courses as quickly as possible. Given the already-discussed features of modern (and presumably sixteenth-century) plain-gut strings, all of these features of vihuela writing would seem to create problems in a unison-strung instrument, as Gill implicitly admits above. Complex polyphony and fast runs would sound muddy on strings that are dull, and suspensions and other contrapuntal devices become increasingly hard to hear as sustain decreases. The use of the bass courses in runs that could easily utilize another fingering lower on the neck also implies some special feature of those courses. Gut basses have a tendency towards differing intonation as they are fretted further up the neck, a problem exacerbated by the use of unisons. Gill's solution to these problems involves first hypothesizing a great supply of high-quality plain-gut bass strings in sixteenth-century Spain and then judging modern vihuelas' historical "accuracy" by the sound produced with these unison basses. A simpler answer is to suspect that the vihuela did not use unison basses at all, but was routinely strung with bass octave-pairs for the same reasons as were sixteenth-century lutes.

In addition to these general features of vihuela music that argue for the use of octave-stringing, the use of octave pairs might also leave more definite musical traces, particularly in the use of certain fingerings and

¹²⁰ Mudarra fol. 4^r; Chantarelle edition 32.

the avoidance of others. In contrast to other types of sixteenth-century notation, tablature provides exact fingering information, and is thus ideal for this sort of musical analysis. Fuenllana's Orphénica lyra is unique among the vihuela tablatures in that pitch relations within a course can be accurately deduced by comparing certain intabulations with the vocal originals. Since Fuenllana was the only vihuelist to notate this "split course" technique, an examination of the octave-stringing implications in Orphénica will be presented before examining the more subtle fingering evidence of octave-pairs in the music of Mudarra.

Stringing Implications of Fuenllana's Use of Split Courses

As mentioned earlier, Fuenllana several times uses a technical device known as a "split course," on the second, third, and fourth courses. To "split" a course, a vihuelist would fret the bottom string of a course while the other was allowed to ring open. Fuenllana notated this device by putting a zero (for the open string) and another number (showing where the other string of the course was to be fretted) together in a box on the desired course. Charles Jacobs correctly concluded that this precluded Fuenllana's use of octave strings on the fourth course, a conclusion which is verified by the illogical voice-leading which would have resulted from the use of an octave pair in these situations. However Jacobs did not raise the question of why Fuenllana avoided this device on the first, fifth, and sixth courses.

Split courses are also called for in two lute tablatures, the so-called Capirola Lute Book by Vincenzo Capirola and the Cracow Lute Book

by Valentin Bakfark.¹²¹ The standard sixteenth-century lute stringing presumably used by both would have octave-pairs on the fourth, fifth, and sixth courses. An examination of these tablatures shows that Capirola used the device exclusively on the third string and that Bakfark used it only on the second and third courses. Neither lutenist used the device on a presumably octave-strung course.¹²²

Practical experimentation shows one possible explanation for the avoidance of this technique on octave-strung courses. Splitting courses is not easy, as is admitted by both Fuenllana and Bermudo,¹²³ and to use the device where it is not needed would be illogical. The alternate solution for any split-fingering on a unison course involves two fretted notes. However, the alternate solution for any split fingering on an octave-course involves only one fretted note, and is less likely to result in a physically impossible chord when other voices are added, as can be seen in Example 2.1 below.

For this reason, it can be said that split-course fingerings are more useful on unison-strung courses. Their occurrence in Bakfark's and Capirola's tablatures fits this assumption precisely. If Fuenllana used the stringing implied by this author's interpretation of Pisador's tuning instructions (unison fourth course, octave-paired fifth and sixth) the use of split courses is perfectly consistent between Bakfark, Capirola, and

¹²¹ Ward, "The *Vihuela*" 82-83.

¹²² See Valentini Bakfark, *Opera Omnia, Volume II, The Cracow Lute Book*. (Cracow, 1565; Budapest: Editio Musica, 1979); also Vincenzo Capirola, *Compositione di Messer Vincenzo Capirola* Archivum Musicum Collana di testi rari, vol. 39 (Firenze: 1981).

¹²³ Bermudo, fol. 99^r; Fuenllana fol. 5^r; trans. in Jacobs edition *Orphénica*, lxxxvii.

Fuenllana—all three use split-course fingerings only on unison courses, and have a particular fondness for their use on the lowest-pitched unison course. If one holds to the standard assumption that Fuenllana used only unison courses, then his avoidance of the device on the fifth and sixth courses stands in need of an explanation.

Example 2.1: Alternate fingerings for split courses with unison and octave bass stringing (Vihuela in E).

	<p>Alternate fingering to produce same notes</p>		<p>Alternate fingering to produce same notes</p>
<p>Notes resulting from split unison course</p>		<p>Notes resulting from split octave course</p>	

One explanation compatible with all-unison stringing is that Fuenllana did not use split-courses on the fifth and sixth courses because he never encountered musical situations in which they were needed. If Fuenllana had used the device in wholly original compositions this argument would be immune to proof or disproof, but Fuenllana's polyphonic intentions are easy to verify since he uses split-courses exclusively in the five- and six-voice intabulations in Book Three. An examination of the original vocal versions shows at least four instances where Fuenllana, if his vihuela had had unison bass courses, could have used this device on the fifth course to include otherwise unfingable

voices. In each case Fuenllana instead chooses to drop one of the voices. A complete listing of these instances is included at the end of the paper in Appendix Two. The example below is typical.

Example 2.2: Fuenllana's split-course intabulation of Gombert's "Aspice Domine" with alternate solution available only on unison strung basses.¹²⁴

The example shows a comparison between a vocal original and two different intabulations. The vocal original is in mensural notation. The tablature transcribed in standard notation is shown below the vocal original. Fuenllana's original intabulation is shown below the tablature, with a note that it is possible only with split unison courses.

vocal original

Tablature transcribed in standard notation

Fuenllana's original intabulation

compás 29

Intabulation possible only with split unison courses.

In none of the four instances where Fuenllana chooses to drop a voice is the note doubled elsewhere, so the omissions are quite audible when compared with the vertical sonorities in the vocal originals. In modern

¹²⁴ Fuenllana fol. 59^v; Vocal original derived from Jacquet of Mantua, *Collected Works* vol. 5, *Corpus Mensurabilis Musicae* 54, Ed. by Phillip T. Jackson and George Nugent, (Hanslerr-Verlag: American Institute of Musicology, 1986) 48-54.

terms, Fuenllana's omitted notes function as roots of the affected "chords" in two instances, the third in another, and the fifth in another.

In two other instances, while the "omitted" note appears to be merely delayed on paper, the actual change from the original is far greater when the intabulation is actually played. A listener hearing Example 2.3 below would probably perceive it as having a bass line which moves from C to Eb on the fourth beat, since both notes are played on the same string, rather than perceiving the bass line as having a rest on the fourth beat.

Example 2.3: Fuenllana's split-course intabulation of Morales's "Jubilate Deo" with alternate solution available only on unison strung basses.¹²⁵

The image displays a musical score for Example 2.3, comparing a vocal original with two different guitar intabulations. The score is organized into three horizontal sections: 'Vocal original', 'Tabature realized in standard notation', and 'Fuenllana's original intabulation'.

- Vocal original:** The top section shows a vocal line in treble clef and a bass line in bass clef. The bass line has a circled note on the fourth beat, labeled 'ma 49'.
- Tabature realized in standard notation:** The middle section shows the same vocal line and a guitar tabature line. The tabature line has a circled note on the fourth beat, corresponding to the circled note in the vocal original.
- Fuenllana's original intabulation:** The bottom section shows two possible solutions for the split-course. The first solution, labeled 'compás 97', shows a sequence of notes: 0, 3, 2, 0, 3, 3, 3, 1, 0, 0, 0, 0. The second solution, labeled 'Intabulation possible with split unison fifth course', shows a sequence of notes: 0, 3, 2, 0, 3, 3, 3, 1, 0, 0, 0, 0. The second solution has a circled '3 0' in the fourth measure.

¹²⁵ Fuenllana, fol. 81^v; vocal original derived from Cristóbal de Morales, *Opera Omnia*, Vol. 2, Transcripción y estudio por Higinio Anglés (Barcelona: 1953) 184-191.

In at least three other other instances, the splitting of a unison course would have significantly improved the voice leading, since it would have allowed the affected polyphonic line to be sustained. Instead Fuenllana chose more difficult and musically less effective fingerings.

Example 2.4: Fuenllana's split-course intabulation of Josquin's "Credo" from *Missa de Beata Virgine* with alternate solution available only on unison-strung basses.¹²⁶

The image displays a musical score for Example 2.4, comparing Fuenllana's original intabulation with a proposed alternate solution. The score is organized into three horizontal sections: 'Vocal original', 'Tablature realized in standard notation', and 'Fuenllana's original intabulation'. The 'Vocal original' section shows a vocal line in treble clef. The 'Tablature realized in standard notation' section shows the same melody in standard notation, with a circled note on the 3rd beat of measure 59. The 'Fuenllana's original intabulation' section shows the original lute tablature for compás 118, with a circled '4' on the fifth line. Below this, a proposed alternate intabulation is shown, which uses a split fifth unison course to allow the note C to sustain and is technically easier. The alternate intabulation is shown in a separate section to the right of the original, with a circled '4' on the fifth line. The text 'Possible intabulation with split fifth unison course allows C to sustain and is technically easier.' is written below the alternate intabulation.

Vocal original

m 59 (3rd beat)

Tablature realized in standard notation

Fuenllana's original intabulation

compás 118

Possible intabulation with split fifth unison course allows C to sustain and is technically easier.

¹²⁶ Fuenllana, fol. 73^v; vocal original derived from *Werken van Josquin des Prez*, Vol. 16 (Amsterdam: G. Alsbach and Co, 1951) 139-143.

The situations where Fuenllana chooses not to split the fifth course are in no way less polyphonically vital than those in which the device is used on the third and fourth courses.

The significance of these deviations from literal intabulation depends in large degree on how faithfully Fuenllana usually adhered to the vocal originals. Most scholars agree that Fuenllana was indeed conscientious in this regard. Although the intabulations are not completely literal, they generally do present an accurate reduction of the work intabulated. While fusion of parts is common (i.e., a single course must be thought of as providing unisons involved in several lines), sustained notes are repeated, and lines are frequently embellished, it is very rare for the intabulation to omit isolated notes from a polyphonic line of the original, particularly those that cannot be considered ornamental. Charles Jacobs writes: "It is astonishing, especially in the five- and six-part compositions, [the very intabulations in which split-courses appear] to what extent Fuenllana preserved the polyphony of his models."¹²⁷ This overall fidelity makes it less likely that Fuenllana's avoidance of split fifth-course fingerings is accidental.

Another possible objection is that Fuenllana's sources differed from those available today. Since we can in no way verify the exact notes of Fuenllana's sources, this contention cannot be proved or disproved. However, the general fidelity of Fuenllana's intabulations to the known extant sources as well as the number of instances where Fuenllana could have profitably split a unison fifth course argue against this being a

¹²⁷Jacobs edition *Orphénica* xlv.

complete explanation, although it might apply in isolated instances. A final objection, that Fuenllana's blindness makes comparison between intabulations and original invalid, can be countered with the same argument.¹²⁸

Another aspect of Fuenllana's use of split-courses on the third and fourth courses also points to use of octave-pairing. In one of its more common occurrences (five times) a split-course fingering serves as a substitute for another fairly easy fingering of the same chord. In each instance the alternate fingering given below would give the same notes and essentially the same tone color with unison basses as Fuenllana's difficult use of a split course.

Example 2.5: Unnecessary split course-fingering implying use of octave-strung basses in Fuenllana's intabulation of "Si bona suscepimus" by Verdelot.¹²⁹



Fuenllana's fingering, avoiding use of the fifth and sixth courses



Possible fingering using fifth and sixth courses would have much different tone color if octaves were used.

The substitute fingerings in these cases are not only possible, but

¹²⁸ Charles Jacobs has convincingly argued that Fuenllana's blindness was probably not total. See Jacobs edition *Orphénica*, xxvi, xxxix, xliii.

¹²⁹ Fuenllana, fol. 61^v

actually seem easier than Fuenllana's fingering. However, if Fuenllana was using octave-strung fifth and sixth courses, the substitute fingerings would involve two octave-courses ringing against two unison-courses, giving a much different sound than his actual fingering. The same situation holds with almost every other occurrence of a split-course fingering substituting for a possible "normal" fingering in Orphénica Lyra (listed in full in Appendix Two of this document): each occurs in a situation where the normal fingering would result in a different tone color due to greater use of octave-courses had Fuenllana used octaves on the fifth and sixth courses. A single exception occurs in the ninth compás of Fuenllana's intabulation of the "Crucifixus" from Josquin's Missa de Beata Virgine. If Fuenllana used an entirely unison stringing, his use of split-course fingerings in these examples seems inexplicable.

In summary, the exact manner of Fuenllana's use of split-courses implies a use of octave pairs on the fifth and sixth courses for the following reasons:

1): The two other instrumentalists who have used this device restricted its use to unison courses and used it primarily on the lowest-pitched unison course. If Fuenllana used the device for similar reasons and in similar situations his avoidance of the device on the fifth and sixth courses implies that his vihuela had octave pairs on these courses.

2): Situations in which splitting a unison fifth-course would have been advantageous occur often in the music intabulated in Book Three by Fuenllana, but no instances of a split fifth or sixth course occur in Orphénica lyra. One explanation is that Fuenllana's fifth and sixth

courses had an octave-pair instead of a unison, which would have made the device unusable in these situations, since the fretted notes on the octave pair would sound an octave too high.

3): Fuenllana often splits the fourth course when a normal fingering utilizing unison fifth and sixth courses would actually be easier and would result in a similar tone color. A likely explanation is that Fuenllana avoided the normal fingering because his use of octave-pairs on the fifth and sixth courses would have resulted in a radically different tone color in the passage.

One of the strongest usual objections to octave-stringing is its effect on contrapuntal voice-leading. Fuenllana's music is dense and contrapuntally involved, which may explain his apparent decision to drop the octave-tuned fourth course seen in earlier Italian vihuela depictions. Mudarra's music is less contrapuntally involved than Fuenllana's, so he would not have had the same strong musical rationale for moving away from octave-strung basses. Additionally, Mudarra's book is chronologically closer to the earlier practice implied by the Italian vihuela (i.e., viola da mano) depictions. Therefore, evidence that Fuenllana used octave-paired fifth and sixth courses implies that Mudarra also used octaves on these courses, and additionally raises the possibility that he used an octave pair on the fourth course as well.

Musical Evidence for the Use of an Octave Fourth Course in the Works of Alonso Mudarra

While the music of Fuenllana provides information definitely relating to octave or unison stringing through the composer's use of split courses, this direct line of reasoning cannot be applied to Mudarra's music, since the Tres Libros contain no split courses. However, Mudarra's fingering habits do show interesting tendencies from which we can make logical deductions about his preferred stringing.

On the vihuela, as on the lute and the guitar, the same pitch can be produced at different places on the neck by different courses. An examination of any body of tablature will show many instances where a vertical sonority that could use one or more open strings has instead used a fretted fingering that produces the same pitches on lower-pitched courses. Usually these situations will be explainable by either the necessity of sustaining other polyphonic lines, an apparent desire to have more ringing strings, ease of right-hand fingering, or the fact that a bar producing the "open" note in a higher position would have been the most reasonable fingering in light of the musical context. However, when a "fretted" fingering is employed in musical situations where the open fingering was easier and would still have permitted the sustain of other polyphonic voices, the more difficult fingering stands in need of explanation.

Several reasons for using such “closed” fingerings are familiar to modern-day guitarists.¹³⁰ Romantic-era guitarists often took advantage of such fingerings for single lines because fingerings that use as few string changes as possible sound more “melodic” and unified: the subtle changes in tone color that occur from string to string being minimized. A related principle occurs in choosing fingerings for polyphonic music: when fingering two or more lines, one should avoid moving the lower line onto the string just vacated by the upper line whenever possible.

The application of these two principles in the fingerings of an instrumentally astute composer should be evident, and indeed many such fingerings can be found in Mudarra's vihuela music. Given that these fingerings are the result of a desire for uniformity of tone color within a polyphonic line, we might also expect to find a further result when an instrument has some courses strung with unisons and others with octave pairs. Since the change in tone color when switching from an octave-paired course to a unison course would be more extreme than the change between other courses, such fingerings would likely have been used most frequently on the highest-pitched octave-paired course.

An examination of such “closed” fingerings in the four-course guitar music of Mudarra provides confirmation of this theory. Mudarra's guitar stringing is made clear when he asks for a bourdon on the fourth course

¹³⁰ Twentieth-century lutenists who do no arranging of their own may actually be less aware of these tendencies since lute notation never leaves the choice of which course to use for a particular pitch up to the performer. Lack of awareness of this principle also occasionally leads to unlikely transcriptions of the implied polyphony in some lute and vihuela tablatures.

instead of a re-entrant stringing.¹³¹ Thus Mudarra's guitar was strung with an octave-paired fourth course, unison second and third courses, and either a single or unison first course. Using the above theory, we would expect to find "unnecessary" closed fingerings employed most commonly on the fourth course. A tabulation of such fingerings in Mudarra's six guitar pieces shows precisely this result, such "closed" fingerings are used only twice on the third course and once on the second, but they occur six times on the fourth course.

That these fingerings can hardly be accidental is evident when the implied polyphony is reconstructed in standard notation. Several times Mudarra has even sacrificed an ideal realization of the polyphony implied in other lines in order not to confuse the tone color in the bass line by switching from octave to unison courses. In Example 2.6 below, Mudarra's fingering is not only more difficult when compared with the alternative, it also makes it almost impossible to sustain the tied C.

Example 2.6: # 21, "Fantasia del primer tono" compás 27- 29.¹³²

Mudarra's fingering

Alternate fingering using open third course

¹³¹ Mudarra fol. 21^r; Chantarelle edition 5, 65.

¹³² Mudarra fol. 23^r; Chantarelle edition 69.

Sustaining the bass note G in Example 2.7 below is possible on a short-mensured four-course guitar, but the alternate fingering is still significantly easier.

Example 2.7: # 20, "Fantasia del quinto tono," compás 48-50.¹³³

Mudarra's fingering

Alternate fingering using open third course

The change in tone color between octave and unison courses is particularly noticeable when the line only uses the unison course for a single, isolated note or the unison course is approached from below by half-step. In the second case the listener will very likely perceive the line "produced" by the octave pair as suddenly making a jump of a major seventh or hear it ending with an unresolved leading tone. It might be expected that a sensitive composer would minimize such instances, although they would in some cases be unavoidable. In his guitar music, Mudarra never fingers an isolated note on the open third course when it is approached from below by a half-step.¹³⁴ In contrast, there are at least three instances in the guitar pieces where Mudarra incurs

¹³³ Mudarra fol. 22; Chantarelle edition 67.

¹³⁴ There are instances when the open third course is approached from below by half-step, but only in lines that continue to rise for several notes past the open third course.

significant additional technical difficulty to avoid the same situation.¹³⁵ In Example 2.8 below, Mudarra's use of the stopped fourth course instead of the open third avoids this change of color on the resolution of a "mi" note, but also makes it almost impossible to sustain the tied note D. Use of the open third would have made sustaining the D only moderately difficult.

Example 2.8: # 20 "Fantasia del quinto tono," compás 17-20.¹³⁶

The image displays two musical staves for a vihuela piece. The top staff is a treble clef with a key signature of one sharp (F#). The bottom staff shows guitar fingering. The left version, labeled 'Mudarra's fingering', shows a sequence of notes on the fourth course (D4, E4, F#4, G4, A4, B4, C5) with fingerings 2, 4, 5, 0, 2, 3, 5, 7, 5, and a final 'x' indicating a natural harmonium. The right version, labeled 'Alternate fingering using open third course', shows the same sequence of notes but with fingerings 2, 4, 0, 0, 2, 3, 7, 5, 7, and a final 'x'. The '0' indicates the open third course (D4).

Mudarra's fingering

Alternate fingering using open third course

In the examples above Mudarra has chosen guitar fingerings that seem unnecessarily difficult unless there is some strong rationale for their use. Given that this sort of fingering occurs primarily on the fourth course, and that the fourth course is the only one with an octave pair, a connection between such fingerings and the use of an octave-course seems likely.

Turning the process around, by looking for the occurrence of similar fingering choices in vihuela music one could deduce where a stringing scheme switched from an octave-course to a unison course. If a vihuelist

¹³⁵ Full examples are given in Appendix Two of this document.

¹³⁶ Mudarra fol. 22^r; Chantarelle edition 67.

avoided easy open fingerings with unusual frequency on a particular course, particularly when the fretted fingerings are explainable as avoiding voice-leading problems caused by a different stringing of the higher open course, the lower course may well have been octave-strung.

A complete examination of Mudarra's 43 solo vihuela pieces revealed four such "unnecessary" fretted fingerings on the second course, 11 on the third course, eight on the fifth course, four on the sixth course, and 23 on the fourth course. Deciding to what degree this sort of fingering would have to predominate on a particular course to constitute proof of octave-stringing is ultimately a subjective decision, but if the ratios and seeming logic of Mudarra's use of unnecessary fingering in the guitar pieces are extrapolated, the above numbers point strongly to use of octave-stringing on the fourth course: unnecessary "closed" fingerings were used there twice as often as on any other course.

Mudarra seems to have used these fingerings most often to avoid having the highest-pitched one or two notes of an ascending polyphonic "bass" or "tenor" line switch from the fourth course to the third.

Example 2.9: #12, "Fantasia que contrahaze la harp en la manera de Luduvico," compás 137-142.¹³⁷

The musical notation consists of a staff with a treble clef and a 6/8 time signature. The melody is written on a six-line staff. Below the staff is a tablature with six lines. The tablature uses numbers 1-4 and 'z' for fretted notes and open strings. A diamond symbol is placed below the first measure of the tablature. The tablature shows a sequence of notes across six measures, with some notes circled in the original image.

¹³⁷ Mudarra fol. 13^r; Chantarelle edition 49.

Alternate fingering of same passage using open third course.

Example 2.9A: # 47, "Fantasia" compás 52-55. 138

Alternate fingering of same passage using open third course.

If Mudarra had used an octave-strung fourth course, these fingerings would have avoided the inherent voice-leading problems produced by the switch from an octave course to a unison course.

However, where a line starting on the bass courses continues to ascend past the pitch produced on the fourth or fifth fret of the fourth course (and hence a switch from a presumed octave-strung fourth course to a unison-strung third course must occur somewhere), Mudarra used the open third course freely, as in the example below.

Example 2.10: # 1, "Fantasia" compás 44-45. 139

The image shows a musical staff with a treble clef and a key signature of one sharp (F#). The melody consists of eighth and quarter notes. Below the staff is a guitar fingering diagram with four strings. The first string has a '3' above it. The second string has a '2' above it, followed by a '0', a '2', and a circled '0'. The third string has a '1' above it, followed by a '3'. The fourth string has a '0' above it, followed by a '2' and a '3'. Arrows point from the circled '0' on the second string and the '0' on the fourth string to the corresponding notes in the melody.

The second most common "unnecessary" use of the fourth course in Tres Libros occurs whenever the fingering of other voices demands that the pitch usually produced on the first fret of the third course (G on an E vihuela, or Bb on a G vihuela) must be played on the fifth fret of the fourth course. In situations where this note is approached from below by half step, Mudarra will almost always approach it on the fourth fret of the fourth course rather than the open third course.

139 Mudarra fol. 1^v; Chantarelle edition 25.

Example 2.11: # 29, "Fantasia," compás 41-44, with alternate fingering. ¹⁴⁰

The alternate fingering avoided by Mudarra in these cases would have resulted in a much weaker half-step progression to the note produced on an octave-paired fifth fret, fourth course, since the perceived pitch produced by the octave string would seem to arrive from nowhere rather than being the resolution of a sharp or mi.

The worst possible voice-leading case with an octave fourth-course stringing never occurs: there are absolutely no instances where the open third string is approached by half-step. However, it could be argued that this is more a result of Mudarra's use of meantone temperament than evidence for use of octaves. An examination of the fretting charts derived from the Tres Libros shows that Mudarra used fretting patterns that always resulted in an unusable (i.e., out-of-tune) sharp on the third fret of the fourth-course.¹⁴¹ Any ascending half-step approach to the pitch of the open third course would thus create intonational problems. Coincidence or not, these fretting patterns complement the presumed use of an octave-fourth course by placing an "unusable," out-of-tune

¹⁴⁰ Mudarra Book Two fol. 6^v; Chantarelle edition 84.

¹⁴¹ See this document 44-48.

half-step in precisely the place where it would also be avoided for reasons other than temperament.

