THE UNIVERSITY OF EDINBURGH

COLLEGE OF HUMANITIES AND SOCIAL SCIENCE

DEPARTMENT OF MUSIC

THE HARP LUTE IN BRITAIN, 1800-1830

- A STUDY OF THE INVENTOR, EDWARD LIGHT AND HIS INSTRUMENTS -

A thesis submitted

for the degree of Doctor of Philosophy

by Hayato Sugimoto

The University of Edinburgh

2015

- Vol. 2 -

CHAPTER SEVEN:

REPRODUCTION OF THE HARP-LUTE

[MIMEd: 854]

7.1 PURPOSES AND RESEARCH QUESTION

It is highly significant that Light introduced at least seven models[1] of harp lute in thirty years (1800-1830). More strictly speaking, considering that the final generation, 'dital-harp', was presented to the London public at least as early as 1819, his series of inventions were completed within twenty years.[2] Moreover, if we compare the instrument between the first and the last generation, it shows that they became almost completely different instruments; the former has no diapason strings while the latter has no functional fingerboard. In other words they have been transformed from a guitar-like instrument to a portable harp. What makes this surprising to us is that these models had a certain success in marketing despite having minor changes constantly applied. However, what made this possible was not only the inventor's knowledge or talent in marketing, but the maker's ideas in constructing the instrument. One of the key features that constantly appeared in the harp lute promotions – keeping the instrument at "moderate prices", affordable to the growing number of middle-class families – was vitally important. Above all, to manage this there must have been some hidden secrets in the making of the instrument, and it is likely that achieving a balance between the constructional simplicity and the excessive decoration was the key to its success.

7.1.1 INCREASING DEMAND FOR ORNAMENTATION

As in Britain during the industrial revolution, rationalisation of manufacturing seems to have been one of the important things for enabling makers and manufacturers to make products at lower price. Likewise, the manufacturing of harp lutes adapted to such industrial efficiency, and they therefore consisted of some rationalised constructions. For instance, the decoration on the capital with its ornate three-dimensional acanthus leaves was gilded work using compositions rather than wood carvings (Fig 7.1),[3] as it was a simpler method.

---

1 Harp-guitar, arch-lute-guittar, harp-lute-guitar, harp-lute, Apollo Lyre, British Lute Harp and dital-harp. These are the main models that had commercial success; there were other products invented by Light such as the Diplo Kithara.

2 Despite the introduction of the dital-harp, the incessant minor changes were still being applied to the instruments until the very end of production.

3 Composition provided the maker with a technique for applying decorative features to their instruments which was less costly than woodcarving.

Fig 7.1: (left) Capital of harp-lute with gilt decorative motifs of acanthus leaves, V&A [37-1873]; (right) Capital of harp-lute; the gilded mounts have peeled off, showing the curve of the wood before the addition of decorative work, HML [3887].

However, all composition and gilding work seems to have been done by the outworkers. The instruments were assembled in a workshop and then sent to a frame maker for decoration. Barry and his stepfather Buchinger were harp makers, and the harp lutes seem to have been manufactured in more or less the same manner as harp manufacturing. Nex mentioned, in her research on the Erard workshop accounts from 1807 to 1809, that 'Mr Tillier (Tillyer Tillyard, Tillyerd) the gilder received regular payments amounting to something between £30 and £40 each month. Mr Thorp(e), the composition maker, was paid around £100 each year'.[4] As well as Erard's harp manufacturing, possibly all the composition and gilding works on harp-lutes were done in a similar way by the frame maker, George Jackson.[5] Payments for the outworkers brought with them extra costs, which seem quite a large amount when one considers that, at a rough calculation, it cost £5 per harp but not includes the paintings of the

[4] Speech paper at a conference by Jenny Nex, 'The workshop accounts of the London harp firm of Erard, 1807-09', *Making the British Sounds*, (Edinburgh – London: the Galpin Society and Historic Brass Society, 2009), p.8. The text was kindly given to the author by the presenter, Jenny Nex.

[5] Please see Chapter 5.

instrument.[6]

Besides, like furniture, it was probable that the amount of decorations for the instrument would have greatly depended on the customer's budget. There is an interesting account from a book published in 1788, *The cabinet-makers London book prices*:

> '[the book], dedicated to the master cabinet-makers of London and Westminster, was written by the journeymen of London and Westminster in order to regulate the prices charged for the furniture produced by the member of the London Society of Cabinet-Makers […] This publication, the author's hoped, would address these inequalities [different price for the same products by makers] by giving guidelines as to what to charge for their labour […] The book also contains prices for the different types of furniture […] There are prices for basic pieces of furniture and, if customers wanted to invest more, prices for additions […] Although the book was aimed at the trade as a guide, it could also be shown to clients to give them information about the different options available.'[7]

As seen in this account, to avoid the inequities of prices for the same kind of products by different makers, a certain regulation for the basic prices of the products became established in the 1780s. Similarly, following the well-known British furniture designer, Thomas Chippendale, who had created the first ever book of furniture patterns, *The gentleman and cabinet-maker's director*, in 1754, A. Hepplewhite published *The cabinet-maker and upholsterer's guide* in 1788. Afterwards, a catalogue book entitled *The cabinet-maker and upholsterer's drawing-book* was written by Thomas Sheraton in 1791.[8] Accordingly, in Georgian and Regency Britain[9] it was likely that there were certain established prices and options for products described in a catalogue. Clients and customers could choose the products in the shop depending on their budget. Similarly,

---

[6] According to Nex's spoken paper (2009: 8), the monthly sales number for harps in the Erard manufactory in 1808 varies from 5 to 13, making an average of 9. Considering this number, the monthly payment for the gilding works (£30 to £40 making an average of £35) on each instrument can be estimated at around £4 (35/9). Likewise the composition work (£100 per year = about £8 per month) was just under £1 (8/9). This means roughly £5 (4 + 1) was the cost of composition and gilding for each instrument.

[7] Goff, et al (2013: 43).

[8] Ibid. (These three books were introduced).

[9] Regency era in this thesis refers to 1795-1837.

there seems to have been established basic prices for harp lutes, and at an extra cost, customers could create their own style of harp lute, e.g. by adding ornamentations such as composition adornments and gilded paintings. Additionally, providing this decorative work corresponded well to contemporary consumerism, especially in products manufactured within the British Isles. For instance, Peden mentioned in the exhibition catalogue, Goff et al (2013: 55) that:

> 'Improved production techniques enabled goods from the new British manufacturing industries to be sold for far lower prices than those of their imported counterparts. The main consumers of wares manufactured in Britain were the affluent of middle classes, so it is perhaps not surprising that the designs and decorations chosen for their products reflected the themes that they found most attractive, whether these were based on classical motifs and references […]'

Corresponding to this account, the variety of decoration offered to customers made the purchase of products more attractive. Originality was highly important in Georgian and Regency consumerism, hence the appearance of various designs and decorations in surviving harp lutes.

There is an interesting example of this to be found in the making of an eagle sculpture that often adorned the capital of harps and British Lute Harps[10] (Fig 7.2).

Fig 7.2: Eagle sculpture adorning the top of the pillar of a British Lute Harp, from different angles, MMS [M2051].

[10] It sometimes appeared on the dital-harp as well.

In the Erard's workshop during the two years from 1807-1809, fourteen eagle sculptures were ordered from Mr. Collier, who was paid £2 per carving.[11] Nex (2013: 230) mentioned that 'the eagles were gilded and customers were charged 5gn [guineas] each', which means Erard obtained a profit of £3 on a model with an eagle sculpture. This is significant in that the extra cost of the sculpture brought with it enormous profit to the maker. Of course, smaller sized sculptures like that on the British Lute Harp should have been cheaper, but it was certainly one of the parts that added extra cost to customers' budgets. Given that the British Lute Harp was sold at a price ranging from 15 to 18 guineas in 1818,[12] the highest priced one (£18 18s) was most likely a highly ornamental instrument, and without doubt came with an eagle decoration.

Such adornments and ornaments were strongly connected to the material culture of the day, and harp lutes were regarded as ornamental objects for interior. Amanda Goodrich stated, Goff et al (2013: 12), that:

> 'The objects people owned in their home reveals a great deal about the material culture of the time […] The amount and quality of furniture, glassware, tableware, bed linen, kitchen utensils, books, ornaments, guns, horses, equipage and other items gleaned from family account books and inventories indicate the occupational status and social rank of the owner.'

Considering that some harp lutes, such as the British Lute Harp, dital-harp, harp-lyre, and Apollo Lyre, have a plinth with which the instrument became multi-functional (an interior object and a musical instrument), this suggests that the decorative qualities of the instrument for impressing visitors were more important than the quality of sound; the former is now regarded as the principal factor in making the instruments and suggesting their values.

However, as middle-class ladies were Light's main customers, and keeping the

[11] This extraordinary information, presented by Jenny Nex, came from an extract of all reports appearing in the Erard harp ledgers, RCM [497], in which the payments and number of order for the eagle carvings to Mr. Collier were included; *Workshop accounts from 1807-09*, volume 1, was kindly and generously given to the author by Dr. Nex (11 Nov, 2013).

[12] See Chapter 6.

instruments at a moderate price was of great importance, the highly valued eagle sculpture seems to have been a serious matter. It was therefore only attached to the British Lute Harps and very occasionally to the later ones, such as dital-harps. Nonetheless, excessive ornamentation was certainly a significant concern in economic terms, and it was therefore vital to make the instrument itself as cheap as possible to make it attractive to middle-class-consumers.

7.1.2 CONSTRUCTIONAL SIMPLICITY

In terms of constructional aspects of harp lutes, as opposed to the complex form of the instruments shown in the exquisite surface decoration, close examination reveals a relatively large quantity of rough work. For example, the corner at the widest part of the body – where the stave, bottom and the soundboard meet – was often filed after assembly to avoid a sharp edge, but as a result the lining, which would otherwise have been hidden inside the body, became visible[13] (Fig 7.3).

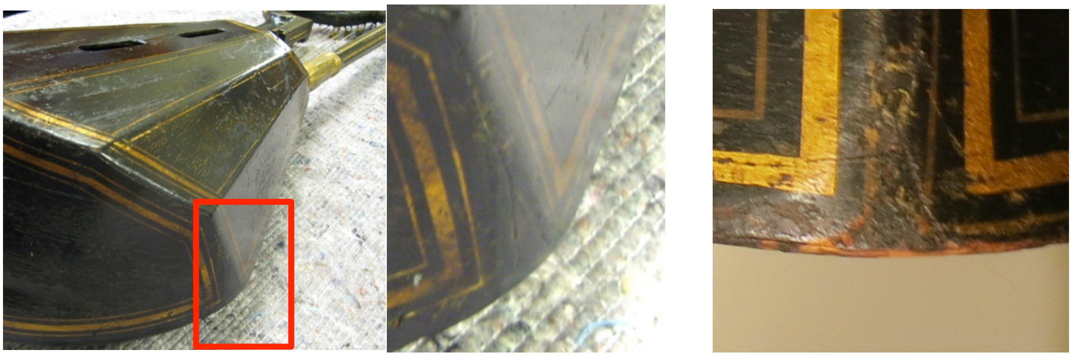


Fig 7.3: Rough work on the corner of body, where the stave, bottom of the soundbox, and the soundboard meet.[14]

Such rough work was acceptable since the whole instrument was later painted with colours so that the coarse joins would be discreetly hidden.

Looking at the simplified construction, an interesting effect that reduced labour time can be observed. As well as the guittar and the British made Spanish guitars before

[13] This is not always the case, but can be seen in a number of extant instruments.
[14] (left and centre) MIMEd [854] and (right) MFA [17.1796].

Panormo, harp lutes never used wooden bindings or inlays on edges, which were painted instead. This meant that the process of trimming the edges was eliminated, enabling makers to complete an instrument in a shorter time and undoubtedly improving the instrument's cost-effectiveness. It also led to a more efficient way of establishing a certain cut-off point in the decoration process, after which a great deal of extra cost could be added. Though the form of harp lutes gradually became more complicated over time – from first generation harp-guitar to last generation dital-harp – the concept of constructional simplicity seems to have remained throughout. For example, the necks on the final model, the dital-harp, which once consisted of upper and lower parts, became simplified by becoming completely integrated; the reference to Fig 7.4. To a great extent, such simplicity of construction brought success in marketing, enabling the instruments to be maintained at "moderate prices" while still possessing the novelty and elegance of extensive decorations. This simplicity was therefore an important element in achieving cost-effectiveness.

Fig 7.4: The changes of fingerboards in chronological order.[15]

In relation to cost-effectiveness, a representative aspect displaying frugal use of wood is the construction of the neck. The fingerboard is usually made of two pieces: a thin top flat layer (①) with a longitudinally tapered[16] bottom (②) (Fig 7.5).

[15] Clockwise from top-left: harp-guitar by Light, MMS [M2063]; harp-lute-guitar by Light & Barry, MFA [17.1770]; harp-lute-guitar by Harley, HMS [C-0030]; harp-lute by Light & Barry, MAT [A.831]; harp-lute by Light, HML [MT537-1998]; British Lute Harp by Light, MMS [M2051], British Lute Harp by Light, V&A [W.33-1925]; British Lute Harp by Light, MFA [2007.327]; dital-harp, MIMEd [1518].
[16] Becoming thicker towards the nut.

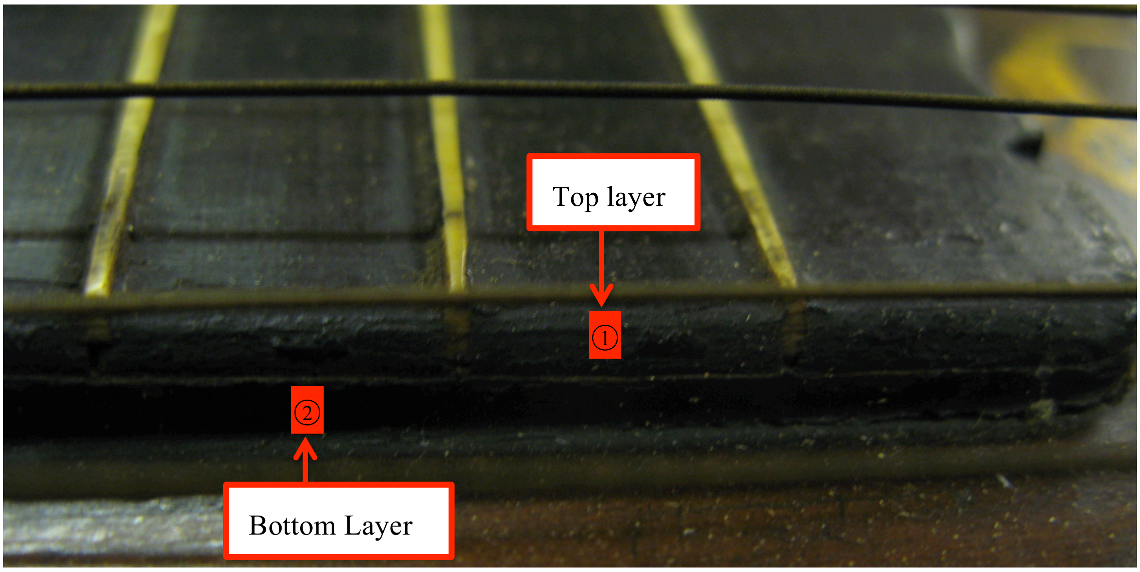


Fig 7.5: Close-up view of typical fingerboard.[17]

This was probably done to allow wasted materials to be reused; pieces too thin for the fingerboard could be used for the top layer. At the same time, the tapered bottom meant neck angle adjustment could be abandoned, the same principle as the baroque violin with its flush neck[18] and tapered fingerboard. The painting hid the joins, making this technique very useful economically. Additionally, most harp lute fingerboards are curved crosswise, so using an extra thin piece for the top was an efficient and economical use of materials.

Given the comparison between decorative work and instrument construction, we can conclude that, in order to extract a certain amount of margin for the decorative work, a reduction of expense in the making of the instrument was practically essential. Moreover, despite its complex appearance, some rough work and elimination of parts that would have required time-consuming work are involved – the visual aspect was more important than quality of materials[19] or exquisite craftsmanship. Nevertheless, by

[17] HML [6905/M66-1983].
[18] The surface of neck where the fingerboard is attached is at the same level as the soundboard, meaning no need for neck angle adjustment on the heel.
[19] As seen in many extant instruments during the research, most of the soundboards used for the harp lutes were of poor quality, wide grains. Some instruments look as if they have been constructed from exotic materials such as rosewood or walnut. Such materials were seldom used; instead, they were painted to look like expensive wood. In general, the quality of materials used for the instruments was very poor and cheap.

merely looking at the instruments, it is hard to tell what feasible structures allowed Light to apply his consecutive changes and improvements. To make these feasible, there must have been certain methods or techniques in instrument making, enabling makers to construct new models more simply, and achieving the commercial success of six different models in twenty years. To gain a more in-depth understanding of this constructional simplification, a reproduction of at least one copy is of vital importance, with a focus on the following research questions:

"***How did the maker manage to produce so many different models in two decades while maintaining the complex form and moderate price?***"

"***How were harp lutes economically made?***"

7.2 DEFINITIONS AND INSTRUMENT SELECTION

As reproducing an instrument is quite a time-consuming task,[20] it would be impossible to make all models of harp lute within the limited period of PhD research. One instrument would be more realistic, but the reproduction must be academically arguable; therefore, one appropriate instrument should be selected, with clear reasons given as to why it was chosen. However, as serious research on harp lutes has not been conducted since 1908, more than 100 years, there is a scarcity of information on the instruments, which means an academic survey prior to this is of great importance in avoiding the risk of choosing an inappropriate model. It must also be noted that the reproduction of an instrument is conducted as a part of Creative PhD, for which the research as well as the reconstruction of an instrument must be creative.

[20] Firstly, the instrument has a very complicated form and no one has ever reconstructed any of them. This means there is no previous example, making every step a new attempt. Secondly, the complex form requires hours of work, even to make technical drawing. Thirdly, as these are long ignored instruments, not only are years of research required to form a general understanding of them (including archival research, visiting museums and private collections in different countries and places to see the instruments, and revisiting the evidence provided in previous research), but also finding information on the makers needs additional work, since only a scarcity of information has so far been identified. Lastly, to compensate for the lack of information on makers, research has to be conducted into contemporary harp making. Above all, making an instrument entails a significant amount of work before even starting to make the instrument, as well as collecting the necessary materials. Therefore, it is time-consuming work.

7.2.1 ASSIGNMENT OF THE REPRODUCTION

Making a musical instrument – the reproduction of instruments – as a PhD study is a new type of challenge in compiling a musician-inventor's biography as a retailer rather than as a maker. In general terms, the reproduction of musical instruments, especially in past theses or articles, has been conducted as part of an investigation into the construction, delivering arguments on the makers' attempts or on the physical aspects. However, in a slightly different approach from such usage, the arguments in this thesis will focus on the economical elements of harp lute making (the simplification), supported by discussions on Light's commercial success[21] in cooperation with harp makers. Therefore, all irrelevant processes will be excluded. Hidden techniques that are not discovered by examining the instrument will be revealed; this is not done to show how it was originally made, but to illustrate how the process was simplified in economic terms. In addition, to the author's knowledge, no copy of harp lutes supported by academic research has been made since the 1850s, when the instruments had completely declined, meaning there is no precedent case. Herein lies the importance and originality of this project.

7.2.2 SELECTION OF THE INSTRUMENTS

To achieve the aims of this thesis, the 'harp-lute' is the most appropriate instrument for the reproduction project. Should the harp-lute be chosen – made up of representative parts that the other models have – the other models would automatically be reproducible, even without the need for technical references on plucked instrument making that already exist.[22] More precise reasons for the selection are as follows:

First of all, with serial numbers that reached over 600,[23] the harp-lute is, in marketing

[21] One of the key terms for this thesis, with which his series of inventions 'harp lutes' gained a commercial success in context of Regency and the industrial Britain.

[22] Such books exist on guitar making, violin making and lute making, but they do not include techniques of harp lute making. However, if harp-lute making techniques became apparent, other models could be made with the need for pre-existing references.

[23] Counting the serial numbers of harp-lute, they reached over 600; however, it is very unlikely that Light applied the numbering from 1 only for the harp-lute. Nevertheless, compared with the second most

terms, the most successful instrument of all Light's inventions.[24] Furthermore, the prices for Light's harp-lute and Apollo lyre varied from 9 to 12 guineas in 1809; this, compared with the British Lute Harp (15 to 18 guineas), shows that the harp-lute was certainly constructed on more moderate terms. The harp-lute obviously triumphs over the British Lute Harp in terms of sales cost, while being complex in form with extensive ornamentations; one of the main issues of the British Lute Harp and the dital-harp was the use of mechanical devices, for which the price would presumably have risen considerably. Additionally, Light clearly stated that the price varied depending on size and ornaments, but all of them were sold with a handsome case. Although the harp-lute was more expensive than the guittar (around 4 to 6 guineas), considering the complexity of its form and extensive ornamentations including gilding and composition works, it was not such a high-priced product.

As mentioned before, payment to outworkers for ornamentation, in the case of Erard's manufactory, came to roughly £5 per harp; ornamentation on the harp-lute, due to its smaller size, may have cost slightly less, but there would still have been a charge. The wooden case, though for a slightly larger instrument, seems similar in price to that of the guittar (16 shillings).[25] On the rough premise that the expense for the ornaments was £3 (because of the smaller size), the case was 16s, and the average price of the completed instrument was £10 10s, the substantial cost of making a harp-lute would have been approximately £6 4s.[26] This means roughly one third of the expenses were for ornamentation and the case.[27] Despite the rough estimate, the price for a harp-lute in

---

successful instrument, the 'dital-harp', whose numbers reach over 300, six hundred shows a remarkable commercial success and is far greater than any of the others.

[24] According to the serial numbers on the so far identified British Lute Harps and dital-harps in existence, the highest number is 358; Light mentioned that more than 300 harp lutes were sold (more likely this indicated the British Lute Harp and the dital-harp – see Chapter 6 for more details) in 1823. For the harp-lute, the highest number in existence is 688, and Light also mentioned the phrase 'more than 500 persons of dignity' as early as 1814 (this seems to correspond to the serial numbers of harp-lute – see Chapter 5 for more detail). Although the British Lute Harps and dital-harps have intersected numbers (namely, the two same numbers exist), even bearing that in mind, their numbers are unlikely have been more than double that of the harp-lute (i.e. 600). Therefore, in terms of sale numbers, the harp-lute was the most successful instrument of all. In addition, other than these two models, a very small number of instruments survive, and the number of such instruments does not seem to have surpassed that of the harp-lute, British Lute Harp, or dital-harp.

[25] See Clementi's price list in Chapter 2. The harp-lute is slightly bigger, but not as big as the harp or pianofortes. The cost for making a case, however, seems to have been similar to that for the guittar.

[26] £10 10s (price for the ordinary harp-lute) - £3 16 (ornamentation and a case) = £6 4s.

[27] This is only a rough estimate and does not indicate an exact price. It was presented only to provide an

white condition[28] seems to have been almost as cheap as that of the first model, the harp-guitar.[29] Given these figures, in the marketing terms the harp-lute was the most cost-effective of all.

In terms of construction, the harp-lute, a model that appears in the middle of the harp lute evolution, represents all the key features seen in the first and last generations. **The upper parts** are discussed first, consisting of the fingerboard, pillar and upper neck (Fig 7.6); the former was of a feature of the harp-guitar while the latter two were new additions subsequently used by later models.

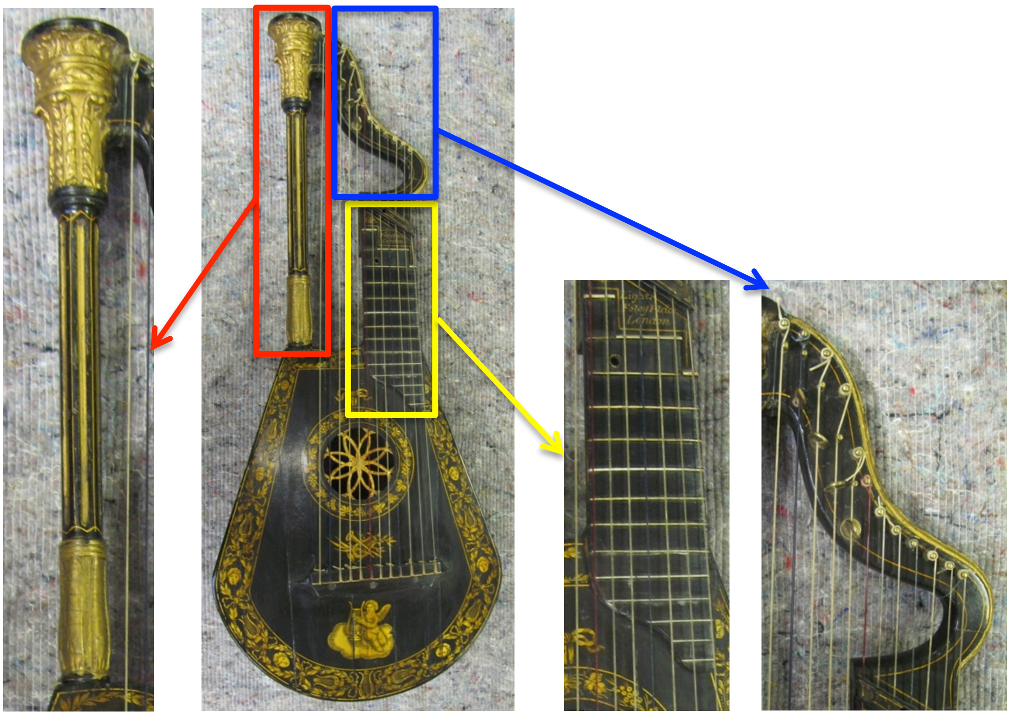


Fig 7.6: Pillar, upper neck and fingerboard of a typical harp-lute, MIMEd [854].

FIRST, the functionally useable fingerboard was primarily attached to the earlier models introduced prior to the harp-lute such as the harp-guitar and the harp-lute-guitar. Following development, however, its functionality became gradually diminished. In this degenerating process, the separation of nuts became significant in the development of

idea of the proportion of expenditure likely to have been used for payment of work done by the maker and the outworkers.

[28] Without ornamentation and decorations.

[29] Four to five guineas.

the harp-lute (Fig 7.7), and subsequently led to the idea of individual nuts for each string (e.g. on the British Lute Harp and the dital-harp). Of the different number of nuts, the model with three is ideal for the reproduction as it is seen on the standardised harp-lute.

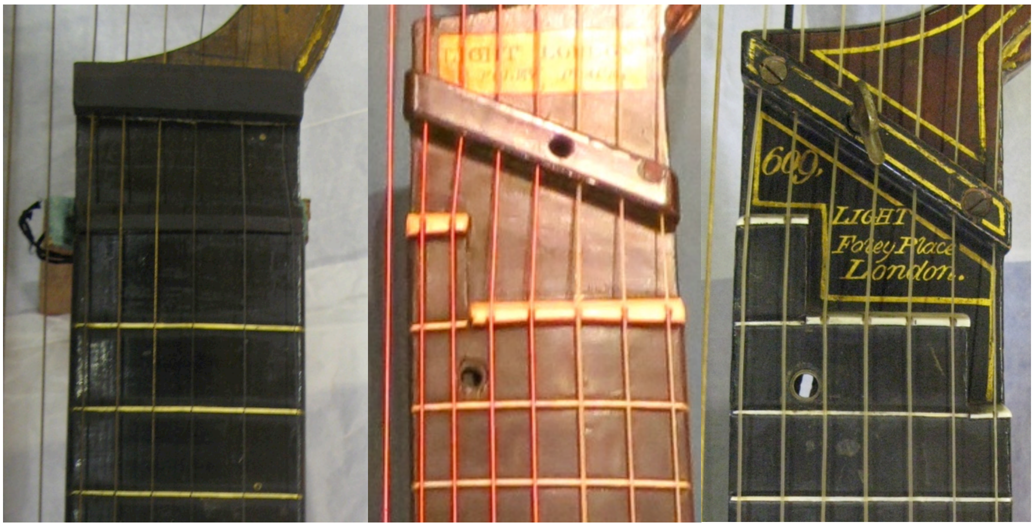


Fig 7.7: Three different styles of nut arrangement in chronological order, from left to right.[30]

SECOND, designed after the harp, the pillar was one of the iconic parts. The design was strongly connected to the contemporary fashionable art movement known as 'Regency Classicism',[31] or even the earlier so-called 'Neo Classicism' that had already been in fashion in the eighteenth century. As a result of the Grand Tours launched in the eighteenth century, Greek-Roman pillars tended to be used for the exteriors of classical buildings in the Palladian style; one representative piece of architecture was designed by Robert Adam,[32] and is today known as Georgian house. Correspondingly, there are two different types of pillar for the harp-lute, built in Ionic or Corinthian order (Fig 7.8); the latter seems to have been accorded higher status than the former.

[30] (left) Harp-lute with ordinary nut by Barry and Light, HML [6905 / M66-1983]; (centre) harp-lute with two nuts by Light, property of Ian Grant; (right) harp-lute with three nuts by Light, HML [MT537-1998].
[31] Please see chapter 6 for more detail about 'Regency Classicism'.
[32] See Goff, et al (2013: 26).

Fig 7.8: Two types of pillar; (left) Ionic order and (right) Corinthian order.[33]

For instance, a typical style of Georgian architectural exterior seen in the Quadrangle of the Palace of Holyroodhouse in Edinburgh, designed by Sir William Bruce, shows pillars as a symbol of status:

> 'Bruce deployed three of the five classical orders, Doric, Ionic and Corinthian in ascending order, on the Façades of the Quadrangle, to emphasise the status of each floor.'[34]

Similarly such a design can also be seen on the façades of Bath crescents (Fig 7.9), where noble and middle class families in Georgian and Regency times spent the holiday seasons.

33 (left) MAT [A.831]; (right) HML [MT537-1998]
34 Clarke (2013: 30).

Fig 7.9: The Circus in Bath – representative Georgian architecture completed in 1768, with three different orders of pillars (from the very bottom: Doric, Ionic and Corinthian).

As the Ionic order came prior to the Corinthian,[35] it may be said that Light introduced the new model of the harp-lute by upgrading the status symbol: the higher the status of the instrument becomes the more the players' elegance and nobility is shown. Likewise, the pillar in the Corinthian order also brought with it a success in simplification over the construction, enabling most parts to be carved by a lathe. The capital itself only needed to be left in a columnar shape on which the elaborate ornamentations were later added. Perhaps because of the easier construction, the post-harp-lute models usually employ pillars in Corinthian order,[36] dominant over the Ionic order that had only been used in a certain period. Given this fact, a pillar in Corinthian order is ideal for reproduction in that it will provide convincing practical evidence of how the pillar was easily and economically made.

THIRD, the upper neck, with which the instruments became more harp-like, was first

[35] Please see Chapter 5 for more in details.
[36] Other than the Corinthian order, there is only one model with the sculpture of eagle on the capital.

introduced in the harp-lute, developed from the theorbo-style neck (e.g. harp-lute-guitar and arch-lute-guittars). It was presumably invented to strengthen the instrument so as to cope with the increasing tension of the bass strings. The invention of the upper neck certainly simplified the construction process; the theorbo-style neck requires hours of work,[37] whereas the harp-like-neck (upper neck) has a much simpler form and takes a much shorter time to make[38] (certainly easier to make than that of the proper harp). Additionally, the upper neck is a unique part of the harp-lute, and was not used in any similar instruments such as the traditional lute or guittar; today there are reasonable reference guides on making the theorbo-style neck and conventional-guitar-head seen on the harp-guitar. In contrast, as no one has ever made a copy, the reproduction of the upper neck of the harp-lute, particularly joining it to the lower neck, is a new challenge.

FOURTH, for the **body parts**, the bridge is another noteworthy aspect. Interestingly, the bridges on harp lutes are usually fixed to the soundboard with screws rather than adhesive glue. However, on earlier models such as harp-guitars and harp-lute-guitars the bridge is fixed without using screws (Fig 7.10).

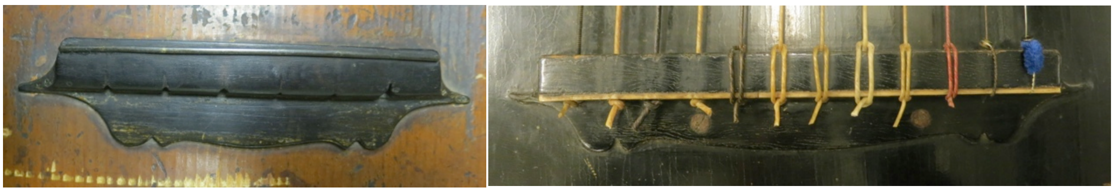


Fig 7.10: Bridges in comparison: (left) no screws on the bridge, harp-guitar by Barry, BCB [11.4]; (right) two screws to hold the bridge, harp-lute by Light, MMA [50.184.1].

Screws were presumably used to secure the bridge against the increasing tension of open bass strings. As mentioned,[39] the technique using screws seems to have been established around the time the harp-lute with three nuts was introduced. Given this fact, in selecting an instrument, the one with screws is a better choice.

FIFTH, the soundbox, which gave the instrument its harp-like tone, is worthy of

37 The whole shape had to be carved out by hand.
38 It only needed to be cut into shape from a piece of flat wood.
39 See Chapter 5.

description. This is the most original part,[40] and was consistently employed from the earliest to the last models. It is no exaggeration to say that the soundbox was the most vital part when it came to distinguishing harp lutes, although some had a flat back. It was first introduced in the harp-guitar, and three differently constructed designs were manufactured; the former two comprise three flat staves (completely rounded or with the centre-stave flattened) and the latter is made up of seven staves in a vault-like shape. Of all these styles, the one with seven flat staves seems the simplest construction to make; the former two seem to have taken more time to complete due to the process of bending. Moreover, the most commercially successful model, the harp-lute, usually has the latter style of soundbox, though from an old design,[41] economically made for cost-effectiveness. Additionally, regardless of type, the bottom of the soundbox is usually domed, a very distinctive form, completely different from that of traditional lutes; none of its kind seems to have existed before or since.

FINALLY, in terms of public interest, the harp-lute is displayed in many museums and institutions, and could be regarded as the most iconic model of all; most likely it obtained its high reputation amongst the general public under the generic name, 'harp lute', which often refers to the British Lute Harp and dital-harp, despite inappropriate use, and was named after the harp-lute. From this point of view, though it was not patented, the harp-lute has symbolised Light's series of inventions, both then and now, and is therefore the most appropriate instrument to be reproduced.

Possessing the elements described above, a representative harp-lute by Edward Light, serial number 648, was specifically selected (Fig 7.11); it is currently stored in MIMEd inventory number [854], the most convenient museum for the author to measure the instrument in order to make a technical drawing.[42] Bearing serial number 648, it was no

---

[40] There are more parts that have been used for all models, such as soundboard and bridge, but these parts were not particularly original since they had already been employed by other stringed instruments for so long. The word 'original' in this sentence is used to describe the most distinctive parts that symbolise Edward Light's inventions.

[41] In harp making, especially in Britain, and probably because of Erard, the former type with three staves (the centre flattened) tended to be used, while the latter design was used in France in the end of the eighteenth century.

[42] Regarding time consumption, for making a technical drawing, it is important to choose an instrument stored in an easily accessible location. It must also be mentioned that making a harp-lute drawing is a completely new challenge, and some difficulties that induce extra hours of works are expected to occur.

doubt the standardised harp-lute made after 1814,[43] two years before the next generation 'British Lute Harp' was introduced. All of the elements mentioned above are included in it.

Fig 7.11: Selected harp-lute by Light, serial number 648.[44]

7.3 TECHNICAL DRAWING AND HYPOTHESIS

7.3.1 TECHNICAL DRAWING

In order to make a technical drawing as accurate as possible, modern technology was applied, and the drawing made digitally. Although there were some options amongst popular software for drawing, such as CorelDraw and AutoCAD, the latter was selected simply because it was available at the University. The other software would have

[43] Please see Chapter 5 for more details.
[44] MIMEd [854].

required extra expense that might have taken the author over budget.[45] That being said, the accuracy of AutoCAD can be set in 0.0000 millimetres. Therefore, the drawing would be more than accurate enough as long as the measurements taken from the instruments were precise. This means that the way of taking the actual measurements of the instrument is important.

To avoid any irrelevant arguments, the process in making the technical drawing is partly presented using selections worthy of mention in this thesis: the accuracy of the drawing and the discoveries related to the hypothesis. Additionally, this process can be useful in relation to understanding the instruments in more detail and analysing the construction, and cannot be done within a general examination of items such as the thickness of the soundboard and the soundbox. Therefore, these descriptions provide readers with more focused information regarding the interesting parts of the harp-lute.

In terms of the instrument's complex form, the project first encountered a difficulty concerning how the outline of the instruments should be traced. The author would like to thank Jonathan Santa Maria Bouquet, who suggested the author to use a set square for that purpose. The method runs as follows: a pencil lead is fixed, with a piece of adhesive tape, to the thinner and longer edge of the set square, making the lead stick out slightly from the thicker and shorter plank (Fig 7.12); standing the set square on end, the lead can mark the paper placed underneath the instrument. The outline is then traced by attaching the longer edge of the square to the corners of the instrument, with the set square standing perpendicular to the table.

[45] Bearing in mind the scarce information on harp lutes and that this is a creative PhD, seeing the extant instruments as much as possible was important. Therefore, most of the budget given for the research had already been spent on travel costs, including personal budget and scholarships.

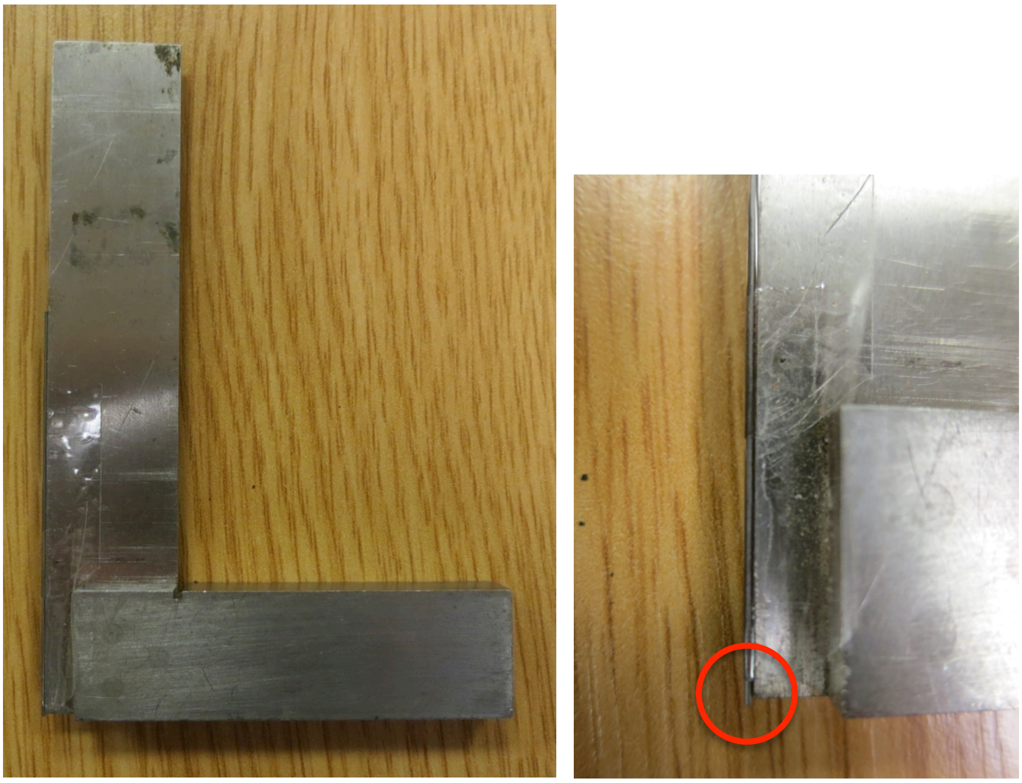


Fig 7.12: Square with a pencil lead on the longer edge slightly sticking out from the bottom.

To trace the line as accurately as possible, the X- and Y-axis of the instrument has to be determined before placing it on the table. In this case, Y is the longitudinal line passing through the middle point at the heel and at bottom of the centre stave, and X is drawn perpendicular to the Y line through the middle point at the heel. Once the X- and Y-axes are defined, the instrument should be placed on the table, on which joined pieces of A4 size papers[46] are prepared for drawing the outline of the instrument. In the placement, the determined X- and Y- axes should be lined up with the cross lines written on the sheets of paper (Fig 7.13).

[46] It would be easier to scan the outlines into AutoCAD if drawn on joined pieces of A4 size paper. The papers are later separated and scanned individually; afterwards, the papers are reunited on the computer screen, adjusted by the guide lines drawn when they were together.

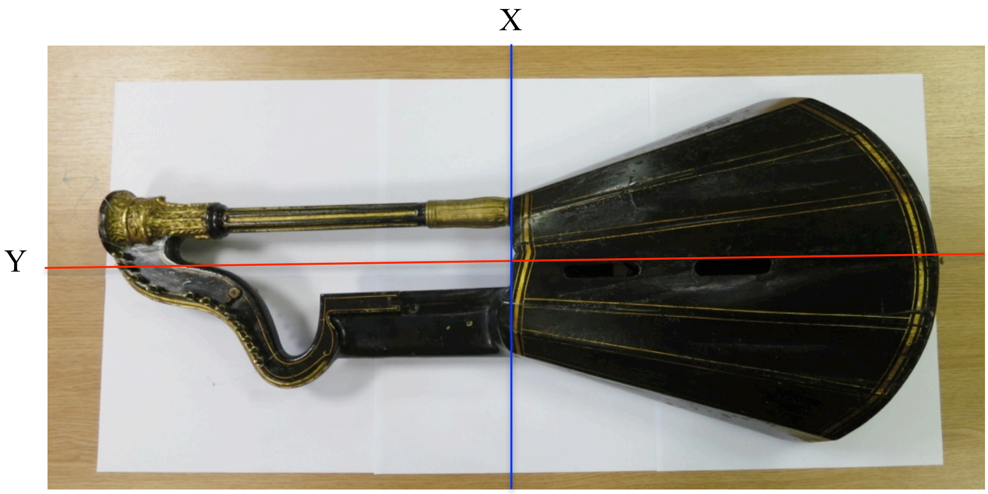


Fig 7.13: Placement of the instruments on sheets of A4 paper.

Fortunately, all the strings were able to be unfastened as all the tuning pins were still in working condition; the inside shape of the necks and the pillar were traceable. In relation to the placement of the instrument, making the instrument's surface parallel to the table was another important task. As an aged object that was made more than a hundred year ago, the shrinkage and expansion of the wood has changed the form of the instrument, while the extremely heavy tension of the strings has pulled the soundboard. Therefore, laying out the instrument exactly being in parallel to the surface of the table was impossible since the surface of the instrument was not completely flat. To compensate this, four fixed points, least affected by the changes, were assigned. These were the middle point of the heel, the bottom, and both sides of the widest point of the body. All these points were then adjusted so as to be more or less the same distance from the table, so that by connecting them, a suppositional surface was established and positioned parallel to the surface of the table (Fig 7.14).

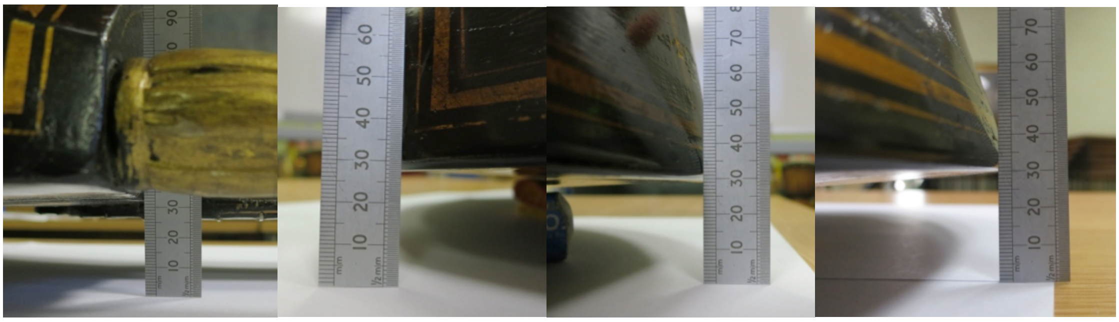


Fig 7.14: Placement of the instrument using a suppositional surface and positioning it parallel to the surface of the table. The assigned points for the suppositional surface from left: middle point of heel, left side of the widest point of the body, right side of the widest point of the body and centre point of the bottom of the instrument.

Once the placement of the instrument was properly prepared, outlines of the instrument were drawn on the papers using the pre-prepared set square. (Fig 7.15) Though they would be replaced by more accurately taken measurements afterwards, all the essential points, such as the ends of the fingerboard, joints of the necks etc., were noted as guidance or reference.

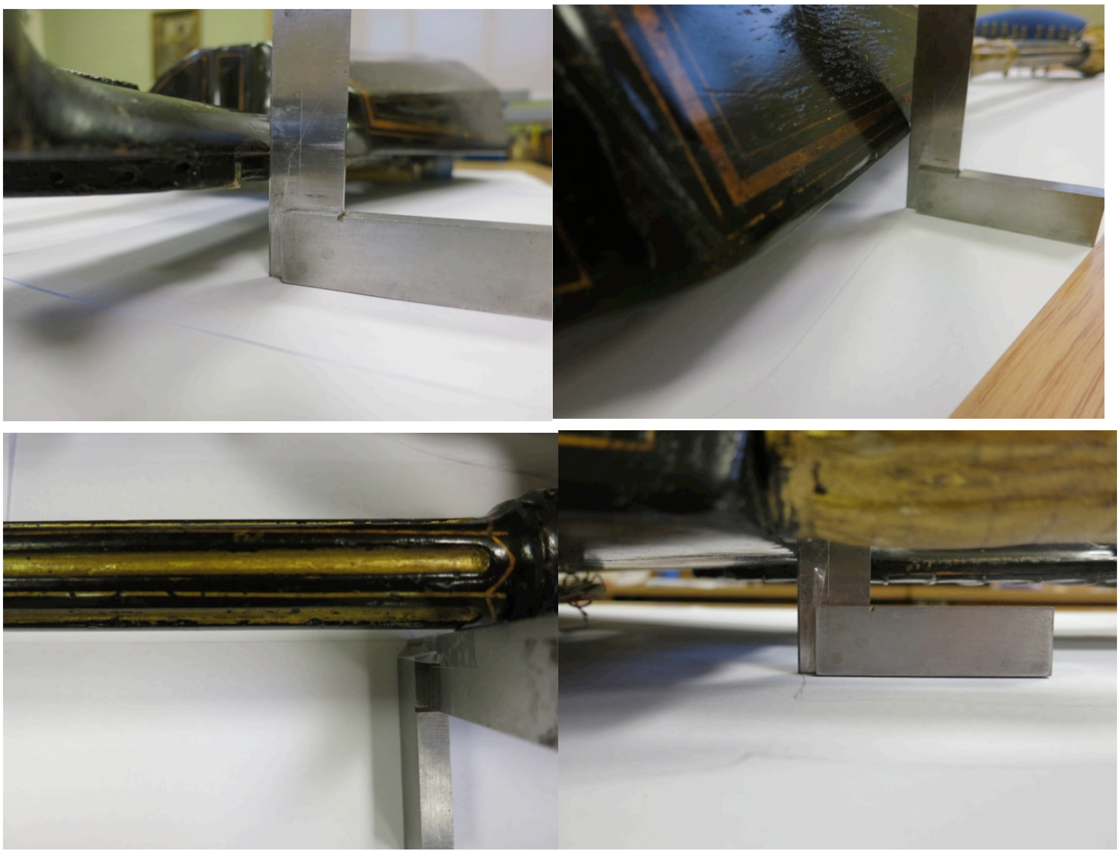


Fig 7.15: Tracing the outlines of the instruments in various places by using the pre-prepared square.

After all the lines were completely connected, the instrument was removed from the papers so that all the outlines of the instrument could be traced on the paper (Fig 7.16).

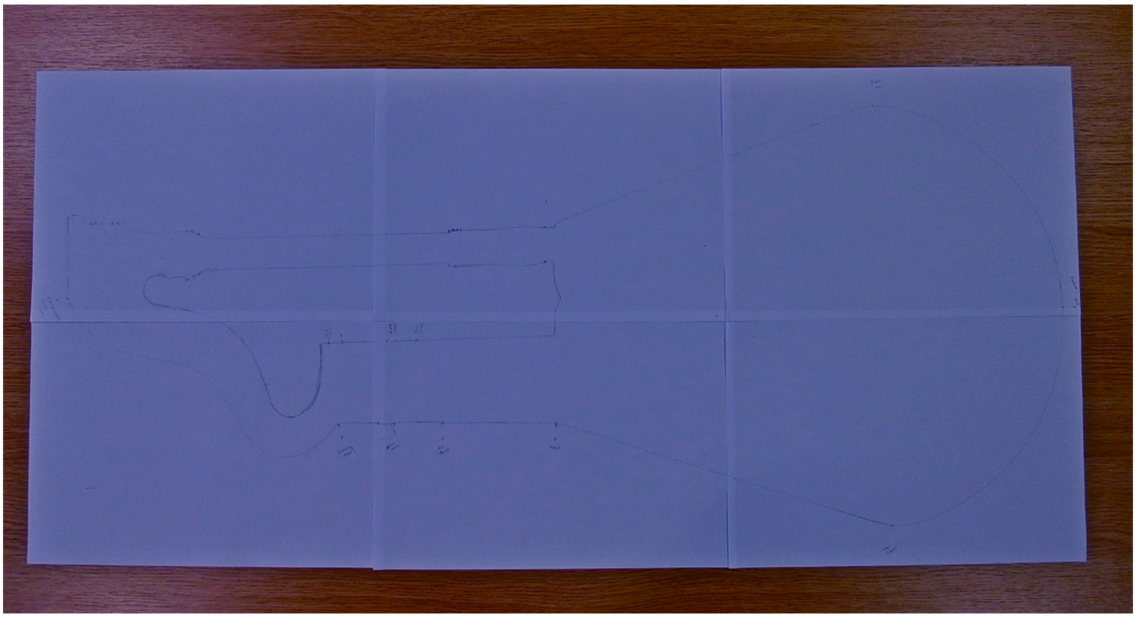


Fig 7.16: Completed outline of the instrument with some notes for the essential points.

The A4 papers were then separated and scanned into the computer one at a time, and subsequently the lines were retraced on the software by re-joining all the separated sheets, thus the traced outline of the instrument was completed digitally.

Additionally, it must be noted that although all the traced lines using this method were fairly precise, it does involve rough lines. For example, the pillar consisted of mounted ornamentations. Therefore, its measurements were later adjusted by adapting to more accurately taken ones. Moreover, in order to make the drawing as close to the original form as possible, any lines which have, in the author’s judgement, been changed over the past hundred years, should be adjusted on the software. For instance, by following the angle of the pillar from the traced line, the rough outline was compensated for by factoring in measurements taken from the instrument that avoided the mounted compositional decorations. Therefore, the plain pillar is closer to the original state before the decorative work shown on the technical drawing.

Another noteworthy point relating to the accuracy of the drawing is the bottom and side-view of the instrument. These parts were very original and complicated; as far as the author knows, none of the existing instruments have such a shape, so this was one of the most difficult parts in the tracing process, and perhaps a new attempt that allows to show a possible method of tracing the bottom view of the harp-lute for the future researchers. For the bottom view, similar to the tracing process of the outline of the instrument, the placement of the instrument had to be as accurate as possible. In this case, a table and the wall were used by placing them perpendicular to each other (Fig 7.17). On the wall, three sheets of A4 paper were attached in order to trace the bottom line of the instrument. Additionally, joined A4 sheets of paper longer than the whole length of the instrument were laid with a suppositional centre line on the paper.

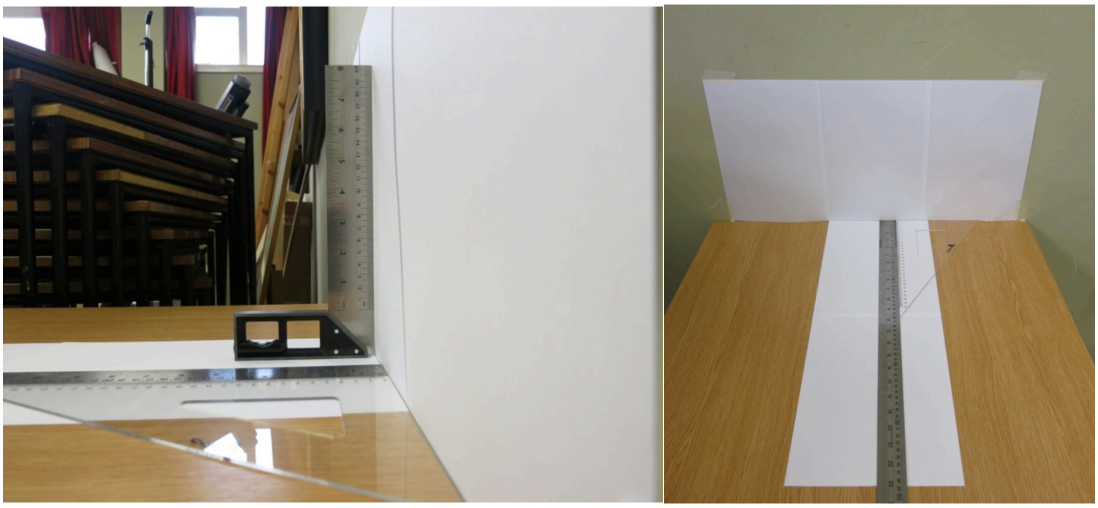


Fig 7.17: Placement of table and board; the board was placed perpendicular to the surface of the table as shown in the picture. A suppositional centre line was drawn on the papers placed on the table.

After this preparation, to ensure that the determined Y-axis of the instrument corresponds with the centre line on the sheets of paper, the instrument was placed accordingly (Fig 7.18):

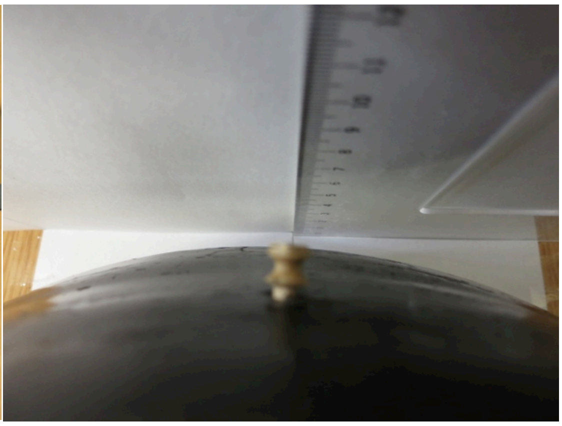



Fig 7.18: The Y-axis line on the instrument was matched to the suppositional centre line on the paper.

By using the same method as tracing an outline of the instrument, but replacing the set square with a slightly bigger size, the shape of the bottom view of the instrument was traced on the paper set on the wall (Fig 7.19).

Fig 7.19: The tracing process of the bottom view of the instrument using a slightly larger set square.

For the side-view, as in the process of the bottom view, the table and papers were prepared but this time arranged cross-wise so that the suppositional centre line would be parallel to the wall. As with the bottom view, the instrument was lined up with the suppositional centre line, which was this time indicated with masking tape[47] in order to save time and paper (Fig 7.20).

Fig 7.20: (left) line from the bottom to the suppositional centre marked with a piece masking tape to measure the distance from the wall. (right) the middle point of the heel was first marked with a piece of masking tape, then the position was lined up to the same distance as the bottom from the wall.

Once the instrument was placed at the right position, the lines of the side-view were traced by using the exact same method as for the bottom view but changing to the slightly longer set square because the distance from the wall to the middle of the heel was considerably greater (Fig 7.21).

[47] The masking tape was attached to show where the centre line of the instrument should be lined up by measuring the distance from the wall perpendicular to the surface of the table. This method to some extent surpassed the use of paper in that the suppositional centre line could be finely adjusted when placing the instrument. Had the line been drawn on the paper, it would not have been adjustable when placing the instrument.

Fig 7.21: Tracing process for the side view by using larger set square.

Afterwards, the side view was traced on the papers attached on the wall, including the bottom shape (Fig 7.22).

Fig 7.22: The traced line for the side-view including the bottom line of the instrument.

It is also worth mentioning how the shape of the bottom in open view was taken from the instrument, since it would play a very important part in the reproduction of soundbox. Although it will be explained in detail later, it was possible for the bottom to be a part of the mould. This made it vital that the open plan of the bottom should be made as accurate as possible. To achieve this, several attempts were conducted involving the use of tracing paper in sketching the outline or sketching the lines with a pencil, but none of them worked satisfactorily. Finally, after these failed attempts, the method that would solve the problem was found.

The solution was simply to use a transparent plastic case that had contained the A4 tracing paper. Cut in half, the plastic case covered the bottom, and the joining lines were traced with a pen (0.4mm core), with the centre point marked in order to set the traced line properly in the digital process (Fig 7.23).

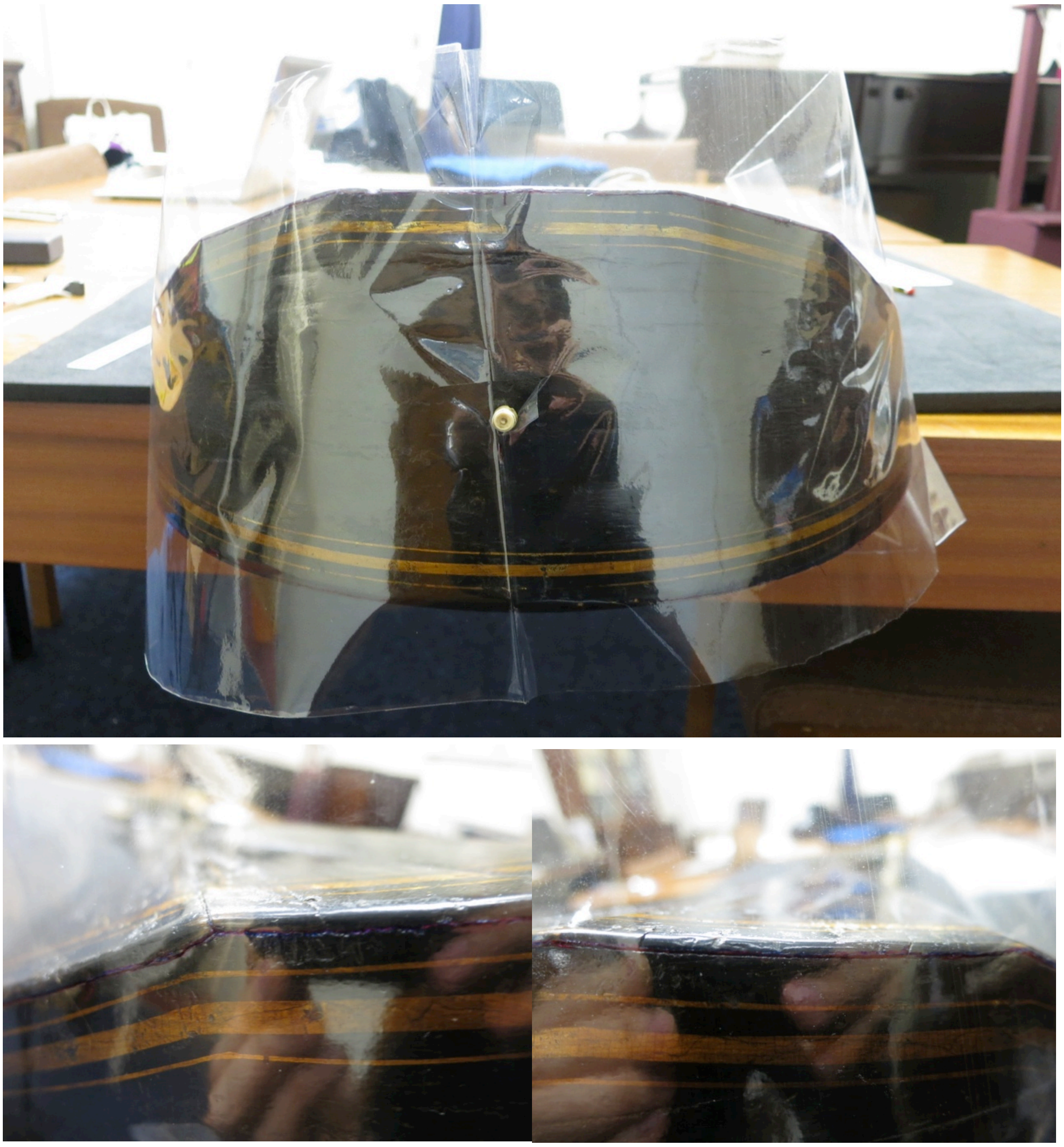


Fig 7.23:Tracing the bottom shape by using the plastic case for the A4 tracing paper.

Afterwards, the plastic case was removed from the instrument and laid on two sheets of A4 white paper so that it would be easier to see the lines. Subsequently, the traced lines were copied onto A4 tracing paper in order to be scanned onto the computer, thereby making it easier to line them up on the screen (Fig 7.24).

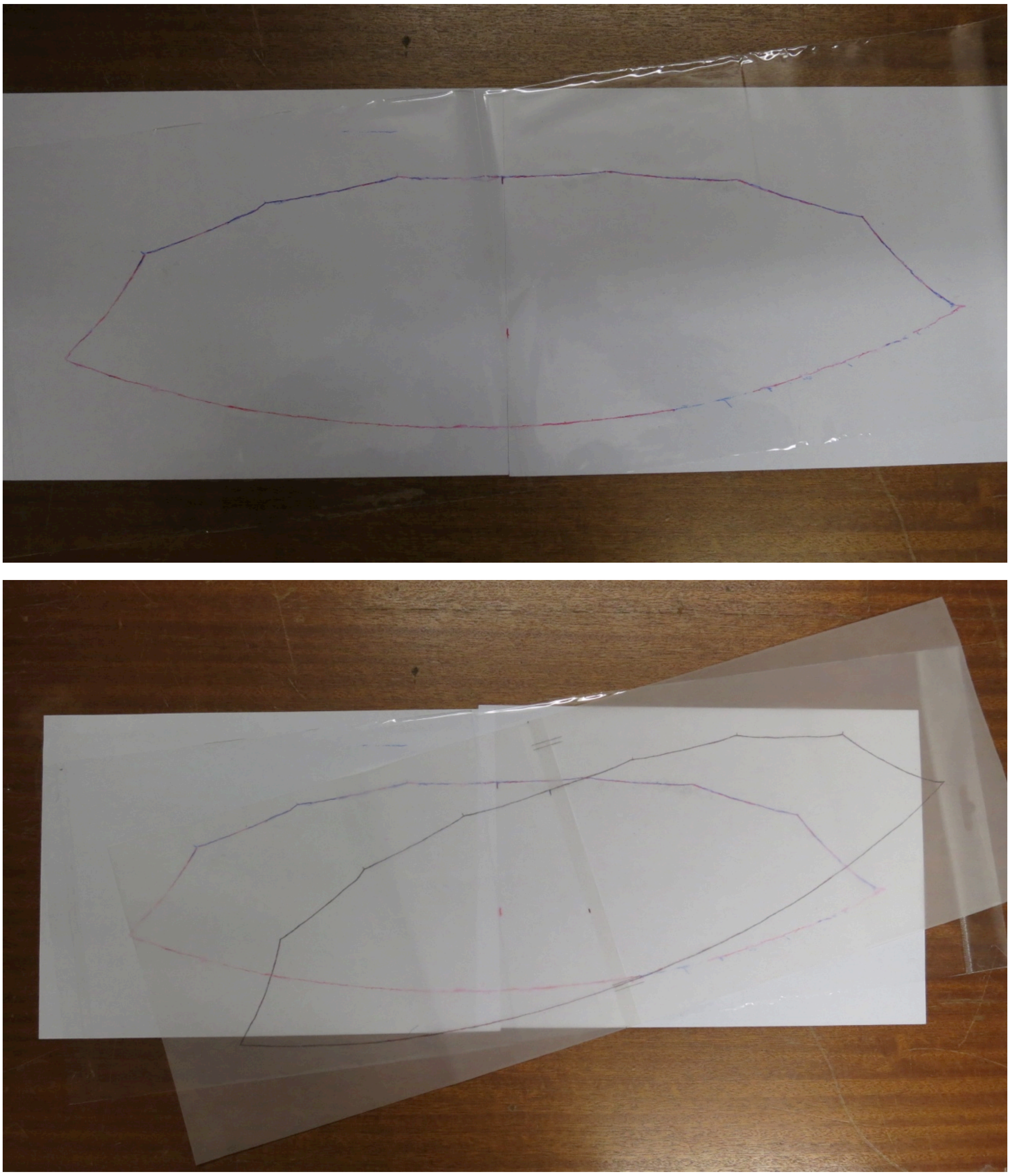


Fig 7.24: (above) open view of the traced line on the plastic case laid out on two sheets of A4 white paper. (bottom) the traced line was copied onto tracing paper to be scanned into the computer.

In relation to the form in open view, it was important that proper sizes of each stave were shown on the technical drawing. Because it was a technical drawing, plans of the soundbox viewed directly from above and from the side were drawn, but these would not show any of the practical measurements vital to reproducing the part. It is therefore essential to include an open view of the soundbox indicating each size, especially when aiming to reproduce the instrument. Although it was possible to show the sizes of each stave by measuring their sizes on the instrument and duplicating them on the screen, the method of taking an open view of the instrument was chosen. One reason for this is that the soundbox contained complex curves at the joint where staves meet the bottom piece. This cannot be copied simply by measuring the sizes; traces of the shapes were required. The method used this time involved the use of A4 tracing paper, stuck together to cover the whole soundbox (Fig 7.25).

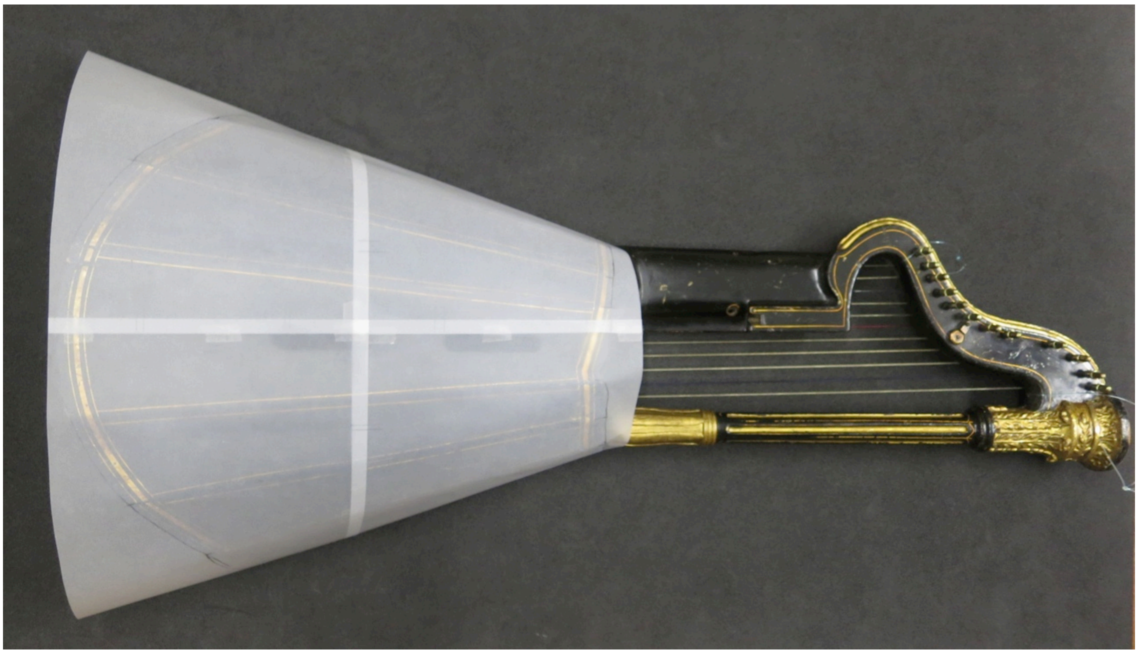
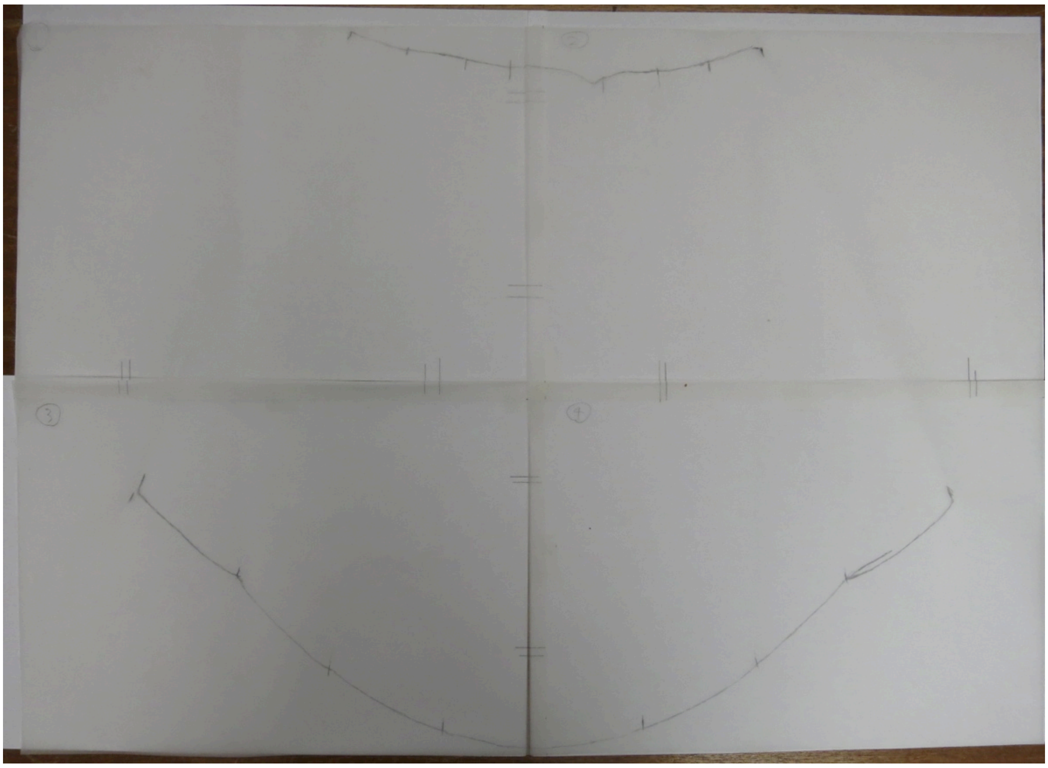


Fig 7.25: Tracing the soundbox with tracing papers.

As opposed to the tracing process of the bottom part, it was possible to see enough of the outlines. The shapes at bottom and heel were first drawn since the staves had been glued onto rather than under the bottom; there was no part that showed the joining lines on the staves. The tricky aspect of this method was tracing the joining lines between each stave. Considering the lines should have been originally straight, or were supposed to be so, each corner of the staves was marked in the process of tracing and later connected with a ruler (Fig 7.26).



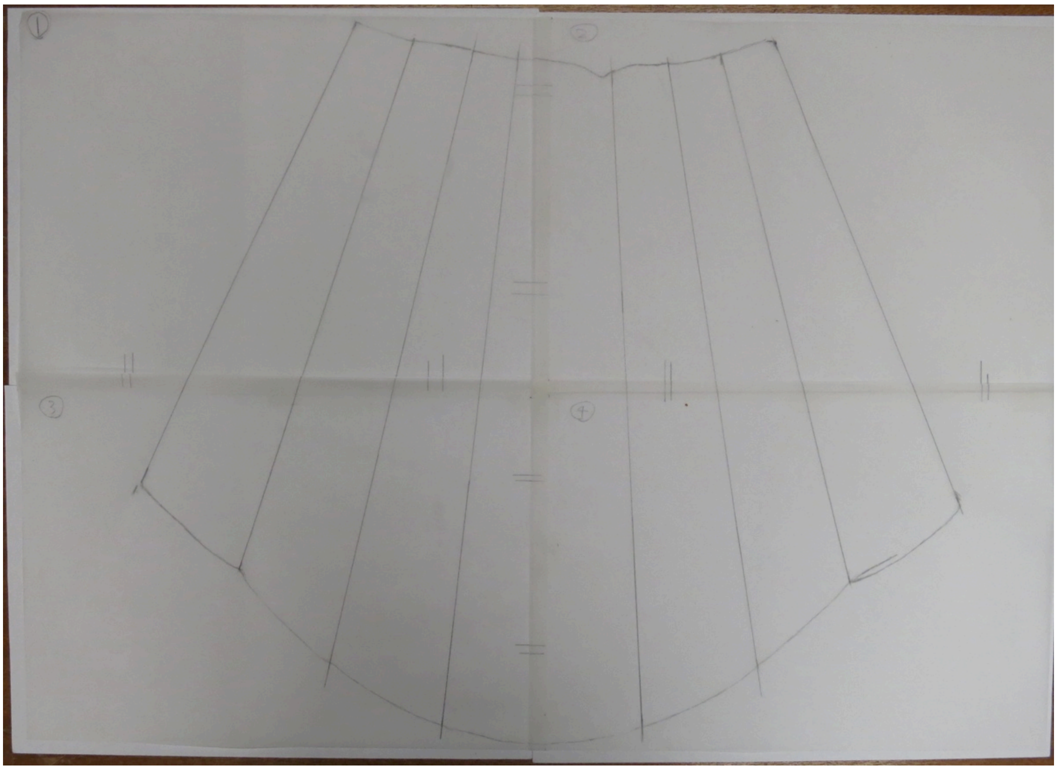


Fig 7.26: (above) just after the tracing paper was removed from the instrument, no joining lines had been drawn. (bottom) All suggested lines joining staves were added using a ruler.

The open view of the soundbox was not only useful for knowing the actual sizes of each stave but also to be able to measure their thicknesses more accurately. The thicknesses taken from the instruments were added afterwards to the open view of the soundbox on the computer screen. This was more accurate than adding them to the plan of the soundbox as viewed directly from above.

Finally, slices of the soundbox taken crosswise at different points were important or understanding the angles of the staves from bottom to heel. To trace the shapes as accurately as possible, a special tool[48] that duplicated the form was required. Unfortunately, such a tool was not be available from any shop, and therefore had to be made (Fig 7.27). The reason for making it was not only so as to trace the sliced shapes of the soundbox but also to reveal the exact points where all stave joins arrive at different positions, so the soundbox can be more precisely reproduced by following these points of reference for the position of each stave.

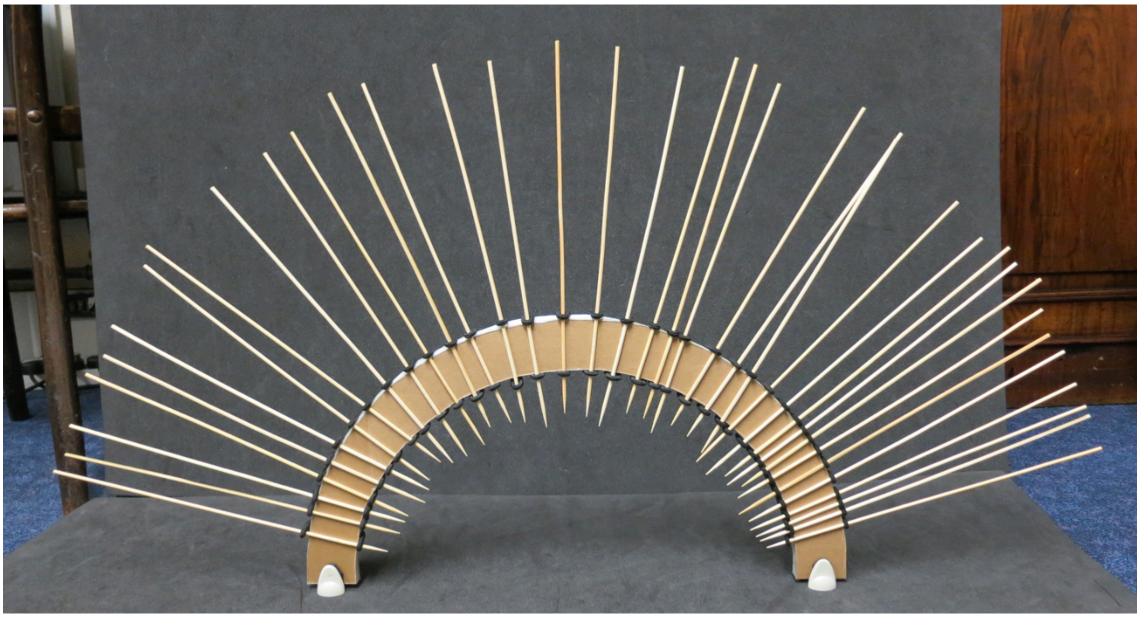


Fig 7.27: Self-made tool for tracing the shape of body crosswise and the sliced view and juncture points of staves.

[48] Thanks to Bouquet, who taught the author the importance of this tool for tracing the shape of the soundbox, as he had used it for the reproduction of conventional lutes with vaulted backs.

The tool was made of two layers of polystyrene board cut into an arch that covers enough of the highest part of the soundbox crosswise. Both surfaces were covered with cardboard so that the tool had enough rigidity, enabling it to resist the combined strength of the attached hairbands. To make it stiffer, and to create a smoother surface, slices of transparent tape were attached to it without covering each other so as to avoid a loss of flatness in the surface. For forming the shape of the soundbox, bamboo skewers, made for barbecues, were used by attaching them to the arch with hairbands[49] so that the skewers were movable on the arch and adjustable lengthwise by being pushed and pulled.

To obtain a slice of the body as accurately as possible, positioning of the instrument is very important; otherwise it is easy to end up with slanted slices. Even a millimetre difference makes for the wrong shape: the slice must be taken perpendicularly to the centre line of the instrument. As with tracing the instrument's shape, the instrument was laid down on a flat table on which joined up A4 size paper, enough to cover the instrument, had been prepared. The paper consisted of a centre line with cross lines drawn perpendicular to it, indicating the positions where the slices that had been measured from the bottom were going to be taken; the instrument was aligned with the centre line while being positioned parallel to the surface of the table (Fig 7.28).

[49] After the several attempts at using different elastic bands, hairbands provided the most useful action, involving smoothly moving the arch and also easy adjustment of the skewers' length.

Fig 7.28: The instrument is in position ready for taking the slices.

By using the tool the slices were taken with a great care to exactly aligning the tips of skewers to the lines drawn on the paper (Fig 7.29).

Fig 7.29: (left) the tips of skewers are aligned with the line drawn on the paper and (right) the slices are taken; all skewers are touching the body.

When taking the slice, the tip of some skewers should also touch each join between the staves so that they can duplicate their exact position in the digitalised plan. With masking tape attached to the tops of the skewers, the ones that mark the joints and centre of the body are easily recognised: the outer two skewers always marked the join between the stave and the soundboard (Fig 7.30).

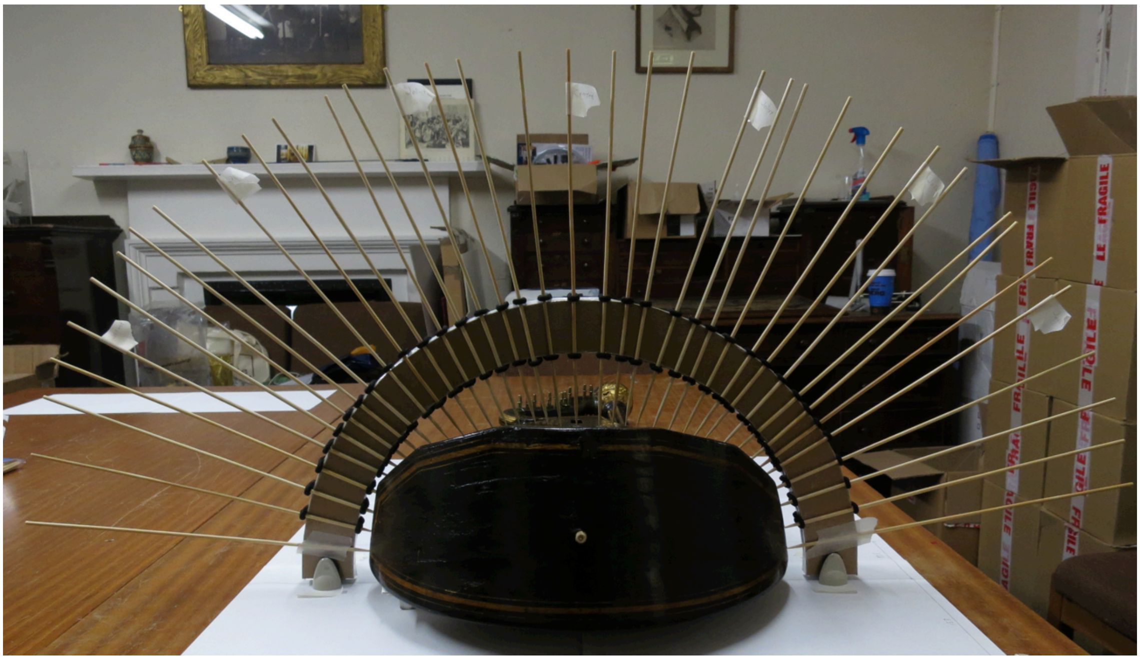


Fig 7.30: With masking tape, the position of the join between staves became visible, and the outer two skewers always mark the join between the stave and soundboard.

The sliced shape was traced onto the joined A4 sheets of paper; the tool was laid down onto paper to align the centre line and the joins between the staves and soundboard with the lines drawn on the paper; the tips of skewers were marked (Fig 7.31).

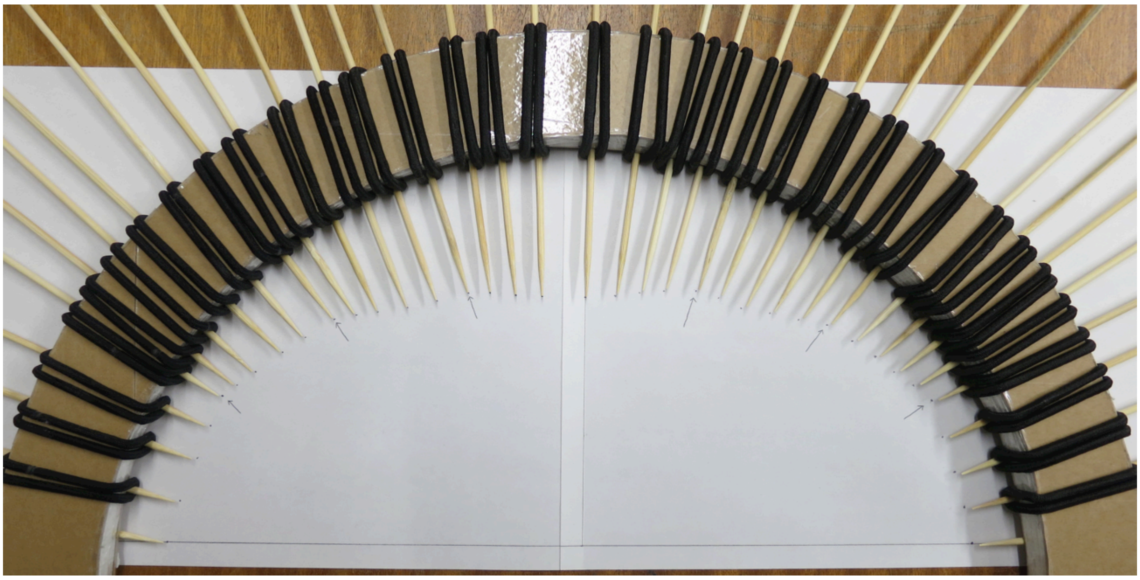


Fig 7.31: All the tips of skewers are marked on the paper to indicate the joins between the staves.

The A4 papers with the dots from the tips of skewers were scanned into the computer as parts of the digitalised technical drawing and the dots jointed together digitally. Repeating the same procedure in three different positions, including top of the heel and top of the body, the three body slices were made.

7.3.2 HYPOTHESIS

The harp lutes were exclusively manufactured and played in a certain time and place: the first half of the nineteenth century, in the London area. Moreover, though much new evidence on inventors and music for the instrument has been discovered through research, there is still a scarcity of information on makers and manufacturers; even some of their addresses are still uncertain. For these reasons, no inventory of harp lute makers, in which a list of workshop tools and machines is often described, or equipment concerning harp lute making such as moulds and templates, has been so far discovered. Additionally, as the instruments have long been ignored and never been revived since the mid-nineteenth century, it is highly likely that all the private documents belonging to the makers or manufacturers have been lost and can be found if only by luck or accident; unfortunately, in this research, none was found. Nevertheless, some connections between those engaged in harp lute making and harp manufacturers were found: Barry with Dodd and Erat, and Barry's stepfather Buchinger's description as harp maker in his publications, and Barry himself manufactured harps.[50]

As well as the connection with harp making, harp lutes were originally invented as a substitutable instrument to the harp. The reproduction project will, therefore, refer to the methods used in contemporary harp making. In order to do so, firstly some appropriate equipment for harp making is required: items most likely to have been used in Morley's workshop in London at the end of the nineteenth century. Morley was a harp manufacturer, who succeeded Erard's business. Therefore, it is possible that all the equipment used in the Morely's workshop had belonged to Erard. These items were recently donated to the RCM, and involve different sizes of mould, composition moulds, templates, workshop stamps, and negatives. From examining this surviving equipment, it is clear that to some extent they are of use as a reference for the reproduction of the harp-lute, albeit not entirely reliable.

For the construction of the harp-lute, the instrument mainly consisted of five parts: soundboard, soundbox, lower neck (including fingerboard), upper neck, and pillar. To present the process and to discuss the reproduction project more clearly and logically, only those aspects worth mentioning will be discussed, commencing from the unique part and avoiding any parts that can be reproduced using existing methods. In addition, in order to maintain clarity and consistency in this thesis, too much detailed explanation of parts that are not directly related to this thesis will be avoided, e.g. how to make a soundboard and lower neck.[51]

To begin with, as repeatedly mentioned, the unique part of the harp-lute is undoubtedly

[50] Please see Chapter 5 for more detail.
[51] Parts like the soundboard and lower neck can be made by adapting methods used in guitar making; there is no point in mentioning them in this thesis. This thesis is not a discussion or presentation of how to make instruments but uses instrumental reproduction to support the historical background of the instrument. Therefore, parts which are irrelevant to the economical making of the instrument will be excluded and eliminated.

the soundbox, which looks similar to that of the harp but is in fact not the same. Choosing the right method of making is important since the bottom curvature of the body is the most mysterious part in terms of how it was originally made. In contrast to contemporary design, in which a soundbox contained two outer staves curved into a smoothly rounded shape, Light's harp-lutes always consisted of seven flat staves, preferred by such harp makers as Cousineau and Naderman. The vaulted form of these multi-staves seems to have gone out of fashion at the time harp-lutes began being manufactured, and the design was probably the preference of harp enthusiast countries such as France at the end of the eighteenth century (Fig 7.32).

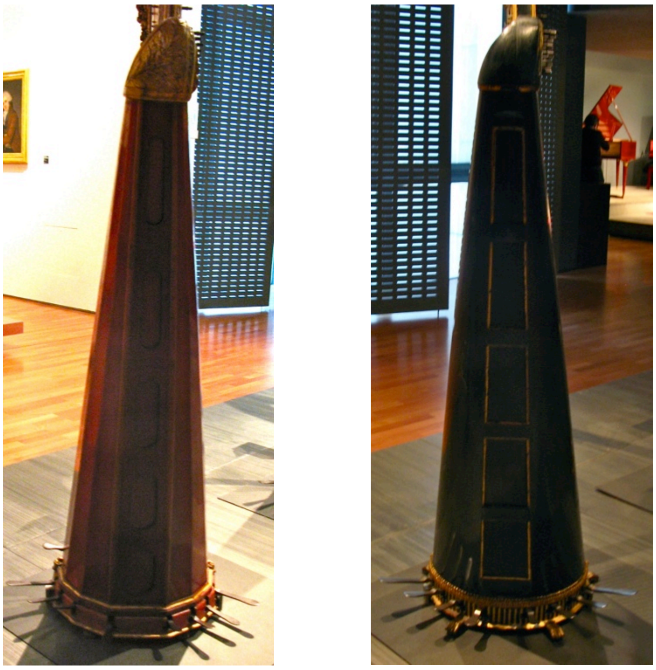


Fig 7.32: Two different types of soundbox: (left) eighteenth-century style, consisting of seven flat-staves, by Jean-Henri Naderman, Paris 1787, MMP [E.2002.13.3]; (right) nineteenth-century style, smoothly rounded, by Erard, Paris 1799, MMP [E.981.6.1].

Additionally, for certain models of harp lute, such as the harp-guitar and the dital-harp, the former style (a rounded soundbox) was applied, but somehow harp-lutes always used the latter style (flat staves). Although it is hitherto uncertain why Light applied the former style to the oldest and last two models, from the point of view of construction, the latter style seems somewhat easier to assemble.[52]

As is easily imaginable, the harp's large soundbox must have been made with a mould, otherwise it would be almost impossible or require highly skilled workmanship to bend the wood into such a smoothly curved shape or join several long staves. To support this hypothesis, six surviving harp moulds of different sizes in the RCM collection are presented; the lengths vary from 1435mm to 660mm (Fig 7.33).

Fig 7.33: Morley's moulds collection in different sizes. From left to right (in length): 1435mm (RCM 974), 1270mm (RCM972), 1245mm (RCM973), 1080mm (RCM971), 700mm (RCM969) and 660mm (RCM970).

It is instantly noticeable when all the moulds were compared in a line as shown in the picture that they were all for soundboxes in which the outer two staves were smoothly arched. This means, unfortunately, that none of them are entirely applicable to harp-lute making, which consisted of seven flat-staves for the soundbox.

However, if we are deciding whether to use an internal or external mould, these examples provide a certain solution in that their external moulds may be applicable to

[52] This is because the time-consuming process of bending the staves can be skipped.

harp-lute making for the soundbox. To support this method, a DVD[53] that recorded the reproduction of an eighteenth-century harp; it demonstrated the use of an external mould for the seven-staves soundbox. Interestingly, as with the Naderman harp in MMP [E.2002.13.3] (Fig 7.34), the bottom of the staves is slightly curved inwards; the harp-lute has the same style for the join at the bottom. In contrast, where the staves meet the heel they are almost flattened (Fig 7.35). In comparison to the harp, the inward curvature of each stave on the harp-lute is rather unequal, being wobbly as if they had been bent without using any supportive moulds.

Fig 7.34: Bottom of the harp's soundbox by Naderman, Paris 1787, MMP [E.2002.13.3]. All the staves are slightly curved inwards, and despite its age it survives in good condition without the staves being wobbly.

[53] Elizabeth Reta, *Eine Louis XVI-Harfe entsteht*, 30min, (2009).

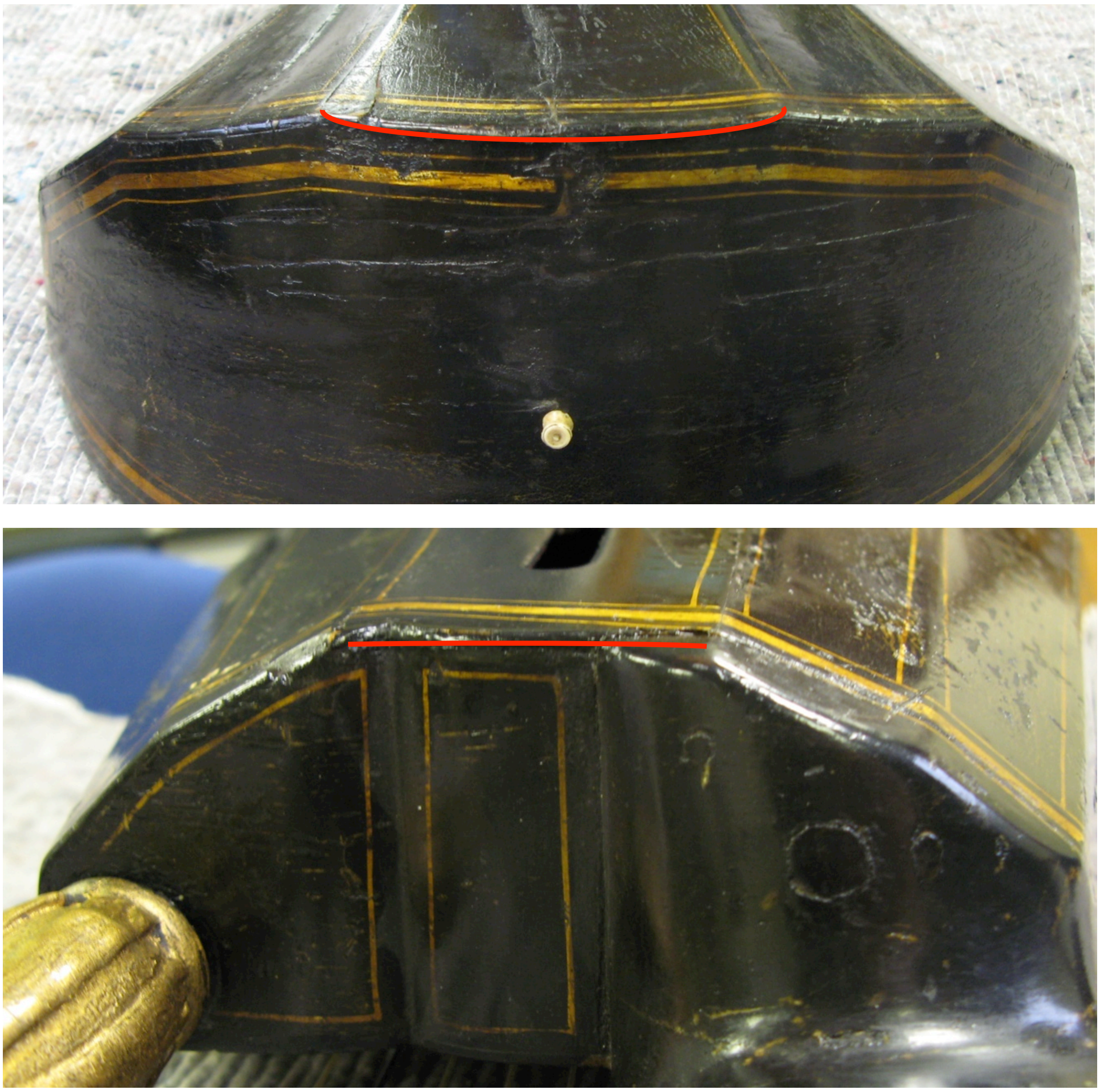


Fig 7.35: (above) the bottom view of the soundbox showing slight inward curvature on each stave. (bottom) the view at the heel in which all the staves are almost flattened.

At this point, in order to prevent further confusion, the argument should go back to the more fundamental question of whether a mould was used or not. The answer may be no, because if any of the proper mould like the ones shown in Morley's collection were used, the instrument, like the Narderman harp in MMP, would have survived with more stable staves. Alternatively, if it were manufactured in the mould, the open view of the bottom would be quite symmetrical, but in fact it is not. This was because the bottom was probably used as a substitute mould at first, and after the assembly process, wherein all the staves were allocated and glued to the bottom and the heel, the excessive parts of the bottom would have been trimmed off in order to complete the shape of soundbox (a more precise procedure will be shown in the reproduction process). There is merit to the suggestion that using the bottom as a part of the mould rather than cutting it into the final shape at the very beginning leaves more margin for later adjustments, i.e. there are fewer mistakes and these are compensated for.

If the bottom had been used as a mould it could prove to be the reason for the vaulted bottom. As shown in the process of tracing the bottom shape, in order to display the open view in the technical drawing, the bottom could be made using a sheet of thin wood.[54] The suggested process of making the bottom is that firstly a board cut in the shape of the body is prepared, and the angle of the bottom against the soundboard is determined. The angle is then duplicated at the bottom of the board and a thin piece of wood (sycamore) is bent according to the angle, and a shape provided on the board. The bent wood is temporarily attached to the board with a few drops of glue so that it stays in shape but can later easily be separated.[55] The most important point to mention at this stage is the increased stiffness of the bottom if it is made in such a manner. A thin piece of wood can be stronger when it simply bent like an arched bridge, but it will become even stronger if the wood has been bent in a corn shape with a wider bottom and thinner top, especially against any the vertical force at the top of the corn.[56] The stronger the construction, the closer the strength of the bent bottom will be to that of the proper moulds made from a plank of wood(s). Therefore, the bottom can function as a substitutable mould. With a plank of wood for the heel and the board in a body shape, theoretically a substitute mould for the harp-lute's soundbox can be made.

Given this hypothesis, if the proposed method worked properly it would suggest that no proper mould was used, which at the same time would have meant a reduction in

---

[54] A thin piece of flat plastic case and, though not indicated in this thesis, A4 tracing papers were successfully attached to the bottom without cutting the papers into a certain shape. For example, this is not applicable to the traditional lute which possesses the half-cut egg shape made of thin strips of wood curved lengthwise while each strip is bent inwards in order to expand the surface glued to the strips. To make such lutes, an internal mould, smoothly carved both length- and crosswise is required.

[55] More detail will be presented in the process of reproduction.

[56] It is easier to imagine this if we think of a construction such as the Eiffel Tower, which has a wider bottom that gets thinner towards the top so that physically the tower is able to stand as tall as it is. The shape of the harp-lute bottom consists of the same logic in that the wider bottom resists the strength or forces applied to the thinner top.

time-consuming work. One of the positive points of the method without the use of a proper mould is that form of the body can easily be changed at any time. For instance, if you want to enlarge the body size, simply alter the size of the heel and the bottom. This was probably an idea of the maker in order to adapt to the constant application of minor changes by the inventor, Light.