Mudarra's probable use of a meantone fretting provides further evidence implying use of an octave-paired fourth course. Two of Mudarra's fretting patterns have a pitch discrepancy between the fourth course fourth fret and the third course open. The fretting patterns are given below.

Table 2.2: Fretting patterns with pitch discrepancies between enharmonic notes on open third course and fourth course fourth fret

Fretting Pattern Two

Vihuela in E/ Modes 1, 2, 5-8

	open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
<i>crse 6</i> E		F	F#	G		A	Bb	B	C		D
<i>crse 5</i> A		Bb	B	C		D	Eb	E	F	F#	G
<i>crse 4</i> D		Eb	E	F		G		A	Bb	B	C
<i>crse 3</i> F#		G	G#	A	Bb	B	C	C#	D		E
<i>crse 2</i> B		C	C#	D	Eb	E	F	F#	G	G#	A
<i>crse 1</i> E		F	F#	G		A	Bb	B	C		D
		DS		DS	<i>flat</i> DS		<i>flat</i> DS		DS	<i>sharp</i>	DS

Vihuela in B / all modes

	open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
<i>crse 6</i> B		C	C#	D	Eb	E	F	F#	G	?	A
<i>crse 5</i> E		F	F#	G		A	Bb	B	C	?	D
<i>crse 4</i> A		Bb	B	C		D	Eb	E	F	?	G
<i>crse 3</i> C#		D		E	F	F#	G	G#	A	?	B
<i>crse 2</i> F#		G		A	Bb	B	C	C#	D	?	E
<i>crse 1</i> B		C	C#	D	Eb	E	F	F#	G	?	A
		DS	<i>sharp</i>	DS	<i>flat</i> DS		DS		DS	<i>nu</i>	

Fretting Pattern Three
Vihuela in F#

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 F#	G	G#	A	Bb	B	C	C#	D	Eb	E
crse 5 B	C	C#	D	Eb	E	F	F#	G		A
crse 4 E	F	F#	G		A	Bb	B	C		D
crse 3 C#	A		B	C	C#	D	D#	E	F	F#
crse 2 C#	D		E	F	F#	G	G#	A	Bb	B
crse 1 F#	G	G#	A	Bb	B	C	C#	D	Eb	E
	<i>sharp</i>			<i>flat</i>		<i>sharp</i>			<i>flat</i>	
	DS		DS	DS		DS		DS	DS	

The octave-pairing implications inherent in these fourth-course fingerings would be much weaker if the “unnecessary” closed fingerings had occurred when the open third course produced an out-of-tune enharmonic substitute for the note given by the fretted fourth course. Exactly the opposite situation occurs. Using the fretting charts above, it can be seen that Mudarra would have preferred the fourth fret, fourth course’s intonation to the third course open only for unusual Renaissance flats: Gb for the vihuela in E, Db for the vihuela in B, and Ab for the vihuela in F#. However, the “unnecessary” fingerings in these instances are all sharps that resolve upwards by half-step, as can be seen in Example 2.12 below.

Mudarra’s hypothesized use of meantone temperament thus strengthens the case for an octave fourth course when these occurrences are examined. If Mudarra did use a meantone fretting one logical explanation for these fingerings is that he preferred playing a sharp on a “flat” fret to the voice-leading problems involved in switching from unison to octave-courses.

Example 2.12: # 35, "Fantasia," compás 7-9.¹⁴²

Alternate fingering would have used in-tune open third course,
but would have caused voice-leading problems with
an octave-paired fourth course

Mudarra's "unnecessary" uses of the fourth course would imply octave-stringing far less strongly if he had routinely let similar presumed octave-course/unison-course voice-leading problems stand that could have been avoided by using the fourth course. However, I have found only four cases where technically possible alternate fingering solutions to these problems are left unexploited in the *Tres Libros*.

In Example 2.13 below, the two notes on the third course in compás 64 can be played on the fourth, avoiding the voice-leading problems that would occur if an octave fourth-course were used. However, this would

¹⁴² Mudarra Book Two fol. 11^v; Chantarelle edition 96.

make it extremely tricky to sustain the "0" on the fourth course and the "2" on the fifth course in compás 63.

Another solution would be to avoid sounding the octave pair in the two notes of the line which occur on the fourth course. Both historical evidence and practical experience argue that such subtleties are possible. A thumb stroke which sounds only the bourdon of an octave-paired course is actually the bane of beginning lutenists. The fact that some vihuelists probably made use of nails would make the plucking of only the bourdon by the index finger feasible as well. These techniques would be easier on courses which were widely spaced, and Fuenllana's use of split-course technique in left-hand fingerings implies that the strings of a vihuela course were indeed far apart. Finally, at least one modern lutenist has discussed his occasional use of techniques for playing only one string of a course.¹⁴³ Therefore the problems created by an octave fourth course in this example are as easily avoidable by an alteration of right-hand technique as by a changed fingering.

Example 2.13: # 11, "Pleni de la Missa Faysan Regres de Josquin," compás 61-65.¹⁴⁴

The image displays a musical example consisting of two staves. The top staff is a vocal line in G-clef and F-sharp key signature, containing a melody with various note values and rests. The bottom staff is a lute tablature line with six strings. Above the strings are diamond-shaped fret markers. Numbers (0-4) are placed on the strings to indicate fret positions. Some numbers are grouped with a '3' above them, likely indicating triplets. The tablature corresponds to the notes in the vocal line above it.

¹⁴³ Robin Irvine, "Why Did the Right-Hand Position for Playing the Lute Change in the Mid-Sixteenth Century?" Lute News: The Lute Society Newsletter 15 (1990): 7-9.

¹⁴⁴ Mudarra fol. 12^r; Chantarelle edition 47.



In Example 2.14 below, the alternate fingering is not significantly more difficult and would have avoided the highest note of the phrase being isolated on the third course. However, both the tempo and the ornamental nature of the passage make the “voice-leading” problems that would have been produced by an octave-paired fourth course unobtrusive.

Example 2.14: # 41, “Fantasia” compás 38-41.¹⁴⁵



Possible alternate fingering using closed fourth course



¹⁴⁵ Mudarra Book Two fol. 17^r; Chantarelle edition, 107.

In both of the remaining instances Mudarra's failure to use a polyphonically preferable alternate fingering occurs in fantasias that resemble introductory *ricercars* more than highly polyphonic instrumental motets. The example below is typical of both.

Example 2.15: # 1, "Fantasia de pasos largos" compás 44-46.¹⁴⁶

Possible alternate fingering using closed fourth course

The fact that the types of fingerings that Mudarra takes care to avoid between the third and fourth courses are otherwise common further emphasizes his unusual treatment of the fourth course. Fingerings such as the one below are not unusual except between the third and fourth courses.

¹⁴⁶ Mudarra fol. 1^r; Chantarelle edition 25.

Example 2.16: #39, "Fantasia," compás 96-97.¹⁴⁷

While it has been the hypothesis of this author that Mudarra's "unnecessary" fourth-course fingerings are the result of his use of octave-fourth, fifth, and sixth courses, several other explanations for these fingerings could be entertained. However, each explanation would have certain other unlikely connotations regarding Mudarra's music as discussed below.

1. Bad fingerings: There are too many examples to justify the bulk of these fingerings as flukes unless it is also admitted that Mudarra did not entirely understand his instrument. All available evidence suggests that Mudarra was in fact considered a highly competent composer and vihuelist by his contemporaries. Although at least one unnamed vihuelista (probably Pisador) is ridiculed by Bermudo, Mudarra is specifically praised in the Declaración,¹⁴⁸ and compositions from the Tres Libros constitute the bulk of Venegas de Henestrosa's

¹⁴⁷Mudarra Book Two fol. 15^r; Chantarelle edition 103.

¹⁴⁸Bermudo fol. 29^r.

unacknowledged "anonymous" vihuela fantasias in the Libro de Cifra Nueva.¹⁴⁹

2. Result of composing away from the instrument: These fingerings are not more frequently used in intabulations, the most likely place for an unidiomatic technical solution resulting from composition away from the instrument.

3. A general preference for the sound of notes played on stopped strings: The prevalent use of these fingerings on the fourth course implies that the rationale for their use applies most strongly to this course. Rejection of octave-stringing leaves the disproportionate use of these fingerings on the fourth course unexplained.

4. Use of vibrato or some other ornament not available on a stopped string: The arguments above also apply.

Summary

It has been argued in Part Two, Chapter One that the evidence behind the usual scholarly opinion that vihuelists used all-unison stringing is inconclusive. In addition, evidence pointing a use of octave-paired basses by the vihuelistas can be presented. While Spanish iconographic evidence is lacking, depictions of the instrument in Italy show the instrument with octave pairs on the fourth, fifth, and sixth courses, exactly like the early sixteenth-century lute. The only evidence arguing that the Italians might have significantly altered the instrument

¹⁴⁹ John Ward, "The Editorial Methods of Venegas de Henestrosa," Musica Disciplina 6 (1951): 105-113.

is the fact that the Italian depictions routinely show vihuelas with a slightly different headstock and soundhole position. The argument that this is a real variation from the Spanish model (implying the possibility of other variations, such as stringing) rather than a passing phase of the instrument's development is undermined by a dearth of Spanish depictions from the same period and the occasional occurrence of Spanish vihuelas and guitars with similar features at later dates. Therefore, the stringing most strongly implied for the early vihuela by the iconographic evidence is with octave-strung fourth, fifth, and sixth courses. The standard scholarly position of all-unison stringing requires some rejection of this evidence.

The three pieces of literary evidence from the mid-1500's—Pisador's tuning instructions, Bermudo's description of cuerdas requintadas, and his earlier description of the relation between the stringing of the vihuela and the four-course guitar—can all be consistently interpreted as implying that the vihuela by this time was commonly strung with octave-pairs on only the fifth and sixth courses. The standard position that two of these statements imply all-unison tuning places them at odds with the third and may be based on anachronistic twentieth-century assumptions about what is a "normal" sixteenth-century stringing.

Internal musical evidence from the music of Fuenllana, a contemporary of Bermudo, can be interpreted as supporting the supposition that some mid-century vihuelists used octaves on the fifth and sixth courses, but not the fourth. Fuenllana's use of split-courses in his intabulations is completely logical if this stringing is hypothesized. If

he used unison basses, his failure to ever use the device on the fifth and sixth courses and his occasional unnecessary use of the device on the fourth course remain unexplained.

The evidence thus far fits a hypothetical use of octave fourth, fifth, and sixth courses early in the century, with a move towards a unison fourth course at least beginning by 1552. Therefore Mudarra may well have used octaves on the fifth and sixth courses. The fourth course remains problematic—Mudarra's close chronological proximity to Bermudo, Pisador, and Fuenllana argue for a stringing identical to theirs, but his music is stylistically similar to the earlier and less contrapuntally involved music of Narváez and Da Milano, making it quite possible that he used an octave fourth course. Mudarra's position in vihuela history provides arguments both for his adoption of a later stringing practice and for his adherence to an earlier one. Since significant (if not completely conclusive) internal musical evidence can be presented pointing to Mudarra's probable use of an octave-fourth course, the weight of evidence would seem to be behind this stringing.

Mudarra's use of an octave fourth course in 1546 would imply that the move towards an unison fourth was a comparatively recent phenomenon in 1552. Therefore, the scenario that vihuelists began the sixteenth-century with octaves on the fourth, fifth, and sixth courses and were moving by the middle of the century to octaves on only the fifth and sixth courses is consistent with the available evidence, while an insistence on an all-unison stringing seems to require discounting practical, iconographical, and musical evidence to the contrary. A

re-examination of the evidence available regarding vihuela stringing therefore results in a plausible hypothesis that the correct “historical” stringing for the performance of Mudarra’s Tres Libros is with plain gut strings with octave pairs on the fourth, fifth, and sixth courses. The first course was probably strung with a single string.

Part Three

Right- and Left-Hand Technique

With the probable temperament and stringing appropriate for a historically correct performance of Mudarra's music established, the next area of investigation concerns the particulars of Mudarra's and the other vihuelistas' technical approach to the instrument. Since different techniques often have musical and interpretive implications, the importance of vihuela technique transcends the merely practical, and may have implications even for those choosing to play this repertoire on the guitar or lute.

Left-Hand Technique

In almost all particulars the vihuelistas' scant discussions of left-hand technique are identical to those of the lutenists, with the most stress being laid on the necessity of leaving the left-hand fingers down long enough to adequately delineate polyphonic lines (which are only implied in the tablature, since tablature can give note durations only for the most quickly moving voice). Mudarra is unusually specific in this regard; he routinely employs the symbol **Λ** over numbers to let the player know when it is particularly important that a note be sustained. Other than this advice, which is really more musical than technical, the vihuelistas provide little advice as to how to overcome the considerable left-hand difficulties in their tablatures.

A possible exception to the exact correspondence of lute and vihuela left-hand technique has been advanced in the twentieth

century as a result of internal musical analysis. Robert Mavinrac and Antonio Corona-Alcalde have both pointed to the fact that many of the most difficult chordal stretches in the tablatures, particularly Fuenllana's, contain a high proportion of "adjacent pairs:" two neighboring courses stopped at the same fret. Mavinrac and Corona-Alcalde advance the theory that these "adjacent pairs" were meant to be played with a single fingertip (not an internal bar). Use of this technique, however, would mean that sixteenth-century vihuelas were constructed with an extremely close string spacing at the nut, close enough that four strings could be fretted with a single fingertip.¹⁵⁰

If this "adjacent pair" fingering were actually a common vihuela technique, it would have radical implications for the actual construction of vihuela nuts, necks, and fingerboards. String spacing would have to be very tight at the nut, close enough for one fingertip to depress four strings. The spacing at the bridge would of necessity be wider, since plucking fingers require at least some minimal separation between courses. Pointing out the fact that an extrapolation of string length from the depiction of Orpheus in Milán's El Maestro results in a string length of almost 80 cm. (evidence that would seem to conflict with the short scale length implied by numerous stretches), Mavinrac has also asserted that this technique would allow the performance of the solo repertoire on an instrument with a much longer string length than generally thought practical.¹⁵¹

¹⁵⁰ Corona-Alcalde, "The Viola" 24; Robert Mavinrac, "The Guitar to 1700: Part One," Lute Society of America Newsletter 20.2 (1985): 9-10.

¹⁵¹ Mavinrac 10.

Corona-Alcalde has dissented with this part of the theory based on the large number of stretches that do not contain adjacent pairs and the strong possibility that depictions of large vihuelas reflect the size of only those used for accompaniment and ensembles.¹⁵²

Several objections to any use of “adjacent pair” technique occur to this author. The first is that the very tight spacing required for use of the technique cannot be seen in any vihuela depictions. A second is raised by Fuenllana’s use and description of split courses. Use of this technique implies a very wide string spacing. Thirdly, a disproportionate number of the “impossible” fingerings mentioned by Corona-Alcalde occur in Pisador’s book, which consists mostly of intabulations. Griffiths has characterized the Spanish psyche as a whole as being characterized by a “formality of public ceremony — represented by publication”;¹⁵³ it is conceivable and in keeping with this tendency that Pisador and the other vihuelists strove to be stringently “correct” in their intabulations to the point of actually including impossible chord formations if they were demanded by fidelity to the vocal originals. This procedure would also leave the performer a choice as to which voice to omit. Some of these “impossible” chord formations also occur where the tablatures incorporate a line intended for vocal performance by means of two-color printing or marks beside one tablature voice. Although the prevalent scholarly opinion is that these notes were supposed to be

¹⁵² Corona-Alcalde, “The Viola” 24

¹⁵³ Griffiths, “At Court and at Home” 9.

doubled by the vihuelist, a constant appearance of impossible chords associated with this notational technique suggests another solution to both problems—that doubling of these notes was not obligatory.¹⁵⁴ A fourth objection is more practical; to have used this technique vihuelists would also have needed a left-hand fretting technique of unprecedented accuracy. Finally, several of the chords that Corona-Alcalde considers playable only with his theoretical “adjacent pairs” technique can also be accomplished by fretting a course with the left-hand thumb.

Right-Hand Technique

In contrast to the similarity in left-hand technique between vihuela, lute, and guitar; there are good reasons to suspect that vihuela right-hand technique had several unique features and was less standardized than sixteenth-century lute technique. Particularly interesting are the vihuelists' use of dedillo (a method of playing runs using the index finger alone, alternately plucking in both directions), the possible use of right-hand fingernails by some vihuelists, and the likelihood that some vihuelists used a right-hand technique which in ways anticipated that used on the modern guitar. Before attempting a determination of the probable particulars of Mudarra's right-hand technique, it is necessary to discuss the nature of various possible right-hand techniques and the musical strengths and limitations of each.

¹⁵⁴ Griffiths, “At Court and at Home” 13.

Right-hand techniques on plucked/ fretted string instruments can be roughly categorized into three groups: plectrum, thumb-out, and thumb-under.¹⁵⁵ In plectrum technique the arm is held roughly parallel to the strings, a plectrum is employed to pluck the strings, and the motion comes from the wrist or forearm. Plectrum technique has the advantages of volume and great speed in playing single lines. On the negative side, solo performance of most polyphonic pieces is inherently impossible with a plectrum.

The earliest lute techniques seem to have employed a pick, and the very earliest depictions of vihuelas also imply plectrum playing, although the pick is not always visible. In many fifteenth-century lute and vihuela paintings, the arm actually approaches the strings from underneath the instrument, perhaps as an aid to holding it while playing. It is likely that a downward stroke of the plectrum was habitually employed on strong beats and an upward stroke on weak beats, as this would match the common preference of modern plectrum players.

Thumb-under technique, apparently invented in the late fifteenth century, is thought to be an outgrowth of plectrum playing.¹⁵⁶ In this technique, the arm is again held almost parallel to the strings, and rapid divisions or scales also employ a motion of the wrist and forearm. Instead of plucking with a plectrum, the instrumentalist utilized the thumb downwards on strong beats and the index upward

¹⁵⁵ For a general background on this subject, see Paul Beir, "Right Hand Position in Renaissance Lute Technique," Lute Society Journal 12 (1979): 5-24.

¹⁵⁶ Beir 6.

on weak beats. Independent finger motion is used more in playing chords or independent polyphonic parts. The technique gets its name from the direction of the thumb, which on following through goes under the index finger.

Thumb-under combines the speed of plectrum playing in divisions with an ability to play polyphonically. It also tends to produce a sweet tone, since the string is plucked at an extreme angle, damping many of the upper overtones. The technique is at a disadvantage when confronted with some arpeggios and bass-accompanied runs, particularly on lutes with more than six courses. For instance, thumb-under is difficult in Example 3.1 below, since the usual fingering can involve rapid movements of the thumb from string to string.

Example 3.1: "The King of Denmark's Galliard" by John Dowland, measures 45-48, with standard thumb-under fingering for accompanied runs.¹⁵⁷

The musical score for measures 45-48 of "The King of Denmark's Galliard" by John Dowland is shown. The treble staff features a melodic line with fingering notations: m, i, p, l, m, i, p, l, m, i, p, l, i, p, l, p, i, p, i, p. The bass staff includes a plectrum (p) marking. Below the staves is a lute tablature with six lines. The first line contains the sequence of letters: c e f c e f h e g h k g h h g h c c a c. The second line has a ♭ symbol under the 'a' and a ♯ symbol under the 'c'. The third line has a ♭ symbol under the 'a'. The fourth line has a ♭ symbol under the 'a'. The fifth line has a ♭ symbol under the 'a'. The sixth line has a ♭ symbol under the 'a'. The tablature is divided into two measures, corresponding to the measures of the music above.

¹⁵⁷ *The Collected Lute Music of John Dowland*, transcr. and ed. by Diana Poulton and Basil Lam (London: Faber Music Ltd., 1978) 132.

The image shows a musical score for a lute. The top staff is a treble clef with a key signature of two sharps (F# and C#). It contains a series of eighth notes, some beamed together, with fingerings indicated by letters 'i', 'p', 'm', and 'i'. Below the staff are five lines of tablature. The first line contains the sequence of letters: d, a, c, d, c, d, a, d, c, a, c. The second line is empty. The third line is empty. The fourth line contains 'a' and 'c'. The fifth line is empty. To the right of the tablature, there are three vertical lines, each with a letter 'a' next to it. Below these lines is a small '8va' marking. At the bottom right, there is a small 'a' with a diagonal line through it.

Nonetheless, this sort of passage is far from impossible with thumb-under technique, as the playing of modern thumb-under lutenists such as Paul O'Dette strongly affirms.

In thumb-out technique, the arm is held more perpendicular than parallel to the strings. Although a wide variety of angles can be employed, a technique is considered thumb-out if, when playing on adjacent strings, the thumb follows through outside the fingers.

Thumb-out is ideal for playing arpeggios and bass-accompanied runs. The technique is at a disadvantage in playing very fast single-line divisions, however, since the usual alternation of index and middle fingers involves the coordination of independent sets of muscles associated with two fingers. A good thumb-under or plectrum player accomplishes the same goal with a much simpler and easier-to-coordinate back-and-forth motion of the wrist and forearm.

Based on lute treatises, tablatures, and iconography, we can say with fair assurance that plectrum-style was the preferred method of

playing the lute until about 1500, thumb-under to ca. 1625, and thumb-out from about 1625-1800, by which time the lute was generally considered an obsolete instrument.¹⁵⁸

In the absence of other information, we would thus perform all vihuela music with a thumb-under technique, since thumb-out does not become the preferred technique on the lute—an instrument whose primary difference from the vihuela is body shape—until sometime around the beginning of the seventeenth century. However, there are reasons to think that thumb-out technique was used in Spain well before its adoption in the rest of Europe.

The most obvious piece of literary evidence pointing in this direction comes from the comments of music publisher Venegas de Henestrosa in the preface to his Libro de Cifra Nueva. Venegas gives a brief but clear description of different ways to play quick runs (redobles) on the vihuela.

You should know also that there are four ways to make diminutions: one with the index finger of the right hand, which is called redoblar de dedillo [with the finger going back and forth across the string], the second is the Castilian style, in which the thumb crosses over the index finger; the third way is foreign style [figueta estranjera] which is the opposite, bending the index finger over the thumb, the fourth is to play with the index and middle fingers.¹⁵⁹

The second manner of playing divisions described above by Venegas is a good description of thumb-out technique, while the third, characterized as “foreign,” aptly describes thumb-under. Since the

¹⁵⁸ Beir 23-24.

¹⁵⁹ Venegas de Henestrosa, Libro de Cifra Nueva para tecla, harpa, y vihuela (Alcalá de Henares, 1577) fol. 8^v; rpt. in Monumentos vol. 2, 159; trans. in Beir 14.

vihuela is traditionally viewed as an exclusively Spanish instrument, it initially seems reasonable to assume that the "foreign" thumb-under technique was rarely used on the vihuela.

However, any random sampling of vihuela and guitar depictions in paintings, woodcuts, etc. provides examples of instruments being played with both hand positions.¹⁶⁰ Furthermore, the woodcut illustrations in the vihuela books of Milán and Mudarra both show musicians playing thumb-under. This forces a re-examination of the literary evidence of Venegas.

Spain in the sixteenth century was not the same firm national entity that exists in the twentieth century. Prior to the marriage of Ferdinand and Isabella "Spain" did not exist as a country at all, and the marriage did not result in the complete and instant unification of the kingdoms of Aragon and Castile. Viewed in this light, Venegas's description of one technique as "Castilian" and the other as "foreign" does not in any way rule out the use of a thumb-under "foreign" technique in Aragon. This interpretation avoids the contradiction inherent in the inclusion of instructions for a "foreign" technique in a paragraph aimed at players of an instrument we now regard as exclusively Spanish; Venegas viewed the vihuela as an instrument common in two countries: Aragon and Castile, both parts of twentieth-century Spain. This explanation also neatly fits the iconographical evidence of the two most famous vihuela depictions: The Orpheus in Milán's book (published in Valencia, an Aragonese province) plays

¹⁶⁰ See illustrations in Woodfield, 38-60; also Turnbull, plates 7, 8, 10, 15, 16a.

thumb-under, the Arion in Narváez's Delphin de Música (published in Castile) plays thumb-out.¹⁶¹ Thus it is possible that Venegas is describing two co-existing vihuela techniques: thumb-out, which was more common in Castile and may have originated there; and thumb-under, a method more commonly employed in the Aragonese Kingdom of Spain and other "foreign" countries.