For the upper neck, being similar in form to the neck of the harp, the method used in harp making may be applicable. From Morley's collection, it is known that in the making of the harp neck, templates were used to determine the shape of the neck (Fig 7.36).

Fig 7.36: Different sizes of template for harp making, RCM (RCM965).

As shown in the picture, for the reproduction of the upper neck, a template will be used and, as with the harp, the position of the tuning pins will be marked as holes so that there will be no need for a measuring process to determine their position. Although the construction is not as complicated as the soundbox, there is a part which may call for subtlety: the manner of joining the upper and lower neck. The method for this was carried out only by harp-lute makers since no other kind requires it. In the author's opinion, it is a kind of mortise and tenon joint – a tenon on the lower neck and a mortise on the upper neck. This may be one of the time-consuming parts in the process of reproduction so it should be verified and discussed as to what extent it allowed for the economical construction harp-lutes.

Interestingly, two neck templates in Morley's collection bear pencil inscriptions indicating the year they were used (Fig 7.37).

Fig 7.37: Two neck templates indicating the year they were used.

According to the inscriptions, this suggests they were definitely used in the 1880s and that the other equipment in the collection may also come from around the same time, namely the end of the nineteenth century.

For the pillar, it should be mentioned that there is evidence suggesting an economical manner of making. As previously mentioned, at a certain point in the development of harp-lute, possibly around 1814, Light changed the design of the capital from the flat capital of Ionic style to the cylindrical Corinthian style. The instrument in the reproduction possesses the latter type, and additional wood was attached to make its capital cylindrical in shape. Despite the alteration in design, the fundamental construction did not change much. While only a minor change, it brought novelty in design and appearance to the instrument.

Close inspection of extant harp-lutes tells us that at least two different ways of joining the extra planks of wood to the capital were found. The difference between the two lay in the plank of wood attached to the opposite side of the upper neck: it would either be cut to the same width as the core of the pillar or extended to match the outer circumference of the circle (Fig 7.38). In fact, no matter what joint was used, the amount of extra pieces was still the same (a total of three), which means the cost of the instrument would have remained the same. Moreover, the method seems to have been chosen depending on the sizes of available offcuts. Such pieces were probably from mills, most likely the waste parts of proper harps manufactured in the same workshop. Reuse of wasted wood no doubt played an important role in cost-effectiveness.

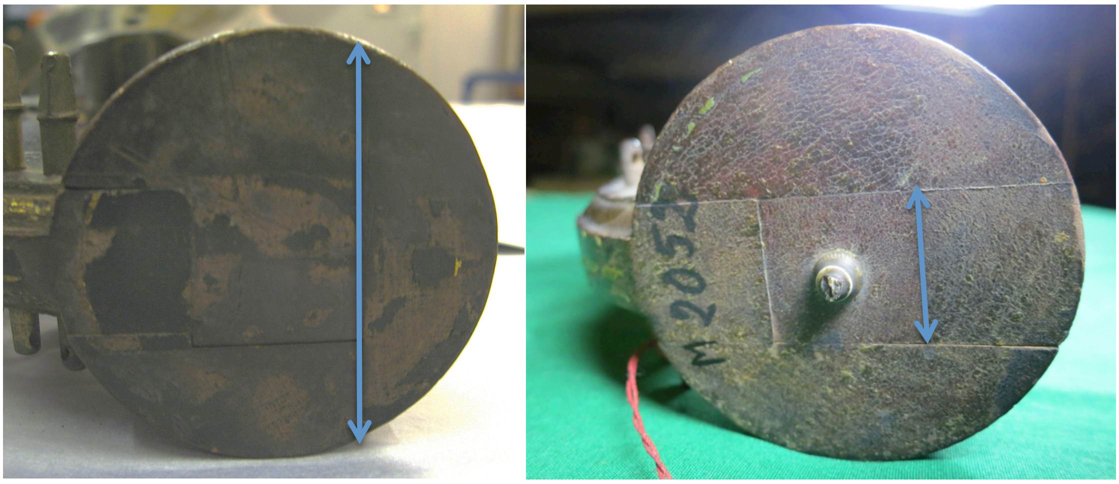


Fig 7.38: Two different ways of joining the extra plank of wood to the capital: (left) Top of pillar on harp-lute by Light, serial number 688, HML [3887]; (right) Top of pillar on harp-lute by Barry, MMS [M2052].

For the reproduction, the tools described in the Erard harp ledger, volume 1, RCM [RCM497] should be firstly referred to.[57] In this book an interesting tool is described: ‘to Wm Hayworth for a turning Lathes’ on page 49. Erard paid £10 for them; most likely the lathe was used for harp making. As well as harp making, it was used for harp lutes since both the harp and the harp-lute have a pillar that looks like it was made using the lathe, and harp-lutes were made by harp makers.

[57] Thanks to Jenny Nex, who kindly gave the author the digitally transcribed and compiled version of the ledger, from which the part describing the workshop tools was extracted.

7.4 SELECTION OF MATERIALS

Close examination of the harp-lute reveals that most parts are made of white hardwood, most likely British sycamore. As the whole instrument was painted black, the wood surface of the instrument is completely obscured, making it difficult to identify the wood.[58] In order to do this, the instrument was compared with other surviving instruments that had been examined by the author through his research in museums and private collections. Thanks to the variation in condition of the instruments – from almost broken to well-preserved ones – the divergence of parts where decorations have been ripped off make it much easier to identify the wood. The comparison revealed some unidentifiable wood, which interestingly, in most cases, seems to have been reused waste wood or wood obtained in a similar manner. Nevertheless, the harp-lute was chiefly made of sycamore, considering its price in England at the time;[59] it is unlikely that exotic wood from foreign countries, such as rosewood or ebony, would have been used. Any similarity in appearance to these types was usually achieved by painting.

Of course, there are exceptions. For example, the soundboard was made from coniferous wood, but wide-grained pine rather than fine-grained spruce. Additionally, the fingerboard consisted of two layers, with a dark coloured hardwood such as walnut sometimes being applied to the top layer. Following investigation, materials for the instrument were decided: spruce for the soundboard, walnut for the top layer of the fingerboard, and sycamore for the rest. For the lining, however, due to anticipated difficulty in bending, lime, usually used for guitar making, was chosen instead of pine.[60] The cutting list is in Table 7.1.

---

[58] Although the body wood can be identified through the rose and back holes, parts such as the neck cannot be identified as they have solid paint.

[59] It seems very unlikely that were from the Continent or North America, since there was no reason to buy taxed wood that would have been painted black anyway.

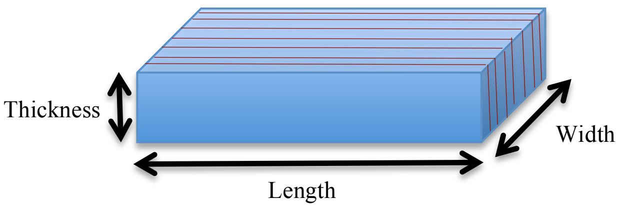
[60] This selection of alternative material is appropriate: firstly, the lining is partly irrelevant to the main arguments on economical construction of the instrument; secondly any materials that were in the workshop and suitable for any parts of instrument were used in those days, and lastly the instrument was being made in a limited time by the author, who was not a skilled or professional maker. For these reasons, lime was chosen for the lining.

Table 7.1: CUTTING LIST (2 SETS)

(HARP-LUTE, LIGHT, NO.648: MIMEd 854)

Measurements in brackets: (width x length x thickness).

All measurements are in millimetres.



	PARTS	QUANTITY	MATERIAL	MEASUREMENTS
1	Soundboard	x4 (=2sets)	Spruce	(200 x 460 x 5)
2	Bridge	x2 (=2sets)	Maple	(40 x 200 x 15)
	Bridge hold block	x6 (=2sets)	Maple	(10 x 20 x 10)
	Ivoroid	x2 (=2sets)		(2 x 18 x 2)
3	Rose	x4 slices (=2sets)	Parchment	ø [radius] 53
4	Soundboard bars	x8 (=2sets)	Pine	(10 x 370 x 15)
5	Centre stave	x2 (=2sets)	Maple	(140 x 400 x 6)
	Staves	x12 (=2sets)	Maple	(100 x 400 x 6)
6	Lining (staves)	x4 (=2sets)	Pine or similar	(20 x 350 x 10)
	Lining (bottom)	x2 (=2sets)	Pine or similar	(20 x 550 x 10)
7	Bottom	x2 (=2sets)	Maple	(160 x 550 x 6?)
	Bottom block	x2 (=2sets)	Pine	(20 x 120 x 20)
8	Neck block	x2 (=2sets)	Maple? Pine?	(80 x 200 x 25)
9	Fingerboard (neck: top)	x2 (=2sets)	Sycamore? Walnut?	(240 x 90 x 5)
	Fingerboard (neck: bottom)	x2 (=2sets)	Maple	(240 x 90 x 8)
10	Frets	x26 (=2sets)	Ivoroid	(8 x 80 x 11)

	Nut	x2 (=2sets)	Bone or ivory	(12 x 90 x 5)
	String guide	x2 (=2sets)	Maple	(15 x 90 x 10)
11	Neck (heel)	x2 (=2sets)	Maple	(90 x 35 x 60)
	Neck (lower)	x2 (=2sets)	Maple	(110 x 250 x 30)
	Neck (key box)	x2 (=2sets)	Maple	(30 x 90 x 10)
	Neck (upper)		Maple	(140 x 320 x 30)
12	Pillar (core)	x2 (=2sets)	Maple	(45 x 500 x 45)
	Pillar (capital 1)	x4 (=2sets)	Maple	(80 x 140 x 30)
	Pillar (capital 2)	x4 (=2sets)	Maple	(30 x 140 x 30)

Here are the two sets of wood purchased by the author (Fig 7.39).

Fig 7.39: Two sets of wood for the harp-lute reproduction.

Considering the risk of making mistakes in the process of reproduction, two sets for each part were ordered. Regarding the unusual form, most of the cutting parts were taken from planks that were unsuitable or an odd size for major stringed instruments such as violins and guitars. Materials such as ivory that are no longer available were replaced with similar or artificial materials (i.e. bone and ivoroid).

7.5 REPRODUCTION AND OUTCOMES

The reproduction project took about two months to reach the condition ready for painting and decoration. The reason for stopping at the stage is that the argument advanced by this thesis – simplified construction in order to achieve cost-effectiveness – does not include the process of ornamentation. Additionally, for reasons of consistency and clarity, only the relevant processes to the preliminary arguments given above and significant discoveries worthy of discussion are presented. Furthermore, to make it as authentic as possible, only animal or fish glue was used, except for parts where artificial material (ivoroid) needed to be used, namely the saddle on the bridge; in this case artificial glue was used.

7.5.1 BODY

Interestingly, though very much simplified in its construction, the soundboard, as with guitar soundboards (particularly the area around the bridge), is domed, perhaps for acoustic reasons in that the sound becomes richer. Due to the age of the original object and the high tensions of the strings,[61] the arch needed to be compensated for; this was done using the string action at the twelfth fret, lowering the height to a comfortably playable position then compensating for the difference with the arch of the bars, making it greater or shallower. In contemporary Spanish guitars, the action at the 7th or 12th fret seems much lower than in modern guitars - normally around 3 to 4 mm from the top of the fret to the bottom of the lowest bass string.[62] As both strings (harp-lute and the Spanish guitar strings) are made from gut, the original action of the harp-lute was probably similar to that of Spanish guitars, and therefore allowed for 3mm at the 12th fret (1.5mm-compensation on the bars).

In process of soundboard making, it was noticed that omitting the soundhole rosette (i.e. the ivory and ebony strips surrounding the soundhole) was efficient in terms of

---

[61] The arch of the harmonic bars set under the bridge area has been raised by the significant force of the strings (12 in total); consequently, the bottom two bars form a greater arch while the one under the upper part of soundboard has been forced rather flattened.
[62] Early Romantic Guitar.com, 'Components of the 19th century guitar', <http://www.earlyromanticguitar.com/erg/components.htm>, (Accessed Feb., 2014).

time-consumption, meaning a huge reduction in hours of work (Fig 7.40).

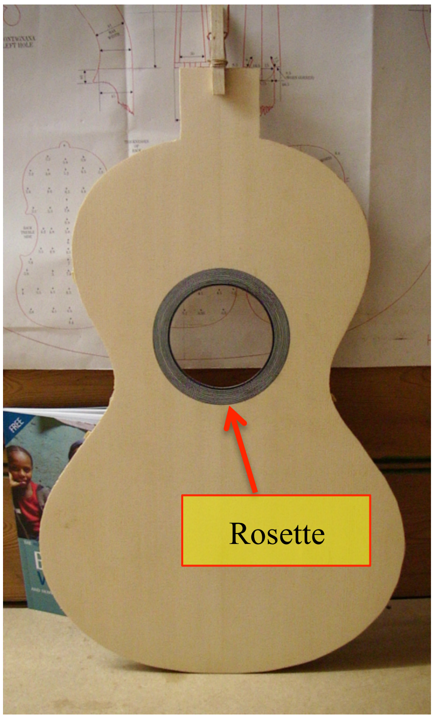


Fig 7.40: (left) Copy of French guitar by Grobert, c.1830s with rosette; (right) copy of harp-lute by Light without rosette.[63]

In relation to the simplification of the soundboard, the arrangement of harmonic bars on the harp-lute was rather plain, placed simply in parallel[64] (Fig 7.41).

[63] The copy of the Grobert soundboard was made by the author in 2004.
[64] Some later models such as the dital-harp have a more complex arrangement some slanted bars, but even this was not as complicated as that of French guitars.

Fig 7.41: Internal construction: (left) Copy of French guitar by Grobert, c. 1830 and (right) copy of harp-lute by Light.

In addition, the uneven thicknesses of the soundboard (around 2.8 to 3.5mm) seems, without measuring the thickness, to be the result of using cleaned, pre-cut wood bought from timber yards – this wood came in a standard size (i.e. 3mm thickness) and was used as it was (Fig 7.42). It was therefore much thicker than ordinary guitar soundboards (2.2 to 2.5mm).

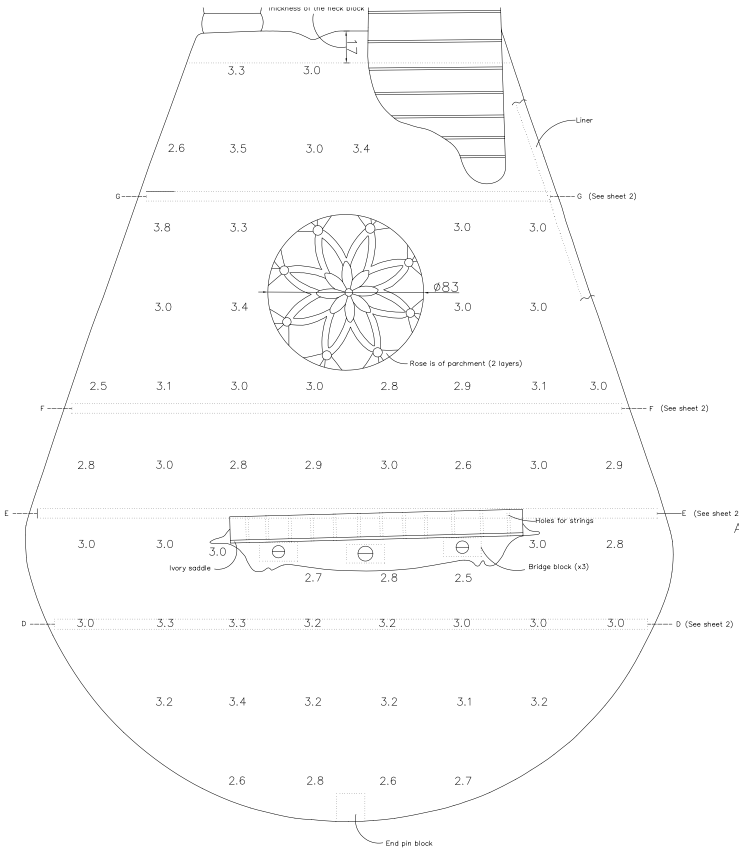


Fig 7.42: Uneven thickness of the soundboard probably the result of using cleaned, pre-cut wood bought from timber yards.

The soundbox construction is the most mysterious part of all, and the exact procedure the author used to reproduce it is presented in terms of how it achieved economies in construction by not using a proper mould. To begin with, as discussed, an MDF board,[65] shaped in the outline of the body and fitted internally,[66] with two cut-outs in the middle, was prepared: hereafter calls it ‘frame-board’ (Fig 7.43).

[65] The reason for choosing MDF board was firstly its ease of use and secondly that proper wood, such as scrap sycamore, was not available where the reproduction process took place.

[66] The same principle as an internal mould, eliminating the thickness of the staves and bottom to fit inside the body (it was smaller than the actual size of the body).

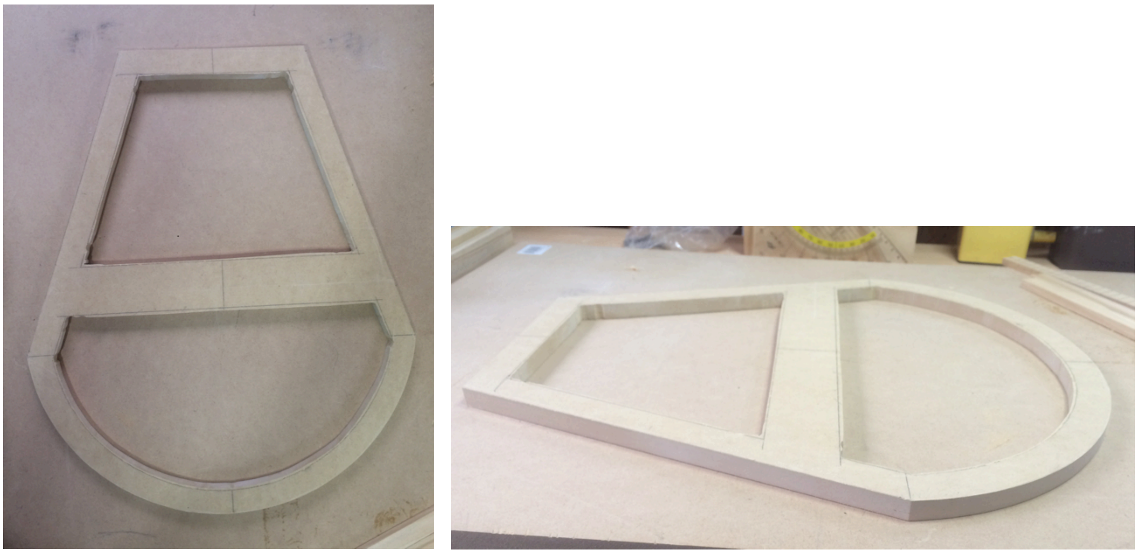


Fig 7.43: Frame-board made of MDF board.

Next, the bottom lining, consisting of slots for ease of bending, was attached to the bottom part of the frame-board using drops of animal glue, so that afterwards it would easily be removed by heat (Fig 7.44).

Fig 7.44: Bottom lining is placed at the bottom of the board.

Although this method did not work, two other linings for the outer staves were also attached to the frame-board. The bottom lining was carved at an angle equal to what the bottom board was supposed to be (Fig 7.45).

Fig 7.45: The bottom lining carved at angle as equal to what the bottom board was supposed to be.

A properly prepared bottom board (Fig 7.46)[67] was bent using the angled-bottom-lining as guidance, then glued to it (Fig 7.47).

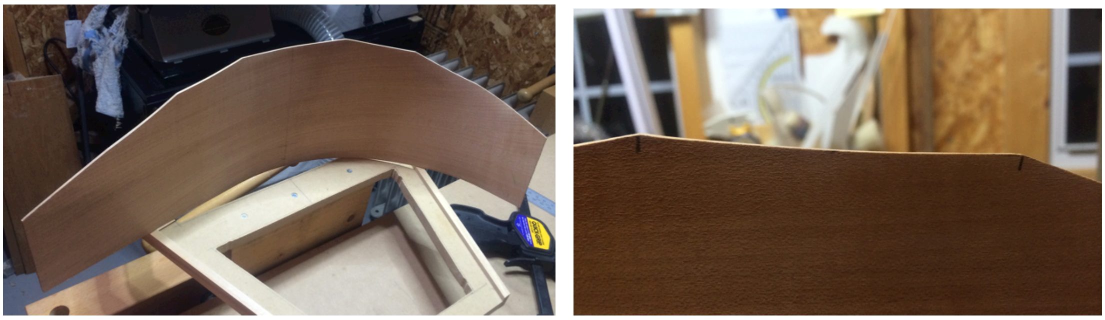


Fig 7.46: (left) prepared bottom board in the process of bending; (right) the part where the staves would be attached had already been carved to the required form and radius.

[67] Planed down to the required thickness and shaped according to the open plan of the bottom. Each part where the staves would be glued was scooped to the required form and depth.

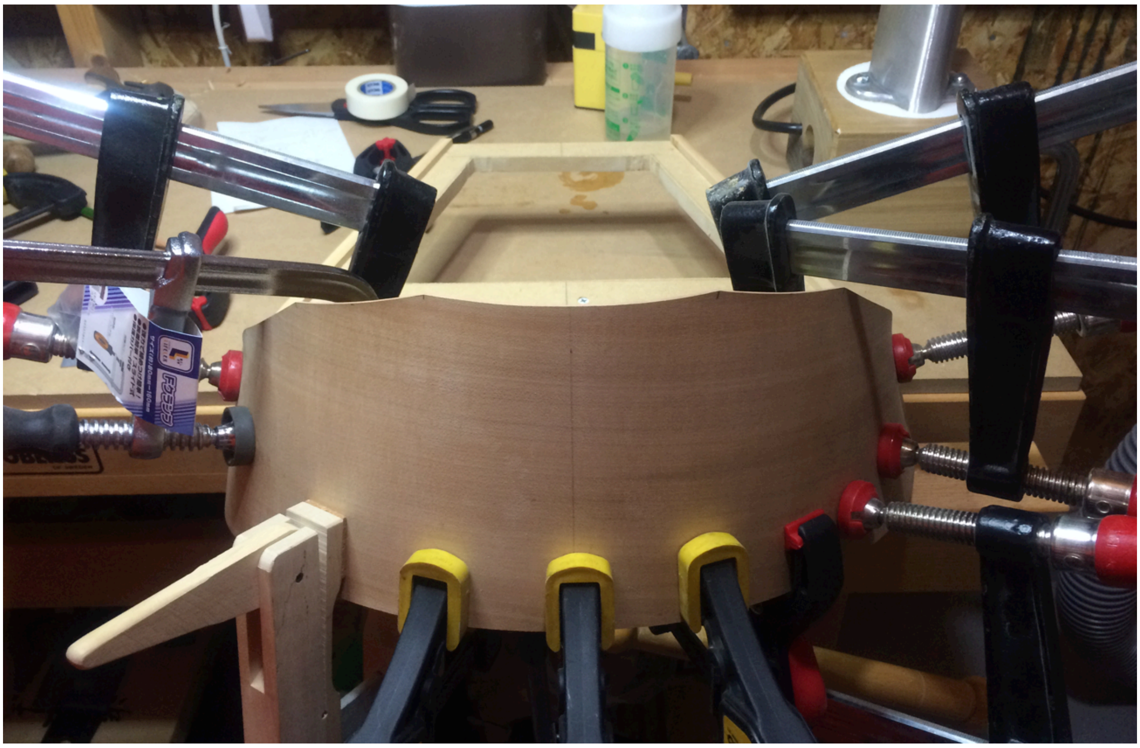


Fig 7.47: The bottom board is glued to the bottom lining.

The excessive parts sticking out towards the front (soundboard) were trimmed off (Fig 7.48).

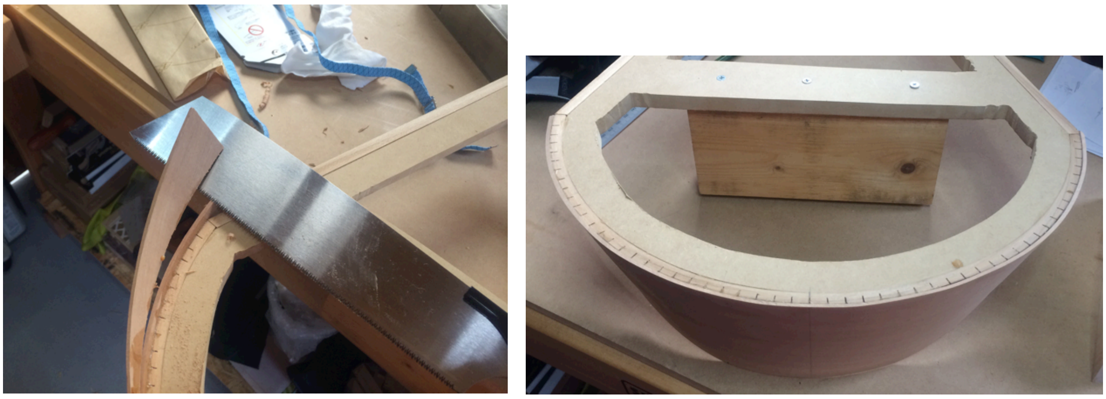


Fig 7.48: Excessive parts sticking out toward the front are trimmed off

As expected, the stiffness of the bottom board, being curved cross- and vertical-wise (corn shape), became rigid enough to stand as part of the substitute mould. With the heel block attached to the top of the frame-board using drops of animal glue, it functioned perfectly as an alternative mould for keeping the staves in place (Fig 7.49).

Fig 7.49: The completion of an alternative mould.

Before attaching the staves, a bottom block and short lining to join the staves to the bottom board were prepared and glued (Fig 7.50)

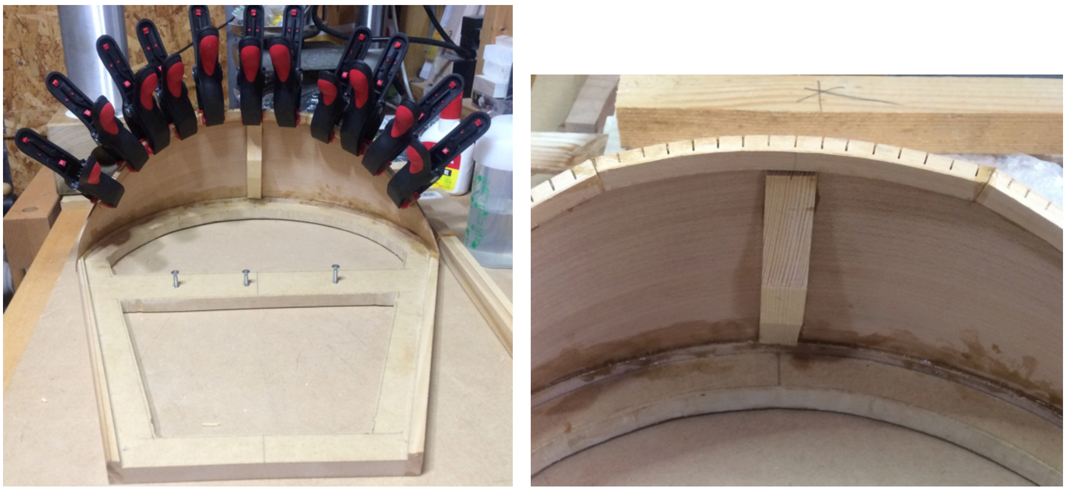


Fig 7.50: Bottom block and short lining for the staves being glued in position.

It was important to place the linings with the upper edge protruding from the bottom board[68] (Fig 7.51) and leave the linings for the outer two staves unattached – they

[68] Otherwise, there would be a gap in between the stave and the lining in relation to the physical issue between the angle from the bottom board to the heel block and already tapered bottom board. If the

would be added later.

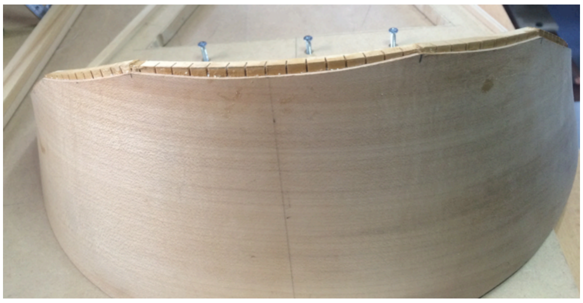



Fig 7.51: Upper edge of the lining must protrude from the edge of bottom board.

Then the substitute mould was ready for placement of the staves (Fig 7.52).

Fig 7.52: Ready to attach the staves.

The staves were then placed, with the widths adjusted; to fit each stave properly, the edges, where the staves met, were carved at a slight angle so that the staves were able to

bottom board was placed vertically to the frame board, the surface of the linings could be aligned with the edge of the bottom board.

stick firmly together (Fig 7.53).

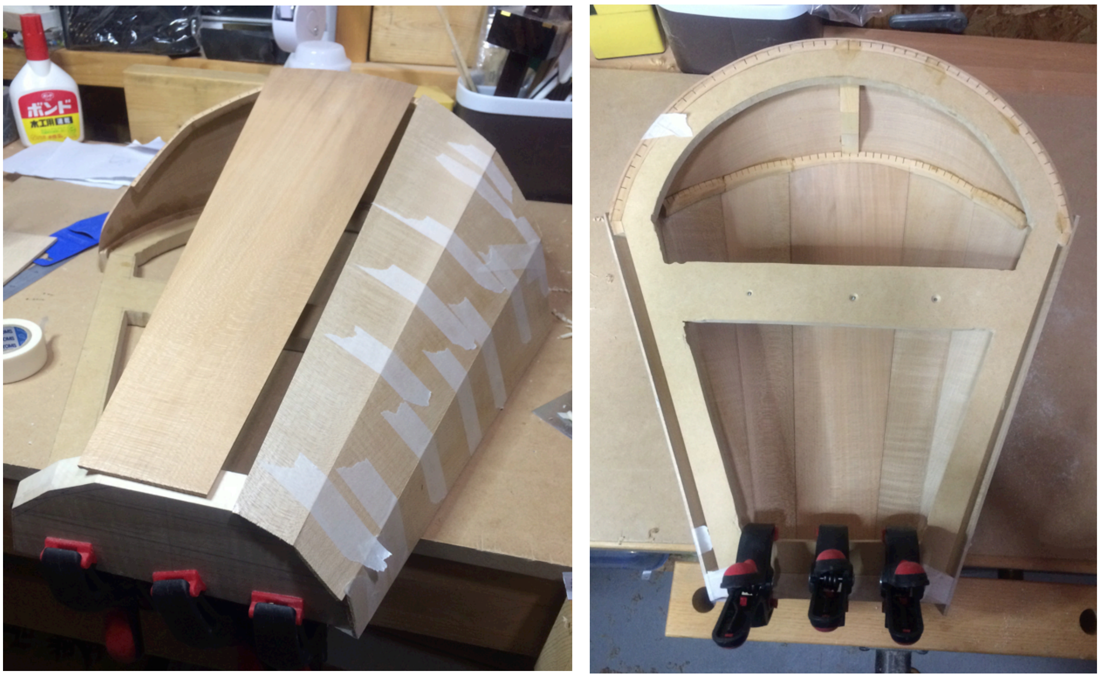


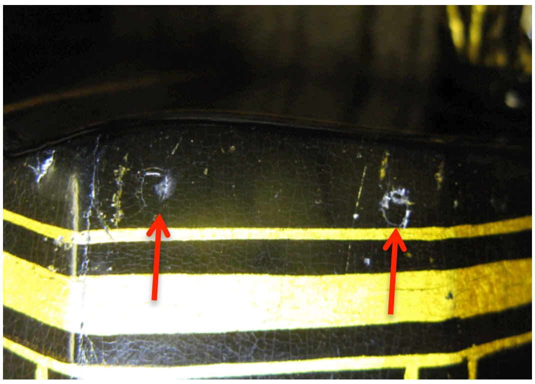
Fig 7.53: The staves are in place and ready for gluing.

Here, two things must be noted. First, the linings for the outer staves were removed because they prevented the placement of staves; by examining collected pictures of extant harp-lutes, it became clear that the outer staves of the original harp-lutes are usually twisted from the bottom board to the heel block. Second, masking tape was used for placing the staves, although this was only because it was a first attempt – it was important to avoid huge mistakes such as wasting all the staves. Nonetheless, the attempt revealed that, in the original procedure, the staves were probably placed with nails before gluing or might have been glued one by one while at the same time adjusting the width to fit them in; the centre stave was glued first, the one next to it was glued after adjustment, and the procedure was repeated until the last stave, in which nails were used to hold it in place.

In the reproduction project, the staves were glued from the outer ones towards the centre with nails holding them in place; strings were used to force the staves down to the heel block and the bottom board, and the centre stave was fixed with clamps (Fig 7.54).

Fig 7.54: The staves are glued using nails, strings and clamps.

Due to the paintwork, nail marks are usually hard to see in the extant harp-lutes but some show evidence of them (Fig 7.55).



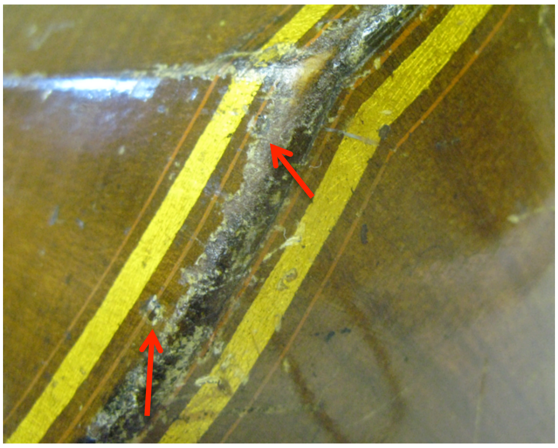


Fig 7.55: Nail marks on extant harp-lutes.[69]

[69] (left) MAT [A1520] and (right) MAT [A831].

An interesting discovery in the process of gluing the staves was made: the gap created at the joint between the staves was easily mended (closed) if an iron was used: the part was heated while being gently forced down (Fig 7.56). The gap proved the ineffectiveness of the masking tape, which, although only used in the placing process, did not hold the two staves together properly; the nails and strings were very important to this process.

Fig 7.56: Closing the gap created between the staves with an iron.

Strips of linen – a very economical material – were used to support the internal gluing of the staves (Fig 7.57).

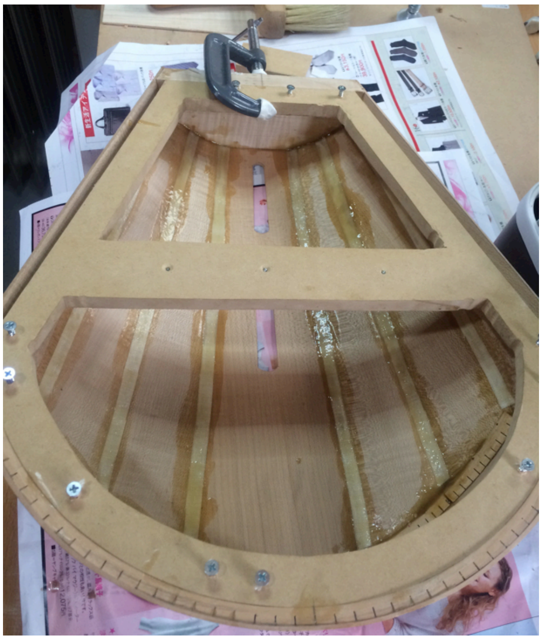
 

Fig 7.57: Strips of linen were used to help join the staves inside the body.

Linen was used by Light even for his first invention, the harp-guitar (Fig 7.58).

Fig 7.58: Linen used in the harp-guitar.[70]

[70] BCB [11.4].

The nails were removed after everything was set in place, and the holes were filled with wooden sticks (Fig 7.59); next, all excessive parts of staves protruding from the edges of the bottom board and the heel block were trimmed off.

Fig 7.59: Holes left by the nails were filled using wooden sticks.

After the frame-board was removed, the linings for the outer staves and the missing two linings for the bottom board joined to the outer staves were glued in place, whereupon the body was rigid enough to stand unsupported (Fig 7.60).

Fig 7.60: The frame-board was finally removed and rest of linings were glued.

It was here proved that the soundbox of the harp-lute could be made without using a proper mould: the only thing needed is a ‘frame-board’. This means that if thirty frame-boards were made, thirty soundboxes could theoretically be built at the same time – a very productive and economical method – thereby making the harp-lute a significant commercial success. Additionally, re-examining the pictures taken during the research on extant instruments, it is clear that the appearance of the bottom lining is slightly different from the originals: although, as with the originals, slots were created on the linings with their surfaces tapered according to the angle of bottom board. As a result, for the reproduction the slots were completely invisible while the original ones are visible on the inside (Fig 7.61). This probably means that the linings had very deep slots and were glued after the removal of the frame-board, at the same time as the other linings.[71]

[71] In this case, the bottom board was probably directly attached to the frame-board with drops of glue to provisionally hold it in place.

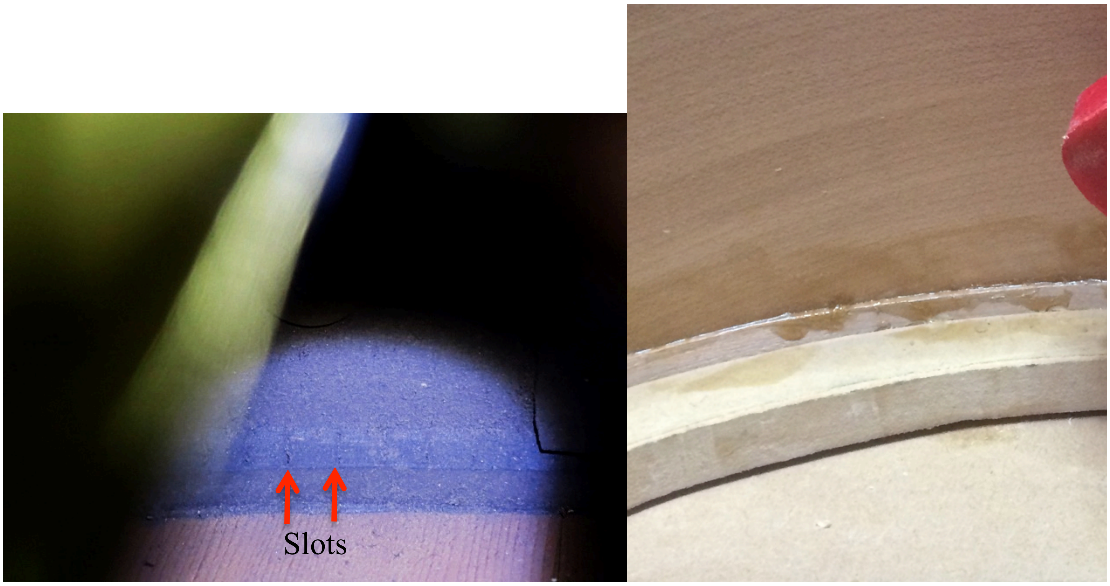


Fig 7.61: (left) Original bottom lining of harp-lute[72] and (left) reproduction; the slots are invisible.

Regardless of these minor differences, the prepared soundbox was then successfully glued to the soundbox (the bridge was fixed with screws) for completion of the body (Fig 7.62).

Fig 7.62: The soundboard is glued to the soundbox.[73]

[72] MOO [000248].

[73] Due to limited time and because it does not affect the argument, masking tape was used to hold them; in original procedure, they were probably tightened with strings using a sort of jig. However, this is just

7.5.2 NECKS

The technical drawing that copied the original instrument as accurately as possible reveals an interesting phenomenon. The upper neck and the pillar lean slightly forward, while the lower neck is not tilted. This tilt is due to string tension occurring after the instrument was made (Fig 7.63). It was built as intended by the maker, therefore the necks have been originally made in single plane.

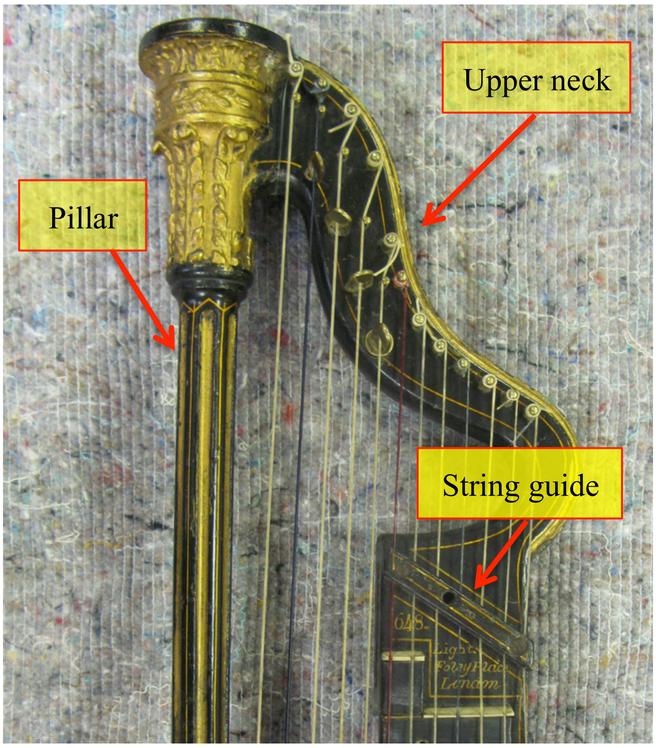


Fig 7.63: Pillar, upper neck, and string guide.

One specific part worth mentioning was the joint between the upper and lower neck, the mortise and tenon joint. Making it was easy work – the only thing required was basic skill at woodworking. Likewise, matching the mortise and the tenon took some time but did not require advanced skills (Fig 7.64).

---

an assumption, and another attempt may be needed to prove this method.

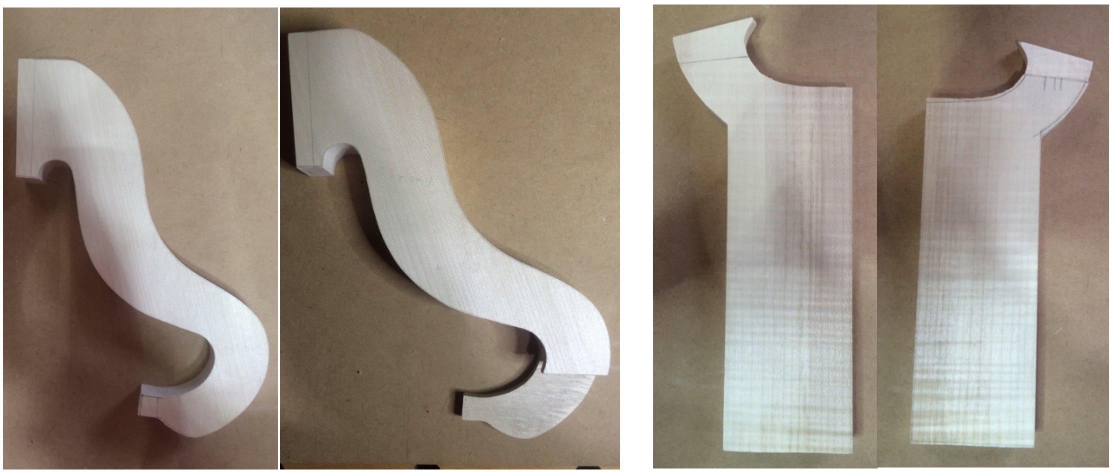


Fig 7.64: (left two) the upper neck and (right two) lower neck.

The most difficult part of the reproduction was grasping the principle of how the two necks were joined; the paint on the original instruments that hid the joins did not help in understanding this. Several inspections eventually revealed the most likely manner of joint, as did the method below (Fig 7.65).

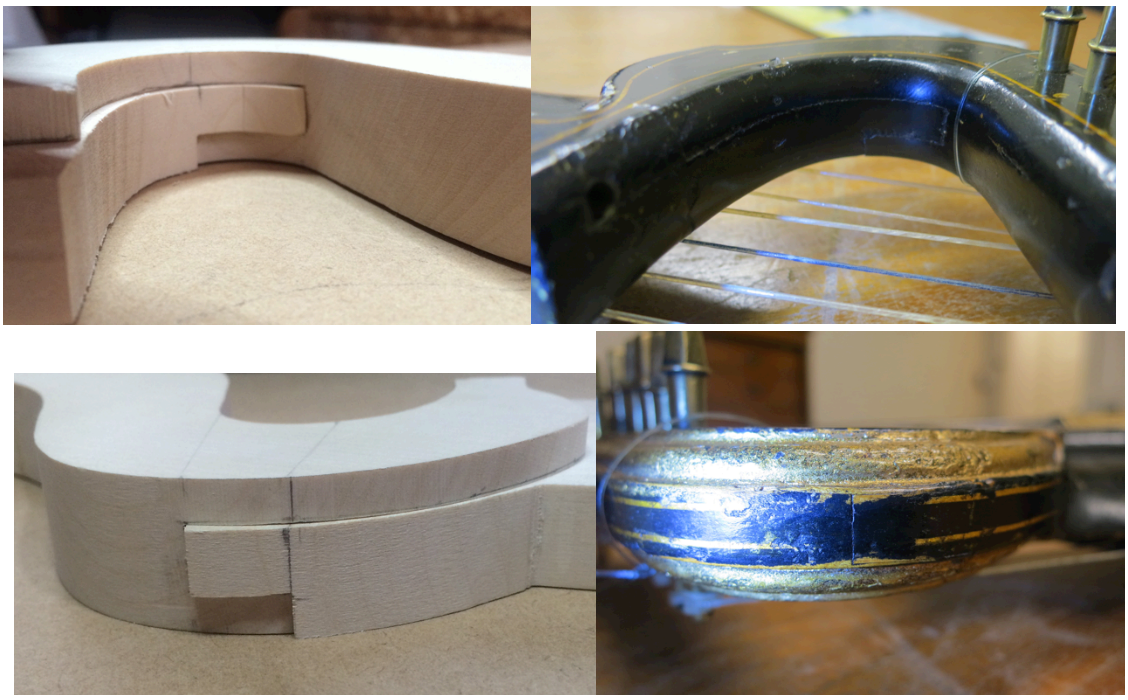


Fig 7.65: The joint between the upper and lower neck: (left) reproduction and (right) original.

However, further research on the extant instruments conducted after the reproduction project revealed another way of joining them, which was much easier and not the mortise and the tenon joint. The new discovery involved three parts: lower neck, top layer and bottom layer of the upper neck (Fig 7.66).

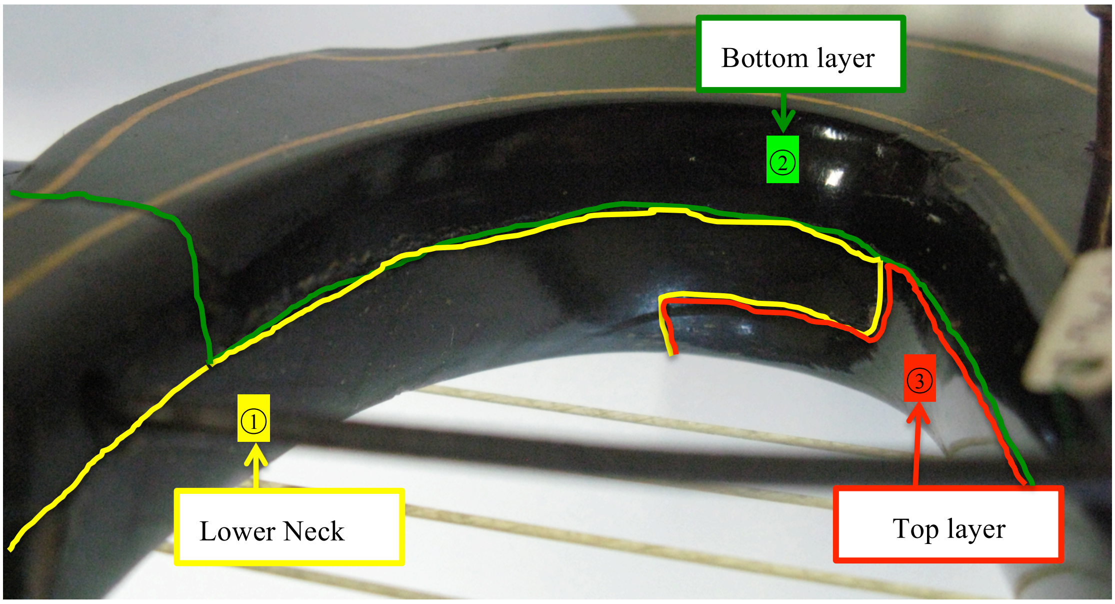


Fig 7.66: New method of joining the upper and the lower neck comprising three pieces: Lower Neck, Top and Bottom layer of upper neck.[74]

Although the method of making a mortise and tenon joint did not require a highly skilled technique in woodworking, the new method was much easier, as there was no need to carve a mortise on the upper neck; as a result, the joint could be completed in much less time. The procedure runs as follows: first, the Lower neck (①) and the top layer (③) were glued together with tip-surfaces overlapping; then the bottom layer (②) was put on top of it (Fig 7.67), so that the joint became like a mortise and tenon joint.

Fig 7.67: The new method applied to the reproduced necks – the red line divides the upper neck into two parts.

[74] MAT [A1520].