There is only one other illustration of a vihuela (or perhaps a four-course guitar) in the vihuela books themselves. Mudarra's Tres Libros contains a rather crude woodcut beneath the end of the psalm-tone setting "Exurge quare."¹⁶² It clearly shows a thumb-under technique, which initially seems strange since Mudarra's book was published in Seville, part of the province of Castile. However, Robert Stevenson considers it a strong possibility that Mudarra had traveled to Italy in 1529 in the retinue of the fourth Duke of the Infantado, Inigo Lopez de Mendoza.¹⁶³ Mudarra's music also reveals hints of Italian influence, including settings of Italian texts and instances of word painting.¹⁶⁴ Given these possible "foreign" influences, the inclusion of an illustration showing thumb-under is explainable and could be considered as evidence, if not complete proof, that Mudarra used this technique.

¹⁶¹ Both woodcuts are reproduced in Frederic V. Grunfeld, The Art and Times of the Guitar: An Illustrated History of Guitars and Guitarists (New York, London: Collier MacMillan, 1969) 57, 59.

¹⁶² Mudarra, Book Three fol. H4^r; Chantarelle edition 245.

¹⁶³ Stevenson, "Mudarra" 757-758.

¹⁶⁴ Judith Etzion, "The Spanish Polyphonic Ballad in 16th-Century Vihuela Publications," Musica Disciplina 35 (1981): 179-96.

Therefore, an admittedly speculative case can be made from iconographical and literary evidence that while thumb-out technique was used in Spain, thumb-under can also be considered as a “correct” technique for the performance of the music of some of the vihuelistas, and was more commonly used in Aragonese areas of Spain and by vihuelists with a significant exposure to lute technique from other countries. With these principles reinforced by the additional confirmation of the woodcuts in El Maestro and the Tres Libros, it seems likely that Mudarra and Milán used a thumb-under technique. Conversely, vihuelists with little or no opportunity for foreign instrumental training might have adopted the “Castilian” thumb-out technique. Given their amateur backgrounds, it seems likely that Pisador and Daza were either essentially self-taught or taught in Spain. The blind Fuenllana seems to have come from a lower or middle-class background and was also unlikely to have received foreign instrumental training in his youth. Almost nothing is known about the life of Valderrábano, so classification of his technique will not be attempted, although the locale of publication was Castilian.

Thus, a combination of iconographical and literary evidence and a speculative reconstruction of each vihuelist’s training results in a classification of individual vihuelists’ probable technique as follows:

Table 3.1 : Classification of Vihuelistas' probable technique by provincial nationality and training

Thumb under	Thumb-out
Milán (Aragonese location, evidence from woodcut)	Narváez (Castilian location, evidence from woodcut)
Mudarra (probable foreign influence, evidence from woodcut)	Pisador (Castilian location, probable lack of significant foreign training)
	Fuenllana (Castilian location, probable lack of significant foreign training)
	Daza (Castilian location, probable lack of significant foreign training)

Another example of differences in vihuela technique can be seen in various vihuelistas' use or neglect of the techniques of middle/index alternation and dedillo. The only vihuelistas to specifically discuss dedillo and include passages where its use is recommended are Milán and Mudarra, who both seem to have played thumb-under.¹⁶⁵ The only vihuelist who specifically mentions index-middle alternation is Fuenllana, who probably played thumb-out; he is also the only vihuelista to express a dislike of dedillo.¹⁶⁶ It is a possibility worth further examination that the preference for different redoble techniques among these vihuelistas has a logical connection between the differing use of thumb-out and thumb-under techniques.

¹⁶⁵ See Mudarra fol. A 3^r; Chantarelle edition 21. For Milán's remarks in trans. see Jacobs edition of El Maestro, 296-299.

¹⁶⁶ Fuenllana fol *5^v, *6^r; trans in Jacobs edition Orphénica, xc, xci.

Thumb-Out or Thumb-Under Implications of Dedillo

At least one recent article states bluntly that dedillo demands the use of a thumb-out technique.¹⁶⁷ However, the author seems to consider this statement self-evident, presenting no proofs or reasons for his conclusion. My own experimentation has not resulted in similar certainty; dedillo initially seemed difficult and strange from either hand position.

The historically correct method of holding the hand while playing dedillo could be rediscovered in several different ways. One approach would be to observe other plucked instrument players using index-alternation techniques. Another approach would involve actual experimentation with the technique.

Several other instruments use or have used index-alternation techniques similar to dedillo. Two of these instruments utilize the technique in a thumb-out position. Sitar players use the index finger alone for runs from a thumb-out position.¹⁶⁸ Although one would have to skate on very thin ice indeed to prove a historical connection between vihuela and sitar techniques,¹⁶⁹ the virtuosity of modern sitarists proves that this is a physically feasible hand position for the execution of dedillo. A similar sort of confirmation comes from the writings of the seventeenth-century Italian lutenist Alessandro

¹⁶⁷ Mavinrac 9.

¹⁶⁸ Allen Keese, The Sitar Book (New York: Oak Publications, 1968) 16, 26-27.

¹⁶⁹ Although there could conceivably be a connection; the Moorish influence on North Indian sitar music is well documented, as is the Moorish influence in Spanish music.

Piccinini, who clearly describes his own technique as thumb-out in the following excerpt:

Chapter V

The right hand and its rules

To learn to hold the right hand well, make a fist and then open it a little until the fingers are touching the strings. The thumb should be stretched out and the little finger positioned on the belly, where it will stay.¹⁷⁰

Piccinini follows this description of his technique with a description of an index-alternation technique for playing a cadential ornament:

Chapter IX

The groppo (gruppo) and its difficulty

The cadential groppo is very difficult, and in order to play it [each note] equally [in tempo] and fast . . . I have found that using the index finger alone, striking the string up and down with the end of the nail, succeeds wonderfully well, because of the speed and clarity [thus achieved]. This method was so easy for me that together with the groppo I could [play] another moving part with the thumb.¹⁷¹

While the examples of both Piccinini and the sitar prove that dedillo can be accomplished from a thumb-out position, this author's own experimentation has confirmed that dedillo can also be successfully accomplished from a thumb-under hand position. An attack on the strings at an approximately 45-degree angle actually seems to work better on the vihuela than an attack at 90-degrees.

One of the problems inherent in dedillo is the difficulty in avoiding other courses. In my own experience, the outward stroke with the nail must be made as a swinging stroke; any effort to make the motion

¹⁷⁰ Alessandro Piccinini, Das Lautenwerk von 1623, Band I, ed. by Denise Perret, Ricardo Correa, and Monique Chatton (Wilhemshaven: n.d.) 10.

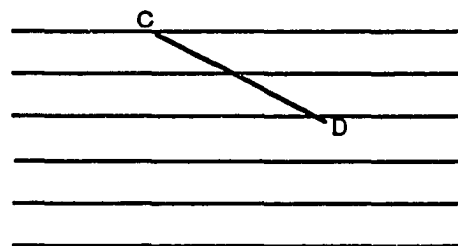
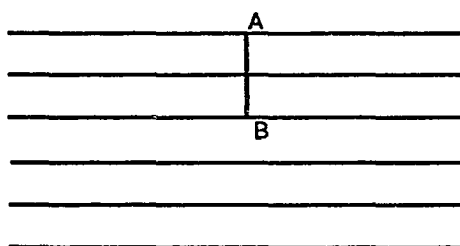
¹⁷¹ Piccinini 11.

extremely small or "prepared" in guitarist's parlance, exacerbates the weakness of the extensor muscles. Of course this wide stroke makes it more likely that additional courses will be accidentally sounded, another argument against building vihuelas with extremely tight string spacing. Playing dedillo at an angle also has the same effect as widening the space between the courses since it changes the path of the fingertip over the strings. This in turn makes it easier to avoid accidentally striking other courses. In the diagram below Line A-B shows the distance between three adjacent courses with a perpendicular stroke. The fingertip of a vihuelist playing the second course dedillo with a thumb-out hand position would follow line A-B, and the margin of error to miss the course on either side would be $1/2$ A-B. The fingertip of a vihuelist playing the second course dedillo with a thumb-under hand position would follow line C-D, and the margin of error would be correspondingly greater.

Table 3.2: Margin of error between courses played dedillo with thumb-out and thumb-under technique.

A — B Total effective distance between three courses played "dedillo" thumb-out

C — D Total effective distance between three courses played "dedillo" thumb-under



While this author's preference for thumb-under dedillo initially seems at odds with the examples of Piccinini and the sitar, a closer

examination of the use of index-alternation in these cases reconciles both types of evidence. Piccinini specifically mentions index-alternation in only one situation: a cadential grosso that is usually played on only one course. Index-alternation is used in a more scalewise fashion on the sitar, but the played (as opposed to sympathetic) strings of the instrument are singly strung and much more widely separated than the double-strung courses of a lute or vihuela. In both situations the precision called for in index-alternation is less than in using the technique as the vihuelists did: for the actual execution of runs across multiple courses of a double-strung instrument. While it cannot be said that dedillo is inherently impossible in a thumb-out position, there is reason to suspect that it would rendered easier on the vihuela by playing at a significant angle to the strings.

Thumb-Out or Thumb-Under Implications of Middle/Index Alternation

In contrast to the inclination produced by dedillo for performing from a thumb-under hand position, middle/index alternation tends to incline the instrumentalist to a use of thumb-out. The reason becomes clear with experimentation.

The middle finger is the longest finger on human hand. One of the problems in middle/index alternation is the differing length of the middle and index finger. With a thumb-under hand position, this differing length is exacerbated by the hand position whenever both fingers have to pluck the same string. The problem is even worse in

string crossings; when the index finger must play a higher-pitched string than the middle finger the shorter finger is put in the position of actually reaching around the longer one. Although use of middle-index alternation is possible in a thumb-under technique, the general tendency of a player using middle-index as a standard manner of playing scales will be to move the hand to a position closer to thumb-out than thumb-under.

Historical confirmation of this tendency can be seen in the lute fingerings of John Dowland, who switched to thumb-out in the last years of his career. This switch coincides with an increase in the number of middle-index alternation fingerings in his music.¹⁷²

Thus the use of middle-index alternation, but not the use of dedillo, implies a thumb-out hand position. This gives additional confirmation to the supposition that Fuenllana and the other vihuelists who either do not mention or do not approve of dedillo used a technique that was closer to thumb-out than thumb-under. Milán and Mudarra's failure to mention middle/index alternation combined with their expressed approval of dedillo fits the supposition that they played thumb-under.

Use of Nails

Despite the current general prohibition among twentieth-century lutenists against the use of nails, there has always been considerable evidence that some lutenists actually used them. The recurrent

¹⁷² Beir 20.

mention of nails or plectrums in relation to dedillo is particularly interesting.

As in other aspects of their technique, the vihuelistas themselves were singularly unenlightening on the use of nails. Fuenllana's long and somewhat negative discussion of dedillo is as close as any of the seven vihuela composers comes to actually mentioning or decrying their use. His discussion can be read as describing the use among some vihuelists of a plucking nail, but he could also be describing the fact that even with the nail trimmed to the quick, the string will inevitably strike the nail on the outward stroke of dedillo. Fuenllana touches upon the use of nails in dedillo as follows:

In what concerns the redoble called 'dedillo', I grant [it] is easy and agreeable to the ear, but [its] imperfection cannot be denied, since one of the excellences of this instrument is the attack with which the finger strikes the course. And inasmuch as with this kind of redoble, the finger, when undertaking [to] strike the course with [the] attack, in leaving, cannot avoid striking¹⁷³ with the fingernail; and this is [an] imperfection; as much because the note is not fully formed, as because there is no complete or true attack. And from this it follows that those who redoble with the fingernail will find ease, but not perfection, in what they do (my emphasis).¹⁷⁴

The only other evidence specifically relevant to use of nails by vihuelists can be seen in the famous woodcut of Orpheus in Milán's El Maestro: Orpheus's right-hand index finger (which would be the only one used for dedillo) does indeed seem to sport a fairly long nail.

¹⁷³ The translator, Charles Jacobs, here inserts the words "another course" in brackets, which I have omitted.

¹⁷⁴ Fuenllana fol. *5v, *6r; trans. in Jacobs edition Orphénica, xc, xci.

However, the "nail" could also be explained as a shadow, a poorly executed finger, or a slip of the woodcutter's chisel.¹⁷⁵

The use of a nail or plectrum in index-alternation techniques on other instruments is almost universal. Modern sitarists use a metal plectrum on the index finger. Alessandro Piccinini, the only lutenist to describe an index-alternation technique, was one of the few lutenists to also advocate the general use of nails.¹⁷⁶ James Tyler has found a reference to an index-alternation technique on the lute-like mandora; Tyler says Antoine Furetiere's 1690 Essai d'un Dictionaire "gives some indication of right-hand [mandora] technique, commenting that the melody is usually played on the first course with a plectrum tied to the index finger and the other three courses are plucked with the thumb."¹⁷⁷ Francesco da Milano, who played viola da mano as well as the lute and was thus probably conversant with dedillo, is once described as playing with silver and quill plectrums attached to his fingers.¹⁷⁸ In addition to this direct evidence, the obvious similarity of dedillo to plectrum technique and its adoption

¹⁷⁵ See Grunfeld 57.

¹⁷⁶ Piccinini (10) says the fingers other than the thumb "...ought to have somewhat longer fingernails. The nails should just pass beyond the flesh and be oval-shaped; that is, longer in the middle than at the sides. When you play a chord or a single string, touch the string with the tip of the flesh and push it towards the belly, letting the nail glide over both strings. This makes a beautiful sound, because you play both strings of the pair."

¹⁷⁷ James Tyler, "The Mandore in the 16th and 17th Centuries," Early Music (1981): 30.

¹⁷⁸ See Daniel Fischlin, rev. of Proceedings of the International Lute Symposium, Utrecht 1986, by Peter Gryp and Willem Mook, Lute Society of America Quarterly 26.3 (1991): 12. Fischlin quotes a 1524 letter discovered by American musicologist Jessie Ann Owens in which Milano is described as using "two silver thimbles inside of which there were two small quills."

immediately after the demise of plectrum playing provide strong inferential evidence for use of a nail.

Experimentation shows some obvious difficulties encountered in attempting dedillo without nails. The worst is that on the outward stroke, if the nail is trimmed to the quick, the string will often attempt to sound twice, once as it jumps from the nail to the flesh, and again as it comes off the fingertip. The first sounding is actually heard as a noise rather than an independent note. Guitarists with improperly shaped nails often encounter this clicking noise in reverse when a string jumps from the flesh to the nail in an inward pluck.

A second difficulty is that a dedillo stroke without a nail requires more strength from the weak extensor muscles, since flesh has inherently more friction than nail. Use of a nail tends to even out the effort required from these unevenly matched muscles.

An additional advantage to playing dedillo from a thumb-under hand position which also becomes apparent with the use of nails is the superiority of the sound on a double-strung instrument of a fingernail used from a thumb-under position to a fingernail thumb-out. Striking at an oblique angle, as in thumb-under, even a long nail can sound both strings simultaneously. The perpendicular attack called for by thumb-out usually results in an annoying separate sounding of the strings when a nail is used.

Therefore, in addition to significant reasons to think that dedillo involved some use of a nail on the index finger, the hypothetical use of

a nail in dedillo also provides another reason to suspect that vihuelists who favored its use preferred to play thumb-under.

Musical Implications of Dedillo

In addition to Fuenllana and Venegas, two vihuelistas also describe dedillo. Milán does not talk much about the technique itself, but El Maestro includes fantasias for the development of both dedillo and dos dedos (thumb and index fingers). Mudarra provides the most explicit instructions for use of dedillo: he advocates its use in descending scale passages, but prefers dos dedos for ascending passages and cadential ornamentation since the thumb and index are more "certain and graceful."¹⁷⁹

Mudarra's phrase is also usually interpreted as meaning that dedillo was less technically reliable than dos dedos. But if this is true, the immediate question arises: Why use it? An examination of the music in which Mudarra has specifically designated use of both dos dedos and dedillo shows that both types of execution occur with the same note values and thus the same required velocity.

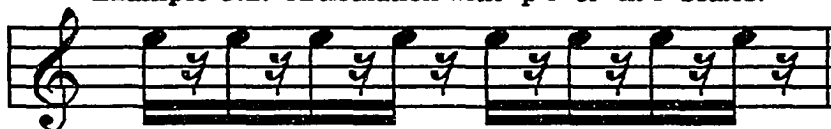
If interpreting Mudarra's description of dedillo as "less certain" technically is nonsensical, what could be inferred from assuming Mudarra meant the technique was "less certain" musically? What are

¹⁷⁹ Mudarra fol. A 3^r; Chantarelle edition 21. Mudarra's complete comments are as follows: "Acerca del redoble quiero dext mi parecer. Y es que tengo por bueno el de dos dedos: y que quien quisiere tañer bien de mi consejo duelo, usar porque es redoble es mas cierto: y que da mejor ayre a los passos. Del dedillo no digo mal quien pudiere tener entrambas maneras de redoblar no se hallera mal con ellas porque entrambas son menester a tiempos. El dedillo para passos que se hazen de la prima hazia la sexta que son de arriba para abaxo y el dos dedos para los que se hazen en de abaxo pa arriba y para el clausular."

the musical differences of a scale passage done dedillo and one done with dos dedos?

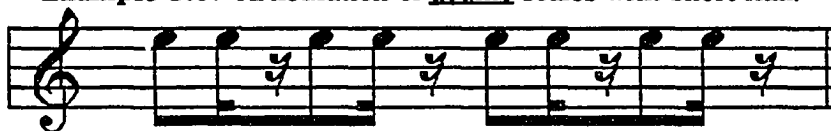
Both dos dedos and dedillo have a strong-weak dynamic. But a close examination of dedillo shows that it also has a slightly different articulation from dos dedos. A previously vibrating string will be damped for a split-second by the flesh on the inward stroke of either the thumb or the index finger. Thus each note in a thumb-index (dos dedos), or an middle-index (dos dedos primeros) scale will be fully articulated. Greatly exaggerated, this could be notated as in the example below.

Example 3.2: Articulation with “p-i” or “m-i” scales.



However, in a dedillo scale, two slightly different articulations could have been produced depending on the length and use of the nail. If the index nail was barely long enough to cover the flesh on the outward stroke, the flesh would still damp the string on the inward stroke. But the nail on the outward stroke would have no such damping effect, being a hard object. Somewhat exaggerated, the articulation of dedillo done by a player with short nails would be as seen below.

Example 3.3: Articulation of dedillo scales with short nail.



A player with a longer index nail might not use the flesh on the inward stroke at all, resulting in an evenly legato articulation.

Example 3.4: Articulation of dedillo scales with long nail.



Both possible dedillo articulations are more legato and less articulated than that produced by dos dedos. The substitute translation of “less definite” for “less certain” in Mudarra’s instructions for the technique is certainly conceivable, and seen in this light, Mudarra’s preference for the more articulated dos dedos technique in ascending passages and particularly in cadential ornamentation makes good sense: Mudarra prefers the individual notes in cadences and ascending scales to be heard more definitely and certainly. He certainly does not view dedillo as an inherently unreliable technique.

With this articulative difference in dedillo and dos dedos kept in mind, a rereading of Fuenllana’s comments shows that he disliked the technique for precisely the same reason that Mudarra restricted its use: its extreme legato in comparison to both types of dos dedos and dos dedos primeros technique.

In what concerns the redoble called ‘dedillo’, I grant [it] is easy and agreeable to the ear, but [its] imperfection cannot be denied, since one of the excellences of this instrument is the attack with which the finger strikes the course. And inasmuch as with this kind of redoble, the finger, when undertaking [to] strike the course with [the] attack, in leaving, cannot avoid striking with the fingernail; and this is [an] imperfection; as much because the note is not fully formed, as because there is no complete or true

attack. And from this it follows that those who redoble with the fingernail will find ease, but not perfection, in what they do (my emphasis).¹⁸⁰

An editorial addition by Charles Jacobs raises one final musical question about dedillo. Fuenllana says: “Coming then to the style of redobles, I maintain I find no more than three ways [in] which [they] are customarily played on this instrument, the vihuela. The first is [the] redoble they commonly call ‘dedillo’ [little finger].”¹⁸¹

Jacobs’ editorial addition of the words “little finger” is the correct literal translation of the word “dedillo.” In a footnote to this passage, Jacobs asserts that because of this name, dedillo could not have been done with the index finger. However, Venegas identified the index as the plucking finger in dedillo, and even a short attempt to play runs with the little finger alone proves that a literal application of the term is physically impossible. The word “finger” as a description of dedillo makes eminent sense. Why would the technique also be described as “little”?

In this author’s experience dedillo scales tend to be slightly softer than scales executed with other methods. The descriptive word “little” thus might apply to dedillo’s characteristic dynamic, and would be an expected result of applying the technique. Although this sort of hindsight explanation of semantic intent is unprovable, it does fit in with Mudarra’s application of dedillo; use of an inherently softer technique in descending runs makes musical sense, as does avoidance

¹⁸⁰ Fuenllana fol. *5^v, *6^r; trans. in Jacobs edition Orphénica xc, xci.

¹⁸¹ Fuenllana fol. *5^v; trans. in Jacobs edition Orphénica xc.

of the same technique in ascending runs and ornamented cadences where a slight crescendo often would be musically appropriate.

Summary

Vihuela left-hand technique does not appear to have differed from that used on the sixteenth-century lute in any significant way. However, vihuela right-hand technique appears to have been less standardized, with some vihuelists using a thumb-out hand position and others using thumb-under. There is some evidence that this differentiation may have been regional, with Castilian vihuelists preferring a thumb-out technique, and Aragonese vihuelists and those with foreign instrumental training using thumb-under. Another unusual feature of vihuela technique was the use of dedillo. This technique is only specifically mentioned by three vihuelistas, one of whom dislikes it. Iconographic evidence implies that use of dedillo was associated primarily with vihuelists using thumb-under, and this evidence is supported by practical experimentation with the technique.

Milán and Mudarra's specific requests that dedillo technique be used in certain situations have musical implications even for those not choosing to master this new and admittedly strange technique. The physical requirements for executing dedillo produce light and legato runs. Dedillo also was specified by Mudarra in places where a lighter, less-articulated execution of scale passages makes musical sense. Since these features are inherent in dedillo, it is likely that this is the

sort of execution Milán had in mind for his dedillo fantasies as well. Fuenllana's dislike of dedillo implies a dislike for this sort of leggiero, however achieved, and a preference for articulated and clear runs. Although the other vihuelistas did not specifically endorse or condemn the technique, modern performers should still be aware that two types of articulation in runs may have been part of these composers' overall concept and performance practice of the era.

Part Four

Rhythm and Tempo

In no area were the vihuelistas as radically ahead of their time as in their expressed concern with matters of tempo. Perhaps because vihuelists had already found it necessary to use an essentially new form of notation to represent solo polyphony, they also felt free to discard the old usages and implications of the standard Renaissance metric signs and devise new and much simpler methods of indicating musical pulse. However, it is unlikely that this break with the older notational methods carried with it a complete break from the conscious and subconscious assumptions about rhythm common to all Renaissance musicians.

A full understanding of the old Renaissance system is beyond the scope of this paper, but James Wyly has presented an excellent outline that quickly points out how some basic Renaissance assumptions about musical time differ from modern concepts.

In the old Spanish theoretical works, two basic points which are more or less at odds with present-day musical practice make themselves sufficiently clear. First, there was a basic beat, or pulse, common to all mensural music. It could be accelerated or retarded within certain rather loosely defined limits, but the performer did not have available the infinite variety of fast and slow movements of the beat to which we are accustomed today. While this pulse was not necessarily the same from one piece of music to the next, it seems likely that within most works the beat was expected to remain constant; changes of movement within a work took place within the framework of one steady beat.

Second, the number of notes to one of these time units, or the value of the note which received one time unit (which determined whether a given piece of music would sound relatively "fast" or "slow") was clearly indicated by a system of

signs placed at the beginning of or, if a change were called for, during the course of the music.¹⁸²

In this system the basic pulse of all music was the same, one piece could only be "faster" than another in terms of having more notes per beat; and speeding up or slowing down the basic pulse within a piece was a theoretical impossibility.¹⁸³

The vihuelistas' descriptions of their tempo markings routinely violate the first of these conditions. For instance, Mudarra describes in his preface how some pieces require a fast compás, others a slow compás, and still others require a compás neither fast nor slow. This may have represented an actual musical revolution, but it may also be merely a more accurate description of general performance practice than that provided by the less flexible explanations of contemporary theorists.

It is important to recognize this changeover to what was at the very least a new terminology. Whenever such revolutions occur, a certain amount of semantic confusion can be expected. Since the vihuelists' new terminology is actually closer to our own practice than the older theoretical conception, we are most apt to misinterpret their instructions when they inadvertently fall into language reflecting the older manner of thought.

¹⁸² James Wyly, "The Pre-Romantic Spanish Organ: Its Structure, Literature, and Use in Performance," diss., Univ. of Missouri at Kansas City, 1964, 167-168.

¹⁸³ According to Curt Sachs, "Some Remarks About Old Notation," Musical Quarterly 34 (1948): 369: "Arbitrary tempos . . . were unknown before 1600. Any deviation from the basic tempo giusto maintained the connection with the normal time unit by a proportional increase: any faster tempo . . . was (at least in theory) exactly twice or three or four times as quick as the notes suggested."

Outside of their prefaces, the vihuelists were often inexact in their use of words and symbols relating to tempo: sometimes they spoke about tempo as relating to the beat, sometimes they were using the same words to denote the mere presence of smaller note values. Examples where rigid interpretation defy musical common sense are plentiful. Consider the following comments by Milán on two alternate ways of performing one of his songs:

The villancico that follows is the same one as is above; and in the way [in] which it now is arranged [sonada], the singer is to sing [in an] unadorned [fashion] [llano] and the vihuela [is played] somewhat quickly.

In the way [in] which this villancico that follows is arranged here, the singer may add vocal ornamentation ["hacer gargantua"] and the vihuela is to [be] play[ed] very slowly.¹⁸⁴

In this instance, the only difference between the two versions lies in the vihuela part, which is ornamented with divisions in the first version and not in the second. El Maestro being intended as an instruction manual, it seems obvious that Milán was showing his "students" how to ornament a simple song accompaniment themselves (with quick notes), and how to get out of the way when the singer did the ornamentation. A difference in tempo is certainly not implied since the net musical result of either version (one part without ornamentation or glosas and the other part with) is basically the same.

That Mudarra arguably fell prey to the same confusion between fast beat and fast notes can be seen in some of the Tres Libros tempo

¹⁸⁴ Milán fol. H^r, H^v; trans. in Jacobs edition El Maestro 302.

indications, which are given in signs rather than verbal directions.¹⁸⁵ A clear case can be seen in the conflicting tempo marks for the two sets of diferencias on "Guardame las Vacas" for vihuela and four-course guitar.¹⁸⁶ Both tempo indications are affected by Mudarra's additional verbal instruction "Proporcion tres semibreves al compás" [Proportion of three whole notes to the beat].¹⁸⁷ The vihuela version carries the tempo sign designating a slow beat, which seems to be correct, since one beat every three whole notes does indeed result in a very slow pulse. In the four-course guitar version, however, Mudarra seems to have forgotten that it is the pulse and not the speed of the notes which his tempo indications supposedly reflect, since the tempo sign calls for a very quick compás. With one compás occurring every three whole notes, a quick pulse in this piece would require a technically impossible and musically ludicrous performance. Clearly, the same basic tempo is called for in both pieces, regardless of Mudarra's conflicting directions.

While the case above might be attributable to a sixteenth-century printer's error, similar impossible or unlikely apriesa instructions occur throughout the Tres Libros. Many of Mudarra's pieces with the symbol for "apriesa" (quickly) do fit his preface instructions in that

¹⁸⁵ **C** indicates a moderate tempo, **Φ** a fast tempo, **¢** a slow tempo. There are several additional implications of the third sign, discussed below.

¹⁸⁶ Mudarra fol 17^r, fol. 24^r; Chantarelle edition 57, 71.

¹⁸⁷ The compás, while visually analogous to a barline in the tablatures, is actually better translated as beat, particularly since the barring of the vihuela tablatures is often misleading when compás lines are treated with the same metrical implications as modern barlines. See Ward "The Vihuela" 116-118.

they allow a very fast beat. But in some instances, any attempt to play with the beat substantially quicker than other pieces where a moderate speed is indicated results in either a technically impossible tempo or requires slowing down the moderate tempo to a crawl. For instance, the fifth and sixth fantasias in the first book are thematically inter-related, so closely in fact that the second can be said to be almost an ornamented variant of the first.¹⁸⁸ The second of these fantasias has a much greater occurrence of eighth notes than the first, and is hence almost impossible to play in a significantly faster tempo. Nonetheless, Mudarra has given the first of the pair an indication for a moderate tempo, and the second an indication for a fast tempo. Another instance of this tendency can be seen in the constant marking of the tientos in the second book as being faster than their associated fantasias. In many cases the tiento contains both difficult left-hand chord configurations and more runs in eighth-notes than its accompanying fantasia, with the result that a significant differentiation in the speed of the beat is impossible unless the fantasia is played at an achingly slow tempo.¹⁸⁹ Apparently what made the tientos all "fast" in Mudarra's mind was the greater occurrence of fast notes within them and their greater overall virtuosic effect. The perception of slow and fast between the tientos and their fantasias is thus more in line with

¹⁸⁸ Mudarra Tres Libros Fantasia # 5, fol. 5^r, 6^r; Chantarelle edition 33, 35. Fantasia # 6 fol. 5^v, 6^v; Chantarelle edition 34, 36.

¹⁸⁹ This contradiction is apparent in Hopkinson Smith's recent recording of part of the Tres Libros: "Alonso Mudarra, Tres Libros de Música en cifras para Vihuela," Astree, Auvidis, E 8740, 1991. Smith routinely plays the tientos with either the same or a slower pace than their accompanying fantasias, with excellent musical results.

the older Renaissance viewpoint than the more modern idea of a changeable beat implied by Mudarra's preface.

Of course this lack of precision in the use of tempo indications can be encountered in music after the Renaissance. Performers of more recent music, however, are much more inclined to trust their own musical intuition. One unfortunate effect of the study of performance practice has been an increased willingness of some performers to violate their own musical instincts in early music in favor of literal interpretations of inadequately understood or poorly written original directions.

John Ward never directly addresses this problem but one of his statements indicates an awareness of it:

[these terms] may be roughly translated into the familiar allegro for apriesa and andante for espacio, which, like the Spanish words, have little metronomic meaning but share the character recommendations.¹⁹⁰

Actually, the word apriesa does quite literally mean "quickly" in Spanish, and espacio means slowly, so it is perhaps stretching a point to say that they have "little metronomic meaning." But Ward's basic premise is true; the important thing is that a piece marked apriesa should give a greater impression of quickness than one marked "neither apriesa nor espacio." What must be remembered is that this impression can be conveyed in a number of ways, such as a greater incidence of fast notes, an element of virtuosity, or a more rhythmic or accented approach; as well as by a mathematically quicker compás.

¹⁹⁰ Ward, "The Vihuela" 69.

At least one vihuelista was also at variance with the "official" Renaissance rhythmic system's insistence on an unchangeable beat within a single piece. Milán's well-known advice for playing a group of his fantasias leaves little doubt that rubato was a musical device which he accepted and approved.

And in order to play it [this music] with its natural spirit, you must govern yourself in this way: play all that is [made up of] consonances with the compás slow and all that is [made up of] redobles with the compás fast, and pause a little in playing [para de tanar] each high point [coronado].¹⁹¹

How applicable is this advice to the music of the other vihuelists, particularly Mudarra? Many of Mudarra's pieces marked "to develop the hands" in the first book and many of the tientos in Book Two bear a strong resemblance to those pieces referred to by Milán's instructions as music tañer de gala. Pujol is clearly of the opinion that these fantasias in Tres Libros are in the same tradition as Milán's, which would imply that these pieces should be played with the same sort of rhythmic devices.¹⁹² However, Mudarra's failure to mention the practice and Ward's justifiable conclusion that Milán's music reflects a much earlier and more improvisatory tradition of music than that of the other vihuelistas throw this connection into some doubt.

Pujol's classification of these fantasias as tañer de gala is slightly strengthened by certain statements and notational signs employed by Mudarra that imply that an alteration of beat speed within other

¹⁹¹ Milán, fol. D^r; trans in Jacobs edition El Maestro 298.

¹⁹² Pujol, Monumentos vol. 7, 63. In notes to Fantasia # 1, Pujol says "pertenece al género de fantasías de consonancias y redobles, que Luis Milán clasifica de tañer de gala."

pieces. Mudarra's third sign, that for "molto espacio" has been the subject of some disagreement among scholars. Mudarra's own explanation is opaque even for the Spanish Renaissance, but a careful literal reading shows that the third sign indicates both a notational shift to a compás with total note values adding up to a breve and implies, though less clearly, a slower beat.

In the third [tempo sign], it is to go slowly because double the ciphers enter into a compás in this as in the other two [signs]. . . . In the third time which is this one C the said first figure [a breve] is worth a compás.¹⁹³

If only the notational shift, not the verbal direction "to go slowly" is addressed, a similar procedure in modern notation would be to suddenly shift a piece from 2/4 to 4/4 and at the same time stipulate that the quarter note in 2/4 should equal the half note in 4/4.

Mudarra's confusing explanation has led some scholars to assert that that the third sign reflects only a notational shift from breve to semibreve compases, and that the verbal direction "somewhat slower" is misleading and should be ignored. The importance of settling this issue is tied to the fact that Mudarra often changes from the moderate tempo sign, i.e. C , to this third sign in the course of a single piece. If a genuine tempo change is accepted, this is an obvious violation of the theoretical insistence that the speed of the compás remain constant throughout a piece. It also has implications beyond Mudarra, since Mudarra uses the sign change in intabulations as well as original

¹⁹³ Mudarra fol. A3^r; Chantarelle 21; trans. by Charles Jacobs, "The Performance Practice of Spanish Renaissance Keyboard Music," diss. New York Univ., 1962, 31-32. I have slightly paraphrased Jacobs's translation.

pieces. John Ward's comments below initially present the case for the sign being merely a notational convenience, but his listing of where the sign is used also points out good reasons for its possibly meaning an actual slowing of pulse.

The third tiempo is used only four times in Mudarra's tablature. Thrice it appears when there is a change from semibreve to breve measures. These changes were probably in sign only since two semibreve compases played apriesa [sic]¹⁹⁴ would occupy about the same amount of time as a breve compás played despacio, (i.e., | ○ | ○ | = | ■ |). One such change occurs in Mudarra's intabulation of the last line . . . of Willaert's . . . Pater Noster. In the edition . . . which Mudarra probably used, the last line of the prima pars is set off from the preceding section . . . the isolation of this line may have suggested a broader tempo for the phrase "but deliver us from evil." A similar change . . . occurs twice in the soneto, A la muerte de la Serenisima princessa . . . the questioning first voice in in C tiempo is answered by the second voice in ¢ tiempo. The sentiments of the second voice . . . suggest a broader measure than the question . . . and outcry . . . of the first voice.¹⁹⁵

Combined with a consideration of where the sign changes occur, Mudarra's comments on the relation of text to tempo also imply that the change in sign means an actual change in pulse:

if a text is of gay and merry content, the compás, of necessity, is to move merrily and quickly. And if another text is neither all gay nor sad . . . this [text] will require another compás which moves yet neither very quickly nor very slowly . . . that [text] which is sad throughout will demand the slow compás.¹⁹⁶

¹⁹⁴ The Chantarelle facsimile edition of Tres Libros never shows the sign for a fast tempo moving directly to Mudarra's slowest tempo marking, so this seems to be an error.

¹⁹⁵ Ward, "The Vihuela" 71-72.

¹⁹⁶ Mudarra fol. A2^v; Chantarelle edition 20; trans. in Jacobs, "The Performance" 32.

Those familiar with Renaissance signs will have noticed that Mudarra's sign for a moderate tempo, **C**, corresponds to the standard Spanish Renaissance sign for a compás menor. The sign which he describes as containing breve compases and a "slow" tempo, **¢**, corresponds to the standard sign for compás mayor. Although some modern scholars feel Mudarra's theoretical understanding of these signs in mensural music was limited,¹⁹⁷ the description of the practical use of compás mayor and compás menor by Charles Wylly shows that Mudarra is reflecting contemporary use in performance exactly.

From the middle of the sixteenth century on, **¢** meant one compás mayor to the breve. **C**, which was really the basic sign, theoretically meant one compás (equivalent to that of **¢**) to the semibreve; but in this tempo the compás was somewhat accelerated so that the compás menor was smaller than the compás mayor in relation to time as well as the to number of notes contained. While most of the theorists continued to claim that the notes in **¢** had half the value in time as those in **C**, just as they occupied half the amount of a compás, it is quite clear . . . that in reality this was not the case. All doubt is resolved by an attempt to play the music of Cabezón marked **¢** twice as fast [in relation to the note values, not the compás] as that marked **C**; it simply cannot be done unless **C** is interpreted to mean "unbearably slow."¹⁹⁸

The coincidence of the change of signs with logical textual spots for tempo changes, and the correlation of Mudarra's use of these two signs with contemporary practice (if not contemporary theory) make it fairly certain that Mudarra's directions for the third sign should be

¹⁹⁷ Jacobs, "The Performance" 31.

¹⁹⁸ Wylly 172.

taken at face value—an actual change in the speed of the beat is intended as well as a purely notational change in the values of the notes. This in turn shows that the concept of changing pulse within a single piece was hardly foreign to Mudarra, and increases the likelihood that subtler changes of pulse (i.e., rubato) are appropriate, particularly within the more improvisational fantasias.

Unnotated Rhythmic Conventions

In addition to his copious remarks on ornamentation, the Spanish theoretician Thomás de Sancta María also lists an intriguing number of suggested rhythmic alterations to add grace and interest to the music. While it is doubtful that these alterations should be applied with the same regularity as notes inégales in French Baroque music; they are an interesting reflection of extempore alterations considered acceptable by at least one Spanish theorist.

Since Sancta María provided excellent musical examples, I have below severely paraphrased his remarks (as translated by James Wyly).

I advise that in order to play with good style, one should [alter] the semínimas [quarter notes] in one way and the corcheas [eighth notes] in [one of] three. The form which the semínimas take is a lengthening of the third and a shortening of the second....as if the first had a dot and the second were a corchea...and you should take heed that the short semínima does not have to be very short, but a little restrained.¹⁹⁹

¹⁹⁹ Thomás de Sancta María, Libro llamado Arte de tañer Fantasia, assi para tecla como para vihuela, y todo instrumento (Valladolid, 1565) fol. 45^v; trans in Wyly 241. Unless otherwise noted, the musical examples which accompany the translations are also from realizations in modern clefs by Wyly on the same pages.

Example 4.1: Sancta Maria's rhythmic alteration of successive quarter-notes.

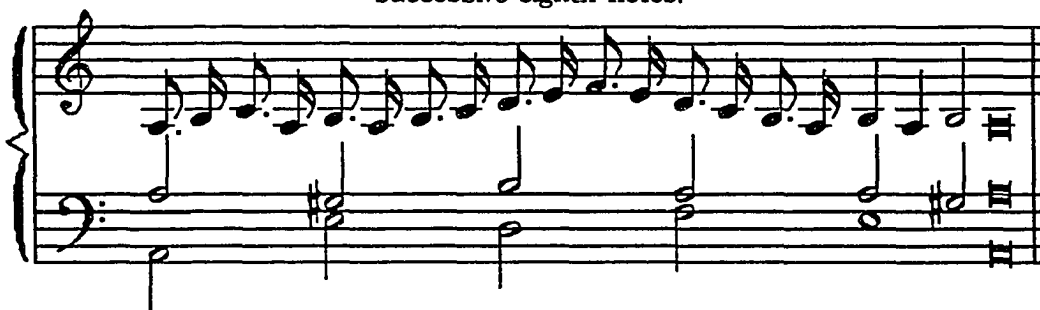


Sancta Maria's last sentence above makes it clear that the notation is not literal; the dotted note can probably be played almost as the third note of a triplet group.

Sancta Maria lists three ways to alter passages of eighth notes:

in one type one begins by lengthening the first corchea, shortening the second . . . as if the first were dotted and the second were a semicorchea . . . This type serves in works which are all of counterpoint, and for long and short passages in glosas.²⁰⁰

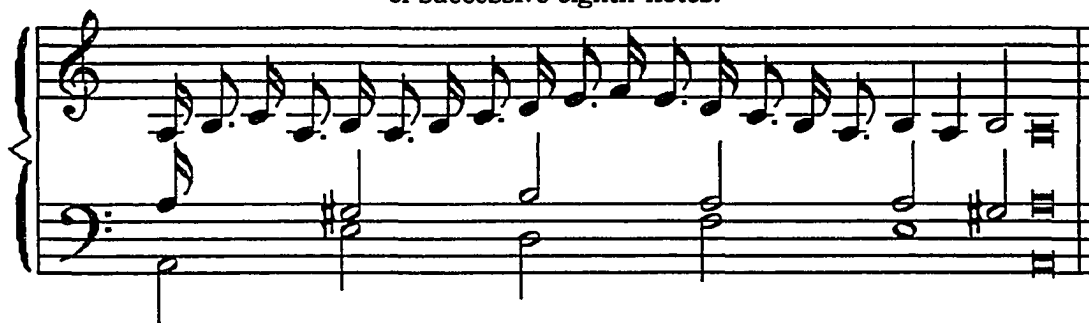
Example 4.2: Sancta Maria's first rhythmic alteration of successive eighth-notes.



²⁰⁰ Sancta Maria fol. 45^v; trans. Wyly 242.

The second type is made by shortening the first corchea and holding back the second . . . as if the first were a semicorchea and the second were dotted . . . This type serves in short glosas which one makes in fantasias and like works. And note that this type is much more elegant than the first mentioned one.²⁰¹

Example 4.3: Sancta Maria's second possible alternation of successive eighth-notes.



Sancta María does not repeat his advice to soften the dotting in these examples, but it is a possibility that he meant his original advice to extend to eighth notes as well. His other comments make it clear that the second type is not to be used in highly contrapuntal works, but is more elegant in glosas and (presumably) less contrapuntal fantasias.

Sancta María's last alteration of eighth notes is too subtle to notate accurately, so his original printed example showed only where the alteration was to occur.

The third type is made by shortening three corcheas and lengthening the fourth, and then shortening the next three and lengthening the fourth . . . as if the first three were semicorcheas and the fourth corchea had a dot. This third style is most elegant of all, and serves for glosas short and long. Take heed that the lengthening of the corcheas [is] only enough to show; because much lengthening causes the music to be very

²⁰¹ Sancta María fol. 45^v-46^r; trans. Wyly 241.

ungainly and ugly. And for this same reason the three shortened corcheas should not be shortened too much, but with moderation, conforming to the lengthening made on the fourth corchea.²⁰²

Example 4.4: Sancta María's third possible alteration of eighths, as notated in the original.



As interpreted by Wyly.²⁰³



As in ornamentation, opinions can vary on just how much these alterations should be applied. A different translation of Sancta María's initial phrase by Diana Poulton ("Note that it is required that crochets be played in one manner [my emphasis]"²⁰⁴), makes the use of the varied rhythm for quarter notes sound mandatory, whereas Wyly's and Jacobs' translations make Sancta María's advice much less

²⁰² Sancta María fol. 46^r; trans. Wyly 241.

²⁰³ Wyly 242.

²⁰⁴ Diana Poulton, "How to Play with Good Style By Thomás de Sancta María," Lute Society Journal 12 (1970): 24.

commanding. In another article, Poulton's view on the mandatory nature of these unnotated changes is made even clearer.

Perhaps of even greater interest than his (Sancta María's) information about graces is the contribution he makes to our knowledge of performing practice in his clear explanations of the rhythmic changes in passages of crochets and quavers which, he maintains, should be introduced. The notes inégales of French Baroque music are, nowadays, accepted without question, but it is not so generally recognized that this style of playing was known and carefully described in the middle of the 16th century.²⁰⁵

Other writers express a different viewpoint. Charles Jacobs clearly regards the rhythmic alterations as variations introduced at the desire of the performer, not unwritten conventions necessary to the correct performance of the music.

While the latter [Sancta María] does not give specific instructions stating when the three maneras of the corcheas are to be applied, his observations do give a clear idea of the special adaptability of these rhythmic mannerisms to certain types of passages. . . .

One ought not to assume, naturally . . . that all groups of corcheas there were to be treated with the rubato rhythms.²⁰⁶

Evidence that these alterations could not have been mandatory is apparent when also applying Sancta María's suggested ornamentation to certain passages. In some cases Sancta María's suggestions for trills in quarter notes can only be accomplished by not using the suggested rhythmic alteration.²⁰⁷

²⁰⁵ Diana Poulton, "Graces of Play in Renaissance Music," Early Music 3.2 (1975): 109.

²⁰⁶ Jacobs, "The Performance" 108-109.

²⁰⁷ See this document, 195.

James Wyly also concurs with Jacobs based on his own experimentation with Sancta María's rhythmic alterations.

It would seem fairly obvious that this kind of ornamentation cannot be effective in music with patterns similar to those brought about by the ornaments [i.e., alterations] going on simultaneously in other parts.

Furthermore, the contrast of these rhythms would only be destroyed were these changes to be applied to a group of semínimas or corcheas surrounded by dotted figures in the same part. Finally, to be really effective this sort of ornamentation demands a group of four or more (and preferably eight or more) semínimas or corcheas following one another. Only then does the pattern begin to make itself felt as the sort of elaborate ornamentation shown in Sancta María's examples.²⁰⁸

My own subjective preference after using these alterations in Mudarra's music is not entirely in agreement with Wyly's. Most pieces by Mudarra do not present the type of textures that Wyly considers ideal for the alterations, but longer passages in some of the redoble fantasias in the first book and several of the later glosas do gain in interest by this treatment. My own preference was an occasional application of the patterns to one or two measures (possible in almost all of Mudarra's pieces) particularly in conjunction with Sancta María's ornamentation discussed in the next section. However, this is a slight difference in taste between two modern musicians (playing music for different instruments) confronted with incomplete historical evidence—either approach seems justifiable from a musicological standpoint. A short example of the application of Sancta María's single rhythmic

²⁰⁸ Wyly 242.

alteration of quarters in Mudarra's "Fantasia de pasos cantado" is given below.

Example 4.5: #4, "Fantasia de pasos cantado" (excerpt) with possible use of Sancta Maria's rhythmic alterations (included in notation only, tablature is as in the original).²⁰⁹

The image displays three systems of musical notation for an excerpt from Mudarra's "Fantasia de pasos cantado". Each system consists of a vocal line (treble clef, key of D major) and a lute tablature line (six-line staff). The tablature includes rhythmic alterations indicated by numbers 0-5 and diamond-shaped symbols.