Moreover, the method is economical as it enables the maker to use smaller pieces that would not be applicable if the upper neck were made of a solid piece; the more the part consisted of multiple pieces of wood, the less the wood becomes usable. The outcomes of the reproduction show that, overall, and regardless of the method used, as long as the joint structure is fully understood and the template is prepared, the upper and lower neck can largely be built with average woodworking skills. The second method is, of course, much easier and more economical; it plays a major part in the simplified construction.

Another part discovered in the process of reproducing necks and worth noting is the beadings applied to the outer edges of the upper neck (Fig 7.68). This technique effectively conceals the joint lines; any small gaps created in the glueing process would be far less noticeable, and with paint utterly invisible.[75]

Fig 7.68: Beading on the edge of the upper neck.[76]

Such efficient carving seems to have been created with a special tool known as a 'beading (moulding) plane', a hand tool that has been used since the early eighteenth

[75] The beadings are only applied to the outer part of the upper neck, but they were aligned with the joint lines between the upper and lower neck, making them hard to see.
[76] MIMEd [854].

century for making picture frames.[77] Interestingly, this frame-maker's technique is seen on the upper neck corners of harp-lutes, and coincidentally all the gilding works were most likely made by those makers.[78] From this point of view, the beadings were possibly done by the frame makers when gilded ornamentations were applied.

Historically, earlier models of this tool were made of wood with iron blades,[79] and Salaman (1989: 338) mentions that 'Since about 1770 the size and shape of British Moulding Plane have been more or less standardised'. As a simple profile (ogee profile) and applied only to the outer-edges, the beading on the harp-lute was most likely carved by a standardised moulding plane with a typical profile pattern pre-set by the toolmaker. For these reasons, and to discuss the economical construction of the harp-lute, it was important to use a hand tool that was available in those days, or at least something on the same principle.

Veritas is a Canadian tool-making company that reproduces beading planes today (Fig 7.69) and, interestingly, state the following on their website 'In a world where everybody seems to have a router, why would anyone want a beading tool? The truth is that a beading tool can do many things that a router cannot; it can do them faster and it certainly can do them more quietly'.[80]

---

[77] One of the earliest British makers was Robert Wooding of Queen Street, Cheapside, London, 1704-1728. See Salaman (1989: 338-339).

[78] Please see Chapter 5.

[79] The sole of the Plane is shaped to the profile required, usually with a small fence at one side and a rebated step at the other which forms the depth stop. See Salaman (1989), p338.

[80] For more detail, please see their webpage 'New Invention-Old tools', <http://www.leevalley.com/US/shopping/TechInfo.aspx?p=42041>, (Accessed Feb., 2014).

Fig 7.69: Modern beading plane reproduced by Veritas.

As the account above claimed, such a moulding tool certainly reduced the time-consuming work, particularly in earlier days; without this tool, beading had to be carved using a knife and chisels requiring a high standard of craftsmanship – atypical of woodworking in industrial Britain.[81]

Though the form is not exactly the same as the authentic moulding plane, because it works on the same principle and was available in brand new condition, the Veritas tool was selected for the project. Additionally, the tool came with sets of rectangular blades for the user to create their own profiles, which the author made use of. Surprisingly, making the profile proved to be easy work, and only required files in a couple of shapes (round and square) (Fig 7.70).

[81] Tools related to beading tools existed from the middle-ages onwards. For example, Italian harpsichords from the sixteenth century were made with a scratch-stock, which was capable of such accuracy that we use mouldings to identify makers of instruments. The tool requires comparatively little skill to use (i.e. it would be a job for the apprentice).

Fig 7.70: The blade shaped in an original profile with files.

Though it needed some getting used to – a degree of special skill was required[82] – it was certainly useful and worked very well (Fig 7.71).

Fig 7.71: Beading carved by the beading plane.

Most of the beading on the upper neck was made with a beading (moulding) plane but

[82] Because the tool is a curved shape, careful inspection of the grain direction was vital, otherwise it could easily carve the edges wrongly.

the tool could not reach the corners where the pillar and the lower neck meet; such parts had to be carved using a knife and chisel, but this was only a little extra work. Thus, despite appearing initially to be a complex carving, it was made substantially simpler and faster with this tool, which also added a greater elegancy. This can be described as a hidden secret of success in balancing labour-saving methods with an attractive appearance.

As explained, the fingerboard was tapered, narrowing from the top to the bottom (Fig 7.72). This effectively eliminated the labour that would have been involved in the creation of an angle on the neck and heel joint. Additionally, the top layer of walnut (hardwood), being utterly flat, provided an extra strength and stiffness, an economical use of exotic material.

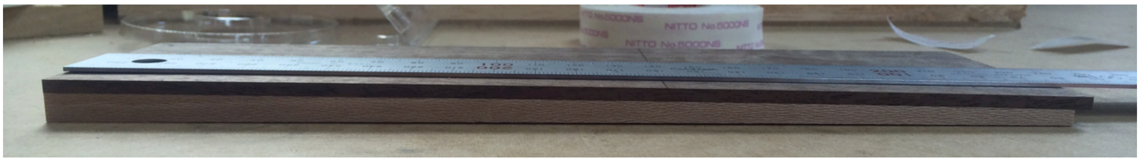
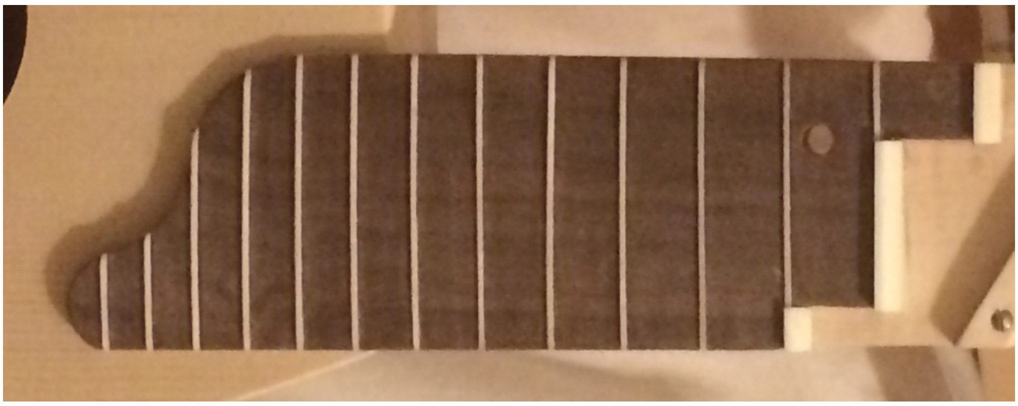


Fig 7.72: Tapered neck; becoming narrower from the top to the bottom.

Although the reproduced fingerboard was made authentically, following the construction process of the original instrument so that thirteen frets were installed (Fig 7.73), post-research revealed that the standardised harp-lutes, particularly those manufactured after the introduction of serial numbers, usually had much shorter fingerboards with nine frets.



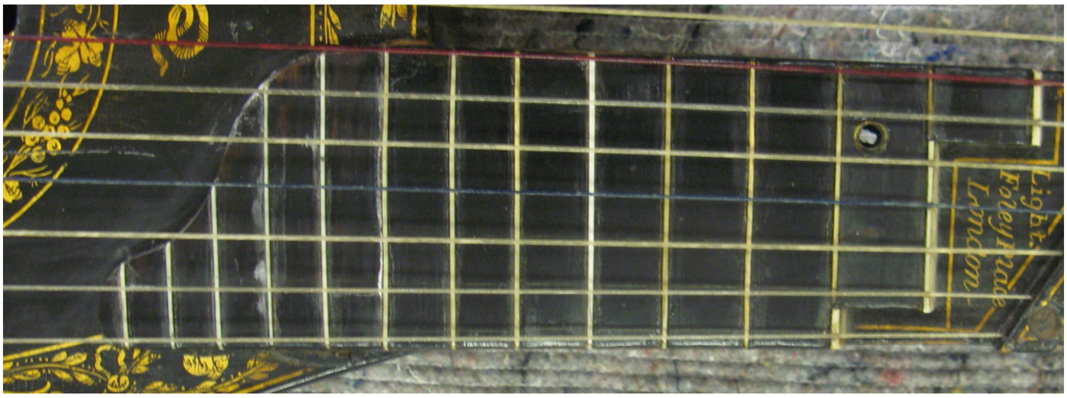


Fig 7.73: Authentic reproduction of fingerboard: (above) a reproduction and (bottom) an original.

This suggests two things: first, as the former generation of harp lutes, harp-lute-guitars, usually employed twelve frets with a longer fingerboard, the harp-lute gained success by using less material; second, the fingerboard on the original instrument was without doubt extended (Fig 7.74), and originally had a much shorter fingerboard with nine frets, making it a modified instrument.

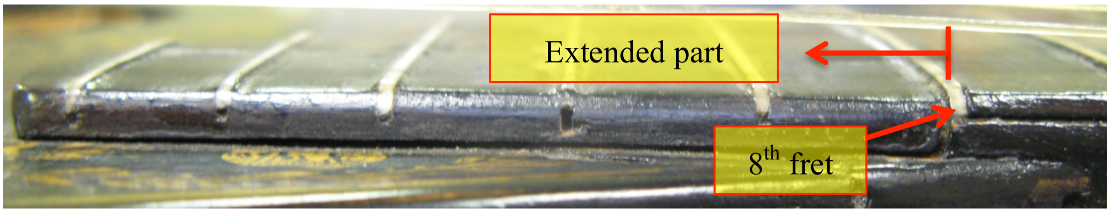


Fig 7.74: Modification of original fingerboard; from 8th fret.

Nonetheless, the shortened, two-layered fingerboard must have helped in the reduction of material cost and labour, and was therefore an economically made part.

7.5.3 PILLAR

As explained, there were at least two methods of adding extra wood to the capital, and the instrument used as a model for the reproduction project, despite the paintwork obscuring certain features, probably used the method where a piece attached opposite the upper neck was extended to the periphery of the circle (Fig 7.75). This was also the case with the copy.

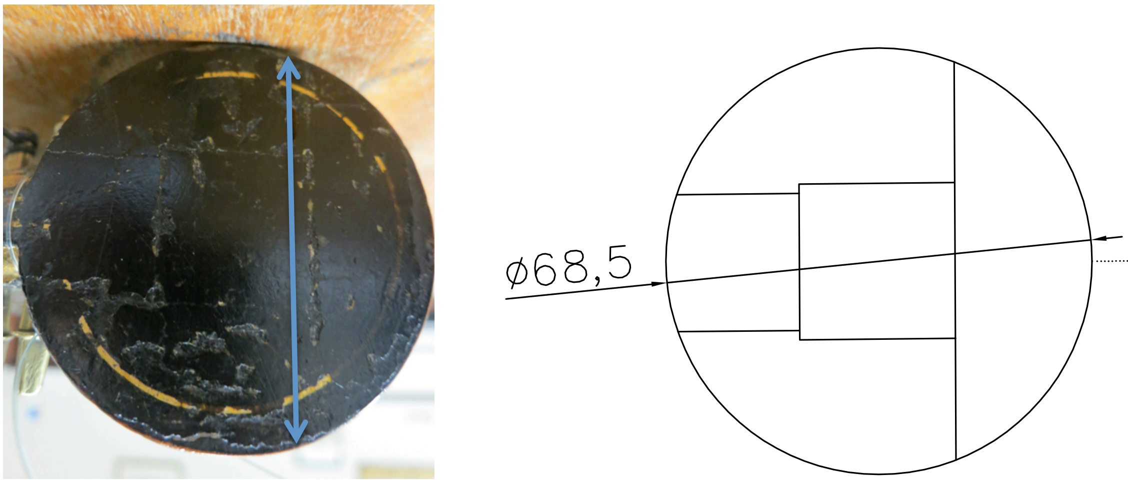


Fig 7.75: The top of the capital shows the manner of jointing for the extra wood.

Related to the aforementioned discussion, a lathe was used for the reproduction. This was the author's first ever experience working with it. Given these preliminary remarks, a more precise reproduction procedure is worth presenting so that the readers are able to have more in-depth comprehension of the construction.

For the preparation, the only materials needed to make a pillar for the harp-lute were two pieces of sycamore: one for the core and the other for the extra work on the capital (Fig 7.76).[83]

Fig 7.76: The two pieces of sycamore required for constructing the pillar.

[83] Such was the case with this reproduction project, but it does not mean that two pieces are always required; it can be made of three or four pieces as long as they are the right size for each part.

The prepared pieces were then cut and planed into the required sizes and forms (Fig 7.77).

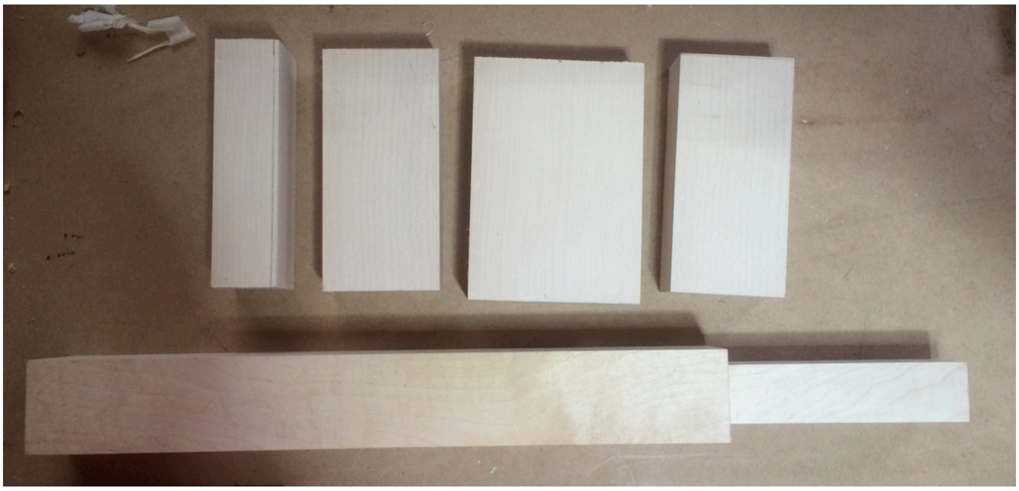


Fig 7.77: The prepared pieces were cut and planed into the required size and form.

Once exactly the right size and shape, each extra piece for the capital was glued, one at a time, to the core (Fig 7.78).

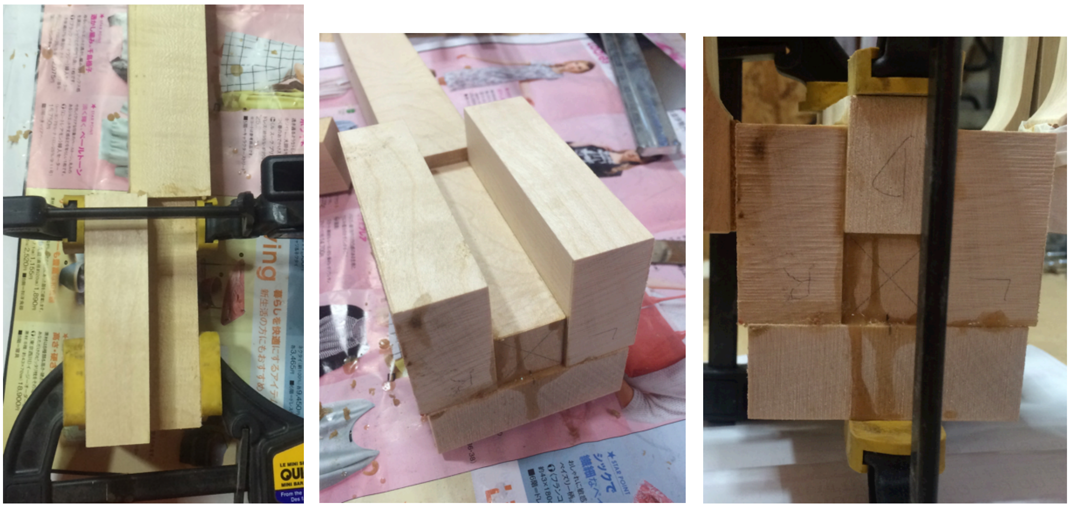


Fig 7.78: Each extra piece for the capital was glued, one at a time, to the core.

After the glue had dried, the basic shape of the pillar was completed and ready for turning (Fig 7.79). The advantage in turning is that as long as the centre point of the core is determined, the outer corners do not need to be perfectly squared, as they can be trimmed off by the lathe anyway.

Fig 7.79: The basic form of the pillar, ready for turning.

After a thirty-minute practice with a piece of scrap wood – the author only had learned the basic principles of a lathe and how to use the roughing gouge – the prepared pillar was set in the lathe and began turning (Fig 7.80).

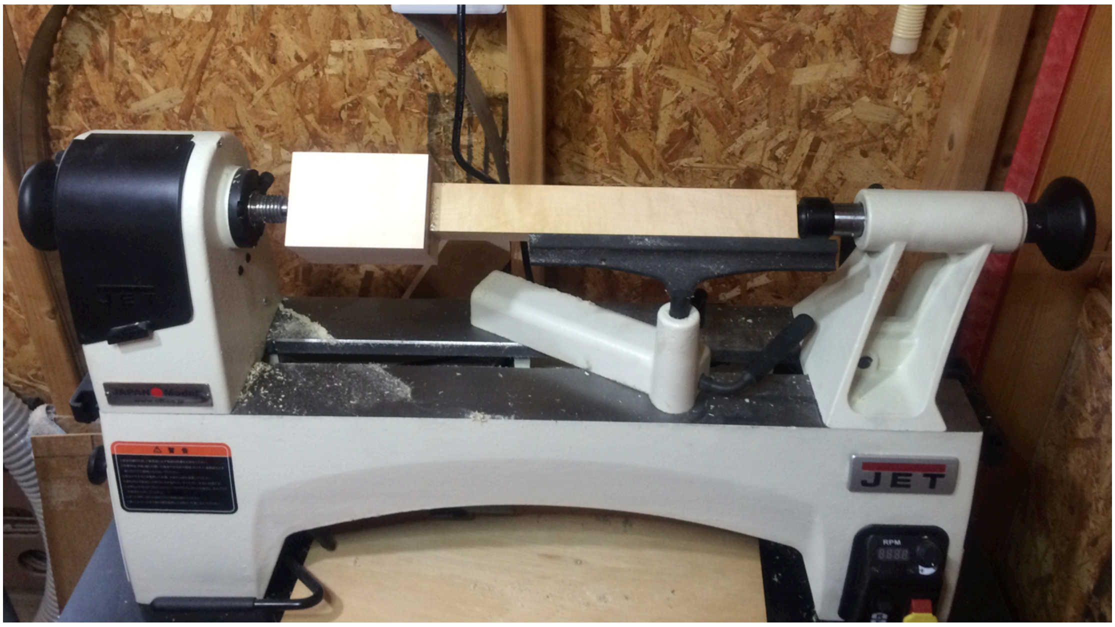


Fig 7.80: The prepared pillar is set in the lathe.

Once carved into a rough shape using the roughing gauge and smoothed out with a spindle gauge, the positions for the shoulders and beads were marked with a self-made template, and the pillar continued to be turned (Fig 7.81).

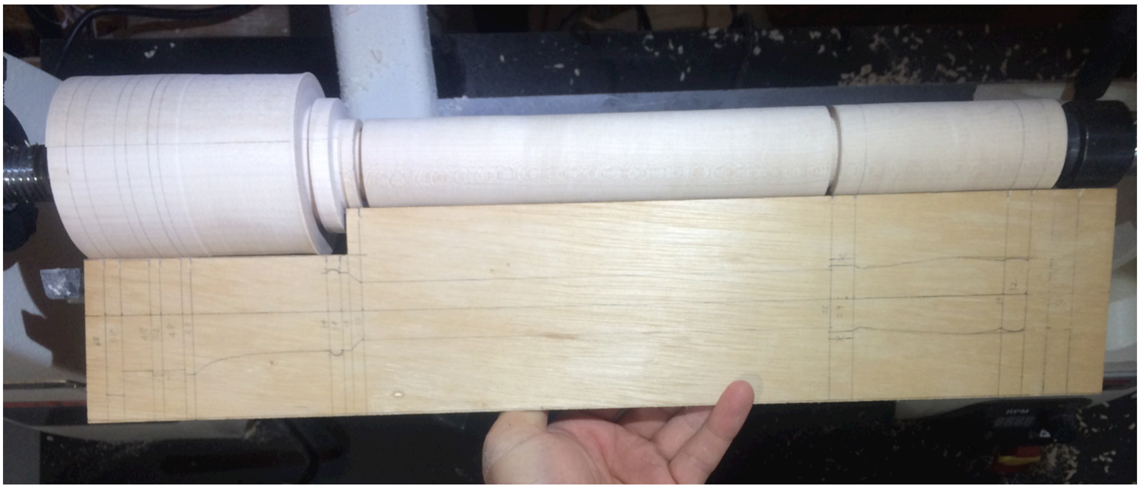


Fig 7.81: Marking the position of shoulders and beads with a self-made template.

Interestingly, from this point, the pillar was turned with only three different profile chisels: a spindle gauge, a parting tool and a skew. Once the author got used to using the tools – after only few hours – the working speed soon became faster, and it became easier to decide where and how to carve into shape. Before long, the pillar was formed into shape (Fig 7.82).

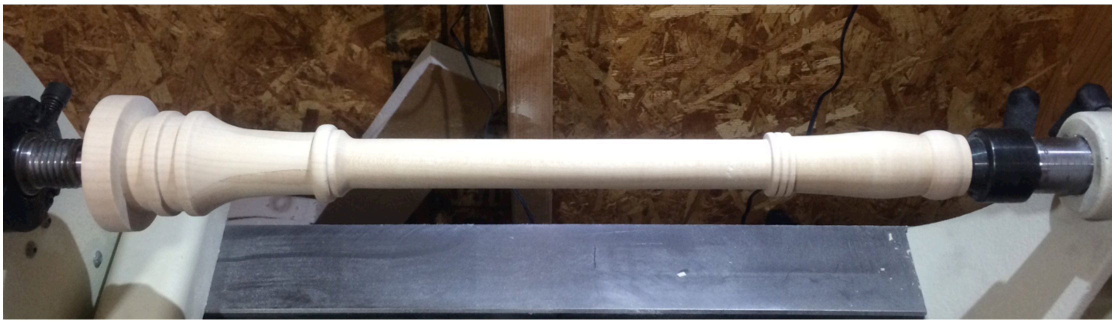


Fig 7.82: The shaped pillar.

After the grooves on the column (middle of the pillar) were added (Fig 7.83), the pillar was cleaned with sandpaper, and, with the parting tool, cut into the appropriate length in order to remove from the lathe.

Fig 7.83: Grooves are added to the column.

To sum up, despite its complex form, the pillar was surprisingly easy to make, something the author did not anticipate. Although this was the author's first ever experience of using a lathe for the turning, it only took two days (about fourteen hours) to complete. Moreover, it only required four different chisel profiles: a roughing gauge, a spindle gauge, a parting tool, and a skew, all of which are basic profiles. It is easy to understand that the nineteenth-century invention of machinery such as a copy lathe hugely changed labour in the workshop, reducing time-consuming processes while expanding the possibilities of creating more complex forms in a much shorter time. The change in design from Ionic to Corinthian occurred around 1814, possibly corresponding to the change of harp design in Barry's workshop from the French to the British style (Fig 7.84).

Fig 7.84: Barry's harps: (above) Ionic order, typical of the eighteenth-century French style and (below) Corinthian order, typical of the nineteenth-century British style.[84]

[84] (above) Images taken from Clive Morley harps, 'News & Events', <http://www.morleyharps.co.uk/news-items/antique-harps-for-sale-summer-2013/>, (Accessed Sep., 2014), and (below) RMT [2003/1].

The displaced pillar was then placed in a vice for making a slot to host the upper neck, (Fig 7.85) and after the top surface was smoothly flattened it was ready for assembling.

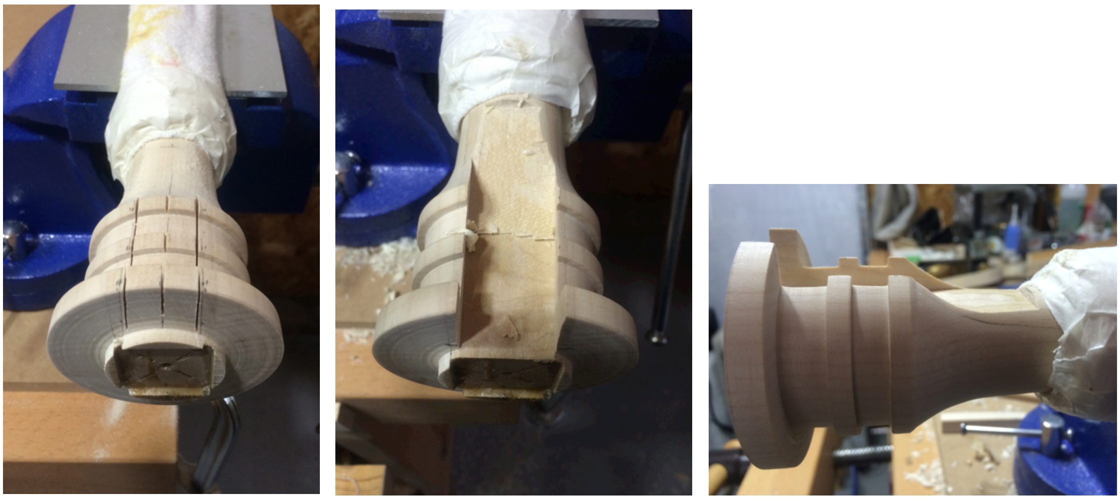


Fig 7.85: A slot for hosting the upper neck is carved out.

In relation to the introduction of a copy lathe, such industrial developments probably made it possible to manufacture brass-tuning pins by using the lathe for iron turnings. In the reproduction project, the author encountered a difficulty in which the appropriate tuning pins and string hooks for the harp-lute were not found anywhere, and so that had to be built as part of project. (Fig 7.86). The pre-cut brass rods in the required diameter, which the author purchased, were shaped into the tuning pins and string hook.

Fig 7.86: (left) Brass tuning pin in the lathe, and (right) string hook in the lathe.

The tapered and beaded brass rods were displaced from the lathe and shaped into the final form with files and the machinery drill (for the tuning pin). This was very efficient since once the angle of taper[85] on the lathe was fixed, it was ready for mass-production. The process was very simple, and the brass was also extremely easy to work with, much faster and easier than searching for the appropriate items on the Internet. In this way, twelve tuning pins and five string hooks were completed (Fig 7.87).

Fig 7.87: Completed brass-tuning pins and string hooks.

Thanks to the nineteenth-century industrial revolution in the British Isles, particularity the invention of a copy lathe, the harp-lute gained success through its economical construction, the complex form of its pillar, its adaptation to contemporary Regency fashion, and the way in which its brass products, such as tuning-pins and string-hooks, could be made in a workshop without the need for any great craftsmanship. This instrument was representative of industrial Britain. Additionally, as mentioned, when harp-lutes were in development, brass-screws began being used for the string guide, the bridge, and the heel. This was not because the instrument was cheaply made but was

[85] It took some time to determine but once the angle was fixed and the position marked on the lathe, it would have been possible to mass-produce whatever quantity was required; it was also easily re-adjustable using the mark, even though the taper angle could change.

more related to the growing tension of the strings (caused by the increasing number of strings), so brass-screws were only used in places where the tension was greatest.[86] The availability of the screws seems to have been a significant factor in helping Light's series of inventions, especially harp-lutes and later models; without them, his enormous success would probably never have happened.

7.5.4 ASSEMBLY

The assembly process endured some problems brought about by minor mistakes, for instance the order of it. In the reproduction process, the upper neck and pillar were glued together before being attached to the body. This, however, created a problem in that they did not sit in the appropriate position without a considerable amount of force (Fig 7.88).

Fig 7.88: Without a considerable amount of force, a gap was created.

To solve this problem, a special jig was made and, as with the original instrument, two nails and a screw were used on the heel (Fig 7.89).

[86] Interestingly, the screws attached to these parts were often ripped off. For instance, the skirt of the bridge and the heel nearer to the soundbox were severely stretched by the considerable tension of the strings.

Fig 7.89: A jig for the enforcement and screw with nails on the heel.

While the screw and the nails did not particularly help in applying force, the jig effectively forced the upper part into the required position, and in such a way the upper parts were glued to the body. Though this was a minor mistake, hypothetically the lower neck seems to have been glued to the body first, and the problem was solved in the assembly process of the pillar, which included the creation of a slot to host the upper neck, so that the neck angle horizontal to the soundboard would be kept more firmly in place. It is even likely that the pillar was attached after the fingerboard, since the pillar's slight tilt would not have seriously harmed the construction. To prove this theory, another harp-lute would have to be reproduced.

Another serious issue was the key-box attached to back of the neck; it was glued to the joint on the upper neck, but without the hole through which a rod for the key passes. Compensating for this error took some time. The hole (dotted lines) was supposed be drilled in a taper widening downwards (from the upper neck towards the body) (Fig 7.90). The drill, however, could not pass through at the required angle, the thickness of the upper neck blocking the entry of the drill.

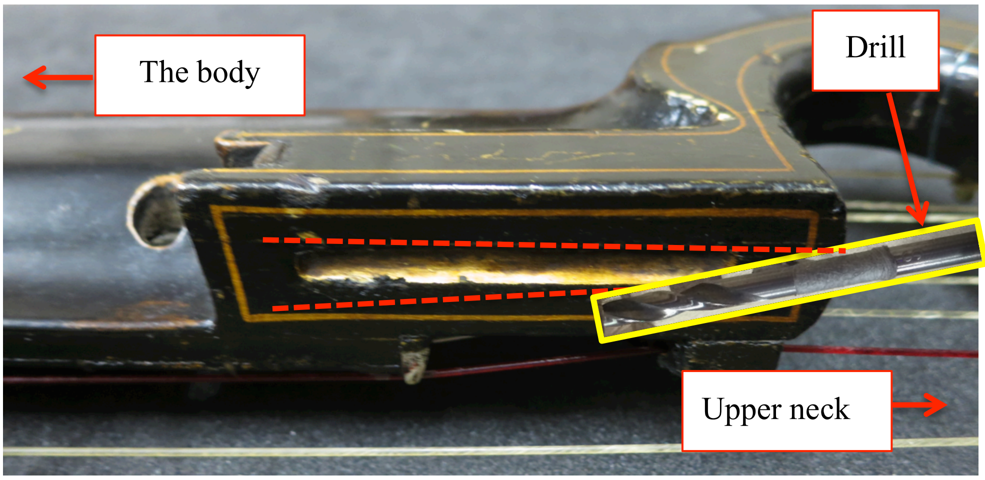


Fig 7.90: Key-box (side view) with the dotted lines indicating the hole with a taper widening downwards.

Recovering from this error took some time since the top layer of the key-box had to be removed and readjusted for the hole (Fig 7.91).

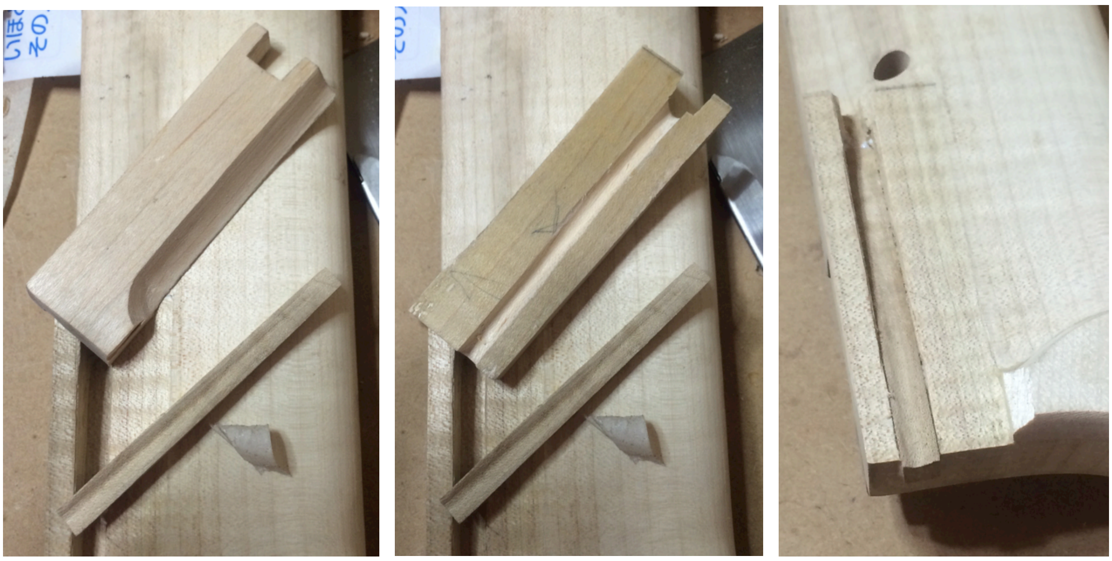


Fig 7.91: The top layer of the key-box is removed and the hole is created using a piece of wood.

Then the top layer was re-glued (Fig 7.92).

Fig 7.92: The top layer of the key-box is re-glued.

On reflection, the procedure was utterly wrong, and the hole should have been drilled before being attached between the necks. This may also emphasise that, as discussed above, the upper neck was made of three pieces - if the hole was drilled before the attachment of the bottom layer, there would be no disturbance to the upper neck caused by the drilling. Another possibility is that gluing the top layer of the key-box was the last part of the process, and the hole was manually carved rather than drilled, a similar method to the process of recovery. Nonetheless, these theories cannot be confirmed unless another reproduction project is conducted. On this subject, the key-box, created around the time serial number was introduced, was not simply an additional feature to the previous model but a completely new design; it had to be factored into the construction process, rather than being the last part to be done, and its position needed to be correspond well with the ring stop for the eighth string,[87] otherwise it would not have been able to function as a key mechanism.

7.5.5 OUTCOMES

After about two months,[88] the reproduction project came to the end, and the instrument became playable and ready for ornamentation (Fig 7.93), marking the termination of the reproduction in terms of its relevance to the arguments of this thesis.

[87] The rod for the key mechanism must be directed straight towards the brass-disc that connects the ring stop at the front, otherwise it cannot be pulled.
[88] The project began on 10th February 2014 and ended on 17th April.

Fig 7.93: Completed harp-lute, a copy of Light (serial number 648).

In support of the preliminary hypothesis, the instrument was almost certainly manufactured in an economical and efficient manner, well-adapted to industrial Britain. Interestingly, as opposed to the contemporary fashionable harp design of a rounded soundbox consisting of three staves, Light's harp-lute marked a slight departure from the latest design (three staves, such as the harp-guitar and the harp-lute-guitar) to the old French style (consisting of seven staves). In relation to this (and as opposed to Light), the possible maker of Light's harp-lute, Barry, also built the soundbox for his harp, despite its having a pillar in the Corinthian order, using the latest construction: rounded with three staves (Fig 7.94).

Fig 7.94: Soundbox of Barry's harp: consisting of three staves in a rounded shape.[89]

As this project has shown, the use of seven-staves in the old style was most likely due to the increasing demands for greater efficiency and rationalisation in the workshop, which led to mass-production of the instrument using multiple frame-boards. Moreover, the simplified construction of the soundboard certainly saved on labour costs while the design of the lower neck (attached parallel to the surface of soundboard with a tapered two-layered-fingerboard) reduced the need for fine and precise adjustments and required less woodworking skill. These elements no doubt required fewer hours of apprenticeship, and without much experience in making an instrument, an apprentice would have been able to build harp lutes or parts of one. The fact that an amateur maker such as the author was able to reproduce the instrument relying on a modicum of woodworking and guitar-making skill supports this. Additionally, the invention of machinery, especially the lathe, seems to have dramatically increased the efficiency of harp-lute making; its complex form could be made in far less time, allowing for the elegance of the instrument while successfully reduced the need for fine and precise adjustments.

Furthermore, as it is in a playable condition, the author tuned the instrument, by following the contemporary method explained in the Introduction,[90] to a sixth lower than the written note on the piano (i.e. c'' becomes e^{b}') and it worked very well. It could

[89] RMT [2003/1].
[90] One, for example, mentioned in Edward Light, *New and Compleat Instructions For playing on the HARP-LUTE, By Edwd Light, Lyrist, To Her Royal Highness, THE PRINCESS OF WALES*, (London: printed for the author, 1807-23), p.38, MS., BLL [e.312.b. (1)].

not be tuned to the ordinary pitch of the piano – the string broke due to the high tension. Surprisingly the sound produced from the instrument impressed the author a great deal, being louder and more resonant than its size would suggest. It was almost exactly like a harp, and very different in sound from any other plucked stringed instruments such as the Spanish guitar or conventional lutes. This was probably because of the soundbox that induced the harp tone; Light's consecutive assertion in his publicity that it would 'sound like the real harp' is now proven.

The harp-lute was a well-designed instrument, very much adapted to the social fashions (Regency Britain) and movement (industrial Britain) of its time, and it obtained a certain reputation in Britain in the first quarter of the nineteenth century. Because it was manufactured in an economical manner, leaving a margin for the extra costs of ornamentation for greater elegance, the harp-lute was able to stand as a substitute for the highly expensive and extremely fashionable harp. The reproduction project clearly revealed an aspect of Light's inventive talent in collaboration with the maker: the economical manufacture of the instrument.

CHAPTER EIGHT:

CONCLUSION

"Why did such strange-shaped instruments exist?"

8.1 HISTORY OF THE HARP LUTE

- Answers to the research question -

The harp lute, a family of nineteenth-century English plucked stringed instruments, was invented and manufactured with the intention to adapt to contemporary fashionable society and demands, emerging as significantly important instruments that filled the gap between the decline of the guittar (English guitar) and the emergence of the Spanish guitar in British guitar history. Behind the invention, two vital concerns, namely the growing popularity of the harp, and the life and work of musician-inventor Edward Light, were of importance as otherwise such instruments would not have been created. A change in tone preference amongst the public from metallic (i.e. harpsichords plucked with quill plectra) to a mellower and softer timbre (i.e. the use of leather plectra and swell mechanisms in harpsichords, and the rise of the pianoforte) at the end of the eighteenth century very much enhanced the significant growth of the harp that had primarily began in French aristocratic society was imported to Britain during the time of the French Revolution. As a music teacher and musical instrument dealer, Light observed the change – the growing popularity of the harp in the British Isles, particularly in London – and it became of central importance to him in expanding his business and inventing new instruments; he was concerned to attract customers (ladies) with instruments appealing on grounds of popularity, novelty, portability and price. His profession as a guittar teacher had no doubt informed him that the guittar was falling from fashion, vacating an area of the musical instrument market. Newly invented harp lutes had gradually supplanted the guittar in the market place, being harp-like-instruments. In addition, they successfully addressed the issues that the harp had – expensiveness and difficulty in moving – by taking inspiration from the guittar.

Looking at the early career of the inventor, Light was involved in a number of aspects of the musical professions: as a dealer, inventor and developer of musical instruments, music teacher, and proprietor of music academies. Probably born in 1747-48, as a young fellow, it is likely that Light helped out his family and their business of music retailing in a coffee house at St James's Market, and can be shown to have opened his own musical instrument repository in 1774. In the same year he married Miss Hawkins, and vigorously developed his areas of business in music teaching and musical instrument retailing in London. By 1778 he had obtained a certain degree of reputation and success in the music scene while residing at various addresses. In the mid-1790s, he began experimenting and developing a new form of hybrid instrument which aimed to combine the guittar and the harp. Perhaps to concentrate on the forthcoming sale of the newly invented instrument, Light announced to the public that he was leaving the business of musical instrument retailing in 1798. Such early successes in a variety of occupations brought with it outstanding talent in retailing and inventing musical instruments that consequently lead the first ever successful invention of Light the 'harp-guitar', with which he has deliberately but successfully entered the guitar market.

In March 1800 the 'harp-guitar', his first ever commercially successful invention, was launched for sale to the public. As a smaller sized instrument, it had advantages over the harp, in particular due to its portability, and the likelihood of it surviving in more-extreme climates such as the East and West Indies. Pricewise, he was clever enough to sell the instrument decidedly cheaper than standard harps, making them more easily affordable to the middle classes: four to six guineas being the same price range as that of the guittar. From this point of view, it may be said he supplanted the guittar in the market with his new harp-like-instrument. Together with the peculiar form, particularly of the soundbox, that must have had an attraction as a novelty product, Light has soon conquered the market place, and as a result of this success he slightly raised the price in 1801 to five to eight guineas. In addition to such superiorities of the instrument, the ease by which the instrument could be learnt led to more success in distributing the instrument, especially to middle-class ladies, who were expected to have some musical ability and whose families could save on expenditure on education due to the short learning curve. He tried to sell his instruments exclusively under his own control, while having some contracts with manufacturers such as Barry, or possibly with entrepreneurs such as Clementi & Co., for the supply of his instruments, as he was not a maker. Those concerns – portability, novelty, easy to learn – became Light's cliché in sales of succeeding inventions, and the method of exclusive sales, established at the outset, usually with a phrase 'to be had of Mr. Light', was never changed until his retirement. Despite Light's commercial success with the 'harp-guitar', he never stopped developing the instrument, perhaps to prevent the loss of novelty. As a result, succeeding models such as the arch-lute-guitar, the harp-lute-guitar and the Apollo Lyre were invented (possibly in c.1800, c.1803 and c.1805 respectively), but it has to be remembered that his inventions did not always achieve commercial success, such as in the case of the Diplo Kithara invented in 1802. As the increase in the popularity of harp lutes led to some being sold outside of Light's control and without Light's approval, it is possible to see the gradual emergence of counterfeit instruments.

After moving to Foley Place in 1807, where he remained until 1823, Light seems to have begun to concentrate on sales of the Apollo Lyre and the newly invented harp-lute. With these two instruments, he presumably renewed his instrument line-up getting into a new phase of his business career, while the precursors such as the harp-guitar and the harp-lute-guitar gradually disappeared from public advertisements. Despite the full-scale sales, Light continuingly applied minor changes to the harp-lute, and as a result of it the instruments manufactured around the earlier period appear in a variety of forms and decorations. Emergence of the harp-lyre and the bass-lyre were also the consequence of these attempts. Having such minor changes including the addition of extra parts (i.e. stops, capotasto and key-mechanism), together with the increase in the degree of decoration and the complex form, the price range was raised, reaching nine to twelve guineas in 1809. Around 1811, as Light began to phase out the Apollo Lyre from advertisements, the harp-lute had become the mainstream amongst his inventions. At the same time his competitor, musician-inventor Ventura, began to advertise in newspapers. In 1814, Light was at the height of his success and prosperity and to discriminate his instruments from the ones manufactured by imitators he started numbering the instrument by the application of serial numbers. As the lowest number so far identified is 479, the numbering did not start from one but included all the instruments previously made before he began applying it. After the pillar was updated from the Ionic to the Corinthian order, the construction and design of the harp-lute were more or less standardised.

To avoid the loss of novelty and originality of the instrument, Light cleverly left a margin for customers to choose their favourite ornamentation; all motifs came from Regency Classicism, which included ancient Greek, Roman and Egyptian motifs, Classic friezes, revival of the Rococo style, Naturalism and Chinoiserie. Thus plain instruments were manufactured, keeping the price down, while the extra costs of ornamentation was charged to the customers, meaning any loss in profits to Light would have remained at a minimum. To minimise the cost of making and maintaining them for a moderate term, an economical way of manufacturing was of vital importance. As Light was not a maker, his manufacturer – probably Barry (a harp maker) – helped in making the harp-lute as economical as possible while not losing its novelty and elegance of form. Though the design of the instrument has rather gone back to the old style (the soundbox consisted of multiple flat-staves), Light devised a more rationalised design for manufacture. The reproduction project (carried out by the author as part of this thesis) proved that the soundbox could be made without using a full mould, and that the use of multiple frame-boards surely improved the workshop efficiency and led to greater production. Such rationalisation and simplification of labouring can be witnessed to other parts – the pillar, the fingerboard and the soundboard – and because of them less woodworking skill and fewer workbench-hours were required for completing a harp-lute. The invention of machinery seems to have also dramatically increased the efficiency of harp-lute making.

A growing threat to Light's success was the increasing number of imitations and counterfeit harp-lutes that appeared and began to spread, not only within London, but also to other parts of England. In order to attempt to prevent his harp lutes from being copied, Light reacted by giving stronger and more severe warnings to the public. In spite of this, more and more people started engaging with harp lute manufacturing, of whom Ventura and Levien are worthy of mention. In 1814, Ventura introduced the so-called Imperial Harp Lute and continuingly produced Imperial Octavino in 1816, while Levien completed a sort of harp lute, for which the Society for the Encouragement of Arts, Manufactures and Commerce awarded him ten guineas. As with Light, they are not makers but musician-inventors, who designed the instruments. It was not just emerging musician-inventors that made up Light's competitors, but also entrepreneurs such as Wheatstone, who introduced a kind of harp lute designated as the Regency Harp Lute. To address the issue, Light finally took an official patent (No. 4041) for his new instrument, the 'British Lute Harp', in 1816. Around 1819, with reference to a distinctive mechanical device mounted in the upper neck (ditals), the instrument was re-designated as the 'dital-harp'. Thus the ones without ditals were discriminated by different designation: The British Lute and The British Harp. With a continuous and incessant application of minor changes to the instrument, the dital-harps appear in a variety of designs, consequently becoming a nineteen-string instrument. Light was not the only person who took a patent for the harp lute: Levien invented the *guitare harpe* perhaps in 1824 and registered it for an official patent in Paris in 1825. Taking out a patent for a new invention seems to have been an essential action to protect their harp lutes from being copied by competitors.

Light's habit of 'improving' upon his instruments had the effect of making the instrument look more and more harp-like, which resulted in the loss of fingerboard function. His attempts of adding bass strings to the guitar-like instrument, however, caused a serious physical problem that the harpists were incompatible with the instrument. Armstrong (1908: 113) mentions that 'a Harp Tutor […] had better be procured, and the fingering reversed. After a little practice, one or two interviews with a professional harpist will be of advantage, as, although unable to play the Dital-Harp, he could detect an incorrect method of playing in another'. The manner of stringing for the dital-harp completely opposed that of the harp – longer strings on the former come towards the player while on the latter, the shorter ones come closer to the performer – thus they are incompatible. Together, this issue, and Light's announcement of the closure of his business in 1827 accelerated the decline of the harp lute, and he disposed of his stock and retired from teaching. Having stopped any further manufacture of Light's instruments, in 1829 Light's thirty-year career as an inventor and innovator of the harp lute came to a complete end. Despite the fact that Ventura invented and patented a kind of harp lute called the 'Harp Ventura' in 1828, due to the significant increase in popularity of the Spanish guitar in the British Isles and the rather impractical construction of the Harp Ventura, the popularity of the harp lute continuingly declined. With the display of the Harp Ventura in the 1851 Great Exhibition in London, the development of harp lutes came to an end.

8.2 EVALUATION OF THE RESEARCH

The main aim of this research has been to reveal the history of harp lutes, discussing the socio-cultural aspects and the decline of the instruments, and the author believes that this aspect has been achieved, delivering a much clearer and specifically dated history of harp lutes. Also the terminological issues that had caused confusion amongst experts such as museum curators, collectors, auctioneers, organological scholars and researchers engaged in other fields of study are now resolved, providing suggested organological classification and nomenclature for each model of harp lute. Since a copy of a harp-lute – the most successful model of all – has been made, more practical elements from the inventor and the maker that were hidden in the construction are clearly unfolded. This has allowed a combination of qualitative and quantitative analysis to be presented in this thesis as it demonstrates that economical manufacture was of importance for the harp lutes to stand as fashionable objects, and to gain commercial success in nineteenth-century industrial Britain. With such outcomes this thesis can be considered the first complete academic reference for harp lutes, filling a historical gap created between the periods of the guittar and the Spanish guitar in academia. Together with other scholars' surveys, a sequence of basic studies on the guitar history of the British Isles from the middle of the eighteenth century until the end of the nineteenth century is completed. Besides, it is hoped that this thesis is not only of value to organology but also to other fields of academic studies such as British history and nineteenth-century economics.

8.3 POTENTIAL RESEARCH AREAS FOR THE FUTURE RESEARCH

Though the research has demonstrated the historical aspect and economical manufacturing process of the harp lute, and provided more specific dates of manufacture and clearer terminology for each model, to cover every aspect concerning the harp lute is of course rather impossible, particularly given the space and time constraints of a PhD project. As a result, there are still more potential areas that need to be investigated and several tasks have remained incomplete; for example, a comprehensive list of surviving harp lutes, published music and iconography regarding the instrument. Also due to the limited word count, and for reasons of clarity and consistency, only the most relevant of the archive material has been presented; there is a lot more which remains unpublished. Despite a sufficient number of extant instructions, published music and accessories for harp lutes, the musical and performance characteristics of the instruments as well as some practical elements such as string gauges in relation to that of the harp have not been fully surveyed. Further, the streets and area where Light lived are another potential area of research, from which the inventor's social engagement and his building of a network of acquaintances may become more apparent and clearer. The social history of the period, which would include the study of harp lutes as objects used in the Regency period (1795-1837) – a time of distinctive British culture and fashion created by the Prince Regent (later George IV) with his extravagant lifestyle being a patron of new forms of leisure, style and taste – has recently been re-evaluated by the public as important in the shaping of modern Britain. Given the potential areas, the author believes that this thesis, as a basic reference of the harp lute, will significantly help and be useful to future researchers and scholars, and is also of value for museum curators, enabling them to more specifically designate harp lutes in their collections.

APPENDIX i:

NOMENCLATURE

NOMENCLATURE

In this section, a brief summary of the suggested designations for each model of the harp lutes is presented with sample images and tables in which their brief characteristics are described, enabling the readers to gain a visual and technical understanding of the indicated instrument. Unless otherwise stated, the designations were quoted from the original documents or manuscripts but, as a rule, to avoid any confusion between generic and specific terms (i.e. the harp lute [generic] and the harp-lute [specific]) - even though their original designations become modified – a hyphen(s) was inserted to couple the compound noun for the specific terms (i.e. harp-lute), and proper nouns, inherently applied to certain instruments in the original state, were used as in the documents (i.e. British Lute Harp).

Compiled technical descriptions of the instruments are presented for readers to obtain an idea of the instruments discussed in this thesis or for the scholars who might use the designations together the brief descriptions and notes as a reference or guideline to help classifying the harp lutes within their works.

Harp-Guitar

(Year of invention: 1800 – Years of production: at least until 1807)

Fig 9. 1: (left) seven-string harp-guitar with a semi-conical soundbox having the centrepiece flattened, MMS [M2063]; (right) eight-string harp-guitar with a semi-conical soundbox together with a neck having a thumb groove, V&A [243-1882].

Table 9. 1: General Characteristics of the Harp-Guitar.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	Usually 0 (none)
Saddle	Attached bottom edge of the bridge if it appears
Number of strings	6, 7 or 8 (although never seen, there might be some with 10)
Strings (over the fingerboard)	All
Diapason strings	None
Nut	1 piece nut (like a guitar)
Tuning peg/pin	Wooden pegs (occasionally brass pins)
Number of tuning pegs	6, 7, 8, (or 10)
Number of Fingerboards	1
Fingerboard (surface)	Arched (usually painted in black)

Fret / number	Ivory bar fret / 10 to 12 frets
Body (form)	Soundbox (semi-conical with the centre-stave flattened, or consisting of flat staves)
Number of staves	3 or 7
Hole at back (form)	Rectangular or Oblong
Holes at back (number)	1
End pin	At bottom of the body and top of the head
Neck (style)	Guitar style
Neck (form)	Semi-circular, or semi-circular with a thumb groove
Neck position	Attached at the centre of the body
Finial	No
Maker's inscription	Soundboard, Head or Fingerboard
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	No
String guide	No
Stops (form)	No
Number of Stops	N/A
Capotasto	No
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

As the harp-guitars appeared in various designs and also manufactured in different periods by different makers, there exist unfortunately some exceptions to the characters mentioned in the table above (Table 9. 1).

Harp-Lute-Guitar

(Year of invention: c.1803 – Years of production: probably until 1807)

Fig 9. 2: (left) harp-lute-guitar with an inscription 'LIGHT INVR / BARRY MAKER' – the neck positioned in centre, MFA [17.1770]; (right) harp-lute-guitar with an inscription 'HARLEY / LONDON' – the neck is positioned in off centre, HMS [C-0030].[1]

Table 9. 2: General Characteristics of the Harp-Lute-Guitar.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	Usually 0 (none)
Saddle	Usually no saddle
Number of strings	11
Strings (over the fingerboard)	7 (terminated at the lower peg box)
Diapason strings	4 (terminated at the upper peg box)
Nut	1 piece of nut (like that of the conventional theorbo)
Tuning peg/pin	Wooden pegs
Number of tuning pegs	11 (7 in the lower peg box and 4 in the upper)
Number of Fingerboards	1

[1] This instrument has a hole for the capotasto but this is more likely a later addition around or after the time when the next generation harp-lute was introduced.

Fingerboard (surface)	Arched (usually painted in black)
Fret / number	Ivory bar fret / 12 frets
Body (form)	Soundbox (semi-conical with the centre-stave flattened, or consisting of flat staves)
Number of staves	3 or 7
Hole at back (form)	Oblong
Hole at back (number)	1
End pin	At bottom of the body
Neck (style)	Theorbo style
Neck (form)	Semi-circular with a thumb groove
Neck position	Attached at the centre of the body (by Barry) Attached at slightly off-centre of the body (by Harley)
Finial	Square finial (similar to that of the guittar)
Maker's inscription	Painted in the ribbon above the soundhole
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	No
String guide	No
Stops (form)	No
Number of Stops	N/A
Capotasto	No
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

The distinction in the position of the neck allows discrimination between the works of Barry (positioned at the centre of the body) and Harley (slightly off-centred) – the instruments attributed to Harley (the latter) quite often have a soundhole rose motif of the 'Prince of Wales's feather' (Fig 9. 2).

Harp-Lute

(Year of invention: 1807 – Years of production: until 1819)

Fig 9. 3: (left) harp-lute of early production with a pillar in the Ionic order involving the key-shaped stops and an conventional style nut together with a string-guide, MAT [A831]; (right) harp-lute of later production with a pillar in the Corinthian order involving the ring stops one of which operated by a lever (key mechanism), three nuts in partition together with a slanted string-guide on which an individual capotasto is resting, HML [MT537-1998].

Table 9. 3: General Characteristics of the Harp-Lute.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	None: The earliest production 2 screws: Middle production 3 screws: Later production
Saddle	Attached bottom edge of the bridge (if it appears)
Number of strings	Usually 12, (varies from 10 to 13 strings)
Strings (over the fingerboard)	Usually 7, (12 strings in total)
Diapason strings	Usually 5, (12 strings in total)

Nut	1 piece of nut: the earliest production (like that of the guitar) 2 pieces of nut: middle production (two different scaling lengths) 3 pieces of nut: later production (three different scaling lengths)
Tuning peg/pin	Brass pins
Number of tuning pins	Usually 12 (all installed in the upper neck)
Number of Fingerboards	1
Fingerboard (surface)	Arched (usually painted in black)
Fret / number	Ivory bar fret / 8 to 12 frets (later models have less number of frets)
Body (form)	Semi-conical with the centre-stave flattened: Early production Consisting of flat staves: Later production
Number of the stave	3 or 7
Hole at back (form)	Oblong
Holes at back (number)	1 hole: Early production 2 holes: Later production
End pin	At bottom of the body
Neck (style)	Upper (harp) and Lower neck (guitar) combined style
Neck (form)	Semi-circular with a thumb groove
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	Painted in the ribbon above the soundhole: Early production Above the nut(s): Later production
Mechanical part	None: Early production Key mechanism changing the pitch of 8th string: Later production
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	Ionic Order: Early Production Corinthian Order: Later Production
Gilded composition	Usually on the Pillar in the Corinthian order (on the capital and the pedestal)
String guides	Positioned Parallel to the nut(s): Early production Positioned Slanted to the nuts: Later production
Stops (form)	Key-shaped stops: Early production Ring stops: Later production
Number of Stops	3 to 5 (the standardised model has 4 including key mechanism)
Capotasto	1 (individual capotasto for holding 5th string)
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

The harp-lute, to large extent, incorporates motifs from the Regency period; characteristically a pillar is added to support the increased tension of the bass (floating) strings. There are mainly two designs of the capital, substantially corresponding to the classical architecture: one in the Ionic order, a two-dimensional spiral of scroll-like leaves of ornament technically known as a 'volute', or a floral motif commonly of a daisy; the other in the Corinthian order, a three-dimensional Greek style column with gilded composition of acanthus leaves.

The above characteristics are those of the harp-lutes constructed under the guidance of the original inventor Edward Light. There existed, however, exceptional harp-lutes manufactured by other makers or imitators having slightly different designs. Therefore to either include or exclude such instruments for calling them the harp-lute requires adherence to the following rules: **first** a pillar and a functional fingerboard[2] must be present; **second** a capital must be in styles of the Ionic order or the Corinthian order; **third**, a tie-bridge should be attached (in the original state);[3] **fourth**, the upper neck should be designed in the same manner as the harp; **fifth**, a string-guide should be accompanied with the nut(s); **sixth**, the soundbox should have at least one oblong hole and no more than two. If the instrument does not follow these rules, it is not a harp-lute but could be included in the other models of the harp lute, or is not a member of the harp lute family.

---

[2] At least six strings must pass over it.
[3] Some have been replaced or modified later.

Harp-Lyre[4]

(Year of invention: 1815 – Years of production: probably until 1819)

Fig 9. 4: a representative harp-lyre, MMS [M2490].

Table 9. 4: General Characteristics of the Harp-Lyre.

PART	DETAILS: forms and numbers
Soundboard	Oval shape, the left half consisting of the Apollo Lyre's body
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	3 screws
Saddle	Attached bottom edge of the bridge if it appears
Number of strings	12
Strings (over the fingerboard)	7
Diapason strings	5
Nut	3 pieces of nut (three different scaling lengths)
Tuning peg/pin	Brass pins
Number of tuning pins	12 (all installed in the upper neck)

[4] The designation is quoted from Busby (1825: 226), he described this instrument as 'Harp-Lyre'.

Number of Fingerboard	1
Fingerboard (surface)	Arched (usually painted in black)
Fret / number	Ivory bar fret / 9 frets
Body (form)	Flat back
Number of staves	No stave, two pieces of flat board
Hole at back (form)	Oblong
Holes at back (number)	1 hole
End pin	No
Neck (style)	Upper (harp) and Lower neck (guitar) combined style
Neck (form)	Semi-circular with a thumb groove
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	Above the nuts
Mechanical part	Key mechanism changing the pitch of 8th string
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	Corinthian Order
Gilded composition	Usually on the Pillar (on the capital and the pedestal) and the plinth
String guide	Positioned slanted to the nuts
Stops (form)	Ring stops
Number of Stops	4 including key mechanism
Capotasto	1 (individual capotasto for holding 5th string)
Plinth (form)	Rectangular-shaped plinth
Additional parts	No

DESCRIPTIONS AND NOTES

Fundamentally, the upper parts - including the pillar, the lower and the upper necks and fingerboard - are the same as the later design of the harp-lute; the capital is in the Corinthian order, brass ring stops one of which operated by a lever and the partition of nut together with a slanted string-guide, on which a hole for the key-shaped capotasto is drilled. However, for the body design, a remarkable alteration was applied; the body is an oval-form while the soundbox had a flat back, which was connected to the soundboard via sides. The part in between the pillar and the lower neck has been quite deeply scooped (cut out) as if copying the left half of Apollo Lyre's body (Fig 9.5). In resemblance to the Apollo Lyre, a rectangular plinth with ornamentation of gilded compositions is attached to the bottom of the instrument.

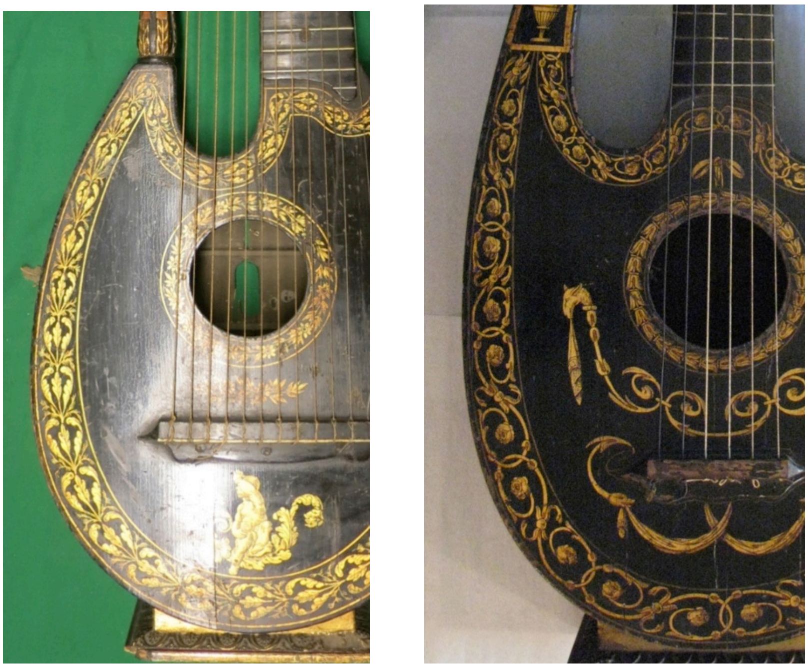


Fig 9.5: (left) body of the harp-lyre MMS [M2490]; (right) body of the Apollo Lyre DCK [MI/A.13].

As only a small number of surviving instruments have been identified, the descriptions above were given based on few examples. Nonetheless, even if more specimens are discovered, they are seemingly more or less the same; predictively they would not show significant differences.

British Lute Harp

(Year of invention: 1816 – Years of production: until 1819)

Fig 9. 6: (left) earlier design of the British Lute Harp consisted of the stops in combination of the eight mechanical ditals with an extra dital-like-device for the second string and five manual ring stops, one of which operated by a lever (key mechanism), with an eagle on the capital, and pin-bridge for sixteen strings, the bridge with a groove, standing on the plinth in an oval shape, MMS [M2051]; (right) slightly later design of the British Lute Harp with a functionless fingerboard, pin-bridge for eighteen strings with a triangular saddle, RCM [RCM284].

Table 9. 5: General Characteristics of the British Lute Harp.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Pin-bridge (rarely tie-bridge)
Number of Screws (Bridge)	None
Saddle	Front edge of the groove: Early production Triangular saddle: Later production
Number of strings	15 to 18
Strings (over the fingerboard)	3 to 4 (seemingly fingerboard is not properly functional)
Diapason strings	Usually 5 (patent drawing shows 4)
Nut	Partition of the nut allocated almost for each string (except the diapasons)

Tuning peg/pin	Brass pins
Number of tuning pin	15 to 18 (all installed in the upper neck)
Number of Fingerboard	1
Fingerboard (surface)	Almost flattened (usually painted in black)
Fret / number	Ivory bar fret / varies
Body (form)	Soundbox: Consisting of flat staves
Number of the stave	7
Hole at back (form)	Oblong
Holes at back (number)	2 holes
End pin	No
Neck (style)	Upper (harp) and Lower neck (with extended fingerboard) combined style
Neck (form)	Mechanical components are installed in the lower neck
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the soundboard (usually above the soundhole and below the bridge)
Mechanical part	Key mechanism changing the pitch of a string (that of the harp-lute) Usually 8 ditals are installed
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	Based on the Corinthian order with an eagle sculpture on the capital
Gilded composition	Usually on the Pillar (on the capital and the pedestal) and the plinth
String guide	Studs for each string
Stops (form)	Ring stops
Number of Stops	5 including the key mechanism
Capotasto	No
Plinth (form)	Oval-shaped plinth
Additional parts	No

DESCRIPTIONS AND NOTES

The instrument patented by Edward Light in 1816 underwent minor changes, predominantly by adding extra strings, while the form was not greatly changed. In the same manner as the harp, the open strings were able to be plucked by the player's left hand from behind the instrument, and in order to provide the space for the hand the inner part of the pedestal was carved inwards. With consecutive minor changes the fingerboard became narrower and narrower, providing nuts for individual strings until the fingerboard lost its original function. One of the most significant improvements from the previous model (the 'harp-lute') is the addition of the compound mechanical device for changing the pitch, called 'dital(s)'[5] and 'thumb key(s)'[6]: the mechanism is mounted on the lower neck and it works by pressing the buttons, provided behind the lower neck that communicate with stops, projected in front of the individual nuts, each of which has a hole for a string, the effective length of the stings are shortened so that rising the pitch a semitone. These mechanical stops applied to only eight strings, combined with manual ring stops for rest of the open strings, one of which was still operated by a lever (key mechanism), and with the treble strings that should be manually displaced to the two different levels of nuts. The British Harp Lute always has eight ditals, and only the earliest models have an extra dital-like device for second string,[7] except the ones manufactured in a transitional period to the dital-harp.[8] Another noteworthy part is the pin-bridge as a replacement of the conventional tie-bridge; though interestingly the original illustration in the patent drawing shows the tie-bridge, but none of the surviving instruments has it,[9] instead all employ a pin-bridge in two different designs: one with a groove on the middle or the other in a triangular shape – the saddle being the front edge (the former) or top of the triangular (the latter). The capital of the pillar usually mounts a symbolic gilded composition of an eagle. Due to their weakness in construction, the eagle has quite often survived partly broken. As well as the increased number of strings, the body width was widened while the soundbox consisted of seven staves with (usually) two oblong holes, and as with the harp-lyre, the body stands on an oval-shaped gilded plinth. A part which discriminates the British Lute Harp from the dital-harp is the inscription; usually it is found on the soundboard, the Light's name and address above the sound hole and the serial number below the bridge.

---

5 Probably a compound noun, *ditto* (finger) and *e al* (as in [pedal]), unfortunately no explanation for it by the inventor is so far found.

6 'ditals' and 'thumb keys' were presented by the original inventor Edward Light in an original manuscript of the patent description, No 4041 in 1816, p. 2.

7 That was soon eliminated.

8 Such instruments, those who cannot be utterly classified to either of the instruments, usually have more ditals.

9 Only one instrument with tie-bridge so far identified, which bears a number '4' that in HML [MT536-1998], however the bridge is not original and it had been pin-bridge at the original.

Dital-Harp

(Year of invention: c.1819 – Years of production: until 1829)

Fig 9. 7: (left) early production of the dital-harp with a bridge parallel to the nuts with seventeen holes for the strings and ten ditals, the upper and the lower neck partly integrated, V&A [W.33-1952]; (right) a representative dital-harp of later production consisted of a slanted bridge with nineteen holes for the strings, no soundhole, and of a mounted mechanical devise for the thirteen ditals, while the upper and the lower neck completely integrated and the soundbox consisted of three staves the outer two rounded, MIMEd [1581].

Table 9. 6: General Characteristics of the Dital-Harp.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached): Early production No (instead painted in gold stimulating the soundhole): Later production

Bridge	Pin-bridge One positioned parallel to the nuts: Early production One positioned slanted to the nuts: Later production
Number of Screws (Bridge)	None
Saddle	Front edge of the groove: Early production Triangular saddle: Later production
Number of strings	17 to 19
Strings (over the fingerboard)	3 to 4 (seemingly fingerboard is not properly in function)
Diapason strings	3 strings: Early production None: Later production (all strings are sit on the nuts provided for each string)
Nut	The nuts are allocated for every individual string (except the diapasons) The nuts are allocated for every individual string (no exception)
Tuning peg/pin	Brass pins
Number of tuning pins	17 to 19
Number of Fingerboards	1 (but not functioned at all)
Fingerboard (surface)	Almost flattened (usually painted in black)
Fret / number	Ivory bar fret / varies
Body (form)	Soundbox Consisting of flat staves: Early production Two outer staves rounded while the centre slightly arched: Later production
Number of staves	7: Early production 3: Later production
Hole at back (form)	Oblong
Holes at back (number)	2 holes
End pin	No
Neck (style)	Upper (harp) and Lower neck semi-integrated style: Early production Upper (harp) and Lower neck completely integrated style: Later production
Neck (form)	Mechanical components are installed in the lower neck
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the heel block
Mechanical part	10 ditals are installed: Early production 13 ditals are installed: Later Production
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	The Corinthian order (occasionally an eagle sculpture on the capital)
Gilded composition	On the Pillar (on the capital and the pedestal) and the plinth

	Or, only on the plinth: later productions are usually in this style
String guide	Studs for each string: the one with semi-integrated necks (10 ditals) None: the one with completely integrated necks (13 ditals)
Stops (form)	Ring stops / No stops
Number of Stops	3 stops: Early production None: Later production
Capotasto	No
Plinth (form)	Oval-shaped plinth
Additional parts	No

DESCRIPTIONS AND NOTES

There has been confusion about the distinction between the British Lute Harp and the Dital-Harp. A method of differentiation by the total number of strings was proposed by Armstrong (1908: 97),[10] which is partly acceptable but the two cannot be reliably distinguished by simply counting the number of strings. A new more certain method of discrimination is based on the analysis in this thesis (see Chapter 6); first, the British Lute Harp always bears the inscriptions on the soundboard – in most cases the one with Light's name and address above the soundhole and the serial number below the bridge – and second, the British Lute Harp has a completely separated upper and lower necks with eight ditals installed. The dital-harp usually has the inscriptions on the heel block and the necks are partly or completely integrated employing ten or thirteen ditals; the term was most likely introduced in 1819 so that the instruments classified as dital-harp are the production around or after 1819.

A new sequence of serial numbers was applied but most likely soon resumed from the last number of the previous models – creating a confusion of numbering. Along with the extension of lower neck, nuts were allocated for every individual string, on which eventually thirteen ditals were mounted, completely replacing the lever (key mechanism) and the manual ring stops of the British Lute Harp. The capital of pillar was back to the Corinthian order and, unlike the harp-lutes, some (later production

[10] 'the term British-Lute-Harp cannot be applied to a Dital-Harp which has nineteen strings'

instruments) were without gilded composition adornments. The soundbox, similar to those used in the earlier models such as the harp-guitars and the harp-lute-guitars, was fitted to the wider body of dital harp; outer two staves being smoothly rounded with a slightly arched centre piece. The bridge was changed from being parallel to the nut to being slanted, while some has no actual soundhole, instead having a painted ornament that simulates it.

Along with the incessant minor changes of the design for the dital-harp there have been manufactured old or custom models, those similar to the British Lute Harps, but if the inscriptions are on the heel block or addressed ‘Great Marylebone Street’, they are no doubt the ‘dital-harp’, unless it can be classified either to ‘British Lute’ or ‘British Harp’.

British Lute

(Year of invention: 1823 – Years of production: probably until 1829 or earlier)

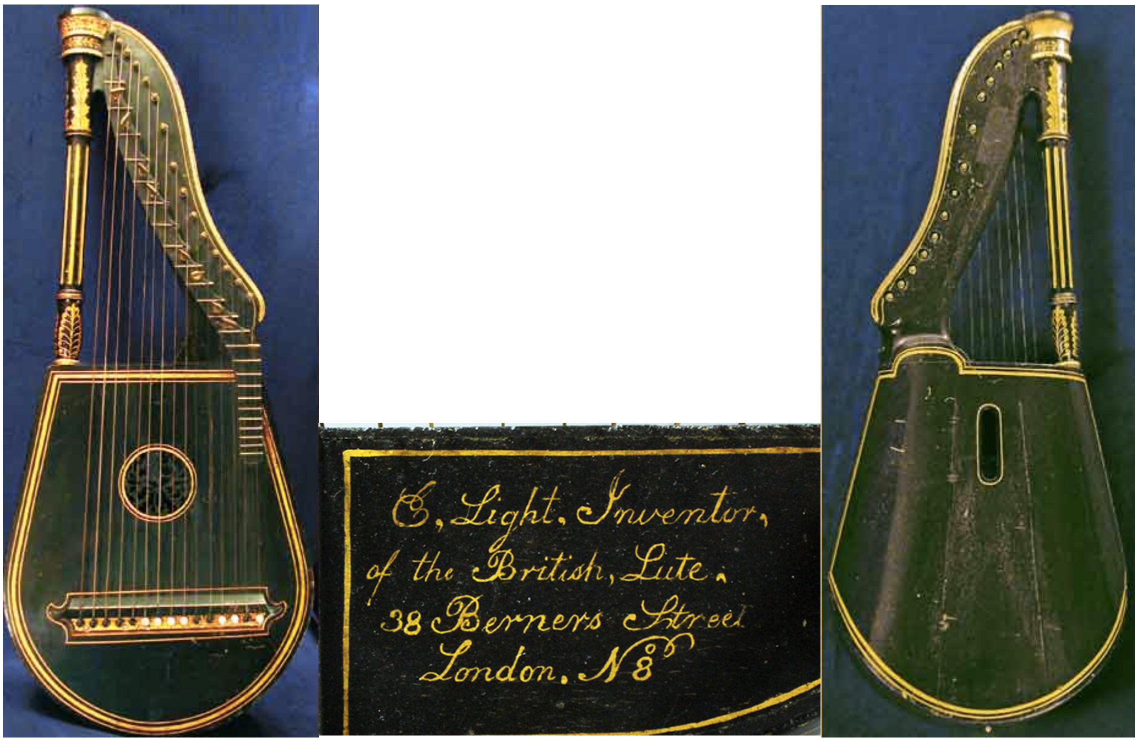


Fig 9. 8: An extant British Lute.[11]

Table 9. 7: General Characteristics of the British Lute.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Pin-bridge positioned parallel to the nuts
Number of Screws (Bridge)	None
Saddle	Triangular saddle (top of the bridge)
Number of strings	15 to 16
Strings (over the fingerboard)	2 to 3 (seemingly fingerboard is not properly in function)
Diapason strings	None
Nut	The nuts are allocated for every individual string (no exception)
Tuning peg/pin	Brass pins
Number of tuning pins	15 or 16

[11] The image was taken from The Twelfth Shop, <http://www.12fret.com/content/2011/09/30/british-lute-by-edgar-light-circa-1790/>, (Accessed Sep., 2013).

Number of Fingerboards	1 (but not functioned at all)
Fingerboard (surface)	Almost flattened (usually painted in black)
Fret / number	Ivory bar fret / varies
Body (form)	Soundbox: Two outer staves rounded while the centre slightly arched
Number of staves	3
Hole at back (form)	Oblong
Holes at back (number)	1 hole
End pin	Bottom of the body
Neck (style)	Upper (harp) and Lower neck completely integrated style
Neck (form)	Similar to that of dital-harp, but no mechanical devise is installed in the lower neck
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the heel block, usually with an inscription 'British Lute'
Mechanical part	None
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	The Corinthian order
Gilded composition	On the Pillar (only on very top of the capital)
String guide	No
Stops (form)	No stops – if it has, it is later addition
Number of Stops	N/A
Capotasto	No
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

The British Lute was invented around 1823, probably as cheaper model to the dital-harp, and possesses a similar construction. Not many have survived. The instrument has the completely integrated necks with the soundbox consisting of three staves in rounded shape, but only one oblong hole, it only has fifteen or sixteen strings without an installation of ditals – instead the pitch of each string has to be changed manually by displacing it to the different levels of nut.[12] The bridge is attached parallel to the nuts and the plinth is eliminated; like the harp-lute, an endpin was attached. The serial number was restarted from '1' upwards for British Lute differentiating it from the dital-harp.

[12] The brass stops on the extant instrument shown in this thesis is not original.

British Harp

(Year of invention: c.1825 – Years of production: probably until 1829 or earlier)

Fig 9. 9: (left) the British Harp with seventeen strings MMS [M2362][13] and (right) the British Harp with nineteen strings HML [15.10.48/45].

Table 9. 8: General Characteristics of the British Harp.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Usually no soundhole; instead a painting in gold that stimulates it
Bridge	Pin-bridge positioned slanted to the nuts
Number of Screws (Bridge)	None
Saddle	Triangular saddle (top of the bridge)
Number of strings	17 or 19
Strings (over the fingerboard)	2 (seemingly fingerboard is not properly in function)

[13] The plinth is missing; the author confirmed when did access to the instrument that there are two holes for the plinth to be held in place.

Diapason strings	None
Nut	The nuts are allocated for every individual string (no exception)
Tuning peg/pin	Brass pins
Number of tuning pins	17 or 19
Number of Fingerboards	1 (but not functioned at all)
Fingerboard (surface)	Almost flattened (usually painted in black)
Fret / number	Ivory bar fret / varies
Body (form)	Soundbox: Two outer staves rounded while the centre slightly arched
Number of the stave	3
Hole at back (form)	Oblong
Holes at back (number)	2 holes
End pin	No
Neck (style)	Upper (harp) and Lower neck completely integrated style
Neck (form)	Similar to that of dital-harp, but no mechanical devise is installed in the lower neck
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the heel block, usually with an inscription 'British Harp'
Mechanical part	None
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	The Corinthian order
Gilded composition	On the plinth
String guide	No
Stops (form)	No
Number of Stops	N/A
Capotasto	No
Plinth (form)	Oval-shaped plinth
Additional parts	No

DESCRIPTIONS AND NOTES

Closely resembling to the British Lute, the British Harp was perhaps the successor but is rather similar to the latest model of dital-harp. They have the completely integrated necks with the soundbox consisted of three staves in rounded shape and an oval-shaped plinth is attached to the bottom. The bridge is being slanted with holes for either seventeen or nineteen strings. Like the latest model of the dital-harp even no soundhole is found on the soundboard. The most important part, which disqualifies from being a dital-harp, is the lack of mechanical device (ditals) on the neck; as well as the British Lute, the pitch of each string has to be changed manually. Also, the British Harp usually bears inscriptions on the heel block: ‘E. Light Inventor of the / British Harp’.

guitare harpe

(Year of invention: 1823 [English model] and 1825 [French model]

– Years of production: not known)

Fig 9. 10: (left) a representative *guitare harpe* in French style in a plain finish, HMS [C0022]; (right) a rare *guitare harpe* in English style in a decorative finish, RCM [RCM116].

Table 9. 9: General Characteristics of the *guitare harpe*.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Pin-bridge
Number of Screws (Bridge)	No
Saddle	On the bridge like that of ordinary guitars
Number of strings	7
Strings (over the fingerboard)	All
Diapason strings	None
Nut	1 piece of nut (like that of the guitar)
Tuning peg/pin	Brass pins
Number of tuning pins	7
Number of Fingerboards	1
Fingerboard (surface)	Almost flattened (French style) /Arched (English style)

Fret / number	Ivory bar fret / 12 frets
Body (form)	Soundbox (semi-conical with the centre-stave flattened)
Number of staves	3
Hole at back (form)	Oblong
Holes at back (number)	1
End pin	At bottom of the body and top of the head
Neck (style)	Guitar style
Neck (form)	Semi-circular
Neck position	Attached at the centre of the body
Finial	No (instead a gilded face of Apollo in a sunburst on the head)
Maker's inscription	Between the nut and the string guide
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	Gilded face of Apollo in a sunburst on the head
String guide	Positioned Slanted to the nut
Stops (form)	Rectangular push-style brass stops
Number of Stops	3 (two behind the second fret and one behind the first)
Capotasto	Brass rectangular Capotasto (three holes on the fingerboard)
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

Similar in form to the harp-guitar as originally invented by Edward Light which appeared in various designs, the 1825 patent instrument by Mordaunt Levien was highly standardised, with the construction and shape of most of his extant instruments faithfully corresponding to the original illustration included in the patent document.[14] The distinctive characteristics are that the fingerboard typically has three capotasto holes behind the second, third and fourth frets and additionally has three brass stops, which can be pushed through the neck in order to raise the pitch of individual strings: usually one is placed under the fifth string behind the first fret and the other two under

[14] For more details see Chapter 6.

the fourth and sixth strings behind the second fret. Also noteworthy, unlike the harp-guitar, it has a string-guide positioned behind the first nut pressing down on the highest six strings for increasing the tension and also functioned as a second nut for the longer seventh bass string. The head has a distinctive diamond shape with a gilded face of Apollo in a sunburst positioned in the centre below it tuning pins formed in a V-line. One was survived with a handy ring-shaped tuning-key (Fig 9. 11) but with no particular place to keep it on the instrument.

Fig 9. 11: a ring-shaped tuning-key accompanying to the *guitare harpe* BSH [Casadesus collection no.5]

As the inventor, Mordaunt Levien, mostly resided in London, though granted a patent in Paris, the *guitare harpe* was introduced in two models either in French or English style adapted to the current fashions in the two countries. The French have a pin-bridge with what is commonly called a moustache, two mother-of-pearl dots at the tips while the strings sit on an ivory saddle, representative exquisite French works of black-and-white soundhole rosette, inlays and bindings, plain or natural finish showing the texture and grain of the wood, those characteristics are typically seen in the contemporary French guitars. The English style, while retaining the form and the practical elements[15] such as the stringing of the *guitare harpe*, has a more decorative appearance characterises the instrument that completely covered the instrument with gilt and colour paintings. There are no space for rosette, inlays, bindings and a French style moustache of the bridge is

[15] It has to be noted that the English style seems to have been introduced prior to the French style, therefore more attempts can be seen for improving the instruments that means not much standardised as in the French style, thus some has no capotasto and stop.

lacked. English style is very rare to find, especially with an inscription of the inventor, whereas a substantial number of the French style survive in various places, though some of them have lost the inventor’s plate in which usually find an inscription such as ‘LEVIEN / Inventeur & Breveté’.

Regency Harp Lute

- Included in a group of the harp-lute -

(Year of invention: c.1816 – Years of production: not known, probably until the 1830s)

Fig 9. 12: (left) attributed Regency Harp Lute in a conventional manner of decoration, having two separated fingerboards one of which one third concaved, pin-bridge for fourteen strings and two keys for changing the pitch, V&A [252-1882]; (right) attributed Regency Harp Lute in natural finish with exquisite works of mother-of-pearl inlayed soudhole rosette, black and white inlays and bindings for the edges those found in the French guitar, having pin-bridge in French style for fourteen strings, two fingerboards, three keys for changing the pitch and distinctive form of the upper neck and sphere legs at bottom of the body, MIMEd [1107].

Table 9. 10: General Characteristics of the Regency Harp Lute.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (a gilded wooden rose is attached): Early production Yes (mother-of-pearl inlayed rosette around it): Later production
Bridge	Pin-bridge (curved inward like that of Panormo guitar) Pin-bridge (similar to that of dital-harps) Pin-bridge (wavy form like those seen on the French style guitars)
Number of Screws (Bridge)	None

Saddle	Front edge of the curve (Panormo style): Early production Individual saddle is provided (French style): Later production
Number of strings	14 or 16
Strings (over the fingerboard)	Over the first (short) fingerboard: 3strings (1^{st} to 3^{rd} string) Over the second (longer) fingerboard: 3strings (4^{th} to 6^{th} string) *A concave under the 7^{th} string enables the 7^{th} string to be played in open
Diapason strings	8 or 10 (including 7^{th} string)
Nut	1 piece of nut (like that of the guitar) – one for each fingerboard
Tuning peg/pin	Brass pins
Number of tuning pins	14 (3 on the treble side of the heel and 11 on the upper neck) 16 (3 on the treble side of the heel and 13 on the upper neck)
Number of Fingerboards	2
Fingerboard (surface)	Almost flattened
Fret / number	Varies
Body (form)	Soundbox Consisting of flat staves Or, semi-conical with the centre-stave flattened
Number of staves	7 or 3
Hole at back (form)	Oblong
Holes at back (number)	2
End pin	At bottom of the body
Neck (style)	Upper (harp) and Lower neck (guitar) combined style
Neck (form)	Semi-circular
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	Varies, or many cases anonymous
Mechanical part	No
Pillar	No
Pillar (style)	Corinthian Order: Early Production Ionic Order: Later Production
Gilded composition	On the Pillar in the Corinthian order (on the capital and the pedestal) Or, no gilded composition and extravagant ornamentation.
String guide	Positioned Parallel to the nut
Stops (form)	Keys (push-style brass stops) and Ring stops combination
Number of Stops	Varies
Capotasto	No

Plinth (form)	Later model has shpare-shaped legs at bottom of the body
Additional parts	No

DESCRIPTIONS AND NOTES

According to advertisements in newspapers the instrument was originally invented by Wheatstone. Only two extant instruments in the of the harp lute school bearing Wheatstone's identification are known; one similar to the harp-lute[16] and the other in a similar form to the British Lute Harp.[17] It is therefore difficult to define exactly what the 'Regency Harp Lute' referred to amongst surviving instruments. Nevertheless, comparison between the extant instruments and few contemporary documents revealed a suggested type of the instrument. There are some extant instruments that were substantially constructed in a manner of the harp-lute,[18] but due to slightly dissimilar form, they do not faithfully belong to any models. There exists an applicable number to associate a group. Because of such similarities in the basic construction and design, the Regency Harp Lute should be classified in the group of the harp-lutes. Yet due to the conspicuous dissimilarities, within that category, the instrument needs to be distinguished from the conventional ones, hence the presence were the instruments supposedly called the 'Regency Harp Lute'[19] that do not exceeded the classification of the harp-lute.

One of the most distinctive parts is the two separate fingerboards of different length; the shorter attached on the soundboard for the top three strings – hereafter called 'first fingerboard', and the longer placed on the lower neck for the fourth to sixth strings – hereafter called 'second fingerboard'. Though the latter has sufficient width for one more string, one third of the fingerboard is concave in order for the seventh string to be played as an open string instead of being performed on the frets. Moreover, tuning pins for strings that pass over the first fingerboard are separately installed on the extra piece

[16] HML [M79-1983]
[17] HML [15.10.48/41]
[18] Basic design is definitely of the harp-lute, for instance the representative combination; body consisted of the soundboard having a soundhole with a rose and a soundbox for the back, lower and upper neck with functional fingerboards and a pillar supporting for the strength from the floating bass strings.
[19] This attribution may be wrong but to distinguish the instrument from the others, their existence can be more meaningful and significant thus they are classified with them in this thesis.

attached to the treble side of the heel. Additionally the string-guide is simplified, without function or even removed. Another part which characterises the instrument is the pin-bridge, uncommon in the conventional Light's harp-lute (usually with tie-bridge), at which typically fourteen strings are terminated: two more than the conventional harp-lute. There was probably another model with sixteen strings too. The form of bridge varies: some have the form of the dital-harps, others like the contemporary Spanish guitars.

There is a similar instrument having two fingerboards and fourteen strings: the 'Imperial Harp Lute' invented by Angelo Benedetto Ventura. The two can be distinguished. The keys attached to the upper neck of the Regency Harp Lute for changing the pitch; pressed the key, an annexed brass pin pushes a string that shorten the effective length so that the pitch raised a semitone. This system is attributed to the invention of Wheatstone and seems to have been exclusively used by the Wheatstone typed instruments (never employed by the instruments by Light). Additionally manually operated ring stops are often used in combination with the keys. Besides, due to insufficient number of specimens, it cannot be said confidently, but the Imperial Harp Lute seems normally to have no keys for changing the pitch but always ring stops.

For the ornamentation and decoration, at least two types were produced: either in a manner of the conventional harp lutes or in adaptation to the growing popularity of the French design. The former, as with the typical harp lutes, has excessive decorations of the Regency style, having gilded adornments and coloured paintings, while the latter being in natural finish – no decorative works instead showing figures and grains of the raw materials. As seen in the *guitare harpe*, proper inlays and bindings made of mother-of-pearl were applied for the soundhole rosette that usually seen in the French-style guitars. Besides, some have spherical legs at bottom of the body, which may be a characteristic of Wheatstone's manufacture.

N.B. The terms 'Regency Harp Lute' defined in this thesis is not as definite as the other harp lutes especially those invented by Light but the instrument seems to be a Regency Harp Lute, alternatively it is 'a type of harp-lute'.

Imperial Harp Lute

- Included in a group of the harp-lute -

(Year of invention: 1814 – Years of production: not known, possibly until 1817 or later)

Fig 9. 13: (left) Imperial Harp Lute by Ventura having two separate fingerboards of different lengths providing a space between them, a tie-bridge in the conventional style with fourteen strings and a key box at the heel block, HMS [C0038]; (right) Imperial Harp Lute by Ventura having only a second fingerboard, a tie-bridge in the conventional style with twelve strings and a key box at the heel block, Sotheby's 25-Nov-2003 Lot: 293, p.98.

Table 9. 11: General Characteristics of the Imperial Harp Lute.

PART	DETAILS: forms and numbers
Soundboard	Fan-shaped
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	3 screws
Saddle	Attached to bottom edge of the bridge if it appears
Number of strings	12 or 14
Strings (over the fingerboard)	3 over the fingerboard and 1st, 5th, 6th 7th strings are being floated (12 strings) 3 over the first fingerboard, 3 over the second, 7th and 8th floated (14 strings)

Diapason strings	9 strings including1st, 5th, 6th 7th strings (12 strings) 8 strings including 7th and 8th strings (14 strings)
Nut	1 piece of nut (like that of the guitar)
Tuning peg/pin	Brass pins
Number of tuning pins	12 (1on the treble side of the heel and 11 on the upper neck) 14 (3 on the treble side of the heel and 11 on the upper neck)
Number of Fingerboards	2
Fingerboard (surface)	Slightly arched but almost flattened
Fret / number	Ivory bar fret / 7 on the second (long) and first (short) fingerboard
Body (form)	Soundbox: Consisting of flat staves: Later production
Number of staves	7
Hole at back (form)	Oblong
Holes at back (number)	1 hole
End pin	At bottom of the body
Neck (style)	Upper (harp) and Lower neck (guitar) combined style
Neck (form)	Semi-circular (like that of the guitar)
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the groove at the fingerboard and top of the pillar (on the capital)
Mechanical part	No
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	Corinthian Order
Gilded composition	On the capital and the pedestal of the pillar
String guide	No
Stops (form)	Ring stops
Number of Stops	8
Capotasto	No
Plinth (form)	No
Additional parts	Key box on the heel

DESCRIPTIONS AND NOTES

Invented by Angelo Benedetto Ventura, and in appearance superficially like conventional harp-lutes, closes observation shows its similarity to the Regency Harp

Lute. Unlike the Regency Harp Lute, the Imperial Harp Lute usually bears inventor's inscriptions on the groove on the longer fingerboard. Nevertheless, as with the Regency Harp Lute, the basic construction and the design are those of the harp-lute originally invented by Edward Light. Excessively decorated with gilded and coloured paintings, the soundbox comprised of seven staves. It surely belongs to a category of the harp-lute so is considered as a type of the harp-lute having slightly different features that distinguish the instrument within the group.

The bridge design is of the conventional harp-lute (tie-bridge) having a saddle at the bottom edge with a skirt for fixing the bridge to the soundboard with three screws. Though the bridge is arched crosswise the longer fingerboard is almost flattened while the shorter is slightly arched. To be more user-friendly instrument, the Imperial Harp Lute always has a key box on the heel block, in which the owner was able to keep the tuning key, closed by a lid with a little lock for securing – this innovative idea has become one of the characteristics of Ventura's inventions.[20] In addition it has to be noted that the author was able to examine only one Imperial Harp Lute at first hand,[21] the other is described and illustrated in an auction catalogue,[22] which may be inaccurate.

---

[20] See Chapter 6.
[21] HMS [C0038].
[22] Sotheby's, 25-November-2003 Lot: 293, p.98.

Harp Ventura[23]

(Year of invention: 1828 – Years of production: possibly until 1851)

Fig 9. 14: (left) Harp Ventura in more adaptation to the Victorian style, having three different fingerboards, a lever action tuning device for the twelve bass strings, the centre piece of the back being arched in crosswise and an attached Wedgewood jasper-ware medallion in the square soundhole while the bridge is hidden by the *ponte volante*, V&A [248-1882]; (right) Ventura Harp in the conventional style of the harp lutes in Regency style, having three different fingerboards, tuning device actuated by pressure for ten bass strings, the centre piece of the back being arched crosswise and an attached gilded sunburst in the square soundhole while the bridge is hidden by the *ponte volante*, MMS [2062].

Table 9. 12: General Characteristics of the Harp Ventura.

PART	DETAILS: forms and numbers
Soundboard	Flower bud-shaped
Soundhole	Yes (usually square and a gilded wooden rose or a Wedgewood jasper-ware medallion is attached)
Bridge	Pin-bridge
Number of Screws (Bridge)	No
Saddle	Iron rod attached in front of the bridge pins

[23] The designation 'Harp Ventura' is referring to the original description of the patent document no.5618 by Ventura in 1828 in which he proposed the name, however one of the instrument bears the name 'Ventura Harp' MMS [M2062], nevertheless to avoid the confusion extant in this thesis we follow the designation appeared on the formally written document, thus 'Harp Ventura'.

Number of strings	17 or 19
Strings (over the fingerboard)	7 strings (1st string on the smallest fingerboard) (2nd to 4th strings on the middle fingerboard) (5th to 7th strings on the longest fingerboard)
Diapason strings	10 strings (17 stringed one) 12 strings (19 stringed one)
Nut	1 piece of nut (like that of the guitar) for each fingerboard
Tuning peg/pin	Brass pins
Number of tuning pins	4 on the treble side of the heel and the rest on the upper neck
Number of Fingerboards	3
Fingerboard (surface)	Slightly arched
Fret / number	Ivory bar fret / (10 on the longest fingerboard, 5 on the middle and 3 or 4 on the smallest)
Body (form)	Two outer boards of back are flattened while the centre arched Side boards are bevelled The proportion of the back is almost one third smaller than that of the front
Number of staves	3 pieces of wood were used for the back
Hole at back (form)	No
Holes at back (number)	No
End pin	No, instead there is a cord to hook
Neck (style)	Upper (harp) and Lower neck (guitar) combined style
Neck (form)	Semi-circular (like that of the guitar)
Neck position	Attached at right hand side of the body
Finial	No
Maker's inscription	On the soundboard
Mechanical part	Action made of brass is installed in the upper and lower necks
Pillar	Yes (positioned at left hand side of the body)
Pillar (style)	Corinthian Order
Gilded composition	On the capital and the pedestal of the pillar
String guide	No
Stops (form)	No (disc stops similar to that of harps)
Number of Stops	10 or 12
Capotasto	No
Plinth (form)	Part of the body (bottom)
Additional parts	Key box, a box for strings and *ponte volante* (a movable fan-shaped plate)

DESCRIPTIONS AND NOTES

This instrument, patented in 1828, has a distinctive design and a form originally invented by Angelo Benedetto Ventura in London, and was exhibited in the 1851 London Great Exhibition at Crystal Palace. Two surviving Harps Ventura have been identified by the author; one in the V&A [248-1882] and the other in MMS [M2062], they are both in excellent condition. Considering its complex construction and mechanisms mounted in the instrument adding a great amount of weight, the instrument seems to have been made for display or experimentation purposes rather than for practical use, and thus not many survived and it seems not to have been in a commercial success. Nevertheless, the distinctiveness of the instrument is significant; it is easily distinguishable from the other harp lutes (chiefly developed by Light) though it basically stands in the harp lutes structure and definition, and the instrument is classified in a family of the harp lute. Unlike the Regency Harp Lute and Imperial Harp Lute that are difficult to identify due to the scarcity of written documents, and in spite of the even smaller quantity of surviving Harps Ventura, the designation 'Harp Ventura' can be accurately applied as the patent record with a description and drawing of the instrument are in existence.

The body shape is uniquely formed like a flower bud, without a discrete plinth, and the instrument can stand as its flat bottom (in which conveniently a small box for maintaining small quantity of strings is mounted) is opened by a spring. There is a similar box at the heel in between the neck and the pillar (like the Imperial Harp Lute) to keep the tuning key (Fig 9. 15). A looped string is attached next to the box at the bottom to fasten one end of the cord for holding the instrument, the other end being tied just under the capital.

Fig 9. 15: (above) key box mounted in the neck block; (middle) an original key; (below) a box for strings mounted in the bottom of the body, MMS [M2062].

The sides are bevelled from the back to the front, so the proportion of the back is almost one third smaller than that of the front[24] and the centrepiece of the back is arched crosswise, the width narrowed parallel to the outer line of the body, while the rest of the back is more or less flattened. Although they are smaller in ratio to the body, as an essential part of the harp-lute, the upper and lower neck are attached to the capital above the pillar in the conventional manner. With boxes for strings and the key, the instrument offered various novelty features that made it more attractive and innovative. In addition,

[24] See Ventura's description in the British patent document no. 5618 (granted in 21 February, 1828) page 3.

there are three different fingerboards, two attached to the soundboard and the other on the neck, over which seven strings pass; the highest string for the smallest fingerboard (designated the third fingerboard), followed by three strings over the middle fingerboard (designated the second fingerboard), and the final three are over the largest or conventional fingerboard (designated the first fingerboard) while the rest of the strings are floated. As explained by the inventor,[25] two types, with either seventeen strings, or with the addition of two further bass strings (nineteen in total), is represented by the surviving instruments. MMS [M2062] and V&A [248-1882] respectively. For those floated stings, they are, as with the other harp lutes, fixed at the upper neck but each string passes between two pins attached to a brass disc:[26] part of a mechanical device invented by Ventura.[27] The mechanism (action) is installed in the upper and lower neck, and was made after the action of the grand harp, which alters the pitch of the strings in order to adapt to the different keys of music. As the disc is turned, a string is twisted by the two pins to alter the effective length so that the pitch has been changed – according to the account by Ventura, it can be altered in three ways; flat, sharp and natural.[28] The disc is operated by pressing the button connected to a particular disc, or two at the same time.[29] The device is fixed in the lower neck next to the first fingerboard and was called by the inventor a 'pollice'. Ventura also presented two types for the action either by pressure or lever, both operated with seven pollices, the former mounted in the specimen in MMS turns with it ten discs, while the latter installed in the one V&A turns with it for twelve discs, meaning some pollices are connected to more than one discs, thus enabling multiple turns at once (Fig 9. 16).