System 1: The vocal line begins with a half note D4, followed by eighth notes E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7, D7, E7, F#7, G7, A7, B7, C8, D8, E8, F#8, G8, A8, B8, C9, D9, E9, F#9, G9, A9, B9, C10, D10, E10, F#10, G10, A10, B10, C11, D11, E11, F#11, G11, A11, B11, C12, D12, E12, F#12, G12, A12, B12, C13, D13, E13, F#13, G13, A13, B13, C14, D14, E14, F#14, G14, A14, B14, C15, D15, E15, F#15, G15, A15, B15, C16, D16, E16, F#16, G16, A16, B16, C17, D17, E17, F#17, G17, A17, B17, C18, D18, E18, F#18, G18, A18, B18, C19, D19, E19, F#19, G19, A19, B19, C20, D20, E20, F#20, G20, A20, B20, C21, D21, E21, F#21, G21, A21, B21, C22, D22, E22, F#22, G22, A22, B22, C23, D23, E23, F#23, G23, A23, B23, C24, D24, E24, F#24, G24, A24, B24, C25, D25, E25, F#25, G25, A25, B25, C26, D26, E26, F#26, G26, A26, B26, C27, D27, E27, F#27, G27, A27, B27, C28, D28, E28, F#28, G28, A28, B28, C29, D29, E29, F#29, G29, A29, B29, C30, D30, E30, F#30, G30, A30, B30, C31, D31, E31, F#31, G31, A31, B31, C32, D32, E32, F#32, G32, A32, B32, C33, D33, E33, F#33, G33, A33, B33, C34, D34, E34, F#34, G34, A34, B34, C35, D35, E35, F#35, G35, A35, B35, C36, D36, E36, F#36, G36, A36, B36, C37, D37, E37, F#37, G37, A37, B37, C38, D38, E38, F#38, G38, A38, B38, C39, D39, E39, F#39, G39, A39, B39, C40, D40, E40, F#40, G40, A40, B40, C41, D41, E41, F#41, G41, A41, B41, C42, D42, E42, F#42, G42, A42, B42, C43, D43, E43, F#43, G43, A43, B43, C44, D44, E44, F#44, G44, A44, B44, C45, D45, E45, F#45, G45, A45, B45, C46, D46, E46, F#46, G46, A46, B46, C47, D47, E47, F#47, G47, A47, B47, C48, D48, E48, F#48, G48, A48, B48, C49, D49, E49, F#49, G49, A49, B49, C50, D50, E50, F#50, G50, A50, B50, C51, D51, E51, F#51, G51, A51, B51, C52, D52, E52, F#52, G52, A52, B52, C53, D53, E53, F#53, G53, A53, B53, C54, D54, E54, F#54, G54, A54, B54, C55, D55, E55, F#55, G55, A55, B55, C56, D56, E56, F#56, G56, A56, B56, C57, D57, E57, F#57, G57, A57, B57, C58, D58, E58, F#58, G58, A58, B58, C59, D59, E59, F#59, G59, A59, B59, C60, D60, E60, F#60, G60, A60, B60, C61, D61, E61, F#61, G61, A61, B61, C62, D62, E62, F#62, G62, A62, B62, C63, D63, E63, F#63, G63, A63, B63, C64, D64, E64, F#64, G64, A64, B64, C65, D65, E65, F#65, G65, A65, B65, C66, D66, E66, F#66, G66, A66, B66, C67, D67, E67, F#67, G67, A67, B67, C68, D68, E68, F#68, G68, A68, B68, C69, D69, E69, F#69, G69, A69, B69, C70, D70, E70, F#70, G70, A70, B70, C71, D71, E71, F#71, G71, A71, B71, C72, D72, E72, F#72, G72, A72, B72, C73, D73, E73, F#73, G73, A73, B73, C74, D74, E74, F#74, G74, A74, B74, C75, D75, E75, F#75, G75, A75, B75, C76, D76, E76, F#76, G76, A76, B76, C77, D77, E77, F#77, G77, A77, B77, C78, D78, E78, F#78, G78, A78, B78, C79, D79, E79, F#79, G79, A79, B79, C80, D80, E80, F#80, G80, A80, B80, C81, D81, E81, F#81, G81, A81, B81, C82, D82, E82, F#82, G82, A82, B82, C83, D83, E83, F#83, G83, A83, B83, C84, D84, E84, F#84, G84, A84, B84, C85, D85, E85, F#85, G85, A85, B85, C86, D86, E86, F#86, G86, A86, B86, C87, D87, E87, F#87, G87, A87, B87, C88, D88, E88, F#88, G88, A88, B88, C89, D89, E89, F#89, G89, A89, B89, C90, D90, E90, F#90, G90, A90, B90, C91, D91, E91, F#91, G91, A91, B91, C92, D92, E92, F#92, G92, A92, B92, C93, D93, E93, F#93, G93, A93, B93, C94, D94, E94, F#94, G94, A94, B94, C95, D95, E95, F#95, G95, A95, B95, C96, D96, E96, F#96, G96, A96, B96, C97, D97, E97, F#97, G97, A97, B97, C98, D98, E98, F#98, G98, A98, B98, C99, D99, E99, F#99, G99, A99, B99, C100, D100, E100, F#100, G100, A100, B100, C101, D101, E101, F#101, G101, A101, B101, C102, D102, E102, F#102, G102, A102, B102, C103, D103, E103, F#103, G103, A103, B103, C104, D104, E104, F#104, G104, A104, B104, C105, D105, E105, F#105, G105, A105, B105, C106, D106, E106, F#106, G106, A106, B106, C107, D107, E107, F#107, G107, A107, B107, C108, D108, E108, F#108, G108, A108, B108, C109, D109, E109, F#109, G109, A109, B109, C110, D110, E110, F#110, G110, A110, B110, C111, D111, E111, F#111, G111, A111, B111, C112, D112, E112, F#112, G112, A112, B112, C113, D113, E113, F#113, G113, A113, B113, C114, D114, E114, F#114, G114, A114, B114, C115, D115, E115, F#115, G115, A115, B115, C116, D116, E116, F#116, G116, A116, B116, C117, D117, E117, F#117, G117, A117, B117, C118, D118, E118, F#118, G118, A118, B118, C119, D119, E119, F#119, G119, A119, B119, C120, D120, E120, F#120, G120, A120, B120, C121, D121, E121, F#121, G121, A121, B121, C122, D122, E122, F#122, G122, A122, B122, C123, D123, E123, F#123, G123, A123, B123, C124, D124, E124, F#124, G124, A124, B124, C125, D125, E125, F#125, G125, A125, B125, C126, D126, E126, F#126, G126, A126, B126, C127, D127, E127, F#127, G127, A127, B127, C128, D128, E128, F#128, G128, A128, B128, C129, D129, E129, F#129, G129, A129, B129, C130, D130, E130, F#130, G130, A130, B130, C131, D131, E131, F#131, G131, A131, B131, C132, D132, E132, F#132, G132, A132, B132, C133, D133, E133, F#133, G133, A133, B133, C134, D134, E134, F#134, G134, A134, B134, C135, 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F#251, G251, A251, B251, C252, D252, E252, F#252, G252, A252, B252, C253, D253, E253, F#253, G253, A253, B253, C254, D254, E254, F#254, G254, A254, B254, C255, D255, E255, F#255, G255, A255, B255, C256, D256, E256, F#256, G256, A256, B256, C257, D257, E257, F#257, G257, A257, B257, C258, D258, E258, F#258, G258, A258, B258, C259, D259, E259, F#259, G259, A259, B259, C260, D260, E260, F#260, G260, A260, B260, C261, D261, E261, F#261, G261, A261, B261, C262, D262, E262, F#262, G262, A262, B262, C263, D263, E263, F#263, G263, A263, B263, C264, D264, E264, F#264, G264, A264, B264, C265, D265, E265, F#265, G265, A265, B265, C266, D266, E266, F#266, G266, A266, B266, C267, D267, E267, F#267, G267, A267, B267, C268, D268, E268, F#268, G268, A268, B268, C269, D269, E269, F#269, G269, A269, B269, C270, D270, E270, F#270, G270, A270, B270, C271, D271, E271, F#271, G271, A271, B271, C272, D272, E272, F#272, G272, A272, B272, C273, D273, E273, F#273, G273, A273, B273, C274, D274, E274, F#274, G274, A274, B274, C275, D275, E275, F#275, G275, A275, B275, C276, D276, E276, F#276, G276, A276, B276, C277, D277, E277, F#277, G277, A277, B277, C278, D278, E278, F#278, G278, A278, B278, C279, D279, E279, F#279, G279, A279, B279, C280, D280, E280, F#280, G280, A280, B280, C281, D281, E281, F#281, G281, A281, B281, C282, D282, E282, F#282, G282, A282, B282, C283, D283, E283, F#283, G283, A283, B283, C284, D284, E284, F#284, G284, A284, B284, C285, D285, E285, F#285, G285, A285, B285, C286, D286, E286, F#286, G286, A286, B286, C287, D287, E287, F#287, G287, A287, B287, C288, D288, E288, F#288, G288, A288, B288, C289, D289, E289, F#289, G289, A289, B289, C290, D290, E290, F#290, G290, A290, B290, C291, D291, E291, F#291, G291, A291, B291, C292, D292, E292, F#292, G292, A292, B292, C293, D293, E293, F#293, G293, A293, B293, C294, D294, E294, F#294, G294, A294, B294, C295, D295, E295, F#295, G295, A295, B295, C296, D296, E296, F#296, G296, A296, B296, C297, D297, E297, F#297, G297, A297, B297, C298, D298, E298, F#298, G298, A298, B298, C299, D299, E299, F#299, G299, A299, B299, C300, D300, E300, F#300, G300, A300, B300, C301, D301, E301, F#301, G301, A301, B301, C302, D302, E302, F#302, G302, A302, B302, C303, D303, E303, F#303, G303, A303, B303, C304, D304, E304, F#304, G304, A304, B304, C305, D305, E305, F#305, G305, A305, B305, C306, D306, E306, F#306, G306, A306, B306, C307, D307, E307, F#307, G307, A307, B307, C308, D308, E308, F#308, G308, A308, B308, C309, D309, E309, F#309, G309, A309, B309, C310, D310, E310, F#310, G310, A310, B310, C311, D311, E311, F#311, G311, A311, B311, C312, D312, E312, F#312, G312, A312, B312, C313, D313, E313, F#313, G313, A313, B313, C314, D314, E314, F#314, G314, A314, B314, C315, D315, E315, F#315, G315, A315, B315, C316, D316, E316, F#316, G316, A316, B316, C317, D317, E317, F#317, G317, A317, B317, C318, D318, E318, F#318, G318, A318, B318, C319, D319, E319, F#319, G319, A319, B319, C320, D320, E320, F#320, G320, A320, B320, C321, D321, E321, F#321, G321, A321, B321, C322, D322, E322, F#322, G322, A322, B322, C323, D323, E323, F#323, G323, A323, B323, C324, D324, E324, F#324, G324, A324, B324, C325, D325, E325, F#325, G325, A325, B325, C326, D326, E326, F#326, G326, A326, B326, C327, D327, E327, F#327, G327, A327, B327, C328, D328, E328, F#328, G328, A328, B328, C329, D329, E329, F#329, G329, A329, B329, C330, D330, E330, F#330, G330, A330, B330, C331, D331, E331, F#331, G331, A331, B331, C332, D332, E332, F#332, G332, A332, B332, C333, D333, E333, F#333, G333, A333, B333, C334, D334, E334, F#334, G334, A334, B334, C335, D335, E335, F#335, G335, A335, B335, C336, D336, E336, F#336, G336, A336, B336, C337, D337, E337, F#337, G337, A337, B337, C338, D338, E338, F#338, G338, A338, B338, C339, D339, E339, F#339, G339, A339, B339, C340, D340, E340, F#340, G340, A340, B340, C341, D341, E341, F#341, G341, A341, B341, C342, D342, E342, F#342, G342, A342, B342, C343, D343, E343, F#343, G343, A343, B343, C344, D344, E344, F#344, G344, A344, B344, C345, D345, E345, F#345, G345, A345, B345, C346, D346, E346, F#346, G346, A346, B346, C347, D347, E347, F#347, G347, A347, B347, C348, D348, E348, F#348, G348, A348, B348, C349, D349, E349, F#349, G349, A349, B349, C350, D350, E350, F#350, G350, A350, B350, C351, D351, E351, F#351, G351, A351, B351, C352, D352, E352, F#352, G352, A352, B352, C353, D353, E353, F#353, G353, A353, B353, C354, D354, E354, F#354, G354, A354, B354, C355, D355, E355, F#355, G355, A355, B355, C356, D356, E356, F#356, G356, A356, B356, C357, D357, E357, F#357, G357, A357, B357, C358, D358, E358, F

A short example of the application of Sancta Maria's three rhythmic alterations of eighths applied to a passage from Mudarra's "Fantasia para desenbolber las manos" is presented in the next example.

Example 4.6: # 2, "Fantasia para desenbolber las manos" (excerpt) with possible use of Sancta Maria's rhythmic alterations.²¹⁰

The image displays three systems of musical notation for an excerpt from Mudarra's "Fantasia para desenbolber las manos". Each system consists of a melodic line in treble clef with a key signature of one sharp (F#), and a corresponding rhythmic line below it. The rhythmic line uses numbers (0, 1, 2, 3, 4) to represent eighth notes, with some numbers enclosed in circles. Above the numbers, diamond-shaped symbols indicate specific rhythmic alterations: a diamond with a vertical line (representing a dotted eighth note), a diamond with a diagonal line (representing a sixteenth note), and a diamond with a horizontal line (representing a quarter note). The first system has four measures of music and four measures of rhythm. The second system has four measures of music and four measures of rhythm. The third system has four measures of music and four measures of rhythm. The music features various rhythmic patterns, including eighth notes, sixteenth notes, and dotted eighth notes, which are being altered according to Sancta Maria's principles.

²¹⁰ Mudarra fol. 2^r; Chantarelle edition 27.

Summary

While Mudarra does provide tempo indications for all of the pieces in the Tres Libros, these must be approached with some caution, especially when comparing tempos between pieces. While pieces with a specified quick tempo should actually sound fast, in some cases the actual speed of the compás will not vary appreciably from other pieces in which a moderate tempo is specified. Mudarra's third tempo sign should probably be treated as calling for an actual slowing down of the speed of the compás even when encountered within a piece, not merely as a proportional change.

Rubato is probably appropriate for those Mudarra fantasias which most closely resemble introductory *ricercars*, and probably less appropriate for the more thoroughly contrapuntal fantasias in the second book. Mudarra's treatment of tempo gives some evidence that the rigidly steady beat seemingly implied by some Renaissance theoreticians is more a product of their didactic language than a reflection of true sixteenth-century performance practice.

The rhythmic alterations given by Sancta María were probably considered as appropriate extempore alterations by performers, but it is doubtful that their use in the music of Mudarra should be either mandatory or as widespread as a literal translation of Sancta María's instructions seems to imply.

Part Five

Ornamentation

The first and most basic question concerning extempore ornamentation in vihuela music is whether it was used. The length and detail with which Spanish keyboard sources treat ornamentation imply its widespread use on the organ and clavichord, but the vihuelistas themselves mention it either in passing or not at all. Only Venegas de Henestrosa specifically describes a particular ornament as intended or suitable for the vihuela, and his book, although subtitled "para tecla, harpa y vihuela" is printed in Spanish organ tablature and is primarily a keyboard source.²¹¹

The absence of actual signs for ornaments in the printed tablatures is readily explainable; printing was still in a developmental stage and the difficulty of adding signs for ornaments may well have been a discouraging factor. This was apparently the case in Italy at a slightly earlier period: the first printed tablatures by Petrucci lack ornament signs, but the Capirola manuscript from about the same period shows a fair amount of ornamentation.²¹² A similar disparity can be seen between Elizabethan manuscript and printed sources.²¹³ What is more troubling is the almost complete lack of discussion of vihuela

²¹¹ Charles Jacobs, "Luis Venegas de Henestrosa," New Grove Dictionary of Music and Musicians vol. 19 (London: 1980) 602-603.

²¹² For example, note the lack of ornament signs in Dalza's 1507 book and the Capirola manuscript's liberal use of ornaments.

²¹³ For example, note the liberal ornament signs for "The King of Denmark's Galliard" in Dowland, Complete Works, a modern edition drawing from ms. sources as well as printed sources, and the lack of ornament signs in the same piece printed in Robert Dowland's Varietie of Lute Lessons (London, 1610) fol. L2^v.

ornamentation in the tablature prefaces and in sixteenth-century Spanish musical treatises.

If one assumes vihuelists did use ornamentation, several possible reasons for this lack of information are possible. Discussion of ornamentation may have been omitted because it was assumed anyone interested in music would be daily exposed to the latest styles. As Bermudo explained his choice not to discuss keyboard ornamentation in the first (1549) edition of the Declaración: "Nor do I tell how to execute ornaments [redobles], because the fashion of playing them changes every day, and because current methods of performing them cannot be set down in writing."²¹⁴ Given the ruinously high cost of printing in sixteenth-century Spain, discussion of ornaments may also have been omitted for purely financial reasons.²¹⁵

Conversely, several motives can be postulated if one assumes the vihuelistas did not wish their works to have ornamentation added by the performer. The most obvious is aesthetic: perhaps the vihuelists did not want to have their works tampered with by performers less knowledgeable and sensitive than themselves. However, there is no reason to believe that vihuelists had a wholly different aesthetic outlook from contemporary performers on the organ and clavichord, both of whom apparently used ornamentation freely, so this seems unlikely. Another possibility, particularly given the advantages of specificity and economy that vihuela tablature had over other

²¹⁴ Trans. by Robert Stevenson, Juan Bermudo (The Hague: 1960) 14-15.

²¹⁵ Ward, "The Vihuela" 97.

contemporary forms of notation for solo polyphony, might be that the necessary ornamentation is already provided within the tablatures themselves. Yet another might be that performing polyphonic music on the vihuela, certainly a less facile instrument than an organ or clavichord, was already so difficult that adding ornamentation was more or less impossible.

Some insight into the vihuelists' attitude towards extempore ornamentation can be inferred from their own statements and their treatment of the music of other composers. Before evaluating the literary evidence it is important to understand the sixteenth-century differentiation between ornamentation and the concept of "glossing." Both could be applied by the performer to another musician's music, but the following description by John Ward shows how strongly the two practices differed in practical application.

The literal transcription, which may be called simply an intabulation, presents the original without much ornamental overlay. Though such intabulations differ in the amount and kind of ornament added, there seems to have been general agreement that such decoration best becomes the opening of a piece . . . or the cadence . . . The second type of intabulation, best called glosa, transforms the borrowed music by means of continuous diminution, changing not only the character of the original but also sacrificing the discant melody to the abstract figuration.²¹⁶

Thus even in inexact usage (not uncommon in Spanish treatises), the term "glosa" or "glosando" implied a significant addition of divisions as opposed to the occasional added trill or turn. That this distinction

²¹⁶ John Ward, "The Use of Borrowed Material in 16th-Century Instrumental Music," Journal of the American Musicological Society 5 (1952): 90-91.

was recognized by the Spanish musicians themselves is evidenced by Sancta María's keeping his discussion of the two procedures completely separate.²¹⁷ In its extreme form, the practice of "glossing" amounted to wholesale rewriting; Ward presents as an example Mudarra's glosa of Josquin's "Cum Sancto Spirito" in which significant sections of the music are original with Mudarra, retaining only motives from the original by Josquin.²¹⁸

Given this distinction between glosa and ornamentation, players should not be deterred from ornamenting vihuela music merely by sixteenth-century statements denigrating glosas.²¹⁹ Such statements are common. Bermudo's denunciation: "He who wishes to take advantage of this book should take as principal advice: that he not make glosas in the music . . . the worst corruption of music among players is inopportune glosas"²²⁰ was echoed by several of the vihuelistas. Valderrábano emphasized his restrained use of glosa²²¹ and Fuenllana denounced the practice in terms almost as strong as Bermudo's:

I do not gloss at all times in transcriptions because I am of the opinion that with glosses or redobles, the integrity of the composition is compromised. Thus we see that some, content with their opinion alone, compose anew works placed in their

²¹⁷ Sancta María discusses glosa in Part I, Chapter 23; ornamentation in Part I, Chapter 19. See also Hultberg 134, 145.

²¹⁸ Ward, "Borrowed Material" 94.

²¹⁹ Of course, the denunciations themselves are proof of extensive glossing by other musicians.

²²⁰ Bermudo (1555) fol. 29^v; trans. from Myers 18.

²²¹ Valderrábano fol. A3^r.

hands, which very fine authors have composed with excellent craft and good spirit, girding them with I don't know what redobles in conformance with their will . . . I do not use it [glossing] in the works of this book, save at cadences or in the places demanded by the composition, (my emphasis) as will be seen in the works themselves.²²²

An examination of "the works themselves" shows that if Fuenllana was a Puritan in this regard, then those who employed excessive glosas must have been intemperate indeed. While Fuenllana's intabulations rarely omit voices or change harmonies of the vocal original, the addition of runs, particularly near cadences, is even more common than his remarks would lead us to expect. That Fuenllana condemned abuse of freedom by performers is indisputable, but his own free (by twentieth-century standards) treatment of other composers' music implies that the type of liberties he was denigrating must have been fairly extravagant. A willingness to freely alter the music of other composers is even more apparent in the vocally-based works of earlier vihuelists: Narváez's beautiful arrangement of Josquin's "Mille Regrets" is replete with divisions, and Mudarra's already-cited glosas often contain as much music by Mudarra as the glossed composer.

Although it thus seems likely the vihuelists would have had no aesthetic objections to extempore ornamentation, practical objections might still be valid. To address the practicality of ornamentation requires a more in-depth look at the possibilities implied in the keyboard sources.

²²² Fuenllana fol. *5^r; trans. Jacobs edition Orphénica lxxxix.

The Ornaments

Two terms are generally used in connection with sixteenth-century Spanish keyboard ornamentation: redoble and quiebro. The vihuelistas do not use the term quiebro, but they often speak of redobles.

However, the vihuelistas invariably use the term to describe the sort of divisions or runs typically encountered in glosas; the keyboard players and theorists routinely use it to designate a specific ornament.

Unfortunately this latter use is only specific within the writings of a single musician: Sancta María may always use the word redoble to specify a particular ornament within his own book, but it corresponds to neither the redoble of Bermudo nor to that of Venegas.

As mentioned earlier, Venegas de Henestrosa did describe one ornament as suitable for the vihuela:

The quiebro is to shake [menear] the finger on the string and the fret that you wish to play or to keep it in place and shake [quebrar] with the second or the third finger one or two frets higher.²²³

In separate articles on Renaissance ornamentation Diana Poulton and Phillip Pivovar concur in interpreting the above as describing two ornaments: a vibrato and an upper-note trill.²²⁴ This is certainly reasonable, and also explains the use of two different words for the action of the finger in a quiebro. On the other hand, it seems odd that

²²³ Venegas, Libro de Cifra Nueva fol. 8^r; reprinted in Monumentos vol. 2; trans in Pivovar, 35. The Spanish text reads: "El quiebro es menear el dedo encima de la cuerda y traste, que quisiere tocar, o tenello quedo, y quebrar con el segundo, o tercero dedos, un traste, o dos mas arriba.

²²⁴ Pivovar 35; Poulton, "Graces of Play in Renaissance Music," Early Music 3.2 (1975): 109.

Venegas would describe two such radically different effects as the same ornament. Another possibility is that Venegas's quiebro denotes two different trills, the first a trill to the lower auxiliary and the second merely an upper-auxiliary trill. Although the first type of trill could involve the use of more than one left-hand finger, its most common and convenient use would have occurred from a note on the first or second fret to the open string. Since Venegas was probably a keyboard player, a description that fit only the most common use of a vihuela ornament and neglected other permutations is not unlikely. This interpretation of Venegas's first quiebro results in an ornament identical to that called a redoble by Juan Bermudo.

Example 5.1: Possible interpretation of Venegas's first vihuela quiebro.
Rhythmic values are editorial and could be changed in context.



Additional repercussions?

Venegas also gives the fingering for a left- and right-hand quiebro for keyboard players.

You must also obtain these habits for quiebros: in the right hand playing on the desired key with the longest finger and then the second and turning on the middle finger, play the fourth and continue the quiebro with these two fingers [third and fourth] do this first slowly and then faster until you can do it spontaneously. The quiebro in the left hand must begin with the third finger and continue to the thumb and then playing the quiebro with the second and first fingers until a new note is given in the following measure.²²⁵

²²⁵ Calvert Johnson, "Spanish Keyboard Ornamentation, 1535-1626" Diapason 69-71 (1978): 13.

In separate articles Calvert Johnson and Robert Parkins both concur that the most probable interpretation of "longest finger" in this context is the middle finger, which results in a right-hand quiebro as given below left (assuming fingerings indicate adjacent notes). Johnson also lists a doubtful but possible alternative derived by interpreting "longest finger" as denoting the thumb.

Example 5.2: Possible interpretation of Venegas's right-hand keyboard quiebro with "longest finger" assumed to be middle. Rhythmic values are editorial and could be changed in context.²²⁶



Additional repercussions?

Example 5.2A: Possible interpretation of right-hand quiebro with longest finger assumed to be thumb.²²⁷



The ornament derived from a literal interpretation of Venegas's

²²⁶ Johnson 13; Robert Parkins, "Cabezón to Cabanilles: Ornamentation in Spanish Keyboard Music," *Organ Yearbook* 2 (1980): 6. Parkins does not state his that "longest finger" designates the middle finger, but his musical realization of the ornament makes it plain that this is his assumption.

²²⁷ Johnson gives no reasons for considering the second interpretation as less probable, but it seems obvious that interpreting the thumb as the "longest" finger requires an unlikely semantic confusion with "strongest" on Venegas's part. In addition, Venegas says the ornament should "begin" on the longest finger, in other words, that the longest finger would play the note written in the score. If this is the case, the given figure is meant to ornament a "d" and not an "f," which seems musically unlikely.

left-hand instructions differs from the quiebro for the right hand (Example 5.3), but Johnson points out that if Venegas had omitted mention of the first (notated) note of the quiebro (Example 5.3A), it would have been identical to that given for the right hand (Example 5.2A).²²⁸ While it seems odd to assume that Venegas would fail to mention the initial striking of the main note, this interpretation is actually as consistent as the first, which requires an assumption that Venegas failed to mention that his fingering for the ornament requires starting one note below the main note.

Example 5.3: Possible interpretation of Venegas's left-hand keyboard quiebro. Rhythmic values are editorial and could be changed in context.²²⁹



Example 5.3A: Possible interpretation of left-hand quiebro assuming Venegas did not mention striking of main note.



Venegas does not mention use of these ornaments on the vihuela, but in some musical contexts they might be usable. His discussion of keyboard ornaments does contain the valuable information that he

²²⁸ Johnson 13.

²²⁹ Johnson 13.

wished them to be extended until either the next note or the next measure, in other words, for the entire duration of the ornamented note.²³⁰ Presumably this advice extends to the vihuela ornament.

Bermudo does not give a notated example of his only ornament, which he calls a redoble, but his description is clear: "There is a redoble above the principal note, and one below it."²³¹

Example 5.4: Realization of Bermudo's two redobles. Rhythmic values are editorial and could be changed in context.



Although his comments can be interpreted as describing an ornament identical to the vihuela quiebro of Venegas, whether Bermudo intended this trill-like ornament to be continuous or short is unknown. As Calvert Johnson has pointed out: "The duration of the ornamented note, number of repetitions, relative speed (eighth or sixteenth notes) and rhythmic placement (on or before the beginning of the ornamented note), are not even hinted at."²³²

Bermudo also mentions several applications of simultaneous redobles in both hands. While the historical "correctness" of this

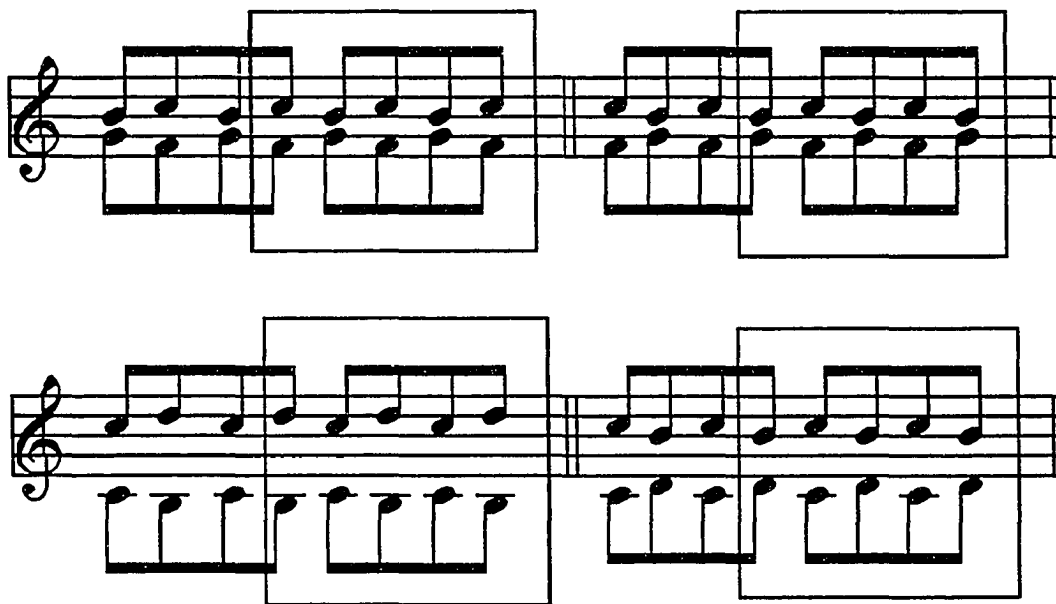
²³⁰ Parkins 8.

²³¹ Bermudo fol. 60^v, 61^r; trans. Wyly 236.

²³² Johnson 12.

simultaneous ornamentation of two lines should be remembered by vihuelists, guitarists, or lutenists performing sixteenth-century Spanish ensemble music, its feasibility for a solo vihuelist is doubtful.

Example 5.5: Simultaneous redobles in two parts as given by Bermudo. One voice must trill up from main note, the other down, and both the main notes and trilled notes should be consonant.²³³



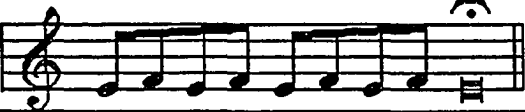







A welcome contrast to the sometimes cryptic descriptions of ornamentation by Venegas and Bermudo is encountered in Thomás de Sancta María's Libro llamado Arte de tañer Fantasia asi para tecla como para vihuela y todo instrumentos, published in Valladolid in 1556.²³⁴ Since Sancta María routinely gives musical examples of his ornaments, their interpretation is less problematic than those given by Venegas

²³³ Example from Parkins, 6, realized from Bermudo, fol. 60^v.

²³⁴ Despite this title, Sancta María's treatment of the vihuela is cursory.

and Bermudo, and most of his lengthy descriptions can be omitted.²³⁵ The first group of ornaments as well as some of Sancta María's suggestions and proscriptions on their exact usage are given below.

Example 5.6: Sancta María's first group of ornaments with original rhythmic values.²³⁶

ornament	rhythmic restrictions	tonal restrictions
quiebro reiterado 	 = only	Can be used on either half or whole-step
redoble 	 = only	Must use half-step and whole-step, either above, other below (i.e. entire ornament must cover range of minor third)
quiebro senzillo (ascending) 	 = only	Can be used on either half or whole-step
quiebro senzillo (descending) 	 = only	Can be used on either half or whole-step

Although Sancta María gives more detailed information than Bermudo or Venegas, several questions are raised by his notation.

²³⁵ Translations of Sancta María's comments on ornamentation, folios 47-51^v, are available in the following: Wily 228-234; Jacobs, "The Performance" 152-54, 156-62. A much-summarized but accurate paraphrase can be found in Poulton, "How to Play" 26-30.

²³⁶ Table based on transcription into modern notation by Parkins 6. All other secondary sources were in essential agreement with these realizations.

Each example ends with either a held whole note or breve. If this rhythmic notation is taken literally, this last note cannot be included in the time allotted to each ornament by Sancta Maria. (The quiebro reiterado will not fit into its prescribed time even without the last note.) The notation implies instead that this is the note to which each ornament resolves. However, Sancta Maria's verbal description of these ornaments always includes the last note without any such distinction, as in the following: "Observe that redoble means doubled or reiterated notes, the doubling or reiteration involving only two successive notes, such as mi, re, mi, fa, mi, fa, mi, fa, mi."237

Two interpretations of this notation are possible. Although he never addresses the problem directly, Jacobs follows two different procedures with different implications. In his realizations of some of the ornaments Jacobs includes the last note in the ornament itself. However, in his search for notated occurrences of the ornaments almost all the occurrences listed are followed by their beginning note, exactly as required by a literal interpretation of Sancta Maria's notation.238

One strong objection comes to mind regarding this second approach: Of what use is an ornament that must always be followed by the same note? Another more likely solution is hinted at when Wylly states, "It should be remembered that though the examples are largely

237 Sancta Maria fol. 46^v; trans. by Jacobs, "The Performance" 152.

238 Jacobs, "The Performance" Vol. 2, 121; Vol 1, 161, fn 8. As an added complication, Jacobs does occasionally "find" these ornaments in rhythmic values other than those specified by Sancta Maria. In several of his listed occurrences I can find no musical figure matching the specified ornament at all.

written in eight-notes, [sic] it is only because they have to be written in something. Santa María gives no indication as to whether the trills are to be played with or without the point d' arret other than 'the redobles have in no way to be very long.' "239

Thus Sancta María's choice of note values for the examples is arguably mere convenience, and the greater time value given to the last note is meant to convey only that the ornament need not occupy the note's complete duration, not that this last note falls after the ornament proper. It may additionally imply a slight lingering on the terminal note of the ornament, or that the "eighth" notes are to be played as quickly as possible.

Further proof that this is Sancta María's intention is given both by the fact that the quiebro reiterado in his example will not fit into the rhythmic situation given for it in the text, and by another example showing which types of simple quiebro should be used for ascending and descending scales. Although Sancta María does not realize the ornaments in actual notation in this example, his indicated placement of them makes it clear that the only reasonable interpretation includes the last note of his example in the ornament itself, and involves playing the "eighths" at least as fast as triplets.

239 Wyly 228. The avoidance of notated sixteenth notes occurs often enough in Renaissance music and treatises to have been dubbed "horror fusae" by some musicologists.

Example 5.7: Sancta María's original notation of correct use of simple quiebros, indicated by dots (left). Realization showing one possible necessary reduction of note values from those given in Sancta María's examples of simple quiebros (right).²⁴⁰



Inherent in this interpretation of Sancta María's notation is the answer to another question: was all necessary ornamentation already written into vihuela music? Although musical figurations similar to each of the ornaments can be found in the tablatures, they are rarely if ever written in values smaller than eighths. The necessary use of notes smaller than eighths in Sancta María's ornaments therefore argues against this theory. In addition, in Venegas's earlier description of his vihuela ornament, the repercussions after the main note are sounded with the left hand alone, the same sort of execution called for in descriptions of Renaissance lute ornaments. Since none of the vihuela tablatures include instructions for playing notes in this manner, it seems likely that such ornaments were meant to be indicated by signs (which were too difficult for printers to include), or added entirely at the performers' discretion, just as they were in lute sources.

Sancta María goes on to describe another slightly altered execution of two of his ornaments as being "very new and gallant."²⁴¹ The altered

²⁴⁰ Poulton, "How to Play" 30.

²⁴¹ Poulton, "How to Play" 29.

execution involves beginning the redoble and the quiebro reiterado with an added upper auxiliary played before the beat.

Example 5.8: Realization of "new manner" for Santa María's quiebro reiterado and redoble with uncorrected note values.²⁴²



Santa María also includes, in retrospect, another ornament in this "very new and gallant" category which he originally listed with the first group, a second quiebro suitable for minims (half-notes), given below.

Example 5.9: "New and gallant" quiebro for half-notes given only by Santa María.²⁴³



Several possible interpretations of this problematic ornament are presented by Robert Parkins.

The presence of a rest before the first note of this particular quiebro in Santa María's example would seem to indicate that the first note is not to coincide with the beat. At first glance one might reason that the entire figure is delayed until after the consonancia is struck. Another interpretation might be that the first three notes precede the beat, thereby placing the main beat on the note in conformance with the other ornaments mentioned. Still another possible solution would be to play the upper auxiliary immediately before the beat, allowing the first occurrence of the main note to fall on the beat. This third possibility is least likely, though, for it would result in the less preferred form of the quarter-note quiebro senzillo preceded by the upper neighbor. To begin the half-note quiebro senzillo before the beat is certainly not out of the question, for Santa María describes it as "very new and elegant", similar to the new and elegant fashion of playing the redoble and quiebro reiterado,

²⁴² Parkins 6.

²⁴³ Poulton, "How to Play" 27.

in which the main note of the beat is preceded by the upper neighbor (stated by Santa María in no uncertain terms).²⁴⁴

Therefore there are at least three possible interpretations of this ornament, as given below.

Example 5.10: Possible realizations of Sancta María's "new and gallant" quiebro for half-notes.



Only one ornament is given without notation by Sancta María, a type of simple quiebro that resembles an acciacatura. His description of the ornament (originally spread over several paragraphs), reads:

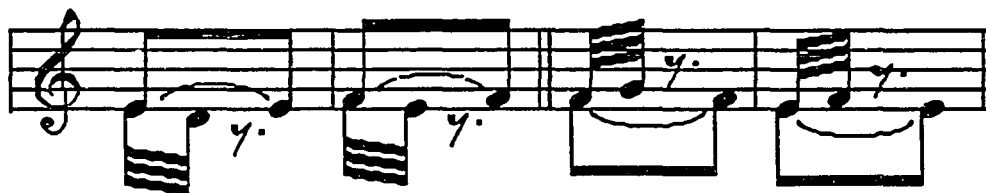
Of these four quiebros, two differ from the other two in that some are made with three notes . . . and the other two are made with only two notes . . . [my emphasis] one makes them with two fingers [and] one has to note two things. The first is that the finger which strikes the first note, after having struck the key, does not have to rise from it, but can remain holding it down, and the finger which strikes the second note has to come up from the key, sliding off it and then the finger which struck the first note has to press down a little on the key . . . the second note of the above-mentioned two quiebros has to be struck so quickly after the first that they almost sound together at the same moment, so that it seems by chance that one sounds second.²⁴⁵

A realization from this description is given below:

²⁴⁴ Parkins 8.

²⁴⁵ Wyly 232.

Example 5.11: Realization of Sancta María's queibros senzillos for quick passages in quarter notes.²⁴⁶



Before discussing which musical situations are proper for these ornaments, it might be best to see if the mass of material given by Bermudo, Venegas, and Sancta María can be summarized. Sancta María's non-repeated queibro for half-notes (Example 5.10) and his acciacatura-like queibro for quarter notes (Example 5.11) are unique in Spanish sources, but the other ornaments of all these musicians fall into two categories: those resembling a trill and those resembling a turn. The trill-like ornaments are given below.

Example 5.12: Comparison of trill-like ornaments given by various sixteenth-century Spanish musicians. Rhythmic values in all examples are only approximate and would probably be smaller in actual use.

A. Venegas's first vihuela queibro, Bermudo's lower-auxiliary redoble.



Additional repercussions?

B. Venegas's second vihuela queibro, Bermudo's upper-auxiliary redoble.



²⁴⁶ Based on Wyly's realization, 232, but with rhythmic mistakes corrected.

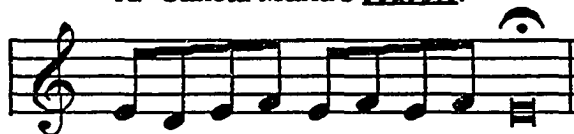
C. Sancta Maria's quiebro reiterado.D. Sancta Maria's quiebro reiterado in "new and gallant" manner.E. Sancta Maria's quiebros sencillos for quarter notes.

Example 5.12 above and the preceding discussion of these ornaments show that their historically "proper" use can be summarized as follows: Spanish Renaissance trills start on the main note and can involve alternation with either the upper or lower neighbor by half-step or whole-step depending on the circumstances. The preferred duration, speed, and number of repercussions vary from source to source, therefore the choice to end the trill before the next note, or to extend it throughout the trilled note's duration, is up to the performer's individual taste. The repeated trill to the lower neighbor is probably used less than the repeated trill to the upper neighbor. The addition of an upper auxiliary to the trill before the beat on the main note is historically justifiable, but is by no means mandatory.

The longer ornaments given by Venegas and Sancta María can all be described as a combination of a turn-like figure and a main-note, upper-auxiliary trill. Note also that at least one of Venegas's quiebros is identical to Sancta María's.

Example 5.13: Comparison of turn-like ornaments given by sixteenth-century Spanish musicians. Rhythmic values in all examples are only approximate and would probably be smaller in actual use.

A. Santa María's redoble.



B. Venegas's right-hand quitebro.



Additional repercussions?

C. Possible interpretation of left-hand quitebro assuming Venegas did not mention striking of main note.



Additional repercussions?

hypothetical
note

D. Literal realization of Venegas's left-hand keyboard quitebro.



Additional repercussions?

E. Santa María's redoble in "new and gallant" manner.



A verbal summary of the use of these compound ornaments can be appended to the verbal explanation for trills as follows: On notes of

longer duration, the upper-auxiliary trill can be preceded by one alternation to the lower-auxiliary, with the main note starting on the beat. The alteration of this figure by adding an additional upper auxiliary before the beat or by replacing the main note with a rest is also historically justifiable but not mandatory.

Spanish Renaissance Ornaments Applied





Sancta María also gives a detailed description of how and where his ornaments could be applied. As can be seen in Example 5.6, Sancta María lists certain ornaments as suitable for certain time values. This "restriction" is nothing more than stated common sense: the longer ornaments are considered suitable for the longer notes, shorter ornaments for shorter notes. A better feel for Spanish taste in ornamentation can be derived from the frequency of ornamentation recommended by Sancta María. Since the ornaments recommended by Bermudo and Venegas have been shown to be basically identical to Sancta María's, a case might be made that these recommendations also reflect Spanish Renaissance taste in general.

Sancta María gives no guidelines for frequency of use for two ornaments: the one he terms a redoble and the turnlike quiebro for half-notes; but he is quite specific about the use of the other ornaments. Repeated quiebros (i.e., trills) on half-notes should be played wherever possible.²⁴⁷ His rules for trills on quarter notes are much more complex. To begin with, he recommends that in most

²⁴⁷ Wyly 229.

cases quarter-note trills should alternate with unornamented notes. As he later makes clear, the trills can occur either on the notes we would usually stress in a succession of quarter notes (the first, third, fifth, etc.), or on the notes modern musicians would usually not stress or ornament (the second, fourth, sixth, etc.). Sancta Maria also specifies use of a lower-auxiliary trill in ascending passages and an upper-auxiliary on descending passages. When a line changes direction, the highest note should receive a descending trill (upper auxiliary) and the lowest note should receive an ascending trill (lower auxiliary).

Example 5.14: Sancta Maria's rules for use of ascending and descending quarter note quiebros.²⁴⁸

 <p>Sancta Maria's original notation</p>	 <p>Possible interpretation of rhythm</p>
 <p>Sancta Maria's original notation</p>	 <p>Possible interpretation of rhythm</p>

Sancta Maria recommends special treatment of quarter-note trills in two circumstances: the first quarter note after a dotted half-note in a descending line should always be trilled, and both quarter notes immediately following a whole note in a descending line can be trilled.

²⁴⁸ Poulton, "How to Play" 30.

Example 5.15: Sancta Maria's two special cases concerning quarter-note *queiebros*. 249



Having categorized and examined all of these ornaments, the question remains: How practical are they for the vihuela? The two examples below show the result of application by Sancta María's rules of as much ornamentation as is technically and aesthetically reasonable to two pieces from Mudarra's Tres Libros. Also incorporated into the examples is a liberal use of the rhythmic alterations suggested by Sancta María, particularly in long passages of quarter notes.

Example 5.16 below is a technically possible ornamented version of part of the "Fantasia de pasos de contado," a short and moderately simple fantasia from Book One of Mudarra's Tres Libros.

²⁴⁹ Poulton, "How to Play" 29-30.

Example 5.16: #4, "Fantasia de pasos de contado" (excerpt) with ornaments added to musical realization.²⁵⁰

The musical score is presented in three systems, each featuring a vocal line and a guitar line. The key signature is G major (one sharp) and the time signature is 4/4.

System 1: The vocal line begins with a triplet of eighth notes (G4, A4, B4) followed by a half note (C5). The guitar line starts with a 5 3 2 0 pattern in the first measure, followed by a triplet of eighth notes (G4, A4, B4) in the second measure.

System 2: The vocal line continues with a triplet of eighth notes (G4, A4, B4) followed by a half note (C5). The guitar line features a 4 5 2 0 pattern in the first measure, followed by a triplet of eighth notes (G4, A4, B4) in the second measure.

System 3: The vocal line begins with a triplet of eighth notes (G4, A4, B4) followed by a half note (C5). The guitar line starts with a 4 0 2 4 pattern in the first measure, followed by a triplet of eighth notes (G4, A4, B4) in the second measure.

²⁵⁰ Mudarra fol 4^r; Chantarelle edition 31.

The image displays three systems of musical notation, each consisting of a treble clef staff and a bass staff. The key signature is one sharp (F#). The ornaments are indicated by diamond symbols on the treble staff and numbers on the bass staff.

System 1: The treble staff shows a sequence of quarter notes with ornaments. The bass staff shows the corresponding fret numbers: 0, 2, 4, 2, 2, 2, 4, 2, 5, 5, 4.

System 2: The treble staff shows a sequence of quarter notes with ornaments. The bass staff shows the corresponding fret numbers: 0, 3, 2, 3, 2, 0, 2, 3, 2, 3, 0, 2, 4, 5, 4.

System 3: The treble staff shows a sequence of quarter notes with ornaments. The bass staff shows the corresponding fret numbers: 0, 3, 2, 3, 2, 0, 2, 3, 2, 3, 0, 2, 4, 5, 4.

As might be expected, the shortest ornaments, the simple quiebros for quarter notes given by Sancta María, are the most workable,

although inserting them on every other note, as a literal reading of Sancta María's instructions implies, is technically impossible except at a very slow tempo. Additionally, the performance of some of the quiebros for ascending quarter notes would often involve refingering notes given by Mudarra on open strings.

The practical application of the quarter-note ornaments simultaneously with the rhythmic alterations does answer an earlier question as to whether the quarter-note rhythmic alterations should be viewed as mandatory. Sancta María's suggested application of trills on the second and fourth notes of four-note groups as well as the first and third cannot be performed with this rhythmic alteration, since it turns these notes into untrillable eighth notes. Therefore Sancta María's directions for this rhythmic alteration must be viewed as an option to be applied at the performer's discretion.

The longer ornaments for half-notes are more problematic. The half-note values in Mudarra's music tend to occur primarily on chords, which often means that no fingers are free or available for trills. Nonetheless, several places did occur where their application was technically possible. Sancta María's special quiebro for half notes (in its second possible interpretation in Example 5.10) is actually easier to perform in many situations than the additional repercussions asked for by Sancta María for the regular half-note quiebro. The temptation to do a trill with only one repercussion on a half-note raises the question of whether it is acceptable to use ornaments specified for short notes (for instance the simple quiebros for quarters) on longer

notes. Since Sancta Maria's designation of rhythmic values to specific ornaments primarily seems to be concerned with making sure that the ornament is technically possible, application of short-note ornaments to longer notes is probably acceptable.

The most problematic ornament is Sancta Maria's redoble, which requires a whole note. A quick scan of Mudarra's tablature for whole notes is deceptive: although they are rare in the rhythm signs above the tablature it must be remembered that tablature rhythmic signs are based on the fastest moving voice only. In reality, whole notes in various voices are common. However, the technical difficulties of keeping an ornament sounding while simultaneously playing other voices make the performance of Sancta Maria's redoble on these notes almost impossible. This redoble is not always possible even when all voices have a whole note; to perform a redoble also requires that the ornamented note be fretted and that the chord leave a finger free to play the upper neighbor, since the ornament requires slurring to both the upper and the lower auxiliary.

To show the effect of Sancta Maria's ornamentation in a piece of an entirely different mood, Example 5.17 below presents an ornamented version of Mudarra's intabulation of the "Pleni" from Josquin's Missa Faisant regrets.

Example 5.17: Mudarra's intabulation of the "Pleni"
 from Josquin's *Missa faisant regrets* (excerpt) with ornaments
 added in musical realization. 251

The image displays three systems of musical notation for a lute intabulation. Each system consists of a musical staff with a treble clef and a key signature of one sharp (F#), and a corresponding six-line tablature staff below it. The musical notation includes various note values, rests, and ornaments (diamonds with stems). The tablature uses numbers 0-5 to represent fret positions. The first system has 8 measures, the second has 8 measures, and the third has 8 measures. The third system includes a 4-measure rest in the first measure of the tablature staff.

251 Mudarra fol. 12^r; Chantarelle edition 47.

First system of musical notation. The staff shows a melody with eighth and sixteenth notes, including triplet markings. Below the staff are six diamond-shaped fret markers. The guitar tablature consists of six lines with numbers 0-5 and fingerings 1-3.

Second system of musical notation. The staff shows a melody with eighth and sixteenth notes, including triplet markings. Below the staff are six diamond-shaped fret markers. The guitar tablature consists of six lines with numbers 0-5 and fingerings 1-3.

Third system of musical notation. The staff shows a melody with eighth and sixteenth notes, including triplet markings. Below the staff are six diamond-shaped fret markers. The guitar tablature consists of six lines with numbers 0-5 and fingerings 1-3.

In this example, the shortest ornaments are again the most technically feasible, and the longer redobles and half-note trills are often possible as well. However, the longer ornaments are sometimes technically impossible in phrases where their application seems

musically necessary to match the effects of other ornamented passages. Since this is not a problem that occurs to any great extent with the simplest ornaments, it is probable that the longer redobles and half-note trills were used with great discretion if they were used at all.

Summary

A final judgement of the aesthetic advisability of ornamentation in Mudarra's music is necessarily subjective, but in this author's opinion, the examples presented in this paper sound rather stark and plain without ornamentation, particularly after hearing the ornamented versions. In experimentation with other works by Mudarra, a slightly more restrained use of ornamentation has met with equally positive results. While the above examples may represent an extreme in their amount of ornamentation, the overall effect of some ornamentation seems extremely pleasing.

Upon examination, historical objections to ornamentation seem unfounded. Although some sixteenth-century musicians express their dislike of the excessive elaboration described as "glossing," these denunciations may not have been meant to include tasteful extempore ornamentation at all, and the denunciations themselves prove that some musicians used (and perhaps abused) some form of ornamentation. Although ornamentation is not mentioned in the tablature prefaces or printed in the music, this is also the case with many printed sixteenth-century lute sources. However, the greater

number of surviving manuscripts for lute present a picture of a fairly extensive use of ornamentation. In addition, the shorter ornaments are eminently practical. The longer ornaments were probably less used, but are also technically feasible in many cases.

In this author's opinion, the judicious application of all of the above ornaments described by sixteenth-century musicians for keyboard and vihuela improve the effect of Mudarra's music, are technically feasible, and can be historically justified.

Appendix One / Part One Meantone Fretting Analyses

Pieces using Vihuela in A

The following pieces have been analyzed by Pujol as requiring a vihuela in A. All page numbers are from the Chantarelle facsimile edition of Tres Libros. Foliation in Book Three follows system used in original text, not table of contents.