[25] 'This instrument [Harp Ventura] consists of seventeen strings (two more may be added to the bass)', See Ventura's description in the British patent document no. 5618 (granted in 21 February, 1828) page 2.
[26] Ventura called it 'fork'.
[27] Though Light used similar system for his British Lute Harps and dital-harps that are quite different particularly between the ways of pulling the strings by ditals (Light) and of twisting the strings by a disc (Ventura), the latter is a formal manner used by the grand harp, hence in the strict sense it was not Ventura's original invention.
[28] Ibid.
[29] The author confirmed by examining the one in MMS that by pressing a pollice for the key of Bb the two discs on eighth and fifteenth stings are turned, but it seems that the machinery worked with the combination of turns one or two disc(s) at the same time as the pollice for Eb turned only one disc on twelve strings. Accordingly, Ventura claimed in his account in the 1828 patent document that 'it being a single action acting only on one of the forks [discs]…with the conductors and cranks acting on two of the forks, which may be which may be increased to three or more.' (1828: 3).

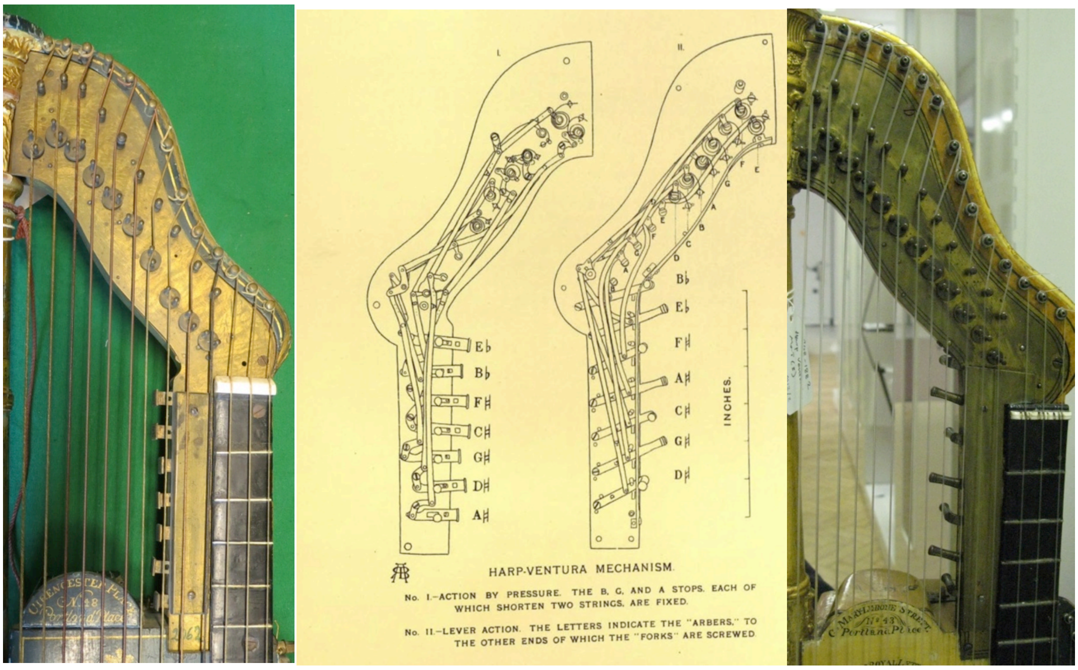


Fig 9. 16: two different actions for the Harp Ventura; (centre) an illustration in Armstrong (1908: after 132); (left) Action by pressure, MMS [M2062]; (right) Lever action, V&A [248-1882]

The bulky use of brass, especially for the tuning device made the instrument extremely heavy, so the customers (ladies) seem not to have been able to handle it like the other harp lutes, it was much heavier than the dital-harps in which were also mounted the brass tuning devices. As with the other harp lutes in tradition, the inventor did not forget to include features derived from contemporary fashionable art and designs; for instance, the instrument in the V&A has a Wedgewood jasper-ware medallion in the square soundhole instead of the more traditional gilded rose that could have been influence by the Victorian fashion for collecting small articles.[30] Furthermore, the bridge could be one of the most important parts for the instrument representing the social influence and the inventor's following the social tendency to hide mechanisms, or imitating the use of the fans by ladies in the Victorian era.[31] In the V&A and the MMS examples, above the

[30] Thought the Harp Ventura was first patented in 1828, considering that the instrument was exhibited in the 1851 Great Exhibition, it is more likely that the one in V&A was constructed around this time rather than around the 1828 when still in the Regency period, accordingly the ornamentation is not like the Regency design but more consisted of the Victorian fashion, thus less gilt decoration. The one in MMS seems to be the earlier model, though the form had not been changed from the 1828 patent drawing to the 1851 illustration for the Great Exhibition, it has only seventeen strings in total while the decoration is apparently of the Regency motives that are commonly seen the typical harp lutes, and also the rose is gilded and ornamented.

[31] Discussion with a guide when participating in the tour of the Victorian house in 18 Stafford Terrace,

bridge, there is a movable fan-shaped plate; the so-called '*ponte volante*' or 'shifting bridge'[32] and if needed on occasions such as changing strings, it can be opened by lifting it and turning on a pivot that fixed at the bottom of the body while the plate is supported by two bent rods fixed underneath the plate (usually hidden in the body through the holes drilled on the soundboard), which prevent the plate from being unstable when opening it or holding it firmly in the closed position. Besides, as Ventura claimed that 'under which [*ponte volante*] is a small machine to touch the springs fixed to the string bridge, which make the imitation of the bassoon'.[33] The author confirmed the one in MMS that has an iron rod used as a saddle on the bridge, but it is not sure that is the machine to imitate the bassoon since no spring has been identified. Instead, there are two strange holes (Fig 9. 17) in front of the bridge (indicated with blue arrows) that is apparently different from and bigger than the holes for the supporting rods of the plate (indicated with red arrows), which may be concerned with the imitation of the bassoon, but this is not certain.

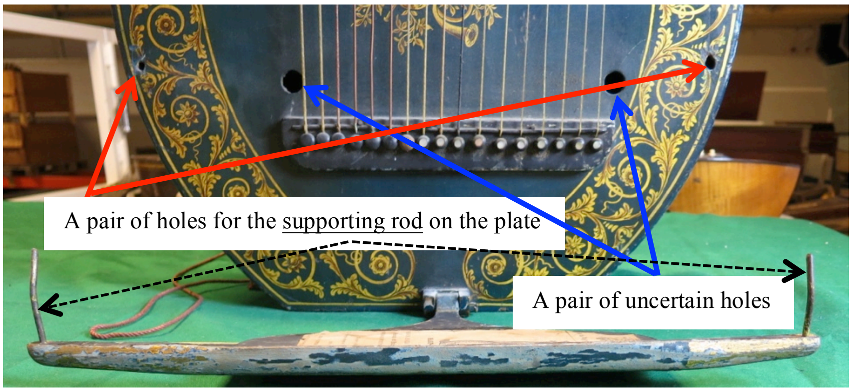


Fig 9. 17: Opened position of the *ponte volante* showing two different pairs of holes, MMS [2062].

London, February 2012.

32 Ventura called it so in his account in the patent document of 1828.

33 See 1828 patent document by Ventura page 3.

Apollo Lyre

(Year of invention: c.1805 – Years of production: possibly until c.1812 [when it disappeared from Light's adverts], but such ones by Wornum seem to have been manufactured until slightly later period, probably until the 1820s)

Fig 9. 18: (left) Apollo Lyre by Harley in Regency style, having a movable oval finial in which engraved a face of Apollo surrounded by sunburst partly covering the wooden tuning pegs, two cutaway arms with scrolls winded outwards, no extra arms, tie-bridge with seven strings and standing on a plinth with spheres, HMS [C0031]; (right) Apollo Lyre by Wornum in Regency style, having a movable oval finial in which engraved a face of Apollo surrounded by sunburst covering the brass tuning pins, no cutaway arms with scrolls winded outwards, extra bent arms from top of the scroll to the head, pin-bridge with six strings and standing on a plinth with spheres, V&A [891-1875].

Table 9. 13: General Characteristics of the Apollo Lyre.

PART	DETAILS: forms and numbers
Soundboard	Lyre-shape
Soundhole	Usually a gilded wooden rose is attached: Barry's and Clementi's Rose is missing or was not in the original state: Harley's With a gilded crescent moon: Wornum's
Bridge	Tie-bridge: Barry's, Harley's and Clementi's Pin-bridge: Wornum's
Number of Screws (Bridge)	No

Saddle	Varies
Number of strings	6 strings: Barry's, Wornum's and Clementi's 7 strings: Harley's and Clementi's
Strings (over the fingerboard)	All
Diapason strings	None
Nut	1 piece of nut (like that of the guitar)
Tuning peg/pin	Brass pins: usually Barry's, Wornum's and Clementi's Wooden pegs: Harley's and Clementi's
Number of tuning pin/pegs	6 or 7
Number of Fingerboards	1
Fingerboard (surface)	Arched: Barry's, Harley's and Clementi's Almost flat: Wornum's
Fret / number	Ivory bar fret / 12 frets: Barry's and Clementi's Ivory bar fret / 14-15 frets: Harley's and Clement's Brass bar fret/ 18-20 frets: Wornum's
Body (form)	Flat-back lyre shape
Number of staves	Usually 2 pieces of wood for the back
Hole at back (form)	Usually None (if it has, most probably the later addition)
Holes at back (number)	None
End pin	Sometimes on the Wornum's attached on bottom of the body
Neck (style)	Guitar style
Neck (form)	Semi-circular
Neck position	Attached at the centre of the body
Finial	Fixed finial: Barry's and Clementi's Movable finial: Harley's, Wornum's and Clementi's
Maker's inscription	On the head: Barry's and Clementi's Above the soundbox: Barry's, Harley's Wornum's and Clementi's Paper label inside the body: Wornum's
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	Gilded face of Apollo in a sunburst on the finial
String guide	No
Stops (form)	No
Number of Stops	No
Capotasto	No

Plinth (form)	Plinth with gilded composition: Barry's and Clementi's Plinth with gilded spheres: Harley's, Wornum's and Clementi's
Additional parts	Extra arms (made of iron or wood) for all models except ones by Harley's

DESCRIPTIONS AND NOTES

This instrument is in the form of a Greek Lyre, symmetrical in design, having two arms with scrolls, a fingerboard in between them, with the back flattened rather than vaulted like other harp lutes and the body usually standing on a plinth. It has sometimes been considered to be a family of the French made 'lyre-guitar'. Though the two instruments are similar in appearance for a broader classification, the Apollo Lyre seems to have been developed exclusively in Britain, thus illustrating a distinctive form, easily distinguishable in the light of British guitar history from the eighteenth century and representative tradition seen in those constructions and designs which differ from those of the Continent. The Apollo Lyre can be identified by focusing on the designs and decorations that characterise the instrument.

First, the instrument is designated 'Apollo', because of an oval-shaped finial attached on the head. Some partly cover the wooden pegs (as in Harley's) or completely covers the brass tuning pins (as in Wornum's) and others are unified with the head (as in Barry's). A face of Apollo surrounded by sunburst is engraved on the finial as a gilt decoration. The former finial hiding the tuning pins is usually movable, enabling it to turn on a pivot mounted on top centre part of the head to allow changing the strings etc.[34] Tuning pins for the latter finial are all visible. Clementi & Co. was the only entrepreneur who almost equally produced both types. Regardless of types and makers, it can be said that the finial is one of the most significant features that symbolises the instrument since it is rarely seen in the French made lyre-guitars.

Second, the arms are the most recognisable components and their peculiar form is an element for identifying the Apollo Lyre. There are chiefly two types: whether the body

[34] There also exist the finial that fixed to the head, thus not moved and the tuning devices are all visible.

has two cutaways or no cutaway – it may be easier to distinguish the two by looking from behind. The former has two symmetrical hollows at the bottom of the arms that the curves beginning from the edges where the body and the heel meets, and the curves sink into the body then up towards the scrolls at both sides, thus resulted two cutaways. The latter has only a line of symmetrical sequential curvature from the one scroll to another by passing under the heel, thus no cutaway. Comparison of the two types is also useful for identifying the maker, the no-cutaway type is typical of Wornum's Apollo Lyre while the two cutaways was generally employed by the other makers such as Barry, Harley and Clementi & Co. The former type usually has a crescent moon rose in the soundhole. Furthermore, there also are two variations depending on whether it has extra arms or not. Although this can also be seen in the lyre-guitars, the extra arms for the Apollo Lyres are usually bent while the French uses straight arms that are diagonally attached. This is because of the different length for the arms and scrolls in between them; the English has shorter arms than that of the French, so that the top of the scrolls for Apollo Lyre end halfway up the height of the fingerboard while the lyre-guitars have them reaching the head level. In many cases lyre-guitars do not have longer discrete scrolls, which occupy half-length of the Apollo Lyre's arms. The scrolls, usually attached on the arms in symmetry to each other, are always wound outwards, typically with flower-motif gilt attachments on both surfaces of the circular part for both scrolls. There of course are some exceptions such as pyramid-shaped scrolls[35] instead of the circular type, or with star-motif for the attachment[36] as an alternative to the flower engravings, yet the English made Apollo Lyre should always have the scroll with a great extent curved outwards, otherwise it is not the Apollo Lyre or an imitation manufactured outside Britain.

Third, the bridge are of two different types depending on the maker, for instance, as with the discussion in the cutaway, Wornum's has a pin-bridge at which usually six strings were terminated, while the tie-bridge are commonly used by the other makers in the same manner as earlier models of the harp lutes, yet within that group there are two

[35] BSH [Casadesus collection No. 7]
[36] HML [MT507-1998]

types differing in the number of strings; either six or seven in total.[37]

Fourth, being in the form of a Greek Lyre, the body is tapered from the bottom to the arm (closer to the heel and top of the arms the depth becomes shallower), while the soundboard is almost flat.

Fifth, contrary to the body, the form of the head is varies quite significantly amongst the surviving instruments. Two different tuners are used - either the wooden pegs as commonly used by the harp-guitars or the brass pins typically used by the harp or the later generations of the harp lutes after the harp-lute.

Finally, the rounded bottom of the body is one of the characteristics that distinguish the Apollo Lyre. Normally made with an attached plinth, so that the instrument sits on it, whereas the lyre-guitar usually has a flattened bottom: the body becomes part of the plinth. What these two types of construction made possible are that; for the Apollo Lyres, consisting of discrete parts, the plinth was able to be highly decorated not only for the complex shapes adapted to the Regency style but also use of carvings with a representative technique of the harp lutes 'gildings'; whereas the lyre-guitars usually have much simpler plinth in rectangular shape without decorative works, similar in style to the simplified and highly sophisticated design that is commonly seen in the contemporary French guitars. Although both designs were undoubtedly influenced by the contemporary fashion in homage to the ancient Greek, Roman and Egyptian designs and culture, but more extravagant decorations such as gilt works and colour paintings were applied to the Apollo Lyre. Probably there was a preference for images of the ancient world by the English customers or even inventors and makers. Whereas the French customers or makers seems to have found the elegance in more natural taste and exquisite techniques such as the display of the figures and grains of the woods with superior craftsmanship, thus simpler finishes. This is one of the elements useful for identifying the English made of Apollo Lyre and other harp lutes since despite their diverse forms they are consistent in such distinctive finish in the Regency style.

---

[37] What this difference indicates is hitherto uncertain.

Fig 9. 19: an example of lyre-guitar by Pons fils in Paris RNCM [S19]

Bass-Lyre[38]

(Year of invention: c.1807 – Years of production: probably until c.1815)

Fig 9. 20: (far left) An earlier model of bass-lyre, anonymous, having an oval finial unified to the head with an engraved Apollo's face, eleven strings in total (seven on the fingerboard and four being floated), thirteen frets are embedded and no cutaway on either side of the heel, Armstrong (1908: after 32); (middle left) An earlier model of bass-lyre, bearing the inscription of Light/Barry on the ribbon just above the soundhole, and twelve frets, MBR [1884.11.2];[39] (middle right) A bass-lyre in between the earlier and the later model bearing an inscription of 'Light' just under the soundhole, with an oval finial having an painting of Apollo's face rather than engraved, eleven strings in total (six on the fingerboard and five floated) with twelve frets embedded and two cutaways next to the heel, One sold in Musurgia.com;[40] (far right) A later model of bass-lyre, anonymous, having a Prince of Wales's feather shaped head, twelve strings in total (seven on the fingerboard and five floated), three discrete nuts in tiers with only eights frets on the fingerboard, and two cutaways on the body, PLO [1938.34.611].

---

[38] The term was quoted from the Gregg Minor's terminology on his homepage 'harpguitars.net' <http://www.harpguitars.net/history/org/org-harp-lutes.htm>, there seems to be no specific designation that was applied to the instrument and possibly involved in the Apollo Lyre in original state, but for reasons of applying the designation to all models in this thesis due to complexity of harp lutes in their forms and in order to more easily understand what instruments are in discussions, the term proposed by Gregg Minor is used for distinguishing it especially from the very similar instrument known as Apollo Lyre.

[39] The picture was taken from the website of 'Cité de la musique' <http://mediatheque.citedelamusique.fr/masc/?INSTANCE=CITEMUSIQUE&URL=/ClientBookLineCIMU/recherche/NoticeDetailleByID.asp>, (Accessed 30 Sep., 2013).

[40] The picture was taken from the website of 'Musurgia.com'; <http://www.musurgia.com/products.asp?ProductID=2168&CartID=342767642013>, (Accessed 30 Sep., 2013), Item number #2168.

Table 9. 14: General Characteristics of the Bass-Lyre.

PART	DETAILS: forms and numbers
Soundboard	Lyre-shape
Soundhole	Yes (usually a gilded wooden rose is attached)
Bridge	Tie-bridge (in style of the harp-lute)
Number of Screws (Bridge)	No: Early production 3 Screws: Later production
Saddle	Usually attached to bottom edge of the bridge if it appears
Number of strings	11 strings: Early production 12 strings: Later production
Strings (over the fingerboard)	The number differs: 11 stringed type 7 over the fingerboard: 12 stringed type
Diapason strings	The number differs: 11 stringed type 5 diapason strings: 12 stringed type
Nut	1 piece of nut (like that of the guitar): Early production 3 pieces of nut (three different scaling lengths): later production
Tuning peg/pin	Brass pins
Number of tuning pins	11 or 12
Number of Fingerboards	1
Fingerboard (surface)	Usually arched
Fret / number	Ivory bar fret / 8 to 13 frets
Body (form)	Flat-back lyre shape
Number of staves	Usually 2 pieces of wood for the back
Hole at back (form)	Obling
Hole at back (number)	1
End pin	Sometimes on the Wornum’s attached on bottom of the body
Neck (style)	Guitar style
Neck (form)	Semi-circular
Neck position	Attached at the centre of the body
Finial	Fixed finial
Maker’s inscription	Usually found on the soundboard
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	Gilded face of Apollo in a sunburst on the finial

String guide	No: Early production Slanted string guide: Later production
Stops (form)	No
Number of Stops	No
Capotasto	1 (individual capotasto) if has but those are later production
Plinth (form)	Plinth with gilded composition
Additional parts	Occasionally Extra arms

DESCRIPTIONS AND NOTES

The instrument is very similar in form to the Apollo Lyre, and is most like the invention of Edward Light, who seems to have desired to give more musical capability to Apollo Lyre. Minor changes were given to make it compatible with the other harp lutes. In consequence some parts are slightly modified, though most of the basic parts remain as in the Apollo Lyre. In this section, therefore, a brief overview of the description, focusing on the parts that have been changed from the original model Apollo Lyre, will be presented.

It is instantly noticeable that there are mainly two head designs; either having an oval finial of a sunburst (often with a face of Apollo) on the centre, or a Prince of Wales's feather painting with the head carved following the outline. Unlike the Apollo lyre, the finials of the bass-lyre are unified with the head. As this style was used in Barry's Apollo Lyres, and only Light's or Barry's bass-lyres are known, the bass-lyre was exclusively manufactured in cooperation between Light and Barry. A model with nuts in partition was a later production.

The additional floated strings in the bass are one of Light's techniques for improving instruments.[41] There are three different stringing arrangements; seven passing over the

[41] By observing the development of the harp lutes by Light from the very beginning of the harp-guitar to the last model dital-harp, it is quite obvious he continuously added more and more strings in a process of development.

fingerboard with four floating[42] (eleven in total), six over the fingerboard with five open strings[43] (eleven in total), or seven strung on the fingerboard and extra five strings are floating[44] (twelve in total). Interestingly, the former two types have the same total number of strings to the harp-lute-guitars – the stringing arrangement for the first mentioned type faithfully corresponds to it with seven on the fingerboard and four for the extra open bass strings. The latter reflects the total number of strings to the ordinary harp-lutes of Light's invention: twelve strings in total. Thereby to large extent the bass-lyre is potentially compatible harp-lute or harp-lute-guitar.

The number of frets varies considerably, from eight[45] to thirteen.[46] As in the development of the harp-lute, the later models embedded fewer frets than the earlier ones. Accordingly although the reduction of the frets seems to have not affected the proportion of the instruments,[47] the body shape especially where meets the neck, namely the heel, varies between the earlier and the later models. The earlier model has, like the Wornum's Apollo Lyre, almost no cutaway for both sides of the heel, whereas the later model formed two cutaways next to the heel. The tuners are rather unified with brass pins. Apart from those parts, the construction of the bass-lyre is more or less the same as the Apollo Lyre.

[42] MBR [1884.11.2] and one in Armstrong (1908: unnumbered plate between 32 and 33).
[43] One sold in Musurgia.com.
[44] PLO [1938.34.611] and one in an auction catalogue, Vichy (15 December, 2007).
[45] The one in Vichy (15 December, 2007), one of the later models that with Prince of Wales's feather head having discrete nuts in two different levels.
[46] The one in Armstrong (1908: unnumbered plate between 32 and 33), one of the earlier models that with an oval finial having a conventional fingerboard providing more or less the same scaling lengths to the strings that passing over the fingerboard.
[47] This is only a suggestion by seeing pictures of the instruments, since most of the instruments are stored in distant places, private collections or even worse in unidentifiable place, which means the author was not able to handle or measure them. From the pictures, the proportion of the instruments are all more or less identical, for instance proportions between top of the scroll and of the instrument, though the sizes may vary.

Arch-Lute-Guittar

(Year of invention: c.1800 – Years of production: probably until c.1803)

Fig 9. 21: (left) Arch-Lute-Guittar by Buchinger, MIMEd [306]; (right) Arch-Lute-Guittar by Barry, MIMEd [307]; (bottom) Arch-Lute-Guittar by Harley, V&A [W. 36-1917].

Table 9. 15: General Characteristics of the Arch-Lute-Guittar.

PART	DETAILS: forms and numbers
Soundboard	Almond-shaped
Soundhole	Yes (most likely a rose is attached)
Bridge	Tie-bridge
Number of Screws (Bridge)	Usually 0 (none)
Saddle	Usually no saddle attached, but may be with a movable saddle
Number of strings	10 courses (3 bass strings in pair and the rest is single courses) 10 single courses (all being single courses)
Strings (over the fingerboard)	7 (terminated at the lower peg box)
Diapason strings	3 or 6 (pair) (terminated at the upper peg box)
Nut	1 piece of nut (like that of the conventional theorbo)
Tuning peg/pin	Wooden pegs
Number of tuning pegs	10 (7 in the lower peg box and 3 in the upper) 13 (7 in the lower peg box and 6 in the upper)
Number of Fingerboards	1
Fingerboard (surface)	Arched (usually painted in black)
Fret / number	Ivory bar fret / 12 frets
Body (form)	Flat back (like that of the guittar)
Number of staves	Usually 2 pieces of wood for the bac
Hole at back (form)	No
Holes at back (number)	No
End pin	At bottom of the body
Neck (style)	Theorbo style
Neck (form)	Semi-circular
Neck position	Attached at the centre of the body
Finial	Square finial (similar to that of the guittar)
Maker's inscription	In the Ribbon painted above the soundhole
Mechanical part	No
Pillar	No
Pillar (style)	N/A
Gilded composition	No
String guide	No
Stops (form)	No
Number of Stops	N/A

Capotasto	Usually No
Plinth (form)	No
Additional parts	No

DESCRIPTIONS AND NOTES

Not many Arch-Lute-Guittars have survived, and they have a quite different form to the other harp lutes, but they are made by the harp lute makers. There are only four extant instruments, one is in V&A [W. 36-1917] and DMC [C22] and the other two are in MIMEd [306, 307]. Being similar in form to the French arch-citterns made around the end of the eighteenth century to the beginning of the nineteenth century, the instrument has sometimes been included in a category of arch-cittern. However, some researchers such as Gregg Miner[48] claimed that, though similar in form to the arch-cittern, the instrument is not the same. Therefore, the characteristics of the plucked-stringed instrument which the author call ‘arch-lute-guittar’ is compared to similar instruments such as the arch-cittern and the guittar in order to capture the distinctiveness of the instrument and explain how the designation was given to the instrument.

To begin with, as the arch-lute-guittar’s body characteristically forms an oval shape, technically ‘Almond’ shape,[49] it is natural to think of that the instrument seems to have been developed from the guittar, commonly known as English guitar. However, due to the French arch-cittern that has a comparable shape, confusion occurs in distinguishing between the two instruments. Both the arch-lute-guittars and the French arch-citterns characteristically have a theorbo-style pegbox, and the former has often been called the ‘arch-cittern’. They are, in fact, slightly different in the arrangements of the nut attached on the upper pegbox; the former sit in parallel or slightly angled against the bridge while the latter’s is visibly slanted, providing longer string lengths towards the lowest string. In comparison, there is a similar kind that has a theorbo-style head, known as

[48] He called it ‘Harp-Theorbo’ and commented ‘not an arch-cittern as it is sometimes called and is superficially similar to’ see Gregg Miner, ‘Organorogy: Harp Guitar “Relatives”’, <http://www.harpguitars.net/history/org/org-harp-lutes.htm>, (Accessed Jan., 2012).
[49] See Poulopoulos (2011: 20)

arch-guittar[50] or arch-lute,[51] classified in the guittar family. This instrument has the nut usually positioned in the same manner as the arch-lute-guittar (i.e. more or less parallel). Thereby, the nut arrangement for the upper pegbox quite likely constitutes one of the distinguishing features of the two styles, being either slanted or paralleled (French and English, respectively).[52]

Adding to it, the extant arch-lute-guittars usually have smaller differences in the scale lengths of the open bass strings. For instance, the open bass strings employed by the Harley in V&A varies 665-668mm in length (3mm differences) while the ones by Buchinger and Barry in MIMEd are 900-901mm (1mm difference) and 731mm[53] (exactly the same) long, respectively. It is quite obvious if we compare them to a French arch-cittern by Renault & Chatelain in MFA [2006.1223] that shows 810-835mm (25mm difference). On the contrary, such a manner seen in the arch-lute-guittars seems rather akin to the arch-guittar by Remerus Liessem, 1757 in London,[54] which has 640-641mm (1mm difference) for the bass open strings.

In relation to it, the 'square finial', which to great extent characterises the guittar, and is usually attached to the top of the instrument, is also a useful part to distinguish the arch-lute-guittar from the French arch-citterns, as they usually do not have it. More important, the British origin of the guitar-styled instruments typically use imitation of painted lines instead of having proper purfling or bindings made of thin strips of woods for the body edges; quite a common technique for identifying the British origin of the guitar-styled instruments, particularly those made between the eighteenth century and

---

[50] The term proposed by Poulopoulos (2011: 23).

[51] An original term used in the second half of the eighteenth century, the era for the guittar, an example of newspaper's extract from 1761 in which involves the term 'arch-lute' is shown in Poulopoulos (2011: 89).

[52] It has to be noted that the close examination shows that some bridges attached on the English made instruments are also being slanted, but not as much as the French arch-citterns. For instance, difference for the scaling length between the highest and the lowest string wound on the upper pegbox is that 25mm and 3mm, French arch-cittern by Renault and Chatelain in 1789, MFA [2006.1223] and English made of arch-lute-guittar by Harley V&A [W. 36-1917] respectively.

[53] The Barry's arch-lute-guittar has two bridges (fixed and movable) and the figure shown is from the movable bridge since it look like original, and but to prevent confusion, one should indicate the scale length from fixed bridge, which is 772mm.

[54] MFA [17.1749].

the beginning of the nineteenth century.[55] Indeed all the surviving arch-lute-guittars possess the painted lines,[56] while the French arch-citterns have genuine purfling and bindings. Furthermore, one of the specimens, made by Buchinger,[57] has six holes in the centre of the fingerboard between each fret, as commonly seen on the guittar, which were made to hold a capotasto. Also it has a rose made of brass attached to the soundhole, which is the representative part of guittar. Although it is not known whether they are original or not, the instrument was certainly compatible to the guittar.

Contrary to such similarities, there are some differences. For instance, the extant arch-lute-guittars, except the one by Harley, put some strings in pairs. Although the, the guittar is ‘six’-course instrument having treble four strings in pair and two single basses,[58] the manner of pairing is utterly different from that of the arch-lute-guittars. Regarding the extant instruments, there are at least three types of stringing; the **first** manner is exemplified by the two specimens in MIMEd,[59] arranged with seven single courses for the strings passing over the fingerboard and three floating bass strings in pairs; the **second** type is embodied by the Buchinger instrument in DMC that uses all ten strings as single courses, of seven stings passing over the fingerboard and the rest are being in open; the **third** type is seen on the one by Harley in V&A, which only differed from Buchinger’s in DMC with an addition of open bass string, hence four floated strings and total of eleven strings. However, it must be mentioned that the lowest string was most likely a later addition (Fig 9. 22), meaning, as with the Buchinger’s in DMC, it was originally a ten-stringed single course. In fact, there probably were only ten-stringed arch-lute-guittars in which at least **TWO** models existed that differed in the open bass string arrangement; either being as single or double courses.

---

[55] Thanks to James Westbrook, this information was given by him in discussions on the English origin of the Spanish guitars.

[56] Although rather decorative than just simple lines that commonly seen on the guittars or the British made Spanish guitars, it seems still following the method, as not having authentically made of purfling and bindings.

[57] MIMEd [306].

[58] see Poulopoulos (2011: 13).

[59] Made by Barry and by Buchinger.

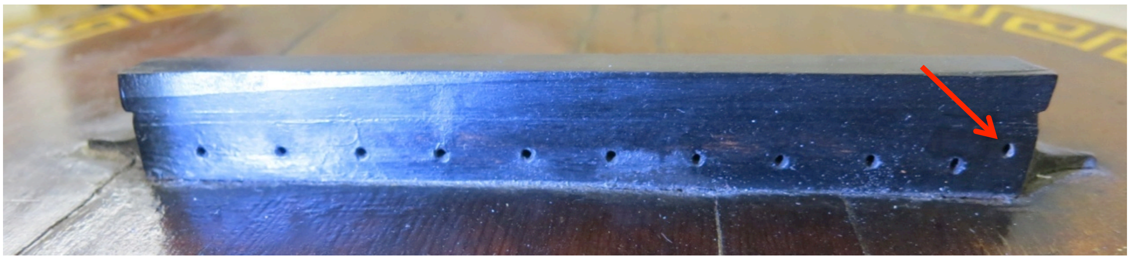


Fig 9. 22: Bridge of the arch-lute-guittar by Harley in V&A, with apparently off-lined of an extra hole for the lowest string (a hole far left).

More decisively they are profoundly diverse in the practice of material for the strings. The arch-lute-guittar employs 'gut' strings whereas the guittar, more alike to the citterns, normally strung with 'wire' strings. One of the definitions for the cittern[60] or the guittar is that they should be with wire strings. This disparity clearly confines that the arch-lute-guittar neither belongs to the cittern family nor is included in a category of the guitar; the gut-strung arch-lute-guittar cannot be a 'cittern', and is therefore certainly not arch-'cittern'.

In addition, the bridge of the arch-lute-guittar is different from that of the cittern-type instruments. The former usually has it fixed on the soundboard, as typically seen on the Spanish guitars, while the latter is movable (as with violins, and of course, citterns). This disparity changes the termination of the stings; for the arch-lute-guittars, strings are fastened at the fixed bridge being in common to that of the harp lutes[61] while the strings for the arch-cittern and the guittar, as with the ordinary citterns, are hooked to the endpins fixed at the bottom of the body.

According to Poulopoulos (2011) the guittars with extra open strings were called by the term 'arch-guittar' in preference to the 'theorbo-guittar', because the instruments did no

[60] From the 16th-century onwards, citterns were made with the fingerboard raised and projecting over the soundboard. The 18 or 19 frets were usually placed in tapered slots and secured with hardwood wedges so that they projected just above the fingerboard, with the wooden areas between them slightly scalloped. These features were designed to ensure the accuracy of intonation needed for strings of brass and iron wire. Quotation from an entry 'cittern' in the 'oxford music online – grove music online', <http://www.oxfordmusiconline.com.ezproxy.is.ed.ac.uk/subscriber/article/grove/music/05831?q=cittern&search=quick&pos=1&_start=1#firsthit>, (Accessed Sep., 2013).
[61] Such as harp-lute-guitars, harp-lutes and also some Apollo lyres, another succeeding models, exemplified by the dital-harps, Regency Harp Lutes and Ventura's harp lutes, they all have fixed bridge, though holding strings with pins rather than being fastened at the bridge itself.

use a re-entrant tuning for strings placed over the fingerboard (23). The term ‘arch’ should be applied to the instruments, which have no re-entrant tuning while having the addition of extra strings to extend the bass range. For the arch-lute-guittar, first of all, the tuning of the instrument is in question, since the original term is hitherto uncertain and little supporting evidence has been discovered. Nonetheless, some suggested tunings for the instrument appeared in at least two contemporary instructions, together with the harp-guitar’s and English guitar’s scaling, in which the instrument are described as ‘Lute’ (F. Chabran)[62] and ‘Modern Lute’ (anonymous)[63] both dedicated to the ten-string instrument (Fig 9. 23 and Fig 9. 24, respectively).

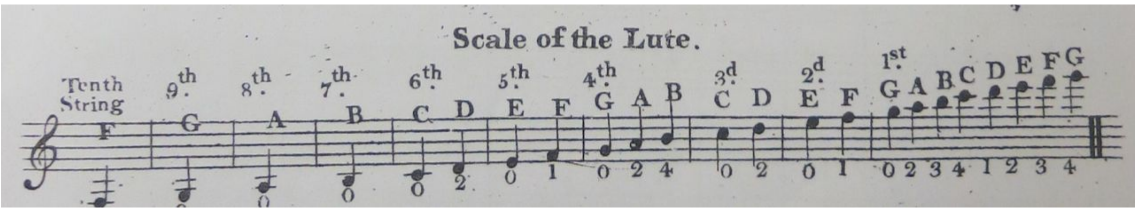


Fig 9. 23: scaling for the ‘Lute’ with ten strings by F. Chabran.

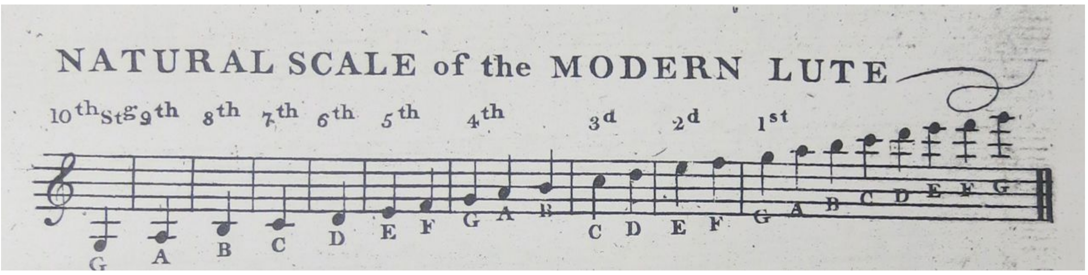


Fig 9. 24: scaling for the ‘Modern Lute’ with ten strings by anonymous.

It seems that apart from the arch-lute-guittar, there is no extant instrument that has ten strings made around the time of publication, and is to be described with the harp-guitar and the English guitar. Also the term ‘Modern’ was more likely applied for differentiating the instrument from the traditional lutes used in the sixteenth or the seventeenth century. For above reasons, these scales are presumably for the

[62] F. Chabran, *Instructions For Playing upon the HARP GUITAR & LUTE, Containing a selected collection of Songs, Duets, Airs, Marches, RONDOS, DANCES & PRELUDES*: Composed & adapted by F. CHABRAN. (printed by Clementi Bates Hyde Collard & Davis 26 Cheapside), MS., BLL [H. 2348.j].
[63] *New and Compleat Instruction Book for the English and Harp Guitars, with a Select Collection of AIRS, MARCHES, MINUETS &c., adapted by a Professor of those Instruments; To which is added COMPLETE SCALES for the SPANISH GUITAR & LUTE*, (published by G. Kiallmark, No.221 High Holborn, to be had of E. Riley, Music Engraver & Printer, 8 Strand, & all the Music Shops.), MS., BLL [h. 3878.m (3)].

arch-lute-guittar.

If it is so, the tuning of the instrument would be either, f-g-a-b-c'-e'-g'-c''-e''-g'' (F. Chabran) or g-a-b-c'-d'-e'-g'-c''-e''-g'' (anonymous). These two tunings differ in the bass arrangement despite their diatonic scaling in common; the former tuned the lowest string in 'f' so that the guittar tuning c'-e'-g'-c''-e''-g''[64] remains at the treble six strings while the latter tuned the lowest string in 'g', which effectively changes the diatonic scaling a tone higher, and resulted the sixth string to be tuned in d' instead of c'. Regardless of the different manner, both tunings are in ascending order, the pitch goes up from the lowest string to the highest string in consistency; re-entrant tuning is not used. Despite some uncertainties,[65] from this point of view, the arch-lute-guitar tuned in ascending order should be given the term 'arch' in preference to the 'theorbo'.

Finally, similarities to the harp lutes are worth of mention. In common with the arch-lute-guittar, a model of the harp lutes, the harp-lute-guitar employs the theorbo-style neck, and as with the other harp lutes, all the surviving arch-lute-guitars consist of decorations in motives of Regency style. Moreover they were built by the same makers such as Buchinger, Barry and Harley. Despite its similarity, as explained, the arch-lute-guittar still retains the elements of guittar and does not involve features that the harp has (i.e. soundbox), but together with the term shown in the instructions of harp-guitar and considering the similarities to the harp lute, at least, the arch-lute-guittar is deserved to have 'lute' in the nomenclature.

To sum up, the arch-lute-guittar cannot be classified with any of the similar kinds, arch-cittern or guittar, even harp lutes. Nevertheless, the instrument combines some features that deserved to be given a designation; **first** it seems to have been tuned in an ascending order without re-entrant of tuning; **second** as shown in the instructions it have more likely been called 'lute' and involves similar features that the harp lutes have; **finally**, it still consists of many characters that of the 'guittar', such as flat body,

[64] The scale of the guittar is included in the anonymous's instruction.
[65] For instance, how the open strings of MIMEd's instruments were tuned since they are in pairs, and the scales shown in the instructions did not illustrate whether the lowest strings were floating or not.

square finial and the tuning manner. Uniting these, the designation ‘**arch-lute-guittar**’[66] has been created.[67]

Fig 9. 25: (left) French Arch Cittern by Renault & Chatelain, 1789, Paris, MFA [2006.1223]; (centre) Guittar by Remerus Liessem, HMS [C0033R]; (right) arch-lute or arch-guittar by Remerus Liessem, 1757, London, MFA [17.1749].

[66] It has to be noted that though it involves the term ‘guittar’, it does not necessarily mean the instrument belongs to the guittar family. The term is only applied in purpose of describing the instrument with a certain designation in this thesis but has to be supported by the reliable explanation why it is called so.

[67] This is the terminology only given to this thesis, therefore, the term can be variable outside the thesis and most welcome for more discussions in defining the terminology, but due to limitation in the word count and the main theme of this thesis is to discuss the development of harp lutes, thus the discussions for the terminology of arch-lute-guittar is confined to this.

EXCEPTIONS

As seen, there is a variety of forms characterises the various harp lutes, which is a consequence of many attempts and changes applied to the instruments by inventors, makers and manufacturers. Instruments related to the family of the harp lute but cannot properly be classified in the above categories and have not been discussed due to their lack of contribution to the development should be discussed. Below are some selected examples worth mentioning in this section. In addition, how the author determines the designations for instruments with ambiguous classification (such as the one in Fig 9. 26) is presented by demonstrating an example as a case study.

Fig 9. 26: A harp lute by Levien with an ambiguous classification, MMS [M2061].

For the first example, the one in English style invented by Levien is discussed as to its close resemblance in appearance to the harp lute but has a distinctive design. For instance, the instrument combines some elements of the harp-guitar, of the harp-lute and of the Regency Harp Lute. This, however, induces confusion in classification, particularly only by a superficial inspection. We, therefore, need to analyse instrument more closely by taking it apart into its constituent pieces.

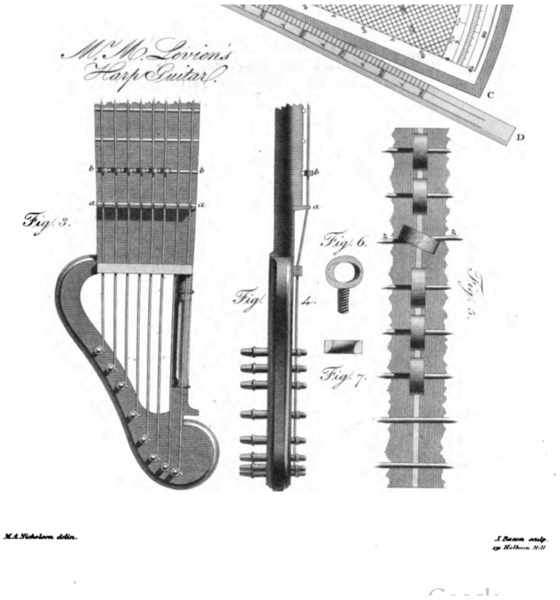


Fig 9. 27: Illustration of improved harp-guitar by Levien in 1814.[68]

To begin with, the instrument closely resembles to an illustration (Fig 9. 27) shown in a transaction document of the Society of Arts and Science[69] in which states the brief account of the instrument. Although the one in discussion is slightly different from the illustration and the description, considering its resemblance and the same maker's invention, these should be classified together. Invented in 1814, the instruments were apparently introduced prior to the Levien's most well-known invention '*guitare harpe*' patented in 1825. Levien describes in the document that 'I beg leave to lay before the Society of Arts, &c. an improved harp-guitar, the tone of which is similar to the harp' (117), and the member writes 'I have maturely deliberated upon your explanation respecting the difference between the *old French guitar*, and your instrument called a harp-guitar' (119). Now it is obvious that the instrument was called 'harp-guitar', sometimes with the word 'improved' before it.

Contrary to the term given by the inventor, the instrument in discussion, at least in this thesis, cannot be a 'harp-guitar' since the form especially in the upper parts does not

[68] 'Transactions of the society, instituted at London, for the encouragement of arts, manufactures and commerce; with the premiums offered in the Year 1814', *Vol. XXII*, (London: R. Wilks, Chancery-lane, 1814), plate IX.
[69]Ibid, pp. 117-121.

follow the rule presented above.[70] A pillar and two fingerboards should not be on the harp-guitar. A lack of the head with wooden pegs is more decisive. Instead it has a harp-lute styled neck, which consists of the lower and upper neck with brass tuning pins. Like that of the harp-guitar though no floating string is comprised, all strings are assigned to the two different levels of fingerboards: three trebles for the smaller, and the remaining seven on the main board. From this point of view, the instrument is much similar in style to the harp-lute. For the double fingerboard, it is noteworthy that the year of introduction (1814) corresponds with the year of the thus-far-found earliest advert for the Ventura's Imperial Harp.[71] Also Wheatstone the inventor of the Regency Harp Lute attended the Committee of mechanics where he examined the Levien's improved harp-guitar.[72] They are common in having two fingerboards and can be classified in the category of 'harp-lute'.

To sum up, although originally designated 'harp-guitar', considering the subsequent history of the harp lutes, during which more appropriate terms were introduced, the designation should be rather applied by inspecting the elements found in the extant instrument than the names used in contemporary documents, particularly in the case like this. This instrument, therefore, is to be called a 'harp-lute'.

---

[70] See the entry 'Harp-Guitar' mentioned further above.

[71] *The Morning Post* 22nd October 1814.

[72] 'Transactions of the society, instituted at London, for the encouragement of arts, manufactures and commerce; with the premiums offered in the Year 1814', *Vol. XXII*, (London: R. Wilks, Chancery-lane, 1814), p. 119.

Fig 9. 28: uncertain origin of the Apollo Lyre, MML [MM307].

Contrasting with the instrument included in a category, one can give an example of exclusion. An anonymous Apollo Lyre in the Museu da Música, Lisbon [MM307](Fig 9. 28) displays an appearance very similar to that of the Apollo Lyre. It is not erroneous if someone calls it 'Apollo Lyre' since the instruments contains enough features that worthy of being Apollo Lyre. For instance, the body is certainly that of the Apollo Lyre, being in lyre-shaped with two arms attached in symmetrical, a rose (sunburst) in the soundhole, standing on a plinth, and a representation of Apollo surrounded by a sunburst is at the top of the instrument.

Nevertheless, the instrument seems somewhat odd especially when compared with those made in Britain. The instrument has anomalous features: first, the fingerboard is being inlayed with a great quantity of mother-of-pearl diamonds and dots, which is uncommon practice in Britain, particularly for plucked stringed instrument making, in the early nineteenth century.[73] Secondly for the soundboard paintings, though they are

[73] The mother-of-pearl inlays had been of the technique popularly used in the Continent. Around the 1820s, Spanish guitars were imported from the Continent, and it has become popular in the British guitar

decorated in the manner of the Apollo Lyres, the motif seems slightly different and did not match to any of the surviving harp lutes those made in the British Isle. Third, the design of scrolls and the arms are quite different from those on the surviving Apollo Lyres manufactured in Britain. The scrolls are normally curled and projected outwards, yet the one in Lisbon has pillars in place of the scrolls and the arms connected to the head rather steeply, neither of which is commonly seen on the extant Apollo Lyres.

From this analysis, the author considers the following possibilities: 1. The instrument was modified at some stage by replacing the scrolls, arms and the fingerboard while maintaining the body in the original state; 2. The instrument was made outside Britain by imitating the authentic Apollo Lyres; 3. The instrument was made in Britain having an unusual form to distinguish it from the others. However, due to scarcity of information, none of these hypotheses can be proved. As a rule of this thesis, such ambiguous instruments being impossible to identify the origin should be excluded from the family of the harp lute.

Overall, the nomenclature provided in the Appendix i basically comprises all models of the harp lute that were discussed in this thesis, providing an appropriate terminology for each. In short, all the harp lutes in this thesis can be classified in a model. The designations are only limited to the instruments manufactured in Britain from the end of the eighteenth century to the Great Exhibition in 1851. The number of designations would possibly increase in the future when more instruments likely to be categorised into the harp lute are discovered, and the author most welcomes to have more if necessary.

---

industry; representatively Panormo or the inventor of the *guitar harpe* Levien preferably used them. But before the expansion of the technique, the use of the mother-of-pearl was very uncommon. The mainstreams of exotic materials used were tortoise shells and ivories, and for decorations paintings were the common practice.

APPENDIX ii:

LIST OF EXAMINED INSTRUMENTS

AND COMPARISON IN MEASUREMENTS

LIST OF EXAMINED INSTRUMETS
AND THEIR MEASUREMENTS

The following lists present comparisons of the instruments examined during the course of this research, listed by model: the given measurements are whole length, body length, body widths, string length, bridge position, soundhole, oblong back holes and plinth. All measurements are in millimetres and ‘no’ means there is not such a part included while ‘n/a’ stands for Not Available, meaning the measurements were not possible to be taken with some reasons or the author did not take them. If there is a question mark (?) next to the figure, the author is not certain whether the measurement is right but more likely to be: please refer to it as to gain an idea.

N.B. Measurements for Buchinger’s harp-lute (PLO [1938.34.612]) were kindly given by Madeleine Ding (curator), and for Moffat’s dital-harp (MMB [5890]) were generously given by Heidi von Rüden (Curator).

For technical issues, the abbreviation of Musical Instrument Museums Edinburgh (MIMEd) is of their previous name ‘Edinburgh University Collection of Historic Musical Instruments’ (EUCHMI): despite the deference, the inventory numbers are the same.

I. GENERAL DIMENSIONS

Whole length = from bottom of the body to top of the instrument.
Body length = from bottom of the body to top of the body where meets the heel.
Centre stave length = from mid-point at bottom of the centre stave where attached to the bottom board to the mid-point at top of the centre stave where attached to the heel block.
Body width = the widest part of the body.
Body depth = the deepest point (bottom) and the narrowest point (heel) of the body.