Book One

1 *Fantasia de pasos largos para desenboluer las manos*, pg 25, folio 1^r, Dorian, Hypodorian modal complex

#7 *Fantasia facil*, pg 37, folio 7^r, Dorian, Hypodorian modal complex

Book Two

#43, # 44 *Tiento and Fantasia*, pg 113, folio 20^r, Mixolydian mode (seventh tone)

#45 *Glosa Sobre el Cum Sancto Spiritu de la missa de Beata Virgine de Josquin*, pg 117, folio 22^r. Mode 7.

Book Three

#58 *Claros y frescos rios*, pg 171, folio C8^r, Mode 2.

71 *Si me llaman*, pg 224, folio G2^v, mode 1

72 *Gentil Cavallero*, pg 229, folio G5^r, mode 1.

74 *Si viesse e me levasse*, pg 239, folio H2^v, mode 1

Vihuela in A

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse 5 D	Eb	E	F	F#	G	G#	A	Bb	B	C
crse 4 G	G#	A	Bb	B	C	C#	D	Eb	E	F
crse 3 B	C	C#	D	Eb	E	F	F#	G	G#	A
crse 2 E	F	F#	G	G#	A	Bb	B	C	C#	D
crse 1 A	Bb	B	C	C#	D	Eb	E	F	F#	G

X

X

X

First, fourth, and sixth frets are problematic, having both sharps and flats.

In situations where there were fewer possible sharp uses of a fret than flat uses, a lack of such instances was considered proof the fret could function in the flat position as soon as some flat use was verified.

In situations where there were fewer possible flat uses of a fret than sharp uses, a lack of such instances was considered proof the fret could function in the flat position as soon as some sharp use was verified.

Abbreviations, terms:

end.= endemic, i.e., usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

h= harmonic use

mu= melodic use

lc=last chord of piece

c=compás (i.e. bar, although without metrical implications)

Tabulations/uses of problematic frets/ Pieces using Vihuela in A

	#1	#7	#43,44	#45	#58	#71	#72	#74	#75
Sharp uses of fret one									
G#, 4th crse	c16(h)	0	0	0	0	0	c11(h) c24(h) c71(h) c73(h)	0	0
Flat uses of fret one									
Bb, 1st crse	0	nt	nt	nt	nt	nt	1	nt	nt
F, 2nd crse	end.	end.	end.	end.	nt	nt	end.	nt	end.
C, 3rd crse	end.	nt	end.	nt	end.	end.	end.	end.	nt
Eb, 5th crse	0	nt	nt	nt	nt	nt	0	nt	nt
Bb 6th crse	0	nt	nt	nt	nt	nt	0	nt	nt
Indicated use of fret one:	flat	flat	flat	flat	flat	flat	flat	flat	flat
Flat uses of fret four									
Eb, 3rd crse	0	0	0	0	0	0	0	0	0
Sharp uses of fret four									
C#, 1st crse	end.	end.	nt	nt	nt	1	end.	0	3
G#, 2nd crse	end.	nt	nt	nt	nt	0	nt	0	2
B, 4th crse	nt	nt	end.	nt	end.	0	nt	0	nt
F#, 5th crse	nt	nt	nt	end.	nt	0	nt	0	nt
C#, 6th crse	nt	nt	nt	nt	nt	0	nt	0	nt
Indicated use of fret four:	sharp	sharp	sharp	sharp	sharp	sharp	sharp	unuse d	sharp
Sharp uses of fret six									
C#, 4th crse	0	c10 (dh) c65 (dh)	c26(h)	c64(h)	0	c31 (dh)	0	0	0
G#, 5th crse	0	0	0	0	0	0	0	0	0
Flat uses of fret six									
Eb, 1st crse	0	0	nt	0	0	0	0	0	0
Bb, 2nd crse	0	1	nt	0	0	2	0	0	0
F, 3rd crse	0	3	end.	7	0	1	0	0	1
Eb, 6th crse	0	0	nt	0	0	0	0	0	0
Indicated use of fret six:	un- used	flat	flat	flat	un- used	flat	un- used	un- used	flat
Total discrepancies	1 (h)	2 (dh)	1(h)	1(h)	0	1(dh)	4(h)	0	0
Other occurrences of notes at avoided fret positions	4	26	11	21	0	10	4	0	2

Pieces using Vihuela in G, Modes 1-6

The following pieces in modes 1-6 have been analyzed by Pujol as requiring a vihuela in G
Book One

- # 2 *Fantasia pa(ra) desenboluer las manos*, pg 27, folio 2^r, mode 1 or 2
- #4 *Fantasia de pasos de contado*, pg 31, folio 4^r, mode 5 or 6
- #5 *Fantasia facil*, pg 33, 35, folio 5^r, 6^r, (foliation error) mode 5 or 6
- #6 *Fantasia facil*, pg 34, 36, folio 5^v, fol 6^v, (foliation error) mode 5 or 6
- #9 *Fantasia*, pg 41, folio 9^r, mode 1 or 2
- #10 *La segunda parte de la gloria de la misa de faysan regres*, pg 44, folio 10^v, mode 1 or 2
- #11 *Pleni de la misa de faysan regres*, pg 47, folio 12^r, mode 1 or 2
- #12 *Fantasia que contrahaze la harpa en la manera de Luduvico*, pg 49, folio 13^r, mode 1 or 2
- #13 *Conde claros*, pg 54, folio 15^v,
- #15 *Pavana*, pg 59, folio 18^r, mode 1 or 2
- #16 *Pavana de Alexandre*, pg 62, folio 19^v, mode 5 or 6
- #17 *Gallarda*, pg 63, folio 20^r, mode 5 or 6

Book Three

- #60 *Si por amar el hombre (soneto)*, pg 180, folio D4^v, mode 6
- #61 *Por asperos caminos (soneto)*, pg 185, folio D7^r, mode 6
- #63 *Dulces exuvie del quarto de Vergilio*, pg 194-196, 199, 201 (foliation error) folio E3^v-E4^v, E6^r, E7^r, mode 2
- #64 *Beatus ille...*, pg 197, folio E5^r, mode 5
- #65 *Hanc tua Penelope*, pg 198, 200 (foliation error) folio E5^v, E6^v, mode 2
- #73 *Isabel, perdiste la tu faxa*, pg 235, folio G8^r, mode 1

Vihuela in G

Modes 1-6

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 G	G#	A	Bb	B	C	C#	D	Eb	E	F
crse 5 C	C#	D	Eb	E	F	F#	G	G#	A	Bb
crse 4 F	F#	G	G#	A	Bb	B	C	F#	D	Eb
crse 3 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse 2 D	Eb	E	F	F#	G	G#	A	Bb	B	C
crse1 G	G#	A	Bb	B	C	C#	D	Eb	E	F
	X		X			X		X		

Frets one, three, six and eight are problematic, containing both sharps and flats.

Abbreviations, terms:

end.= usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

h= harmonic use

mu= melodic use

lc=last chord of piece

c=compás (i.e. bar, although without metrical implications)

Tabulations/uses of problematic frets/ Pieces using Vihuela in G, Modes 1-6

	#2	#4	#5	#6	#9	#10
Flat uses of fret one						
Eb, 2nd crse	3	1	0	1	1	4
Bb, 3rd crse	end.	end.	end.	end.	end.	end.
Sharp uses of fret one						
G#, 1st crse	0	0	0	0	0	0
F#, 4th crse	0	0	0	0	17, c25 (h) c26(dh)(c 31(dh) c 72 (dh) c89(m) c 92(h)	0
C#, 5th crse	0	0	0	0	0	c97(h)
G#, 6th crse	0	0	0	0	0	0
Indicated use of fret one	flat	flat	flat	flat	flat	flat
Sharp uses of fret three						
G#, 4th crse	0	0	0	0	c55(Ab)	0
Flat uses of fret three						
Bb, 1st crse	end.	nt	end.	end.	end.	end.
F, 2nd crse	end.	end.	end.	end.	end.	end.
C, 3rd crse	nt	nt	nt	nt	end.	end.
Eb, 5th crse	nt	nt	nt	nt	nt	nt
Bb, 6th crse	nt	nt	nt	nt	nt	nt
Indicated use, fret three	flat	flat	flat	flat	flat	flat
Flat uses of fret six						
Eb, 3rd crse	4	0	0	none	c39(dh)	c91(h)
Sharp uses of fret six						
C#, 1st crse	c25(dh)	0	0	0	3	c79(h)
G#, 2nd crse	0	0	0	0	0	0
B, 4th crse	0	0	0	0	0	0
F#, 5th crse	0	0	0	0	1	0
C#, 6th crse	0	0	0	0	1	0
Indicated use of fret six	flat	unused	unused	unused	sharp	flat
Sharp uses of fret eight						
C#, 4th crse	0	0	0	0	0	0
G#, 5th crse	0	0	0	0	0	0
Flat uses of fret eight						
Eb, 1st crse	1	0	0	0	0	0
Bb, 2nd crse	end.	4	0	0	4	0
F, 3rd crse	nt	end.	0	0	3	0
Eb, 6th crse	nt	0	0	0	0	0
Indicated use, fret eight	flat	flat	unused	unused	flat	unused
Total discrepancies	1(dh)	0	0	0	3(h) 4(dh) 1(m)	2(h)
Other occurrences of notes at avoided fret positions	17	9	2	10	28	28

Tabulations/uses of problematic frets/ Pieces using Vihuela in G, Modes 1-6
(cnt'd)

	#11	#12	#13	#15	#16	#17
Flat uses of fret one						
Eb, 2nd crse	0	2	3	4	1	2
Bb, 3rd crse	end.	end.	end.	end.	end.	2
Sharp uses of fret one						
G#, 1st crse	0	0	0	0	0	c21,22(Ab)
F#, 4th crse	0	0	0	0	0	0
C#, 5th crse	0	0	0	0	0	0
G#, 6th crse	0	0	0	0	0	0
Indicated use of fret one	flat	flat	flat	flat	flat	flat
Sharp uses of fret three						
G#, 4th crse	0	0	0	0	0	0
Flat uses of fret three						
Bb, 1st crse	end.	end.	end.	end.	end.	end.
F, 2nd crse	end.	end.	end.	end.	end.	end.
C, 3rd crse	nt	end.	end.	nt	end.	0
Eb, 5th crse	nt	nt	nt	nt	nt	0
Bb, 6th crse	nt	nt	nt	nt	nt	0
Indicated use, fret three	flat	flat	flat	flat	flat	flat
Flat uses of fret six						
Eb, 3rd crse	1	0	1	0	1	0
Sharp uses of fret six						
C#, 1st crse	0	0	0	0	0	0
G#, 2nd crse	0	0	0	0	0	0
B, 4th crse	0	0	0	0	0	0
F#, 5th crse	0	0	0	0	0	0
C#, 6th crse	0	0	0	0	0	0
Indicated use of fret six	flat	unused	flat	unused	flat	unused
Sharp uses of fret eight						
C#, 4th crse	0	0	0	0	0	0
G#, 5th crse	0	0	0	0	0	0
Flat uses of fret eight						
Eb, 1st crse	0	0	0	0	0	0
Bb, 2nd crse	0	0	end.	0	0	0
F, 3rd crse	0	0	end.	0	0	0
Eb, 6th crse	0	0	nt	0	0	0
Indicated use of fret eight	unused	unused	flat	unused	unused	unused
Total discrepancies	0	0	0	0	0	0
Other occurrences of notes at avoided fret positions	11	47	7	36	5	3

Tabulations/uses of problematic frets/ Pieces using Vihuela in G, Modes 1-6
(cnt'd)

	#60	#61	#63	#64	#65	#73
<i>Flat uses of fret one</i>						
Eb, 2nd crse	2	4	2	0	2	2
Bb, 3rd crse	end.	end.	end.	end.	end.	end.
<i>Sharp uses of fret one</i>						
G#, 1st crse	0	0	0	0	0	0
F#, 4th crse	c30(h) c31(dh)	0	c52(dh) c66(dh) c68(dh)	0	0	0
C#, 5th crse	0	0	0	0	0	0
G#, 6th crse	0	0	0	0	0	0
Indicated use of fret one	flat	flat	flat	flat	flat	flat
<i>Sharp uses of fret three</i>						
G#, 4th crse	0	0	0	0	c18(Ab)	0
<i>Flat uses of fret three</i>						
Bb, 1st crse	nt	nt	nt	0	nt	end.
F, 2nd crse	end.	end.	end.	end.	end.	end.
C, 3rd crse	nt	end.	end.	end.	end.	nt
Eb, 5th crse	nt	nt	nt	nt	nt	nt
Bb, 6th crse	nt	nt	nt	nt	nt	nt
Indicated use of fret three	flat	flat	flat	flat	flat	flat
<i>Flat uses of fret six</i>						
Eb, 3rd crse	0	0	0	0	0	0
<i>Sharp uses of fret six</i>						
C#, 1st crse	0	0	3	0	0	0
G#, 2nd crse	0	0	0	0	0	0
B, 4th crse	0	0	0	0	0	0
F#, 5th crse	0	0	0	0	0	0
C#, 6th crse	0	0	0	0	0	0
Indicated use of fret six	unused	unused	sharp	unused	unused	unused
<i>Sharp uses of fret eight</i>						
C#, 4th crse	0	0	0	0	0	0
G#, 5th crse	0	0	0	0	0	0
<i>Flat uses of fret eight</i>						
Eb, 1st crse	0	0	0	0	0	0
Bb, 2nd crse	0	0	0	0	0	0
F, 3rd crse	0	0	0	0	0	0
Eb, 6th crse	0	0	0	0	0	0
Indicated use of fret eight	unused	unused	unused	unused	unused	unused
Total discrepancies	1(h) 1(dh)	0	3(dh)	0	0	0
Other occurrences of notes at avoided fret positions	5	13	16	1	4	21

Pieces using Vihuela in G, Modes 7-8

The following pieces in modes 7-8 have been analyzed by Pujol as requiring vihuela in G

#46, #47 *Tiento, Fantasia*, pg 121, folio 24^r, mode 8

#48 *Fantasia*, pg 124, folio 25^v, mode 8

#49 *Fantasia va sobre fa mi fa re ut sol fa sol mi re*, pg 127, folio 27^r, mode 8

#56 *Sin dudar (Cancion al milagro)*, pg 160, folio C2^v, mode 8

#68 *O gelosia d'amanti*, pg 212, folio F4^v, mode 8

<i>Flat uses of fret one</i>	#46, 47	#48	#49	#56	#68
Eb, 2nd crse	0	0	0	0	0
Bb, 3rd crse	0	0	0	0	c55(8va)
<i>Sharp uses of fret one</i>					
G#, 1st crse	nt	0	nt	0	c59(dh)
F#, 4th crse	5	end.	end.	0	0
C#, 5th crse	nt	0	nt	0	0
G#, 6th crse	nt	0	nt	0	0
Indicated use of fret one	sharp	sharp	sharp	unused	flat
<i>Sharp uses of fret three</i>					
G#, 4th crse	0	0	0	c81(sic)	0
<i>Flat uses of fret three</i>					
Bb, 1st crse	nt	nt	0	nt	nt
F, 2nd crse	end.	end.	end.	end.	end.
C, 3rd crse	end.	end.	end.	end.	end.
Eb, 5th crse	nt	nt	0	nt	nt
Bb, 6th crse	nt	nt	0	nt	nt
Indicated use of fret three	flat	flat	flat	flat	flat
<i>Flat uses of fret six</i>					
Eb, 3rd crse	0	0	0	0	0
<i>Sharp uses of fret six</i>					
C#, 1st crse	0	0	0	0	0
G#, 2nd crse	0	0	0	0	0
B, 4th crse	0	0	1	2	0
F#, 5th crse	0	0	1	0	0
C#, 6th crse	0	0	0	0	0
Indicated use of fret six	unused	unused	sharp	sharp	unused
<i>Sharp uses of fret eight</i>					
C#, 4th crse	0	0	0	0	0
G#, 5th crse	0	0	0	0	0
<i>Flat uses of fret eight</i>					
Eb, 1st crse	0	0	0	0	0
Bb, 2nd crse	0	0	0	0	0
F, 3rd crse	1	1	1	3	0
Eb, 6th crse	0	0	0	0	0
Indicated use of fret eight	flat	flat	flat	flat	unused
Total discrepancies	0	0	0	0	1(dh)
Other occurrences of notes at avoided fret positions	1	0	0	0	1

Pieces using Vihuela in D

The following pieces have been analyzed by Pujol as requiring a vihuela in D

#3 *Fantasia de pasos pa(r)a desenboluer las manos*, pg 29, folio 3^r, mode 7 or 8

#8 *Fantasia*, pg 39, folio 8^r, mode 1 or 2

28, 29 *Tiento, Fantasia*, pg 84, folio 6^v, mode 2

30 *Fantasia de sobre fa mi ut re*, pg 87, folio 7^r, mode 2

Vihuela in D

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 D	E ^b	E	F	F [#]	G	G [#]	A	B ^b	B	C
crse 5 G	G [#]	A	B ^b	B	C	C [#]	D	E ^b	E	F
crse 4 C	C [#]	D	E ^b	E	F	F [#]	G	G [#]	A	B ^b
crse 3 E	F	F [#]	G	G [#]	A	B ^b	B	C	C [#]	D
crse 2 A	B ^b	B	C	C [#]	D	E ^b	E	F	F [#]	G
crse 1 D	E ^b	E	F	F [#]	G	G [#]	A	B ^b	B	C

X

X

X

First, sixth and eighth frets are problematic, having both sharps and flats.

Abbreviations, terms:

end.= usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

h= harmonic use

mu= melodic use

lc=last chord of piece

c=compás (i.e. bar, although without metrical implications)

Tabulations/uses of problematic frets/ Pieces using Vihuela in D

	# 3	# 8	# 28, 29	# 30
sharp uses of fret one				
C#, 4th crse	0	0	c14, c15 (h)	c6(h), c8(h), c12(h) c41(h)(m), c54(h), c58(h)
G#, 5th crse	0	0	0	0
flat uses of fret one				
Eb, 1st crse	0	2	0	0
Bb, 2nd crse	0	end.	end.	4
F, 3rd crse	end.	end.	end.	end.
Eb, 6th crse	0	nt	0	0
Indicated use of fret one	flat	flat	flat	flat
flat uses of fret six				
Eb, 2nd crse	0	3	0	0
Bb, 3rd crse	c38(8va)	end.	4	0
sharp use of fret six				
G#, 1st crse	0	0	c 29 (dh)	0
F#, 4th crse	c35(h)	c6(dh)	0	0
C#, 5th crse	0	0	0	0
G#, 6th crse	0	0	0	0
Indicated use of fret six	flat	flat	flat	unused
sharp uses of fret eight				
G#, 4th crse	0	c44(Ab)	0	0
flat uses of fret eight				
Bb, 1st crse	1	end.	2	0
F, 2nd crse	2	end.	4	2
C, 3rd crse	2	nt	2	1
Eb, 5th crse	0	nt	nt	0
Bb, 6th crse	0	nt	nt	0
Indicated use of fret eight	flat	flat	flat	flat
Discrepancies	1(h)	1(dh)	2 (h), 1 (dh)	6(h) 1(m)
Other occurrences of notes at avoided fret positions	16	16	23	19

Pieces using Vihuela in E, Modes 1-2, 5-8

The following pieces in modes 1, 2, 5-8 have been analyzed by Pujol as requiring a vihuela in E

14 *Romanesca: o Guardame las vacas*, pg 57, folio 17^r, mode 1 or 2

#24,25 *Tiento, Fantasia*, pg 75, folio 1^r, mode 1

26 *Kyrie primero de la missa de Beata Virgine de Josquin glosado*, pg 79, folio 4^r, mode 1

27 *Fantasia*, pg 81, folio 5^r, mode 1

40, # 41 *Tiento, Fantasia*, pg 106, folio 16^v, mode 6

42 *Glosa sobre el primer Kirie de una missa de Fevin que va sobre Ave Maria*, pg 109, folio 18^r, mode 6

52 *Clamabat autem*, pg 141, folio B1^r, mode 5 or 6

55 *Israel, mira tus montes*, pg 157, folio C1^r, mode 1

57 *Recuerde el alma dormida*, pg 169, folio C7^r, mode 2

62 *Regia que mesto*, pg 190, folio E1^v, mode 1

67 *Lassato a yl tago*, pg 207, folio F2^r, mode 1

76 *Exurge quare obdormis domine*, pg 243, folio H4^r, Tone 1

Vihuela in E

Modes 1, 2, 5-8

	open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 E		F	F#	G	G#	A	Bb	B	C	C#	D
crse 5 A		Bb	B	C	C#	D	Eb	E	F	F#	G
crse 4 D		Eb	E	F	F#	G	G#	A	Bb	B	C
crse F#		G	G#	A	Bb	B	C	C#	D	D#	E
3											
crse 2 B		C	C#	D	Eb	E	F	F#	G	G#	A
crse 1 E		F	F#	G	G#	A	Bb	B	C	C#	D
					X		X			X	

Fourth, sixth and ninth frets are problematic, having both sharps and flats.

Abbreviations, terms:

end.= usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

h= harmonic use

mu= melodic use

lc=last chord of piece

c=compás (i.e. bar, although without metrical implications)

Tabulations/uses of problematic frets/ Pieces using Vihuela in E

	#14	#24, 25	#26	#27	#40,#41	#42
<i>flat uses of fret four</i>						
Eb, 2nd crse	0	0	0	0	3	0
Bb, 3rd crse	c13(h) c27(h) c34(dh)	23	c8(m) c17(h) c75(m)	c10(h) c45(h) c69(8va) c86(h)	end.	end.
<i>sharp uses of fret four</i>						
G#, 1st crse	0	#24c10(dh) #25c3(dh) c37(dh)	c44(dh)	c4(h) c25(h)	0	0
F#, 4th crse	0	#24c19(h) #25c25(dh)	0	c92(dh)	0	0
C#, 5th crse	c38(m) c40 (m,m)	#24c16(m) c17(m,m,m, c18(h,dh) #25c12(m) c83(m)	c83(dh)	c2(h) c7(h) c16(h) c17(h)	0	0
G#, 6th crse	0	0	0	0	0	0
Indicated use of fret four	flat	flat	flat??	flat??	flat	flat
<i>sharp uses of fret six</i>						
G#, 4th crse	0	#24c6(dh) #25c66(dh)	c50(dh) c62(dh)	0	0	0
<i>flat uses of fret six</i>						
Bb, 1st crse	nt	6	0	0	nt	nt
F, 2nd crse	end.	end.	1	end.	end.	end.
C, 3rd crse	end.	end.	7	end.	end.	end.
Eb, 5th crse	nt	0	0	nt	nt	nt
Bb, 6th crse	nt	0	0	nt	nt	nt
Indicated use of fret six	flat	flat	flat	flat	flat	flat
<i>flat uses of fret nine</i>						
Eb, 3rd crse	0	0	0	0	0	0
<i>sharp uses of fret nine</i>						
C#, 1st crse	1, 1(sic)	2	0	5	0	0
G# 2nd crse	0	0	0	0	0	0
B, 4th crse	0	0	0	nt	0	0
F#, 5th crse	0	nt	0	nt	0	0
C#, 6th crse	0	nt	0	nt	0	0
Indicated use of fret nine	sharp	sharp	unused	sharp	unused	unused
Discrepancies	3 (m)	7(dh) 6(m) 2(h)	4 (dh)	6(h) 1(dh)	0	0
Other occurrences of notes at avoided fret positions	28	43	19	32	5	1

Tabulations/uses of problematic frets/ Pieces using Vihuela in E (cnt'd)

	#52	#55	#57	#62	#67	#76
<i>flat uses of fret four</i>						
Eb, 2nd crse	1	0	0	0	0	0
Bb, 3rd crse	end.	0	3	5	17	end.
<i>sharp uses of fret four</i>						
G#, 1st crse	0	0	c4(dh)	0	0	0
F#, 4th crse	0	0	0	0	c14(dh) c22(dh) c55(h) c81(dh) c83(hlc)	0
C#, 5th crse	0	0	0	c2(dh)	c 26(dh)c49(h)	0
G#, 6th crse	0	0	0	0	0	0
Indicated use of fret four	flat	unused	flat	flat	flat	flat
<i>sharp uses of fret six</i>						
G#, 4th crse	0	0	0	0	0	0
<i>flat uses of fret six</i>						
Bb, 1st crse	0	0	0	1	5	0
F, 2nd crse	5	0	0	2	end.	0
C, 3rd crse	5	0	2	end.	end.	1
Eb, 5th crse	nt	0	0	nt	nt	0
Bb, 6th crse	nt	0	0	nt	nt	0
Indicated use of fret six	flat	unused	flat	flat	flat	flat
<i>flat uses of fret nine</i>						
Eb, 3rd crse	0	0	0	0	0	0
<i>sharp uses of fret nine</i>						
C#, 1st crse	0	0	0	0	0	0
G#, 2nd crse	0	0	0	0	0	0
B, 4th crse	0	0	0	0	0	0
F#, 5th crse	0	0	0	0	0	0
C#, 6th crse	0	0	0	0	0	0
Indicated use of fret nine	unused	unused	unused	unused	unused	unused
Discrepancies	0	0	1(dh)	1(dh)	4(dh) 2(h) 1 (hlc)	0
Other occurrences of notes at avoided fret positions	3	19	3	5	16	8

Pieces using Vihuela in E, Modes 3-4

The following pieces in modes 3-4 have been analyzed by Pujol as requiring vihuela in E

Book Two

31, 32 *Tiento, Fantasia*, pg 89, folio 8^r, mode 3

33 *Glosa sobre un Kyrie postrero de una misa de Josquin qua va sobre Pange Lingua*, pg 92, folio 9^v, mode 3

66 *La vita fugge*, pg 201, folio E7^v, mode 4

Special case: Mudarra's setting of Willaert's "Pater Noster" for voice and vihuela, includes marked tablature notes which may or may not be intended for doubling by the vihuelist. It has thus been tabulated twice, once with the "sung" part included, once without.

50 *Pater noster a quatro de Adrian Willaert*, pg 131, folio A2^r, mode 1 or 2

	#31,32	#33	#66	#50, vihuela doubling voice	#50 not doubled
flat uses of fret four					
Eb, 2nd crse	0	0	0	end.	end.
Bb, 3rd crse	0	c53(8va) c55(8va)	0	end.	end.
sharp uses of fret four					
G#, 1st crse	7	c16(dh) c101(hlc)	1	0	0
F#, 4th crse	1	c48(dh)	0	c28(h) c30(h) c89(m) c122(h) c123(h) c146(h) c150(dh) c164(h) c168(h) c179(h)	c150(dh) c164(h)c16 8(h)
C#, 5th crse	0	0	0	0	0
G#, 6th crse	0	0	0	0	0
Indicated use of fret four	sharp	sharp??	sharp	flat	flat
sharp uses of fret six					
G#, 4th crse	c28(dh) c35(dh)	0	0	0	0
flat uses of fret six					
Bb, 1st crse	0	nt	0	end.	end.
F, 2nd crse	4	nt	0	end.	end.
C, 3rd crse	end.	end.	0	end.	end.
Eb, 5th crse	0	nt	0	nt	nt
Bb, 6th crse	0	nt	0	nt	nt
Indicated use of fret six	flat	flat	unused	flat	flat
flat uses of fret nine					
Eb, 3rd crse	0	0	0	1	0
sharp uses of fret nine					
C#, 1st crse	0	1	0	0	0
G# 2nd crse	0	0	0	0	0
B, 4th crse	0	0	0	0	0
F#, 5th crse	0	0	0	0	0
C#, 6th crse	0	0	0	0	0
Indicated use of fret nine	unused	sharp	unused	flat??	unused
Discrepancies	2 (dh)	2 (8va)	0	8(h) 1(m) 1(dh)	2(h) 1(dh)
Other occurrences of notes at avoided fret positions	22	8	15	22	22

Pieces using Vihuela in F#

The following pieces have been analyzed by Pujol as requiring a vihuela in F#

#34 #35 *Tiento, Fantasia*, pg 95, folio 11^r, mode 4

#51 *Respice in me deus de Gomberth*, pg 137, folio A5^r, mode 1 or 2

#54 *Triste estava el rey David*, pg 155, folio B8^r, mode 3 or 4

#59 *Que llantos son aquestos*, pg 175, folio D2^r, mode 3 or 4

#70 *Dime a do tienes la mientes*, pg 219, folio F8^r, mode 1

Vihuela in F#

	open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse F#		G	G#	A	Bb	B	C	C#	D	Eb	E
6											
crse B		C	C#	D	Eb	E	F	F#	G	G#	A
5											
crse E		F	F#	G	G#	A	Bb	B	C	C#	D
4											
crse G#		A	Bb	B	C	C#	D	D#	E	F	F#
3											
crse C#		D	Eb	E	F	F#	G	G#	A	Bb	B
2											
crse F#		G	G#	A	Bb	B	C	C#	D	Eb	E
1											
			X		X					X	

Second, fourth and ninth frets are problematic, having both sharps and flats.

Abbreviations, terms:

end.= usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

h= harmonic use

mu= melodic use

lc=last chord of piece

c=compás (i.e. bar, although without metrical implications)

Tabulations/uses of problematic frets/ Pieces using Vihuela in F#

	#34,#35	#51	#54	#59	#70
<i>flat uses of fret two</i>					
Eb, 2nd crse	0	0	0	0	0
Bb, 3rd crse	0	c/3(h)	0	0	0
<i>sharp uses of fret two</i>					
G#, 1st crse	end.	end.	end.	end.	3
F#, 4th crse	4	7	0	0	3
C#, 5th crse	0	nt	0	0	1
G# 6th crse	0	nt	0	0	0
Indicated use of fret two	sharp	sharp	sharp	sharp	sharp
<i>sharp uses of fret four</i>					
G#, 4th crse	#34c11(dh) c17(m) #35c3(h) c8(h) c14(h) c30(h) c31(h)	c52(dh) c54(m) c78(dh) c85(h) c95(dh) c104(dh)	0	c44(m) c47(h) c48(dh) c53(h) c54(h) c59(h)	c2(h) c3(dh) c14(dh) c36(dh) c60(dh) c72(dh)
<i>flat uses of fret four</i>					
Bb, 1st crse	0	0	0	0	0
F, 2nd crse	end.	end.	3	1	9
C, 3rd crse	end.	end.	end.	end.	end.
Eb, 5th crse	0	0	nt	0	0
Bb, 6th crse	0	2	nt	0	1
Indicated use of fret four	flat	flat	flat	flat	flat
<i>flat uses of fret seven</i>					
Eb, 3rd crse	0	0	0	0	0
<i>sharp uses of fret seven</i>					
C#, 1st crse	0	1	0	0	0
G#, 2nd crse	3	0	0	0	0
B, 4th crse	2	0	0	0	0
F#, 5th crse	0	0	0	0	0
C#, 6th crse	0	0	0	0	0
Indicated use of fret seven	sharp	sharp	unused	unused	unused
<i>sharp uses of fret nine</i>					
C#, 4th crse	0	0	0	0	0
G#, 5th crse	0	0	0	0	0
<i>flat uses of fret nine</i>					
Eb, 1st crse	0	0	0	0	0
Bb, 2nd crse	0	0	0	0	0
F, 3rd crse	1	0	0	0	0
Eb, 6th crse	0	0	0	0	0
Indicated use of fret nine	flat	unused	unused	unused	unused
Discrepancies	5(h) 1(dh) 1(m)	4(dh) 2(h) 1(m)	0	4(h) 19(dh) 1(m)	5(dh) 1(h)
Other occurrences of notes at avoided fret positions	20	19	10	9	8

Pieces using Vihuela in F

The following pieces have been analyzed by Pujol as requiring a vihuela in F

Book Two

#37, #38 *Tiento, Fantasia*, pg 100, folio 13^v

#39 *Fantasia*, pg 103, folio 15^r

Vihuela in F

all modes

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 F	F#	G	G#	A	Bb	B	C	C#	D	Eb
crse Bb	B	C	C#	D	Eb	E	F	F#	G	G#
crse Eb	E	F	F#	G	G#	A	Bb	B	C	C#
crse 3 G	G#	A	Bb	B	C	C#	D	Eb	F	F#
crse 2 C	C#	D	Eb	E	F	F#	G	G#	A	Bb
crse 1 F	F#	G	G#	A	Bb	B	C	C#	D	Eb
		X		X			X		X	

Frets three, five, eight, and ten are problematic, containing both sharps and flats.

Pieces using Vihuela in B

The following pieces have been analyzed by Pujol as requiring a vihuela in B

Book Three

53, *Durmiende y va, el Senor*, pg 150, folio B5^v, mode 1

69, *I tene a l'ombra*, pg 217, folio F7^r

Vihuela in B

all modes

open	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
crse 6 B	C	C#	D	Eb	E	F	F#	G	G#	A
crse 5 E	F	F#	G	G#	A	Bb	B	C	C#	D
crse 4 A	Bb	B	C	C#	D	Eb	E	F	F#	G
crse C#	D	Eb	E	F	F#	G	G#	A	Bb	B
crse F#	G	G#	A	Bb	B	C	C#	D	Eb	E
crse 1 B	C	C#	D	Eb	E	F	F#	G	G#	A
		X		X				X		

Frets two, four, and nine are problematic, containing both sharps and flats.

Abbreviations, terms:

end.= usual use, at least four occurrences

nt= not tabulated

dh= harmonic decay use

lc=last chord of piece

mu= melodic use

h= harmonic use

c=compás (i.e. bar, without metrical implications)

Tabulations/uses of problematic frets

Pieces using Vihuela in F	#37,38	# 39	Pieces using Vihuela in B	# 53	#69
<i>flat uses of fret three</i>			<i>flat uses of fret two</i>		
Eb, 2nd crse	3	2	Eb, 3rd crse	0	0
Bb, 3rd crse	end.	end.	<i>sharp uses of fret two</i>		
<i>sharp uses of fret three</i>			C#, 1st crse	end.	0
G#, 1st crse	0	0	G#, 2nd crse	0	0
F#, 4th crse	c20(dh)	0	B, 4th crse	end.	4
C#, 5th crse	0	0	F#, 5th crse	nt	0
G#, 6th crse	0	0	C#, 6th crse	nt	0
Indicated use of fret three	flat	flat	Indicated use of fret two	sharp	sharp
<i>sharp uses of fret five</i>			<i>sharp uses of fret four</i>		
G#, 4th crse	0	0	C#, 4th crse	0	0
<i>flat uses of fret five</i>			G#, 5th crse	0	0
Bb, 1st crse	end.	end.	<i>flat uses of fret four</i>		
F, 2nd crse	end.	end.	Eb, 1st crse	0	0
C, 3rd crse	nt	nt	Bb, 2nd crse	1	0
Eb, 5th crse	nt	nt	F, 3rd crse	end.	6
Bb, 6th crse	nt	nt	Eb, 6th crse	nt	0
Indicated use of fret five	flat	flat	Indicated use of fret four	flat	flat
<i>flat uses of fret eight</i>			Fret nine uses, sharp and flat	0	0
Eb, 3rd crse	0	0	Indicated use of fret nine	unused	unused
<i>sharp uses of fret eight</i>					
C#, 1st crse	0	0	Discrepancies	0	0
G#, 2nd crse	0	0	Other occurrences of notes at avoided fret positions	15	0
B, 4th crse	2	0			
F#, 5th crse	0	0			
C#, 6th crse	0	0			
Indicated use of fret eight	sharp	unused			
<i>sharp uses of fret ten</i>					
F#, 3rd crse	0	0			
C#, 4th crse	0	0			
G#, 5th crse	0	0			
<i>flat uses of fret ten</i>					
Eb, 1st crse	1*	0			
Bb, 2nd crse	0	0			
Eb, 6th crse	0	0			
Indicated use of fret ten	unused or flat	unused			
Discrepancies	1(dh)	0			
Other occurrences of notes at avoided fret positions	1	1			

* seems to be corrected by hand to fret 11

Appendix One / Part Two

Calculations of fret distances, Bermudo's Pythagorean system, meantone based on Dombois' tables. Calculated for 60 cm. vihuela.

	Bermudo/ Pythagorean	Dombois, 696.6 meantone (pure M 3rds)
fret one fa	3.047 (cm. from nut)	3.924 (cm. from nut)
fret one mi	3.711	2.577
2nd fret	6.66	6.335
3rd fret fa	9.375	9.8455
3rd fret mi	9.965	8.640
4th fret fa	11.946	13.1257
4th fret mi	12.587	11.999
5th fret	15	15.138
6th fret fa	17.285	18.073
6th fret mi	17.783	17.068
7th fret	20	19.876
8th fret fa	22.032	22.5
8th fret mi	22.474	21.6
9th fret	24.443	24.1108
10th fret	26.25	26.45 (mi)

Appendix Two
Part One
Uses/ Avoidances of Split Courses
in Fuenllana's Orphénica Lyra
Book Three

Procedure: Since Fuenllana admits the difficulty of splitting courses only the intabulations occurring in Book Three (which Fuenllana classifies as containing the most difficult music²⁵²) were examined. Each use of a split-course in Fuenllana's intabulations was tabulated and compared with the corresponding measures in the vocal originals. This examination showed that Fuenllana used the device to intabulate voices in the pre-existing vocal compositions, not to add additional notes or ornamentation. The available vocal originals were then examined for similar situations in which splitting a unison fifth-course would have been useful for one of the following reasons:

- 1) Use of a split fifth course would have allowed intabulation of an otherwise unfingerable note from the vocal original;
- 2) Use of a split fifth course would have allowed notes to be held (i.e. sustained) by the left-hand fingers for more of their complete value in comparison with the more conventional fingering actually used by Fuenllana.

Assumptions: It is assumed that evidence of an octave-strung fifth course presupposes an octave-strung sixth as well, since the practical acoustic problems presented by using unisons on the fifth would be even greater on the sixth course, and the detrimental voice-leading effects of octave-stringing would be less on the sixth course than the fifth.

Complicating factors: Although Fuenllana's preservation of the original polyphony of these five- and six-part vocal pieces has been called "astonishing"²⁵³ the intabulations are not literal. Fuenllana's "changes" usually involve repetition of sustained notes, fusion of two or more parts (i.e. a pitch produced by a single course fulfills a polyphonic role in two or more "voices"); embellishment of polyphonic lines, particularly the stepwise "filling in" of leaps; and the occasional addition of extra sections.²⁵⁴ Instances where Fuenllana's intabulation differed significantly from the vocal original have been discarded in the present tabulation.

²⁵² Fuenllana, Orphénica fol. 3^r.

²⁵³ Jacobs edition, Orphénica xlv.

²⁵⁴ Jacobs edition, Orphénica xlv.

Modern editions used for comparison with intabulations were those recommended as concordances by Charles Jacobs, listed in his edition of *Orphénica lyra*, lvii- lx.

Conclusions: Since split fifth and sixth courses are never called for in *Orphénica lyra*, the frequent occurrence of situations in which use of the device would have been advantageous stands in need of explanation. Splitting the fifth or sixth courses would have been useless if Fuenllana had used octave-stringing on these courses and not unisons, therefore his avoidance of the device on these courses in situations similar to those in which he felt free to use it on other courses points to octave-stringing on the fifth and sixth courses.

Five-part music
Motets a 5

<i>Incipit</i>	<i>Composer of original</i>	<i>Unused opportunities to split a unison 5th course</i>	<i>Uses of split third and fourth courses</i>
"Aspice Domine" (<i>Orphénica</i> fol. 59 ^v)	Jacquet of Mantua	m15 (J)-c 30 (F) (would make dropped note ["root" of "chord"] possible, restore original chord "function")	m 85, 86 (3rd)
"Si bona suscepimus" (<i>Orphénica</i> fol. 61 ^v).	Verdelot	m 75(V)-c150(F) (would make dropped note ["5th" of "chord"] possible)	m 70, 140, 181, (4th)
"Verbum iniquum" (<i>Orphénica</i> fol. 63 ^r)	Morales	none	none
"Lamentabatur Jacob" (<i>Orphénica</i> fol. 64 ^r)	Morales	none	m 130, 177 (4th)

Five-part music
Motets a 5 — Continued

Incipit	Composer of original	Unused opportunities to split a unison 5th course	Uses of split third and fourth courses
"Lauda Syon" (actually a contrafactum of Josquin's chanson "Je ne se puis tener d'amer." (<i>Orphénica</i> fol. 65 ^v)	Josquin des Pres (misattributed by Fuenllana to Gombert)	m 14-c 28 (would make dropped note ["root" of "chord"] possible, restore original chord "function")	none
"Virgo Maria" (<i>Orphénica</i> fol. 67 ^r)	Morales	original unavailable	none
"O beata Maria" (<i>Orphénica</i> fol. 70 ^r)	Gombert	none	m123, 134 (3rd)
"Germinavit Radix Jesse" (<i>Orphénica</i> fol. 71 ^r)	Gombert	Fuenllana's intabulation is unique known source/ uncheckable	none
"O felix anna" (<i>Orphénica</i> fol. 72 ^r)	Gombert	m 5(G)-c 9(F) would allow bass line to sustain, improve voice leading	m46, 133(3rd)
"Credo de Beata Virgine" (<i>Orphénica</i> fol. 73 ^v)	Josquin	m 60(J)-c 119(F) (would allow bass line to sustain, technically easier)	
"Credo de Beata Virgine" Secunda Pars (<i>Orphénica</i> fol. 76 ^r)		none	m 9, (3rd)
"Lamentacion" (<i>Orphénica</i> fol. 77 ^r)	Morales	original unavailable	38, 149 (4th, bass)

Six-part Music
Motets a 6

Incipit	Composer of Original	Unused opportunities to split 5th crse	Split other crses
"Jubilare Deo" (Orphénica fol. 81 ^v)	Morales	m 49 (M) c 98 (F) (would allow bass to sustain, improves voice-leading) m 62 (M) c 124 (F) (would make dropped note ["3rd" of "chord"] possible)*	none in 1st part 2nd part, m5 (3rd)
"Agnus de la Missa de si bona suscepimus" (Orphénica fol. 83 ^v)	Jacquet (of Mantua??)	original unavailable	m 36, 79 (4th, bass)
"Benedicta es caelorum regina" (Orphénica fol. 85 ^r)	Josquin	m 47 (J) c 95 (F) (allows bass line to sustain) m 105 (J) c 209 (F) allows inner voice to sustain	none
"Manus tue domine" (Orphénica fol. 86 ^v)	Morales	original unavailable	none
"Praeter rerum" (Orphénica fol. 88 ^r)	Josquin	none	none

*a conventional fingering with the same advantages is barely possible, but the split-course fingering is far easier.

Final Tabulation

	Fifth course (possible uses if Fuenllana had used all-unison basses)	Fourth course (actual uses)	Third course (actual uses)
Number of split course occurences	9 or more (taking into account originals unavailable for examination)	9	8

Appendix Two
Part Two
Technically Unnecessary Uses of the
Fourth Course in Mudarra's Tres Libros

In each of the following examples, Mudarra chose to finger a note on the fourth course when a fingering of the same pitch on the third course would have been technically easier. For a complete discussion of the implications of these fingerings, see "Musical Evidence for Octave-Stringing in the Music of Mudarra" in the body of this paper.

For the reading convenience of guitarists, each example has been transcribed assuming a "Vihuela in E" or a "Guitar in E" so some accidentals and modal transpositions outside the range of Renaissance common usage may be encountered.

Four-Course Guitar Pieces

Pujol # 19, "Fantasia del quarto tono," compás 7-10. Book One, fol. 21^v. Chantarelle edition 66.

Pujol # 19, "Fantasia del quarto tono," compás 24-27. Book One, fol. 21^v. Chantarelle edition 66.

*9 in original, almost certainly an upside-down 6.

Pujol # 20, "Fantasia del quinto tono," compás 17-20. Book One, fol. 22^r. Chantarelle edition 67.

Measure 17: Treble clef, F# key signature. Notes: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). Fretboard: 2, 4, 5, 0.

Measure 18: Notes: B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter). Fretboard: 2, 3, 5, 7.

Measure 19: Notes: E4 (quarter), D4 (quarter), C4 (half). Fretboard: 7, 5, 5, x.

Measure 20: Notes: B3 (half), A3 (half). Fretboard: 3, 5, 7, 5.

Pujol # 20, "Fantasia del quinto tono," compás 48-50. Book One, fol. 22^r. Chantarelle edition 67.

Measure 48: Notes: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). Fretboard: 0, 2, 3, 5.

Measure 49: Notes: B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter). Fretboard: 0, 0, 7, 5.

Measure 50: Notes: E4 (quarter), D4 (quarter), C4 (half). Fretboard: 3, 7, 5, 3.

Pujol # 21, "Fantasia del primer tono," compás 27-29. Book One, fol. 23^r. Chantarelle edition 69.

Measure 27: Notes: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter). Fretboard: 7, 5, 5, 5.

Measure 28: Notes: B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter). Fretboard: 7, 8, 8, 8.

Measure 29: Notes: E4 (quarter), D4 (quarter), C4 (half). Fretboard: 5, 8, 7, 8.

Pujol # 23, "Romanesca o guardame las vacas," compás 18-19. Book One, fol. 24^r. Chantarelle edition 71.

Vihuela Pieces

Pujol # 1, compás 29-31. Book One, fol. 1^r. Chantarelle edition 25.

Pujol # 2, compás 31- 33. Book One, fol. 2^r. Chantarelle edition 27.

Pujol # 3, compás 15-17. Book One, fol. 3^r. Chantarelle edition 29.

Musical score for Pujol # 3, measures 15-17. The score is in treble clef with a key signature of one sharp (F#). It features a melody line and a guitar accompaniment line. The guitar line includes fingerings (2, 0, 3, 0, 2, 4, 5, 4, 5, 7) and a 3-measure rest in the first measure.

Pujol # 3, compás 29-30. Book One, fol. 3^r. Chantarelle edition 29.

Musical score for Pujol # 3, measures 29-30. The score is in treble clef with a key signature of one sharp (F#). It features a melody line and a guitar accompaniment line. The guitar line includes fingerings (5, 0, 4, 5, 5, 7, 5, 3, 5, 7, 9) and a 3-measure rest in the first measure.

Pujol # 4, compás 25-28. Book One, fol. 4^r. Chantarelle edition 31.

Musical score for Pujol # 4, measures 25-28. The score is in treble clef with a key signature of one sharp (F#). It features a melody line and a guitar accompaniment line. The guitar line includes fingerings (2, 0, 3, 2, 3, 0, 2, 4, 5, 4, 5, 3) and a 3-measure rest in the first measure.

Pujol # 5, compás 70-73. Book One, fol. 5^r, 6^r. Chantarelle edition 33, 35. fol. 5, 6.

Pujol # 5, compás 27-29. Book One, fol. 5^r, 6^r. Chantarelle edition 33.

Pujol # 10, compás 74-77 (two uses). Book One, fol. 10^v. Chantarelle edition 44.

Pujol # 12, compás 137-142. Book One, fol. 13^r. Chantarelle edition 49.

Pujol # 15, compás 52-54. Book One, fol. 18^r. Chantarelle edition 59.

Pujol # 15, compás 67-70. Book One, fol. 18^r. Chantarelle edition 59.

Pujol # 27, compás 90-93. Book Two, fol. 5^r. Chantarelle edition 81.

The musical score for 'The Rose Tree' is presented in three systems. The first system includes a treble clef, a key signature of one flat (B-flat), and a common time signature (C). The melody is written on a five-line staff, and the lyrics 'The Rose Tree' are written below it. The second system continues the melody and lyrics. The third system concludes the piece with a double bar line. The score is printed in black ink on a white background.

Pujol # 29, compás 41-44. Book Two, fol. 6^v. Chantarelle edition 84.

The musical score for 'The Rose Tree' is presented on a grand staff. The upper staff is a treble clef with a key signature of one sharp (F#) and a common time signature (C). The melody is written in a simple, folk-like style. The lower staff is a bass clef, which serves as a guide for the guitar accompaniment. The guitar part is written in a simplified manner, using numbers 1 through 5 to indicate fret positions. The music is divided into measures by vertical bar lines. The overall style is that of a traditional folk song.

Pujol # 34, 10-13. Book Two, fol. 11^r. Chantarelle edition 95.

[illegible]

Pujol # 35, compás 7-9. Book Two, fol. 11^v. Chantarelle edition 96.

Pujol # 39, compás 59-61. Book Two, fol. 15^r. Chantarelle edition 103.

Pujol # 44, compás 43-45. Book Two, fol. 20^v. Chantarelle edition 114.

Pujol # 46, compás 12-14. Book Two, fol. 24^r. Chantarelle edition 121.

Pujol # 47, compás 45-47. Book Two, fol. 24^r. Chantarelle edition 121.

Pujol # 47, compás 52-55. Book Two, fol. 24^r. Chantarelle edition 121.

Pujol # 47, compás 80-82. Book Two, fol. 24^r. Chantarelle edition 121.

2 9 7
1 4 6 7
3 0 2 5 4 2 0

Pujol # 48, compás 74-76. Book Two, fol. 25^v. Chantarelle edition 124.

2 4 2
2 0 3 3 2 0 2
0 2 3 2 0 2 0

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