HARP-GUITARS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Barry	BCB [11.4]	760	427	390	303	149/50
Barry/Light	MMA [89.4.101]	c. 930	445	n/a	301	144/50
Light	MMS [M2063]	768	419	382	315	127/51
Phipps & Co.	EUCHMI [1072]	760	415	380	310	140/50
Clementi & Co.	V&A	n/a	n/a	n/a	n/a	157/60
Anonymous	RNCM [S7]	962	458	387	330	159/50

HARP-LUTE-GUTARS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Light/Barry	MFA [17.1770]	932	446	400	355	140/51
Light/Barry	MMS [F453]	900	420	382	312	145/50
Harley	HMS [C-0030]	913	437	387	307	150/65
Harley	HML [15.10.48/65]	916	435	405	305	153/55

HARP-LUTES

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Levien	MMS [M2061]	827	419	385	329	129/60
Ward	BCB [11.3]	875	427	382	359	143//65
Ward	FHL [NT/FEN/I/15]	840	415	385	320	135/59
Buchinger	PRO [1938.34.612]	927	369	n/a	n/a	n/a
Clementi & Co.	RNCM [S18]	805	404	345	313	153/63
Barry	MMS [M2052]	927	445	390	350	165/84
Light/Barry	MAT [A831]	928	445	396	357	140/66
Light/Barry	HML [6905/M66-1983]	840	420	385	315	135/58
Light	MG Company, Japan	865	425	385	364	144/65
Light	MOO [000248]	868	431	385	320	135/56
Light	MFA [17.1769]	853	422	380	353	135/62
Light	BCO [944]	835	434	397	358	136/65
Light(500)	MMA [50,184.1]	841	435	n/a	352	129/64
Light (553)	MAT [A1520]	835	430	381	355	137/65
Light (609)	HML [MT537-1998]	830	425	385	345	127/65
Light (628)	RMT [RMT687]	827	430	387	350	129/64
Light (652)	MMA [1076 34-C]	823	422	n/a	347	131/64
Light (648)	EUCHMI [854]	825	420	373	350	135/64
Light (688)	HML [3887]	820	420	380	350	129/64

HARP-LYRE

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Light(579)	MMS [M2490]	840	410	no	320	112/56

REGENCY HARP LUTES OR SIMILAR

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
G.Packer	RCM [RCM126]	865	465	407	360	145/73
Anonymous	V&A [252-1882]	n/a	n/a	n/a	355	n/a
Wheatstone	HML [15.10.48/41]	880	395	390	355	135/59
Anonymous	SMF [IKN067]	860	430	410	370	139/70

BRITISH LUTE HARPS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Light (7)	MMS [M2051]	852	393	357	335	130/74
Light (9)	RNCM [S9]	848	395	357	334	135/73
Light (14)	HMS [C-0026]	853	393	369	340	137/79
Light (17)	RCM [RCM284]	858	391	370	340	135/74
Light (4)	HML [MT536-1998]	840	395	355	345	130/64

DITAL-HARPS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Light (76)	HML [1976.310]	850	392	365	340	135/75
Light (77)	SMF [IKN066]	842	388	365	348	135/74
Light (152)	RCM [RCM911]	850	385	365	340	140/75
Light (167)	MFA [2007.327]	858	385	364	348	135/75
Light (20)	EUCHMI [1109]	884	380	391	360	132/73
Light (36)	MMP [E.2103]	895	393	370	360	142/74
Light (200)	EUCHMI [1110]	842	392	366	345	14177
Light (203)	DMC [CL16]	859	390	365	340	135/75
Light (225)	HML [15.10.48/43]	880	388	365	360	137/75
Light (309)	RNCM [S11]	890	395	368	370	142/88
Light (343)	EUCHMI [1581]	880	370	385	370	140/83
Light (358)	MG Company	890	400	390	364	136/80
Light	MMP [E.657]	890	393	370	355	137/84
Moffatt	MMB [5890]	n/a	386	n/a	367	140/70

BRITISH HARPS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Light (33)	SMF [IKN068]	810	387	367	360	120/72
Light (3*)	HML [15.10.48/45]	840	407	n/a	350	130/78

guitare harpes

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Levien	MMS [M1002]	837	437	407	331	135/69
Levien	HMS [C-0022]	842	430	405	335	144/65
Levien	MMA [89.4.1515]	840	428	n/a	336	137/65
Levien	MFA [2000.632]	835	421	396	325	136/72
Levien	SMF [IKN056]	850	423	393	330	140/65
Anonymous	RCM [RCM166]	835	415	395	n/a	140/50
Anonymous	HML [3941/MT94-1997]	830	420	420	330	145/65
Anonymous	MAT [A1063]	850	422	407	326	151/69

IMPERIAL HARP LUTE

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Ventura	HMS [C-0038]	905	485	438	375	138/74

HARP VENTURA

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Ventura	MMS [M2062]	840	495	493	365	129/83

APOLLO LYRES

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Barry	BSH [No. 7 Casadesus collection]	873	350	no	360	95/68
Barry	MAT [A3180]	777	405	no	337	95/65
Harley	HMS [C-0031]	840	356	no	365	112/70
Clementi & Co.	RNCM [S8]	830	355	no	357	105/67

BASS-LYRE

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Anonymous	PRO [1938.34.611]	839	358	no	357	112/60

ARCH-LUTE-GUITTARS

Maker (Serial number)	Institution [Inventory number]	whole length	body length	centre stave length	body width (@widest)	body depth (Bottom/Heel)
Harley	V&A [W.36-1917]	978	441	no	350	95/66
Barry	EUCHMI [307]	1137	455	no	345	99/68
Buchinger	EUCHMI [306]	1137	450	no	355	98.5/68

II. STRING LENGTHS

String lengths shown in the tables below are the distance measured from the front edge or the saddle (if they have) of the bridge to the mid-point of the nuts. It must be noted that, due to some obstacles that prevented laying a ruler (e.g. ring stops), all the given measurements are not fully accurate, meaning there may be ±5mm differences, particularly those for the bass strings. Moreover, if the instrument has two nuts for one string (e.g. the dital-harp) shorter (higher register) one has been chosen to show in the tables. Although the instrument does not employ nineteen strings, for reasons of clarity and consistency, the columns are provided up to nineteenth string for each model; the total number of strings for each instrument is to be known if the reader sees the measurement shown in a column of the largest number of strings (e.g. the harp-guitar by Light (MMS [M2063]) is a seven-string instrument)

HARP-GUITARS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Barry	BCB [11.4]		449					447													
Barry/Light	MMA [89.4.101]		n/a					n/a													
Light	MMS [M2063]		447						447												
Phipps & Co.	EUCHMI [1072]		448					448													
Clementi & Co.	V&A		n/a																		
Anonymous	RNCM [S7]		634					634													

HARP-LUTE-GUTARS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Light/Barry	MFA [17.1770]		446	446	446.5	445	445	445	445	626	626	626	627								
Light/Barry	MMS [F453]		447						443	609	608	608	608								
Harley	HMS [C-0030]		441						443	622			623								
Harley	HML [15.10.48/65]		448						445	620			620								

HARP-LUTES

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Levien	MMS [M2061]		301	301	301	475	475	475	475	475	474	475									
Ward	BCB [11.3]		447	447	447	448	448	449	596	640	660	675	687								
Ward	FHL [NT/FEN/I/15]		445	445	445	445	445	445	585	621	645	660	666								
Buchinger	PRO [1938.34.612]		513	513	513	514	514	514	650	674	714	732									
Clementi & Co.	RNCM [S18]		420					422	570	599	627	641	656								
Barry	MMS [M2052]		478	478	478	478	478	478	628	651	700	726	737								
Light/Barry	MAT [A831]		448	448	449	449	449.5	450	450	606	653	690	706	713.5	726						
Light/Barry	HML [6905/M66-1983]		447					445	605	635	655	665	675								
Light	MG Company, Japan		378	400	400	400	400	423	423	604	628	651	680	685							
Light	MOO [000248]		409	409	409	409	409	433	433	578	633	654	669	676							
Light	MFA [17.1769]		341	380	380	380	380	433	433	570	598	616	636	646							
Light	BCO [944]		354	375	375	375	375	400	400	569	595	622	636	647							
Light(500)	MMA [50,184.1]		353	372	372	372	372	398	398	559	586	599	629	638							
Light (553)	MAT [A1520]		353	374	374	374	374	400	400	567	594	617	635	640							
Light (609)	HML [MT537-1998]		355	375	375	375	375	400	400	567	590	618	636	643							
Light (628)	RMT [RMT687]		352	373	373	373	373	397	397	560	585	609	632	637							
Light (652)	MMA [1076 34-C]		354	375	375	375	375	400	400	560	585	604	638	640							
Light (648)	EUCHMI [854]		355	375	375	375	375	400	400	560	587	619	638	641							
Light (688)	HML [3887]		353	375	375	375	375	400	400	560	590	612	635	639							

HARP-LYRE

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Light(579)	MMS [M2490]		354	376	376	376	376	399	399	563	586	614	633	639							

REGENCY HARP LUTES OR SIMILAR

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
G.Packer	RCM [RCM126]		260	259	259	470	470	470	570	576	593	612	631	647	661	672	680	687			
Anonymous	V&A [252-1882]		266	266	266	442	442	442	543	556	578	603	642	655	665	670					
Wheatstone	HML [15.10.48/41]		320	339	358	380	402	425	451	523	561	589	623	640	654	630	673	675	678	677	
Anonymous	SMF [IKN067]		267	266	265	473	471	471	470	598	615	647	666	679	691	698	700	702			

BRITISH LUTE HARPS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Light (7)	MMS [M2051]		297	310	310	310	329	350	370	395	418	442	467	599	612	627	642	653			
Light (9)	RNCM [S9]		297	314	314	314	332	352	372	397	419	443	469	591	613	629	645	654			
Light (14)	HMS [C-0026]		275	275	292	292	308	327	347	368	387	415	438	465	602	613	625	640	650		
Light (17)	RCM [RCM284]		228	240	255	270	286	305	324	342	365	388	410	434	461	590	607	620	633	640	
Light (4)	HML [MT536-1998]		228	243	258	275	290	307	325	345	367	390	413	435	463	487	520	630	440	645	

DITAL-HARPS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Light (76)	HML [1976.310]		280	280	295	295	312	330	350	370	417	395	440	467	493	524	620	630	640		
Light (77)	SMF [IKN066]		264	280	296	296	296	313	330	352	373	398	420	444	470	497	623	642	650		
Light (152)	RCM [RCM911]		214	227	240	256	271	288	305	324	344	365	389	411	435	461	488	519	615	633	630
Light (167)	MFA [2007.327]		228	242	258	274	290	307	326	346	368	392	415	438	464	491	522	553	586	619	654
Light (20)	EUCHMI [1109]		172/183	188/200	208/221	227/240	246/262	266/282	290/308	315/335	340/362	366/390	396/418	425/449	455/482	486/513	521/549	554/584	590/620	626/659	665/701
Light (36)	MMP [E.2103]		188	206	225	245	267	291	315	340	367	395	423	450	483	416	550	587	622	662	700
Light (200)	EUCHMI [1110]		172/183	185/202	203/220	226/240	246/262	268/285	290/308	316/336	343/363	371/393	401/423	430/453	485/512	519/546	525/552	562/590	595/626	634/666	675/709
Light (302)	DMC [CL16]		189	207	225	244	266	287	311	339	364	394	420	450	484	516	550	585	622	662	703
Light (225)	HML [15.10.48/43]		195	205	231	252	270	293	316	342	370	398	427	456	489	522	556	592	629	667	708
Light (309)	RNCM [S11]		189	208	226	245	266	287	310	342	362	391	417	446	479	511	544	580	616	655	695
Light (343)	EUCHMI [1581]		180	201	223	245	268	293	315	342	368	398	425	455	488	520	555	590	624	660	705
Light (358)	MG Company		175	193	212	244	267	293	315	342	369	398	427	455	488	520	554	489	625	660	705
Light	MMP [E.657]		188	205	223	243	267	290	314	339	366	394	422	452	484	518	551	587	612	660	700
Moffatt	MMB [5890]		185	203	221	241	261	285	310	335	363	392	421	449	482	516	551	586	623	662	704

BRITISH HARPS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Light (33)	SMF [IKN068]		198	209	224	240	257	275	294	315	336	358	380	407	433	460	488	517	547	582	617
Light (3*)	HML [15.10.48/45]		210	229	230	248	265	285	305	345	370	374	398	425	478	484	515	545	580	617	655

guitare harpes

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Levien	MMS [M1002]		470					470	505												
Levien	HMS [C-0022]		471					471	501												
Levien	MMA [89.4.1515]		471					471	503												
Levien	MFA [2000.632]		475					475	507												
Levien	SMF [IKN056]		472					470	508												
Anonymous	RCM [RCM166]		475						475												
Anonymous	HML [3941/MT94-1997]		475						474												
Anonymous	MAT [A1063]		476						475												

IMPERIAL HARP LUTE

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Ventura	HMS [C-0038]		319	319	319	556	557	557	641	649	663	682	712	735	752	757					

HARP VENTURA

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Ventura	MMS [M2062]		185	287	287	287	513	513	513	570	585	605	618	635	654	671	685	690	685		

APOLLO LYRES

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Barry	BSH [No. 7 Casadesus collection]		660					620													
Barry	MAT [A3180]		444					446													
Harley	HMS [C-0031]		554						553												
Clementi & Co.	RNCM [S8]		560						560												

BASS-LYRE

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Anonymous	PRO [1938.34.611]		355	375	375	375	374	398	398	604	610	613	619	625							

ARCH-LUTE-GUITTARS

Maker (Serial number)	Institution [Inventory number]		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th
Harley	V&A [W.36-1917]		475	475	475	475	475	475	475	665	666	667	668								
Barry	EUCHMI [307]		462/503						459/500	731/772	731/772	731/772									
Buchinger	EUCHMI [306]		507						506	900	900.5	901									

III OTHER PARTS WORTHY OF MENTION

Bridge Position = measurement from bottom of the soundboard to bottom edge of the bridge where the boundary between the mounted part of bridge (on which strings are wounded) and the skirt.

Soundhole = width of the hole (crosswise diameter) / length of the hole (lengthwise diameter). N.B. If only a figure is presented, it means both measurements (width and length) are exactly the same.

Oblong hole length = length of the back hole on the soundbox: 1 is the upper one and 2 is the lower one if it has.

Plinth (width/length) = width of the plinth measured from front edge to the back edge / length measured from right side edge to left side edge.

Plinth (height f/b) = height from bottom of the plinth to bottom of the body in front of the instrument / height from bottom of the plinth to bottom of the body at back of the instrument.

HARP-GUITARS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Barry	BCB [11.4]		139	78/78	69	no	no	no
Barry/Light	MMA [89.4.101]		107	n/a	67	no	no	no
Light	MMS [M2063]		144	84/85	69	no	no	no
Phipps & Co.	EUCHMI [1072]		140	85/85	71	no	no	no
Clementi & Co.	V&A		n/a	n/a	n/a	no	no	no
Anonymous	RNCM [S7]		135	80/80.5	69	no	no	no

HARP-LUTE-GUTARS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Light/Barry	MFA [17.1770]		147	80/80	73	no	no	no
Light/Barry	MMS [F453]		130	77/77	72	no	no	no
Harley	HMS [C-0030]		140	73/73	61	no	no	no
Harley	HML [15.10.48/65]		140	72/72	66	no	no	no

HARP-LUTES

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Levien	MMS [M2061]		109	85/85	71	no	no	no
Ward	BCB [11.3]		136	82/82	72	no	no	no
Ward	FHL [NT/FEN/I/15]		115	84/84	73	no	no	no
Buchinger	PRO [1938.34.612]		n/a	n/a	no	no	no	no
Clementi & Co.	RNCM [S18]		111	83.5/83.5	75	no	no	no
Barry	MMS [M2052]		138	93/92	73	no	no	no
Light/Barry	MAT [A831]		135	36	73	no	no	no
Light/Barry	HML [6905/M66-1983]		106	83/83	73	no	no	no
Light	MG Company, Japan		130	77/77	71	no	no	no
Light	MOO [000248]		142	84/84	70	71	no	no
Light	MFA [17.1769]		160	82	72	no	no	no
Light	BCO [944]		158	85/85	70	70	no	no
Light(500)	MMA [50,184.1]		160	n/a	n/a	n/a	no	no
Light (553)	MAT [A1520]		155	84	70	70	no	no
Light (609)	HML [MT537-1998]		150	85/85	70	70	no	no
Light (628)	RMT [RMT687]		154	84/84	71	71	no	no
Light (652)	MMA [1076 34-C]		148	n/a	n/a	n/a	no	no
Light (648)	EUCHMI [854]		148	84/84	70	69	no	no
Light (688)	HML [3887]		145	84/84	71	70	no	no

HARP-LYRE

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Light(579)	MMS [M2490]		139	83	44	no	117/187	20/17

REGENCY HARP LUTES OR SIMILAR

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
G.Packer	RCM [RCM126]		120	76	78	81	no	no
Anonymous	V&A [252-1882]		n/a	n/a	n/a	n/a	no	no
Wheatstone	HML [15.10.48/41]		114	82/81	61	60	n/a	16/16
Anonymous	SMF [IKN067]		112	no	79	80	no	no

BRITISH LUTE HARPS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Light (7)	MMS [M2051]		139	84/84	71	71	147/210	16/45
Light (9)	RNCM [S9]		138	85/85	71	72	147/210	14/46
Light (14)	HMS [C-0026]		145	84/84	69	70	147/210	18/35
Light (17)	RCM [RCM284]		134	81/81.5	75	77.5	146/210	19/33
Light (4)	HML [MT536-1998]		154	85/84	70	71	no	no

DITAL-HARPS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Light (76)	HML [1976.310]		134	82/82	69	74	140/195	18/35
Light (77)	SMF [IKN066]		128	80/80	70	73	140/195	20/35
Light (152)	RCM [RCM911]		130	140/75	71	72	142/200	20/38
Light (167)	MFA [2007.327]		125	81/81	71	71	143/200	20/36
Light (20)	EUCHMI [1109]		75/187	no	63	63	145/205	20/27
Light (36)	MMP [E.2103]		95/186	no	82	78	146/203	22/29
Light (200)	EUCHMI [1110]		67/190	82/81	73	73	145/197	18/33
Light (203)	DMC [CL16]		63/193	82/82	73	73	140/195	20/41
Light (225)	HML [15.10.48/43]		75/175	70/67	75.5	75.5	145/203	22/40
Light (309)	RNCM [S11]		82/193	no	74	78	145/205	21/32
Light (343)	EUCHMI [1581]		74/180	82/81	74	78	145/205	15/25
Light (358)	MG Company		95/200	no	80	79	150/200	15/19
Light	MMP [E.657]		77/182	81/81	75	84	147/205	19/30
Moffatt	MMB [5890]		n/a	n/a	n/a	n/a	n/a	n/a

BRITISH HARPS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Light (33)	SMF [IKN068]		78/153	no	76	81	146/200	21/30
Light (3*)	HML [15.10.48/45]		80/165	no	74	76.5	145/205	20/30

guitare harpes

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Levien	MMS [M1002]		117	n/a	74	no	no	no
Levien	HMS [C-0022]		118	84/82	80	no	no	no
Levien	MMA [89.4.1515]		102	n/a	n/a	no	no	no
Levien	MFA [2000.632]		119	85/83	80	no	no	no
Levien	SMF [IKN056]		120	84/82	80	no	no	no
Anonymous	RCM [RCM166]		119	81/80	78	no	no	no
Anonymous	HML [3941/MT94-1997]		114	83/82	82	no	no	no
Anonymous	MAT [A1063]		120	80/80	80	no	no	no

IMPERIAL HARP LUTE

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Ventura	HMS [C-0038]		112	85/84	71	no	no	no

HARP VENTURA

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Ventura	MMS [M2062]		87	73/72	no	no	no	no

APOLLO LYRES

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Barry	BSH [No. 7 Casadesus collection]		86	71/70	51	no	106/175	35?
Barry	MAT [A3180]		about 110	84/84	no	no	120/186	41?
Harley	HMS [C-0031]		113	79/77	no	no	110/195	39/39
Clementi & Co.	RNCM [S8]		120	85/83	no	no	110/197	41/32

BASS-LYRE

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Anonymous	PRO [1938.34.611]		108	86/84	45	no	128/185	14.5/15

ARCH-LUTE-GUITTARS

Maker (Serial number)	Institution [Inventory number]		Bridge Potition (Bottom to the bottom edge of the bridge)	Soundhole (Width/Length)	Oblong hole1 length	Oblong hole 2 length	Plinth (width/length)	Plinth (height f/b)
Harley	V&A [W.36-1917]		134	85.5/84	no	no	no	no
Barry	EUCHMI [307]		137	80/79.5	no	no	no	no
Buchinger	EUCHMI [306]		132.5	66/66	no	no	no	no

APPENDIX iii:

LIST OF RELEVANT PUBLICATIONS

TO THE HARP LUTE

LIST OF PUBLICATIONS

Included here is publications relevant to the harp lute that have, so far, been discovered through the survey; all descriptions (titles, author's information etc.) are directly copied from the front page of the manuscript as thoroughly as possible, and place and year of publication are shown in a bracket. Also the source of manuscript is indicated in the end. The present author made access to all the documents at first hand and their photocopies are currently at the author's hand. Although these publications (archives) were used as bibliographical reference and significantly important for supporting the arguments in this thesis, on purpose to avoid duplication, they are not included in Bibliography.

EDWARD LIGHT

For Harp Lutes:

A Collection of Italian Canzonets &c for the PIANO FORTE or HARP, With an Accompaniment adapted for the HARP-LUTE, BY Edward Light, Lyrist to Her R.H. the Princess of Wales. No 2 Vol. 2. Entered at Stationers Hall. Price: ?. Printed for the Author & to be had at his House 8 Foley Place, Caven & at the Principal Music Shops. (London: n.d. [1807-23]). BLL [b.400.aa. (1)].

A COLLECTION of Songs, Properly adapted for the Harp-Lute, LYRE and GUITAR, By E. Light. No. 4. PRICE: 4 shillings. Printed for the Editor No.8 Foley Place, Portland Chapel, and to be had at the Music Shops. To be continued. (London: n.d. [1807-23]). BLL [e.138.j. (5)].

A COLLECTION of Psalms Hymns, &c adapted for the HARP-LUTE and LYRE, EDWARD LIGHT, Inventor of those Instruments. Organist of Trinity Chapel & Lyrist to Her Royal Highness The Princess of Wales. Price: 4 shillings. Printed for the Author No.8 Foley Place, Cavendish Square. (To be continued). (London: n.d. [1807-23]). BLL [e.321.b. (7)].

A New and Complete DIRECTORY to the Art of Playing on the Patent BRITISH LUTE-HARP, with suitable lessons, &c Composed, Arranged and Fingered by EDW^{D}. LIGHT. (Professor of Music.) Inventor and Patentee of the Above Instrument. Entered at Stationers Hall. Price: 10 shillings. Printed for the Author 8 Foley Place Cavendish Sq. (London: 1817). BLL [h.998].

A New and Complete DIRECTORY to the Art of Playing on the Patent DITAL-HARP, with Suitable Lessons &c. Composed, Arranged and Fingered by EDW^{D}. LIGHT. (Professor of Music.) Inventor and Patentee of the Above Instrument. Entered at Stationer's Hall. Price: 10s 6d. Printed for the Author, 43 Gt. Marylebone Street, Corner of Welbeck Street. (London: n.d. [c.1825]). MS. Royal Collage of Music, London.

Divertimentos, for the Harp-Lute, Composed and Arranged by Edward Light, Lyrist to her Royal Highness the Princess of Wales. No. 3. Vol. 2. Book the First, Price: 4 shillings. Printed for the Author, to be had at his House, 8 Foley Place, Cavendish Sq & at the principal Music Shops. Entered at – Stationers Hall. (London: n.d. [1807-23]). BLL [e.321.a].

DUETS, For the Harp-Lute, & Piano Forte or Pedal Harp, selected chiefly from MOZART'S favorite opera of the Zauberflotte, Arranged & most respectfully inscribed to His Noble Patrons & Pupils generally, By E. Light. Entered at Stationers Hall. Price 4 shillings. Printed for the Editor, to be had at his Music Cabinet & Academy for Instruction on the Harp-Lute, Piano Forte, & c. No. 8 Foley Place Cavendish Square. (London: n.d. [1807-23]). BLL [e.321.b. (3)].

INTRODUCTION to the Art of Playing On the HARP-LUTE & APOLLO-LYRE with suitable Lessons &c Composed & adapted BY Edw^{d} Light, (Inventor), Lyrist To HER ROYAL HIGHNESS, The Princess of Wales. Price: 4 shillings. Published by the author, 38 Berners St. Oxford St. (London: n.d. [c.1823]). BLL [e.138.uu. (1)].

National Airs, Songs, Waltzes, &c. Arranged for the Harp-Lute, and Most Respectfully Inscribed to MISS I. F. WOOD. BY Edward Light. Entered at Stationers Hall. Price: 4 shillings. Printed for the Editor and to be had at the Musical Cabinet and Academy for Instruction on the Harp-Lute, Piano-Forte & c. No.8 Foley Place, Cavendish Square. (London: n.d. [1807-23]). BLL [e.231.b (4)].

New and Compleat Instructions For playing on the HARP-LUTE, By Edwd Light, Lyrist, To Her Royal Highness, THE PRINCESS OF WALES. Entered at Stationers Hall. Price: 7 shillings. Printed for the Author No. 8 Foley Place Cavendish Square. (London: n.d. [1807-23]). BLL [e.312.b. (1)].

PRELUDES, EXERCISES, AND Recreations for the HARP-LUTE, by Edwr^{d} Light. Inventor of the above Instruments. Entered at Stationers Hall. Price: 6 shilling. Printed for & to be had of him No.8 Foley Place near Cavendish Square. (London: n.d. [1807-23]). BLL [e.321.b. (2)].

Attributed to Edward Light:

Title is missing (An instruction book for the harp-lute-guitar). BLL [e.138.j.(1)].

For the Guittar:

The ART of PLAYING the GUITTAR, BY Edward Light, To which is added a variety of the most familiar Lessons, Airs, Divertimentos, Songs &c properly adapted for that Instrument. Price: 3 shillings. Printed & Sold by John Preston at his Music Warehouse, No.97 near Beaufort Buildings Strand. (London: n.d.). BLL [e.321].

The Ladies Amusement, Being A Collection of Favourite Songs and Lessons within Compass of the GUITTAR, Composed by E. LIGHT, To be continued Monthly. Volume: No. I and VI. Price: 2 shillings. Printed for the Author, No. 16 Harley Street, Cavendish Square, and for P: HODGSON, Maiden Lane, Covent Garden. (London: n.d. [c.1778]). BLL [a.76. (3)].

For other instruments:

A FIRST BOOK OR Master and Scholars Assistant, BEING A TREATISE ON, AND AN INSTRUCTOR FOR Learning Music, And the Act of Playing on the Harpsichord or Piano Forte, &c. with suitable PRACTICAL LESSONS in Progressive Order, from the first principles to the most difficult Pieces, in Three Numbers. Composed & Arranged by Edw. Light, Organist of Trinity Chapel, St George Hanover Square. Price: 4 shillings. Printed for the Author, & may be had at No. 6 Duke Street, Grosvenor Square, and at No. 240. Temple Bar, Strand, & at his House at Kensington, also at the Music Shops, where likewise may be had. his monthly Collection of Lessons & Songs adapted for the Guitar entitled The Musette. N.B. The first Number also contains on Introduction for learning the Guitar. Price 2s each Number. (London: 1794). BLL [h.3213.g. (6)].

THOMAS LIGHT

A Selection of Favorite Airs with Var.ns, Rondos, Waltez, Marches &c. Composed & adapted for the Harp-Lute, To which is added a Divertimento, As a Duetto, for Two Harp-Lutes by THO.s LIGHT (of Bath). Price: 4 shillings. Printed for the Editor & to be had at the Musical Cabinet and Academy for Instruction on the Harp-Lute, Piano Forte & c. No. 8 Foley Place, Cavendish Square (London: n.d. [1807-23]). BLL [e.321.b. (5)].

An Original System of Preluding, FOR THE PEDAL HARP, Comprehending Preludes in Various Keys, both Major & Minor, preceded a series of useful Exercise, calculated to strengthen & equalize the Fingers, & thereby to facilitate execution on that Instrument. Composed, Arranged and Dedicated to his Pupils, by T. LIGHT, professor of the Harp. Entered at Stationer's Hall. Price: 5 shillings. Printed for the Author and to be had at his Residence, Rodney Cottage of Mr. Howell, Clare Street Bristol – at the Musical Cabinet, 8 Foley Place, London & at the Principal Music Shops. (Clifton: n.d. [1807-23]). BLL [h.2605.mm. (1)].

FELICE CHABRAN

A New Tutor for the HARP & SPANISH GUITAR, Containing a Progressive selection of the most Favorite Waltzes, RONDOS, SONGS, GLEES, &c. &c. Composed by Various Authors and Arranged by FELICE CHABRAN. Entered at Stationer's Hall. Price: 5 shillings. Printed by Goulding D'Almaine, Potter & Co. 20 Soho Square & 7 Westinerland Str. Dublin. (London: n.d.). BLL [h.255.a (1)].

A Select Collection of SONGS, DUETTS, AIRS, MARCHES. Minuets, Waltzs & Dances, properly Arranged for the Lyre AND Harp Guitar, To be used either as Solos or Duetts, for One or both Instruments, By F. Chabran, Teacher of the Lyre, Harp, Guitar, and Spanish Guitar. Book 4. Price: 6 shillings. Printed for R. Wornum, No. 42 Wigmore Street, Cavendish Square. (London: n.d.). BLL [H.1653.m. (8)].

Instructions For Playing upon the HARP GUITAR & LUTE, Containing a Selected Collection of Songs, Duets, Airs, Marches, RONDOS, DANCES & PRELUTES: Composed & adapted by F. CHABRAN. The Entered at Stationer's Hall. Price: 5 shillings. Printed by Clementi, Banger, Hyde, Collard & Davis, 26 Cheapside. (London: n.d.). BLL [H.2348.j. (1)].

THOMAS BOLTON

New Instructions for the HARP GUITAR and Apollo Lyre, Replete with every Instruction relative to those Instruments Elucidated by a Variety of Examples corresponding with the modern Systems to which annexed A Selection Of the most admired Songs, Popular Airs, Waltzes. Entered at Stationer's Hall. Price: 6 shillings. (London. Published by C. Wheatstone: 436. Strand, n.d.). MS., Private Collection.

MORDAUNT LEVIEN

A Collection of POPULAR SONGS, Composed by Mess^{rs}*. Whitaker, Reeve, &c. &c. Arranged with an Accompaniment for the GUITAR, HARP LUTE, OR LYRE, By M. Levien, Teacher & Inventor of the Improved Harp Guitar, 8 Pleasant Row, Pentonville*. Entered at Stationer's Hall. Price: ?. Printed by Bulton & Whitaker 75 St Pauls Church Yard. Sold at HODGES'S Music Warehouse, No. 28 Clare Street, BRISTOL. Where there is a regular supply of the most favourite New Musical Publications & are exelensive variety of New & Second Hand Piano Fortes, Barrel Organs and Musical Instruments in General of the best quality for sale or Hire on Reasonable Terms. (London: n.d. [c. 1814]). BLL [h.255.a. (5)].

LIBER AUGSTINE, With Variations for the GUITAR, Composed & Dedicated to Miss M. A. Griffin, By MORDAUNT LEVIEN. Price: 1s. 6d. Published by T.E. PURDAY, 50, St Paul's Church Yard. (London: n.d.). BLL [h.3213.f. (6)].

DIVERTIMENTO FOR THE GUITAR, COMPOSED AND DEDICATED TO THE HONORABLE MRS. HAMILTON, BY MORDAUNT LEVIEN. No. 10. Entered at Stationer's Hall. Price: 1s. 6d. Published for the Author by T. E. PURDAY. 50 SAINT PAUL'S CHURCH YARD. (London: n.d.). BLL [h.140. (12)].

ANGELO BENEDETTO VENTURA

A Collection of Twelve Favorite Italian CANZONETTS, By Eminent Composers In Four Numbers, Arranged with an Accomp^{t}*. for the Newly Invented HARP-VENTURA OR SPANISH GUITAR, and humbly dedicated (by permission) to his pupil Mrs. Colonel Leslie Wolker, SIGNOR ANGELO BENEDETTE VENTURA, The Inventor & Professor of the Harp-Ventura, Professor & Teacher of the Spanish Guitar & Harp-Lute to Her late R. H. the Princess Charlotte of Wales & Saxe Cobourg*. No. 1. N.B. Several Elegant Harp-Ventura is ready to accommodate Ladies in one Instant Also several New and Second hand Spanish Guitars to be sold cheaper Let by the Month. Entered at Stationer's Hall. Price: 3 shillings. Published for the Author, & to be had of him at 48, Cirencester Pl^{e}. Portland Place. (London: n.d. [c.1828]). BLL [H.1686. (22)].

A new & elegant Collection of Waltz's Minuets & Marches arranged & adapted for the new Invented Imperial Harp Lute or Imperial Lyre with an Accompaniment for the Spanish Guitar, Composed by SIG^{R}. ANGELO VENTURA, Sole Inventor of those Instruments & Professor of the Spanish Guitar & Teacher to H. R. H the Princess Charlotte of Wales. N.B. Those elegant little Instruments the Imperial Harp Lute & Imperial Lyre, Sig. Ventura flatters himself he has brought to the highest perfection ever yet known in this Country & from his superior style & method of playing & singing with an accompaniment he has rendered those Instrument almost equal to the Harp. Entered at Stationer's Hall. Price: 2 shillings. To be had of the Author, No.2 Little Titchfield Street, Portland Street & all the principal Music Shops in London. (London: n.d. [c.1814]). BLL [h.180. (28)].

By the Royal Letters Queen's Patent. THE HARP VENTURA. Sig. Angelo Benedetto Ventura INVENTOR & PROFESSOR OF The Harp Ventura, Professor of the SPANISH GUITAR, HARP-LUTE, HARP-GUITAR, &c., Formerly Teacher to her late R. H. Prince Charlotte of Wales and Saxe Cobourg. Periodical Amusements FOR ONE OR TWO GUITARS (AD LIB.) Containing Themes with variations, MINUETS, WALTZES, &c., &c., Composed and Arranged by the desire of his Friends, and respectfully DEDICATED TO HIS PUPILS, BY SIG. A. B. VENTURA. N.B. This work is intended to be completed in about 24 Numbers. No. 1. Entered at Stationer's Hall. Price: 2 shillings. Published by the Author at No.2 HERCULES BUILDINGS, LAMBETH; and to be had at the Principle Music Shops in London. (London: n.d. [after 1828]). BLL [h.180. (27)].

DUETTO CON VARIAZIONI The harp Lute & Spanish Guitar. Dedirato con permissione alla gentile e nobile Damigella, LADY ELIZABETH GRET. By ANGELO VENTURA. Entered at Stationer's Hall. Price: 3s. 6d. Published & Sold by the Author, No.2 Little Titchfield Street, Falkner & Christmas, Pall Mall Monzam, Old Bond St, Mitchell New Bond Street, Wheatstone & Co. Strand. & Cahusac Wigmore Street. (London: n.d. [c.1814]). BLL [b.60. (8)].

SIX Italian French & English Ariettes with an Accompaniment for the Spanish Guitar, Expressly arranged easy to shew the Pupil the method to accompany themselves without any trouble; and by Permission most Humbly Dedicated to the R^{r}. Hon^{ble}. Lady Jane Hay BY SIG^{R}. ANGELO VENTURA, Professor of the above Instruments & his new Invented Imperial Harp Lute & Imperial Lyre, which he flatters himself he Teaches in a superior style, his method of Playing with these Instruments had been highly approved of by the first Nobility &c. whom he had the Honor of Instructing. N.B. This Work will be continued consisting of four Numbers each containing six Ariettes. Entered at Stationer's Hall. Price: 3s. 6d. To be had of the Author; No. 2 Little Titchfield Street, Portland Street, & all the principal Music Shops in London. (London: n.d. [c.1814]). BLL [H.1686. (23)] – Vol. 1 and [H.1686. (23a)] – Vol. 2.

THEMA with Six variations Concertante for the new Invented Imperial Harp Lute or Imperial Lyre with an Accompaniment for the Piano Forte or Spanish Guitar, Composed by SIG^{R}. ANGELO VENTURA, Sole Inventor of those Instrument & Professor of the Spanish Guitar & Teacher to Her Royal Highness the Princess Charlotte of Wales. N.B. Those elegant little Instruments The Imperial Harp Lute & Imperial Lyre, Sig. Ventura flatters himself he has brought to the highest perfection ever yet known in this Country & from his superior style & method of Playing and Singing with an accompaniment he has rendered these Instruments almost eaual to the Harp. Entered at Stationer's Hall. Price: 3 shillings. To be had of the Author, No.2 Little Titchfield Street, Portland Street & all the principal Music Shops in London. (London: n.d. [c.1814]). BLL [h.180. (26)].

Twelve Italian French & English Ariettes Arranged with an Accompaniment for the HARP LUTE, By ANGELO VENTURA, Professor of the Harp Lute, Spanish Guitar. Lyre & Apollo Lyre. TEACHER OF THE SPANISH GUITAR to Her Royal Highness the Princess Charlotte of Wales. No. [1] to be Continued. N.B. The above Songs are adapted for his last new improved Harp Lute superior to any other yet invented as it is equal to the Harp. Entered at Stationer's Hall. Price: 7s. 6d. Printed & Sold by the Author, No.2 Little Titchfield Street, Portland Street and to be had at all the Principal Music Shops. (London: n.d. [c. 1814]). BLL [H.1686. (24)] – Vol. 1 and [H.1686. (24a)] – Vol. 2.

R. L. DOWNES

Twelve FAVORITE SONGS, adapted to popular National Airs with an accompaniment FOR THE HARP LUTE OR Spanish Guitar, dedicated by permission TO Mrs Cranford, BY R. L. DOWNES. Op. 4. Entered at Stationer's Hall. Price: 5 shillings. Published by C. Wheatstone, 436, Strand. (London: n.d.). MS. Royal Collage of Music, London.

ANONYMOUS

A New and Compleat Instruction Book for the English and Harp Guitars. with a Select Collection of AIRS, MARCHES MINUETS &c. adapted by a Professor of those Instruments, To which is added, COMPLEAT SCALES for the SPANISH GUITAR & LUTE. Price 3s. 6d. Published by G. Kiallmark, No. 221 High Holborn, to be had of E. Riley, Music Engraver & Printer, 8 Strand, & all the Music Shops. This Work is Property. (London: n.d.). BLL [h.3878.m. (3)].

APPENDIX iv:

LIST OF MUSICIAN-INVENTORS' ADDRESSES

ADDRESSES OF EDWARD LIGHT

In this section, the so far identified Light's addresses are provided; most of them are found on contemporary newspapers and they are all addressed to London. The indicated years and months corresponds to his removal date to the address or the first time appearing in a newspaper advertisement.

The Light Family's Addresses:

1754 (Apr) *St. James' Market* (One Tun Coffee house)
1756 (Mar) *St. James' Market* (One Tun Coffee house)
1774 (May) *King Street, Covent Garden* (repository) - Burnt out
1774 (Dec) *St. James' Market* (One Tun Coffee house)
1775 (Mar) *No. 79, New Bond Street* (at the Handell's Head, perhaps repository)

Edward's Addresses:

1774 (Jan) *Corner of Charles Street, Mount Street, Grosvenor Square* (Music Repository)
1778 (May) *No. 16 Harley Street, Cavendish Square* (Private house)
1778 (May) *No. 6, Adams-court, Broad Street, behind the Royal Exchange* (Music Academy)
1780 (May) *No.38, Margaret Street, Cavendish Square* (Academy of Polite Arts)
1780 (Dec) *Henrietta Street, Covent Garden* (Mrs Sledge's apartment, Temporary Residence and Music Lessons)
1783 (Jun) *No.1, Thanet Place, Temple bar* (Evening Academy)
1783 (Jun) *No. 50, Firth Street, Soho Square* (Private House and Music Lessons)
1785 (Mar) *No. 7 Queen Street, Soho Square* (Private House and Music Lessons)
1792 (Jan) *No.6 Duke Street, Grosvenor Square* (Music Repository or Shop)
1794 (Jan) *Kensington* (Private House).
1795 (Aug) *No. 9 Duke Street, Portland Chapel* (Music repository or Shop)
1796 (Jan) *No.169, Strand* (Music Academy).
1798 (May) *No. 159, Sloane Street, Knightsbridge* (Music Academy)

No. 9 Duke Street, Portland Chapel (was becoming Music Academy).

1800 (Mar) *No.9 Duke Street* (Music Academy)

1800 (Sep) *No. 64, Margaret Street, Cavendish Square* (moved from Duke Street)

1801 (Apr) *No. 64, Margaret Street, Cavendish Square* (Private House and Music Lessons)

1802 (Apr) *No. 34, Queen Ann-Street, Portland Chapel* (Private House and Music Lessons)

1807 (Aug) *No. 8 Foley Place, Portland Chapel or Cavendish Square* (Private House and Music Lessons)

1822 (Aug) *No. 8 Foley Place, Portland Chapel, St, Marylebone* (Private House and Music Lessons)

1823 (Oct) *No. 38 Berners-street, Oxford Street* (Private House and Music Lessons)

1825 (Mar) *43 Great Marylebone Street, corner of Welbeck Street* (Private House and Music Lessons that ended in 1827)

1829 (Apr) *43 Great Marylebone Street, corner of Welbeck Street* (so far identified his last address)

ADDRESSES OF MORDAUNT LEVIEN

Here is Mordaunt Levien's addresses that have been discovered through out the research, and as with Light's case, most of them appear in newspapers. Unlike Light, he probably did not have music repository or music academy so these addresses shown were all his private house where music lessons were given. Besides, his addresses have constantly appeared in newspaper advertisements, meaning from 1817 to 1823 Levien has resided the addresses shown below and they are all addressed to London unless otherwise stated.

1814 (Mar) *No.8 Pleasant Row, Pentonville*
1817 – 1819? *No 56, Marchmont St, Russell Square* (Not certainly sure)
1817 (Apr) *No.61 Mortimer Street, Cavendish Square*
1817 (Sep) *No.26 Lower Charlotte Street, Bedford Square* (late of Mortimer Street)
1822 (Oct) *No.26 Charlotte Street, Bloomsbury*
1823 (Mar) *No.29 Charlotte Street, Bloomsbury*
1825 (Mar) *No.29 Charlotte Street, Bloomsbury* (last address before moving to Paris)

1843 (Oct) *Blossoms Inn, Lawrence Lane* (shown in his marriage certificate)
1854 (Apr) *Mint Street, Fareham* – not London (shown in his death certificate)

ADDRESSES OF ANGELO BENEDETTO VENTURA

There are the addresses of Ventura's that so far identified by the author, and as with the others, they appears on newspapers. His style in engaging musical instrument retailing and music lessons was more likely almost identical to that of Light so he seems to have used these addresses as private house and music academy, beyond which Ventura promoted his inventions. All addresses are in London unless otherwise stated.

1811 (July) *No. 15 Broad Street, Golden Square* (moved from *King Street, Soho*)
1814 (Oct) *No.2 Little Titchfield Street, Great Portland Street*
1816 (Apr) *No.36, Queen Street, Bryanstone Square*
1817 (Apr) *No. 51, Foley Street, Portland Place*
1828 (Mar) *No.48, Cirencester Place, Portland Place*
1830 (May) *No.48, Cirencester Place, Portland Place*
1834 (Jul) *No.3 Westgate Street, Southompton* – not London (lodging).
1835 (May) *No. 43 Great Merylebone Street, Portland Place*
1844 (Jun) *No. 39 Goodge Street, Fitzroy Square*
1851 (???) *No.17 Charles Street, Mortimer Street, Cavendish Square* (moved from *47 Rothbone Place*)

Probably c.1832 *No. 2, Hercules Buildings, Lambeth*

APPENDIX v:

LIST OF PRICES FOR THE HARP LUTES

LIGHT'S HARP LUTE PRICES

Here are Light's price ranges for his harp lutes in a chronological order, and all included the case.

1800: **4 to 6 guineas** (for the harp-guitars)
1804: **2 to 10 guineas** (for the harp-guitars, the harp-lute-guitars)
1806: **5 to 10 guineas** (probably for the harp-lutes and Apollo Lyres)
1809: **9 to 12 guineas** (for the harp-lutes and Apollo Lyres)
1818: **15 to 18 guineas** (for the British Lute Harps)
1819: **16 to 20 guineas** (for the dital-harps)
1821: **15 to 20 guineas** (for the dital-harps including the model without ditals)
1821: **16 to 20 guineas** (for the dital-harps including the model without ditals)

LEVIEN'S HARP LUTE PRICE

1824: **9 guineas** (for his newly invented harp-guitar, possibly the *guitare harpe*)

VENTURA'S PRICE

1851: **15 to 21 pounds** (for the Ventura Harp)

WHEATSTONE'S HARP LUTE PRICES

Here presents Wheatstone's prices for his harp lutes in a chronological order.

1811: **7 guineas** (the harp-lute and the Lyre, with case)
5 guineas (the harp-guitar, with case)

APPENDIX vi:

IMAGES OF REPRODUCTION PROCESS:

MAKING A COPY OF HARP-LUTE

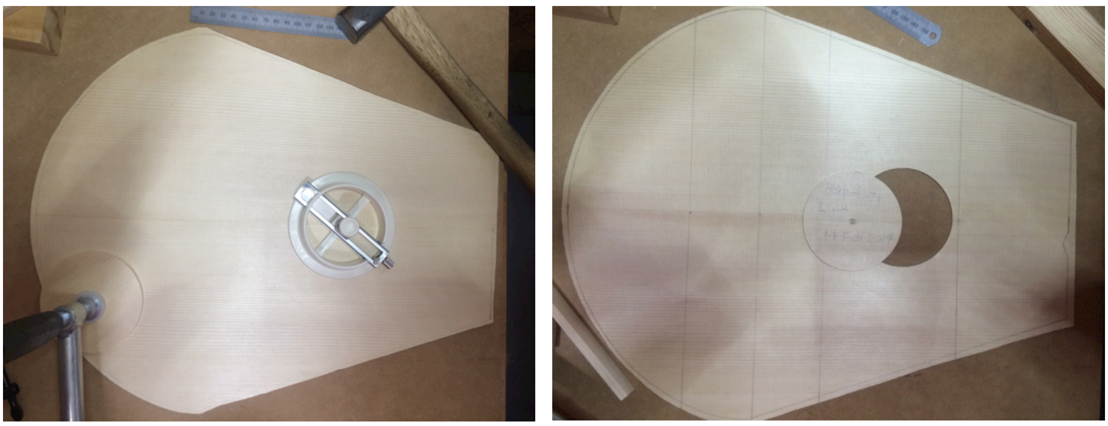
[MIMEd: 854]

PROCESS OF MAKING A COPY OF HARP-LUTE

This section shows the reproduction process of harp-lute, and how it was made by the author is presented. Due to limited time and word count, only the images are shown. Albeit, the author believes such images are sufficient enough for the readers to gain a solid understanding of how the author proceeded through the project and, though some are utterly irrelevant to the argument unfolded in the main content of the thesis, they are still worthy of mention as appendix so as to help readers for more in-depth understanding of the reproduction project.

I. SOUNDBOARD

STEP 1: Jointing two pieces of wood for the soundboard.

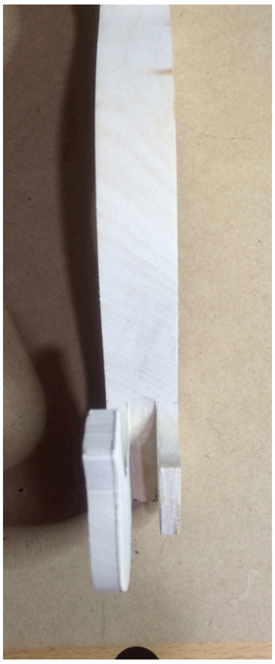


STEP 2: After planed down to the right thicknesses, cut out the soundhole and prepare for the harmonic bars.

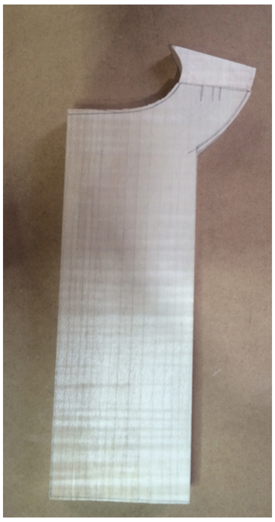
STEP 3: Gluing the harmonic bars.

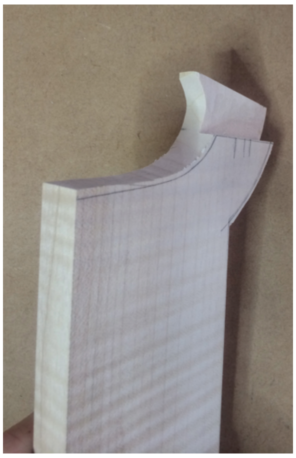
II. UPPER AND LOWER NECK

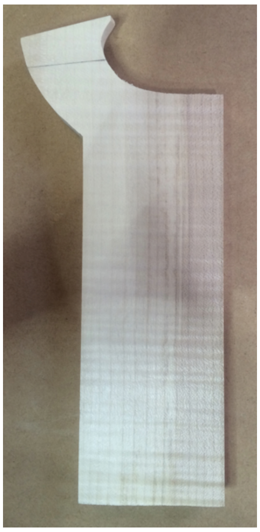
STEP 4: Cut and plane the upper neck into shape.



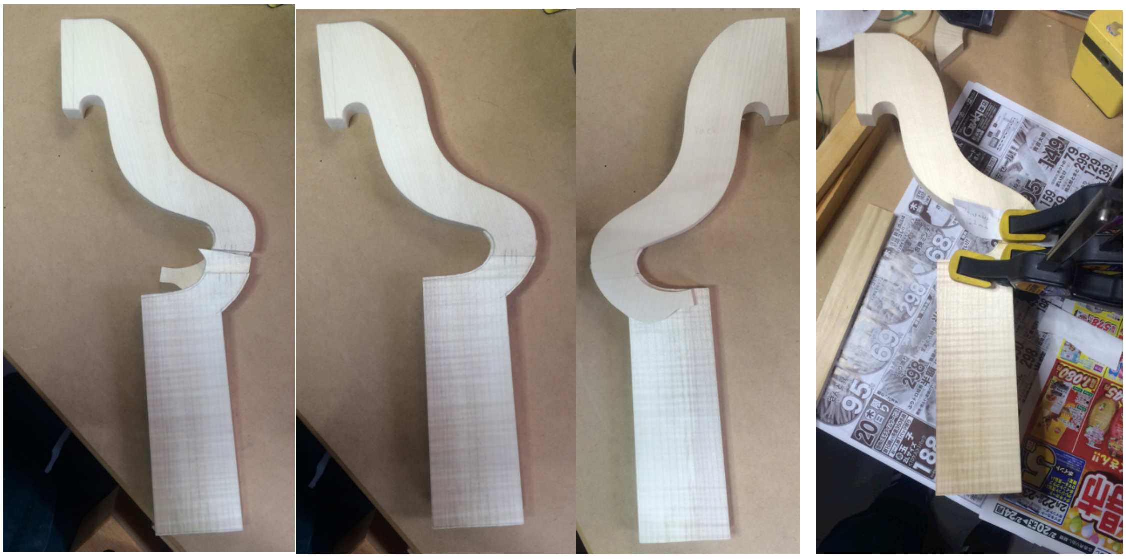
STEP 5: Cut out the part where meets the lower neck for mortise and tenon joint.



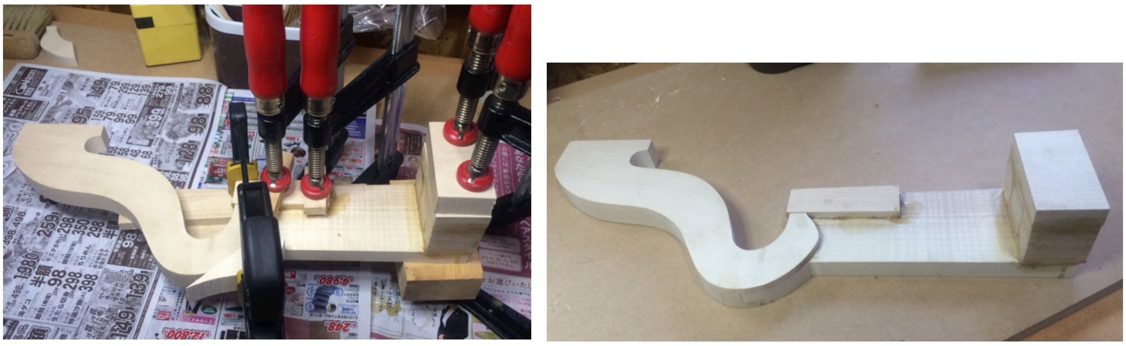




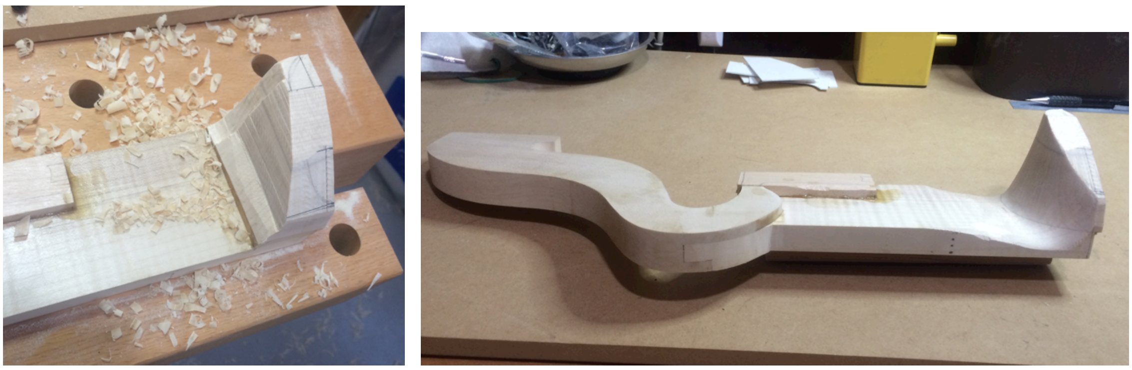
STEP 6: Cut and plane the lower neck in shape and then prepare the tip for mortise and tenon joint.



STEP 7: Gluing the upper and the lower neck.



STEP 8: Gluing the keybox and the heel.



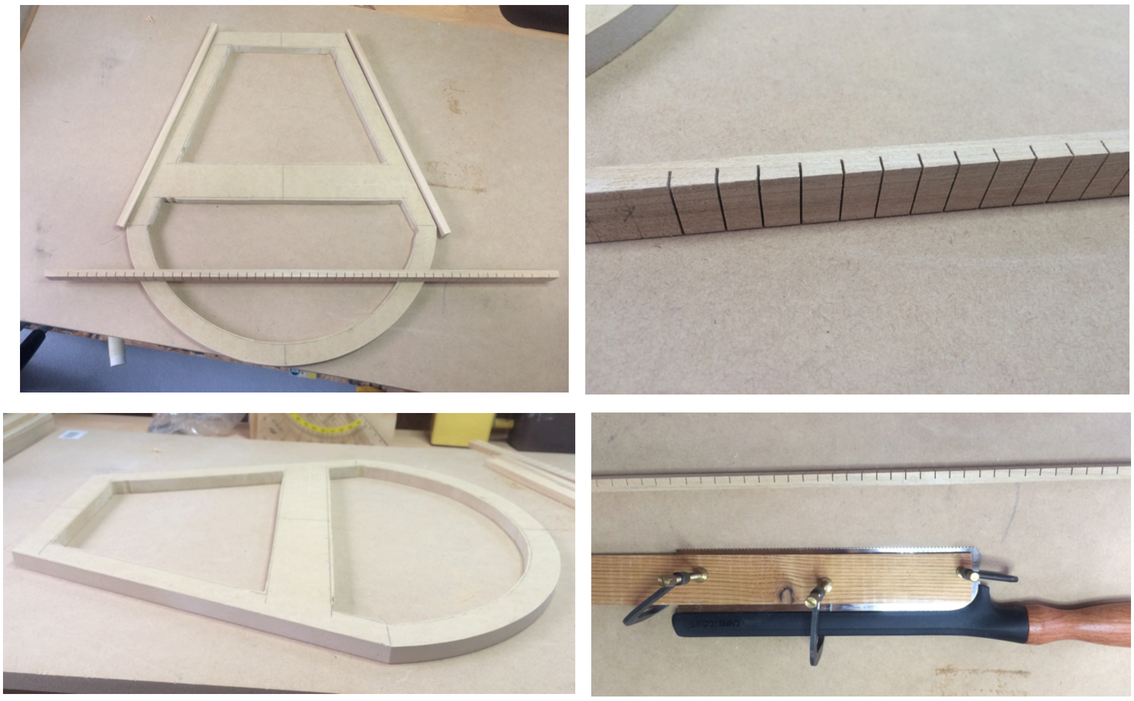
STEP 9: Carve the heel in shape.

STEP 10: With a template and a drawing pin, positions for tuning pins, ring stops and string hooks are marked.

STEP 11: By using the so-called beading tool with a self-profiled blade, outer edges of the upper neck are beaded.

STEP 12: Once the beading is done, inner part of the upper neck is filed smoothing out the corners while it becomes slightly being arched.

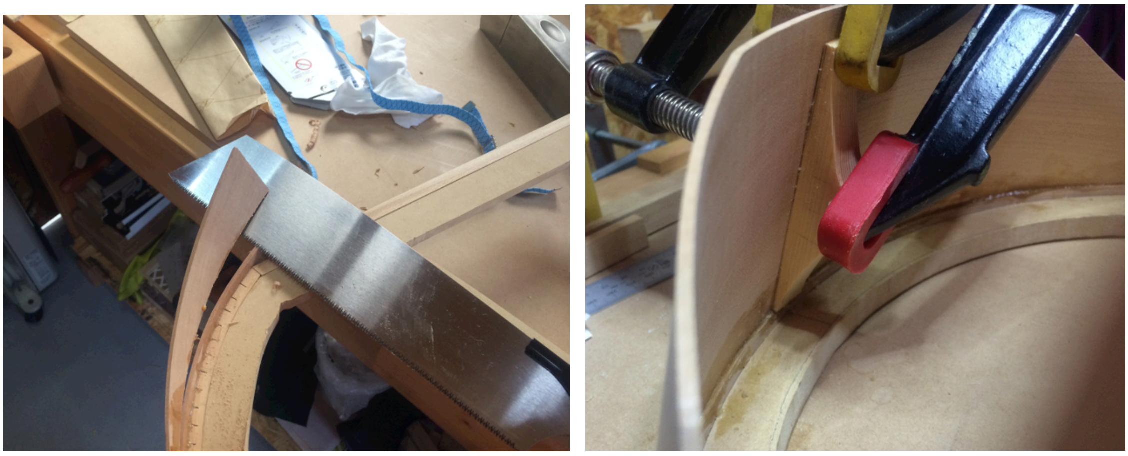
III. SOUNDBOX



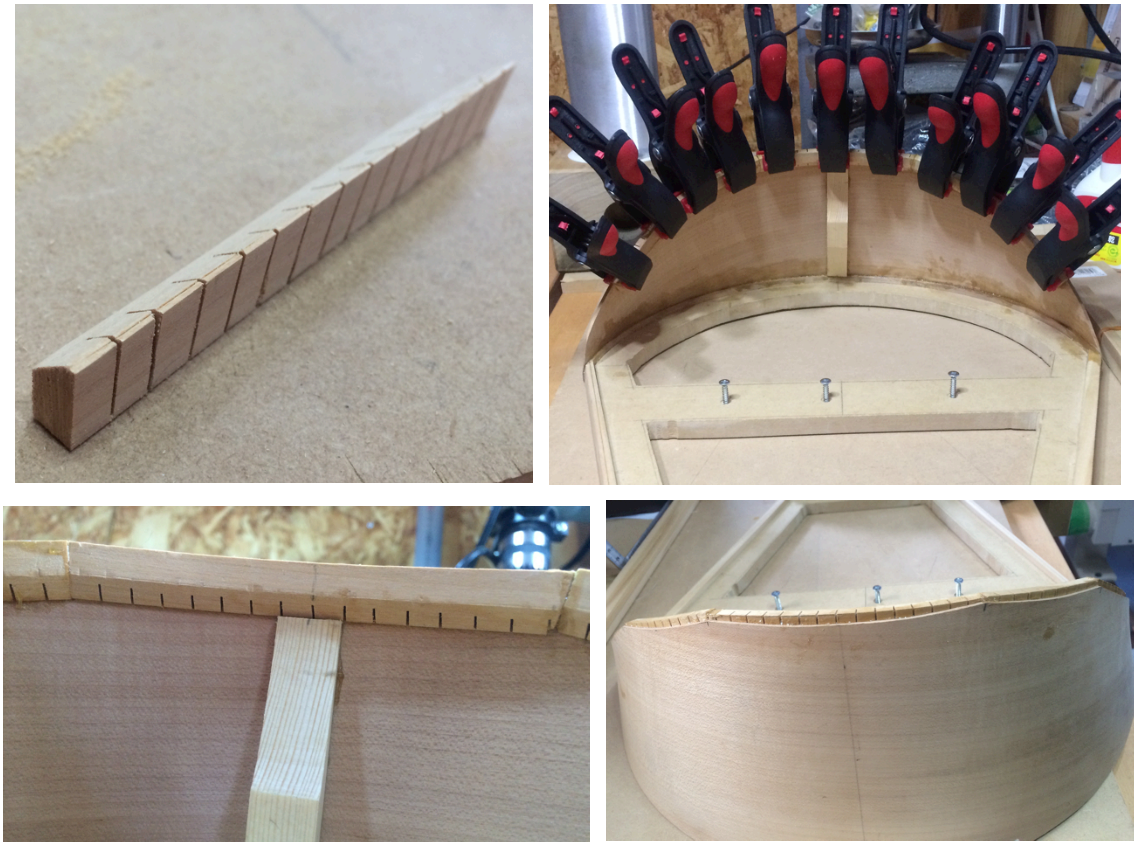
STEP 13: Make the frame-board and linings (for bottom and sides).

STEP 14: Temporarily gluing the bottom lining to the frame-bard (left) and carving the bottom lining in angle corresponding to that of the bottom board, then bending the prepared bottom board.

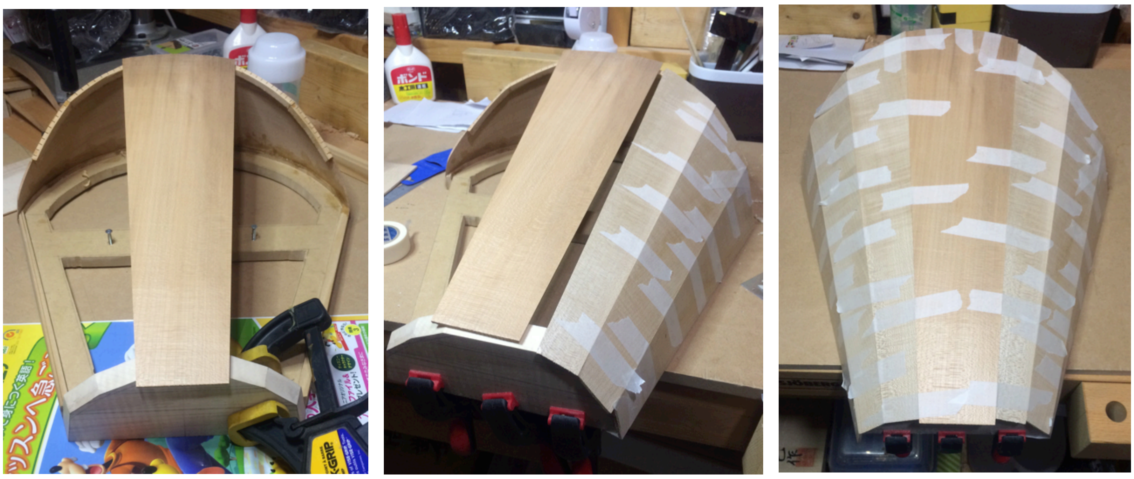
STEP 15: Gluing the bottom board to the bottom lining.



STEP 16: Trimming off excessive part of the bottom board and gluing the bottom block to the bottom board.



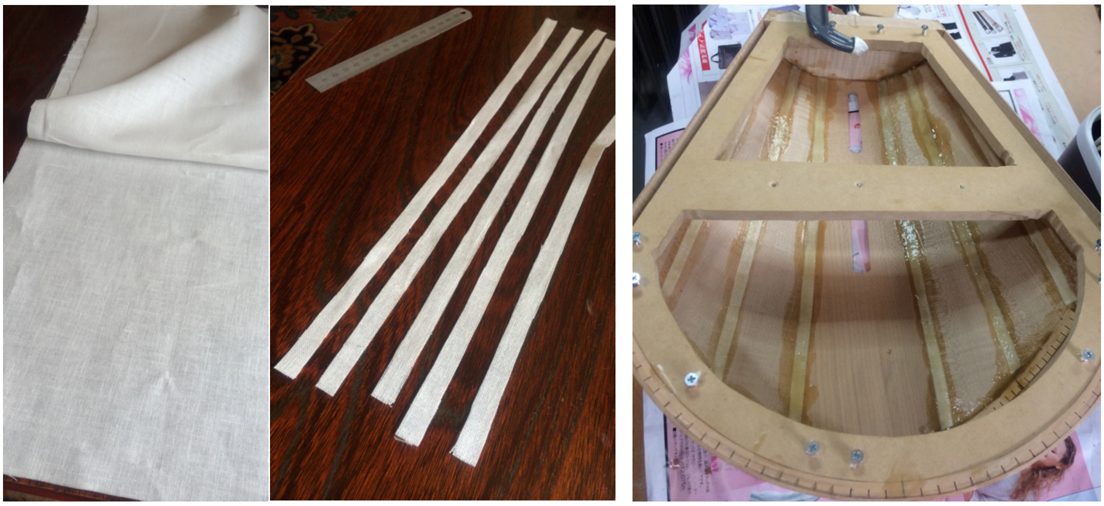
STEP 17: Prepare the linings that cohere staves and the bottom board, and then glue them on inside the bottom board.



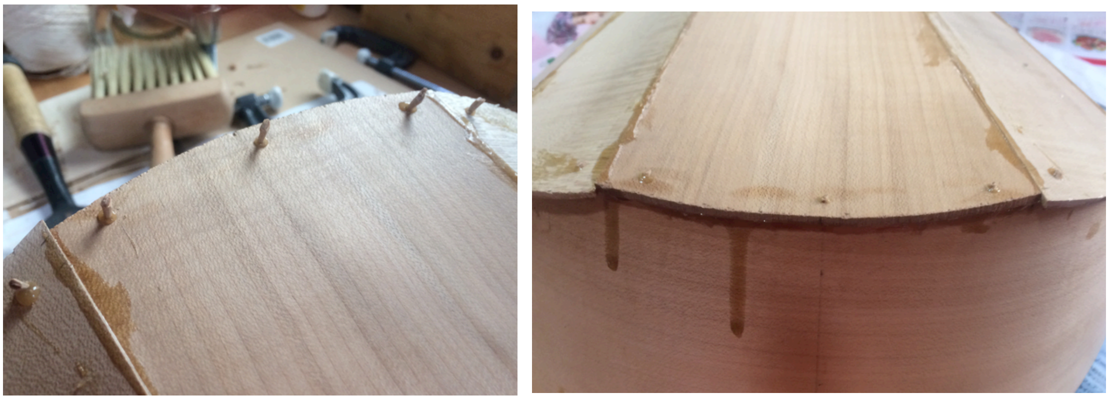
STEP 18: After the heel block is temporarily glued to the frame-board, start placing the staves in position.

STEP 19: Start gluing from the outer staves with strings hooking them to screws prepared under the frame-board.

STEP 20: By using strings, nails, blocks and clamps, all staves are glued in position: starting from the outer staves and ended with the centre stave.

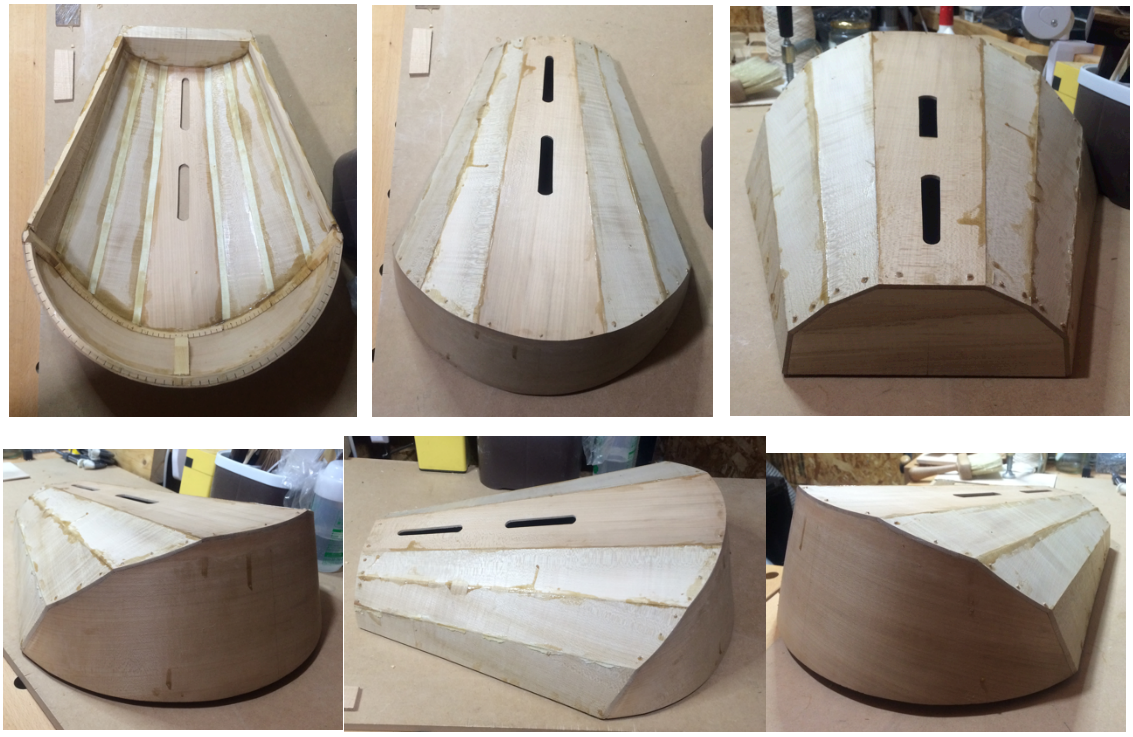


STEP 21: A sheet of linen is cut into stripes and they are attached to the junction between the staves with animal glue, so that strengthen the soundbox.



STEP 22: Holes created by the nails are filled with wooden sticks and their head are afterwards chopped off.

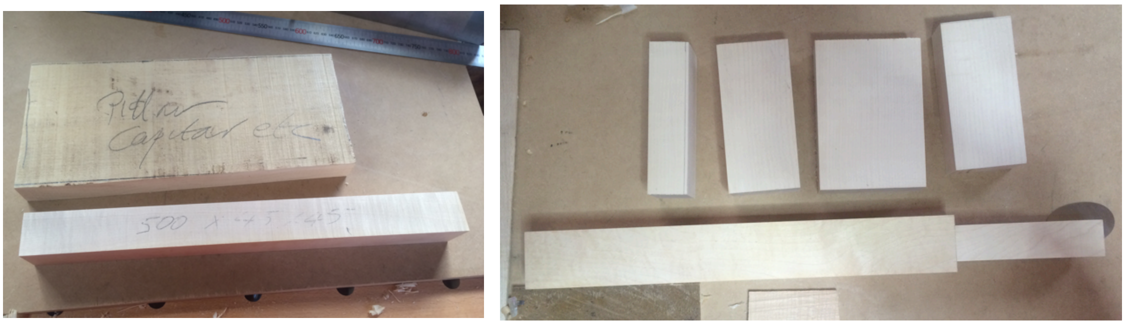
STEP 23: After removing of the frame-board, linings for sides of outer staves (left) and for bottom of them (right) are glued.



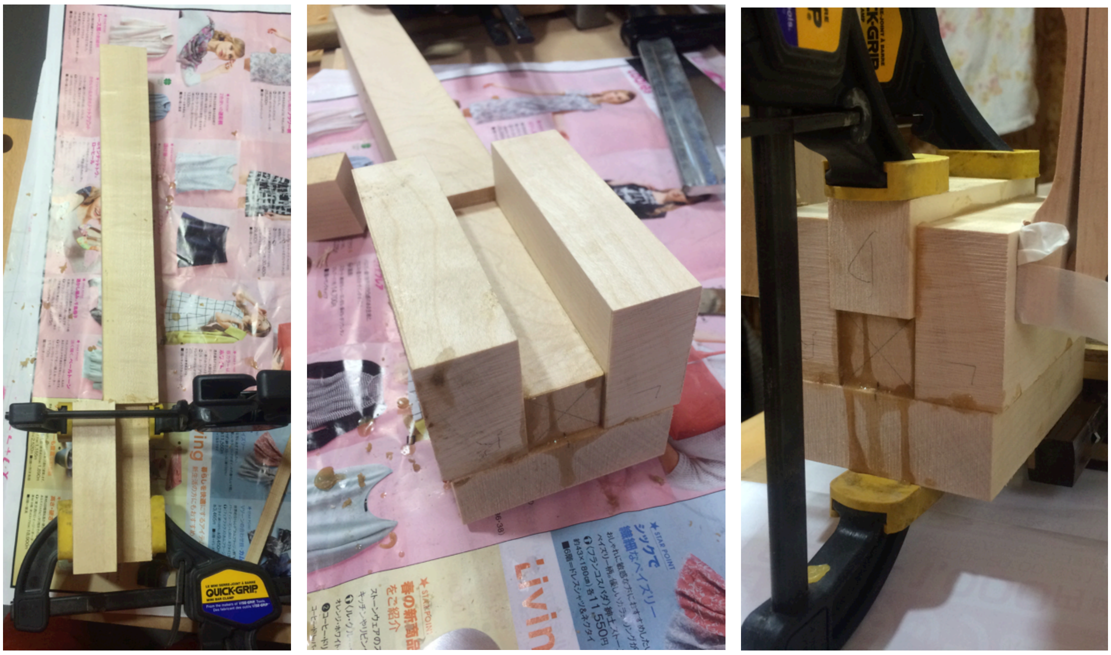
STEP 24: Once excessive parts are cut and planed, the soundbox is completed.

STEP 25: Three parts (soundboard, neck and soundbox) are now completed and hanged for drying. N.B. The neck is not yet beaded and not yet marked the positions for the attachments (e.g. tuning pins) though the procedure is presented above.

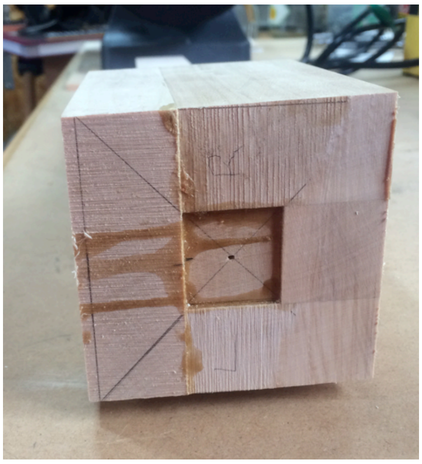
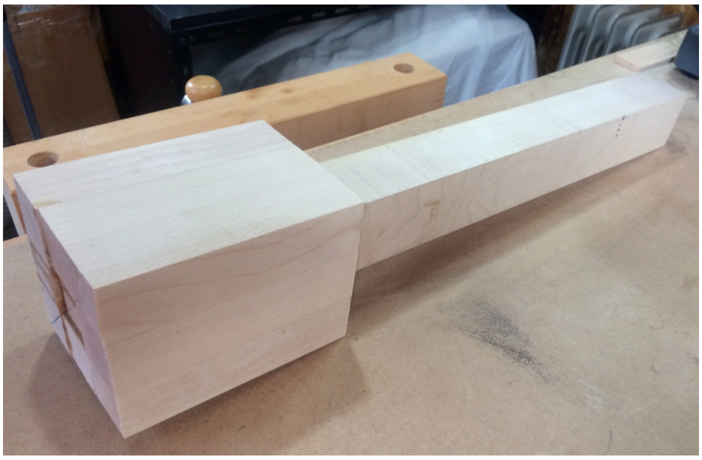
IV. PILLAR



STEP 26: Two pieces of plank woods are cut and planed into required sizes and shapes.



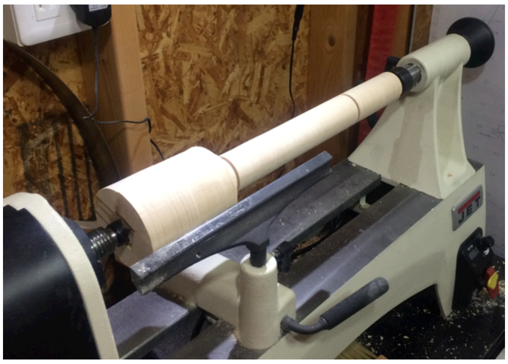
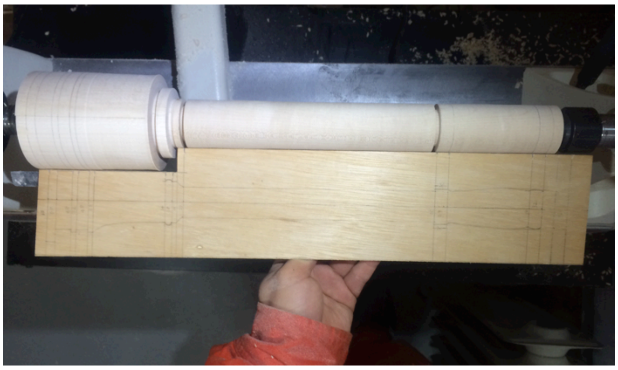
STEP 27: The pieces for the capital are glued to the column one at a time.

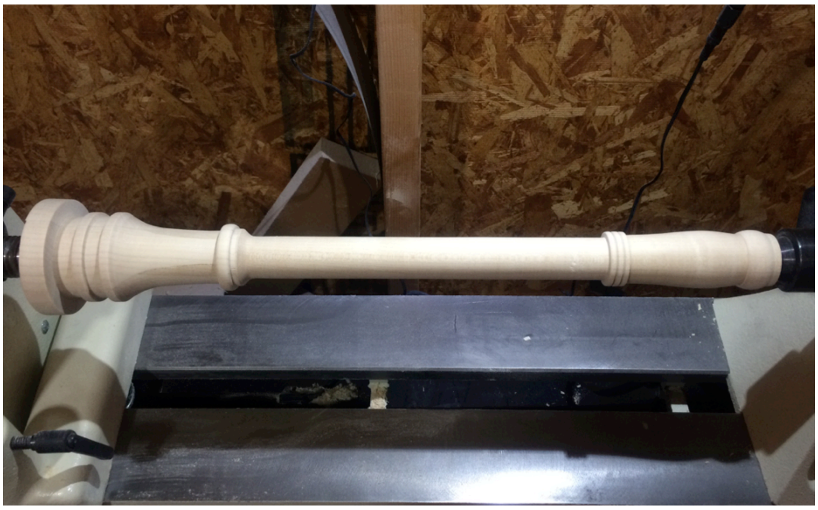
STEP 28: Plane down the capital until it becomes more or less square.

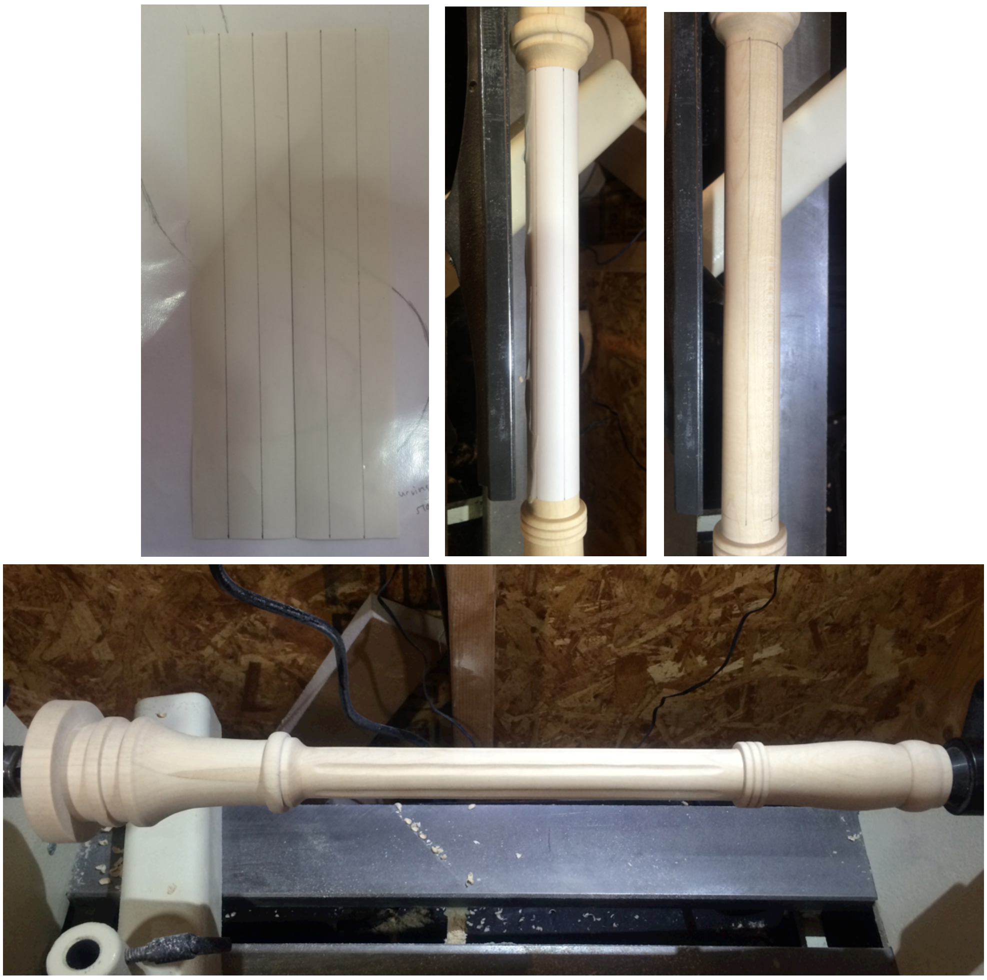
STEP 29: Set the pillar in the lathe for turning.

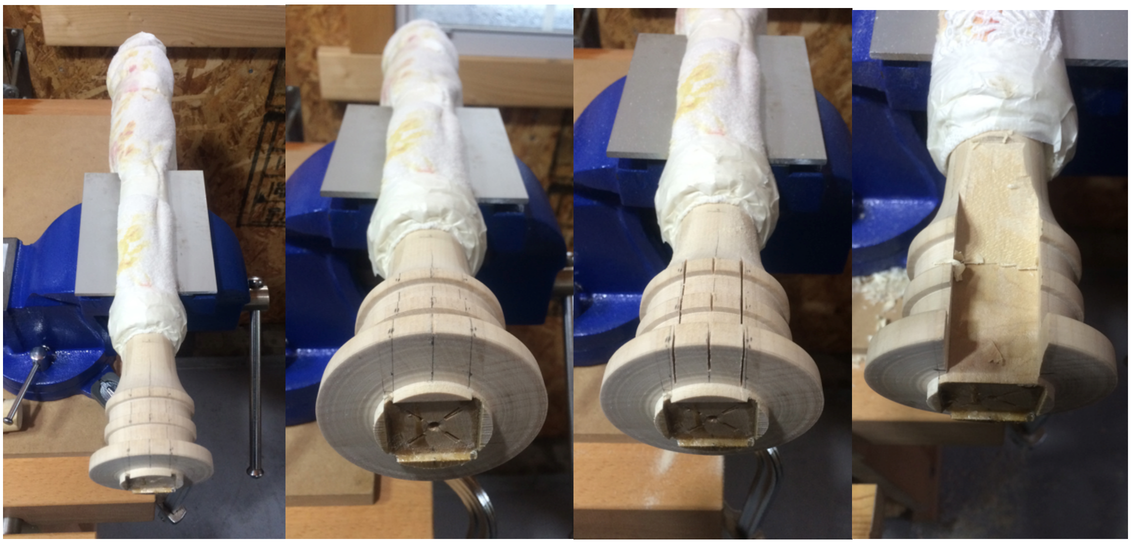
STEP 30: Turning the pillar by using different chisel profiles (a roughing gauge, a spindle gauge, a parting tool, and a skew) with a template as guidance.



STEP 31: The pillar is cleaned with sandpaper to smooth the surface.

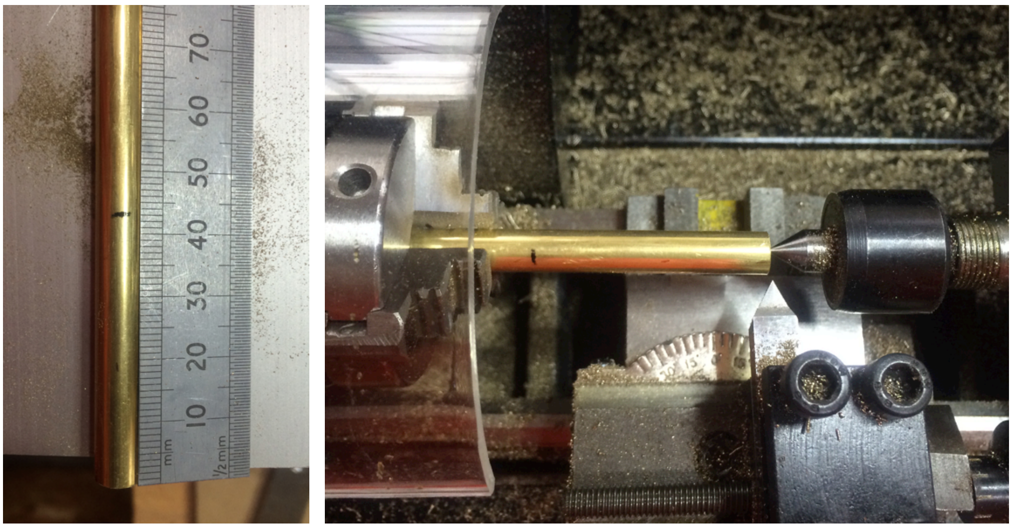


STEP 32: By using a paper template, positions for grooves are marked and carved within the lathe.

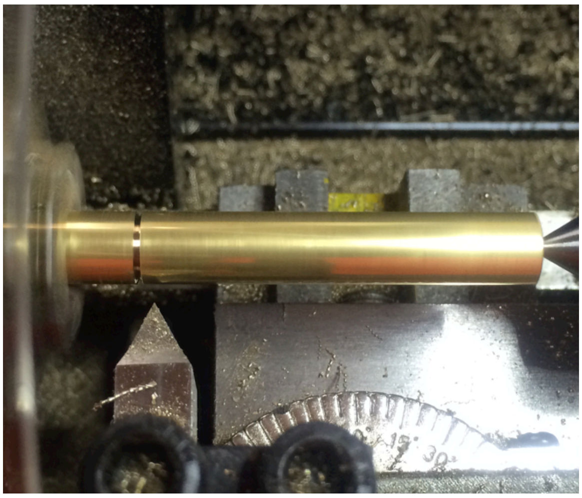
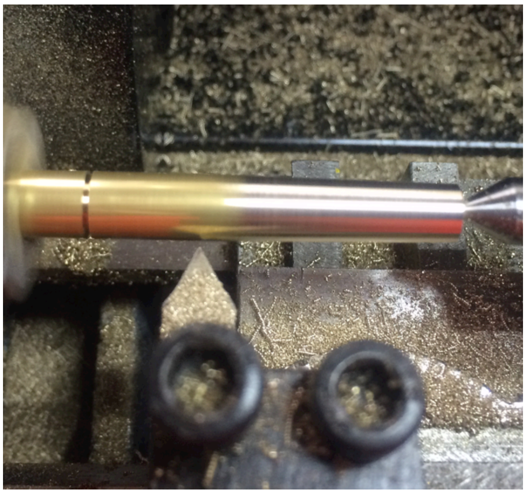


STEP 33: Once the pillar was removed from the lathe, a slot for receiving the upper neck is created.

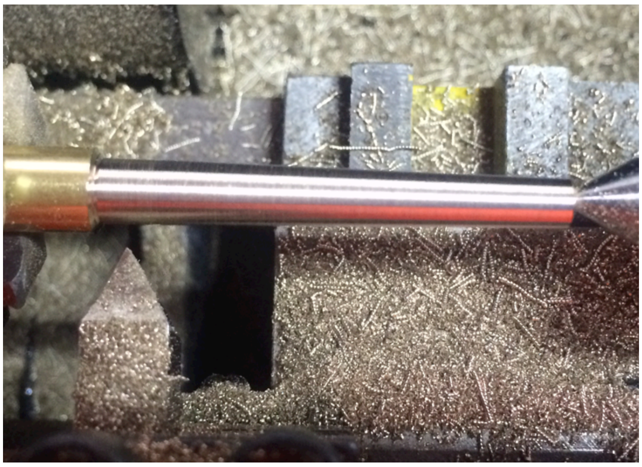
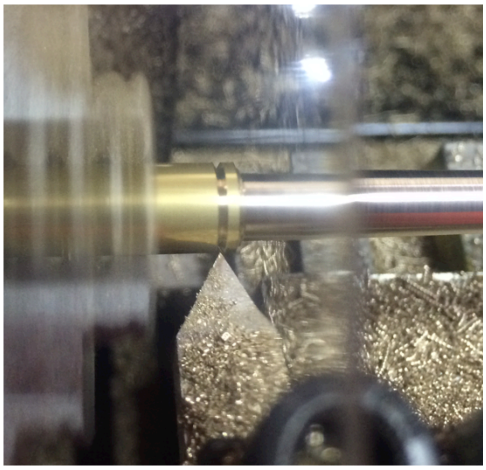
V. BRASS TUNING PINS AND STRING HOOKS



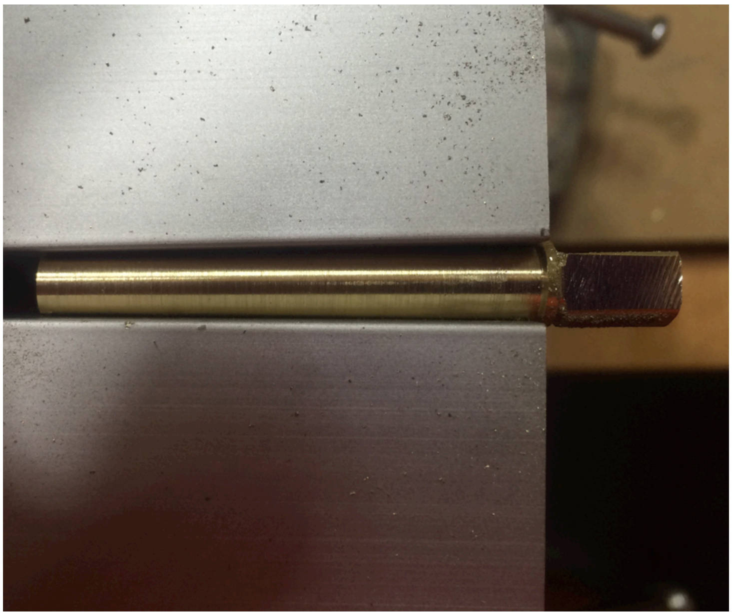
STEP 34: Mark a line on a brass rod for required length of the taper, and set it in the lathe for iron turning.

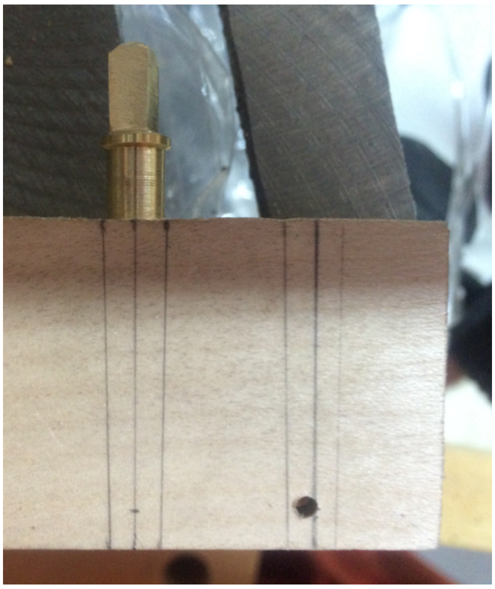
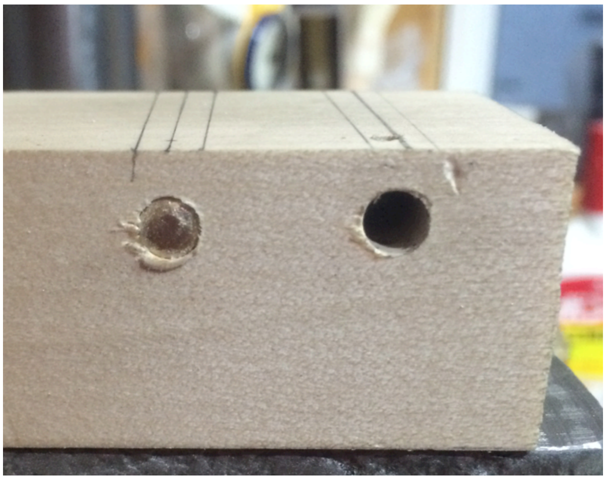
STEP 35: Set the blade in angle for the taper of the tuning pin and mark the position where the taper starts with making a slot on the rod, and then carving the rod so as to make the taper by pushing the blade little by little into the brass rod one at a cut.

STEP 36: Once the taper is made, a bead is created by cutting into the rod with the blade.



STEP 37: After the end part of the tuning pin is marked and cut in length, and then the part where receive the tuning hammer is filed until it gets fit to the profile of the hammer.

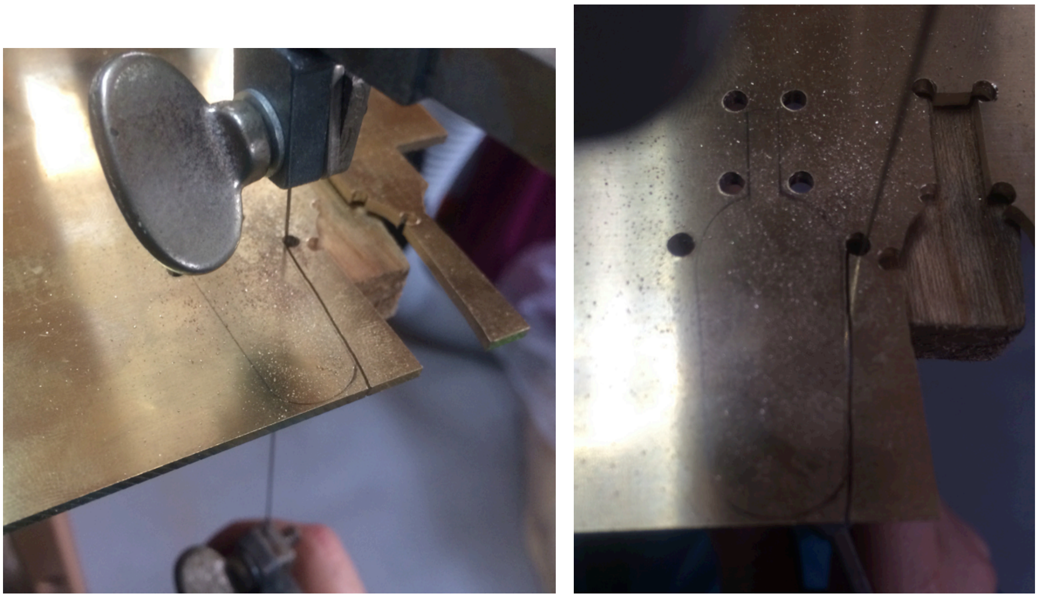



STEP 38: In order to drill a hole for winding strings the tuning pin is placed in a wooden jig and the hole is made with a table drill.

STEP 39: After the hole is enlarged lengthwise and sharp edges were filed, the brass tuning pin is completed. Twelve of them are made.

STEP 40: In a similar manner to that of tuning pins, five string hooks are made.

VI. RING STOPS

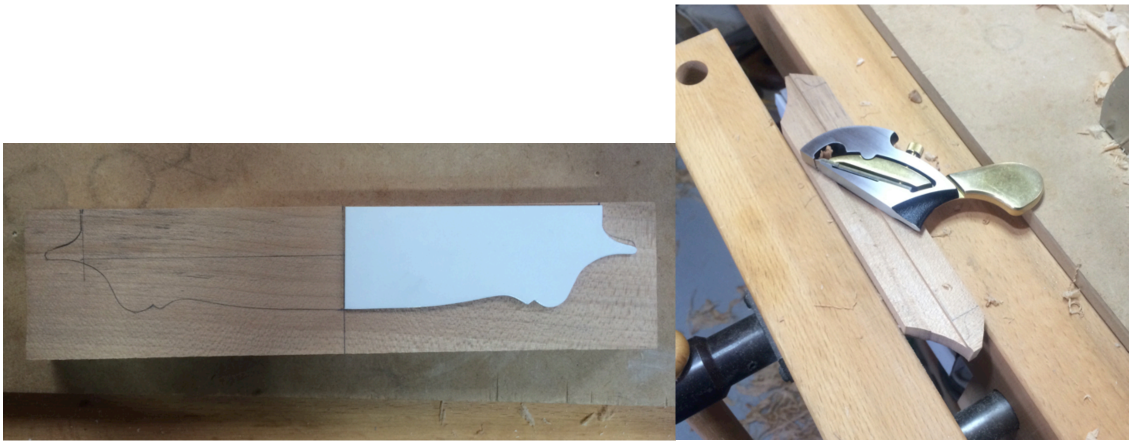


STEP 41: From a brass plate, a ring stop in basic shape is cut out.

STEP 42: Once the part that will be screwed into the upper neck is roughly filed to be a cylindrical shape, a thread is manually created by using a threading die.

STEP 43: After sharp corners are filed, a hole through which the string passes is drilled out. But it has to be very careful as the brass gets heated (very hot) by spinning of the drill bit. It is ideal that the hole is made in a jig. Three are built.

VII. BRIDGE

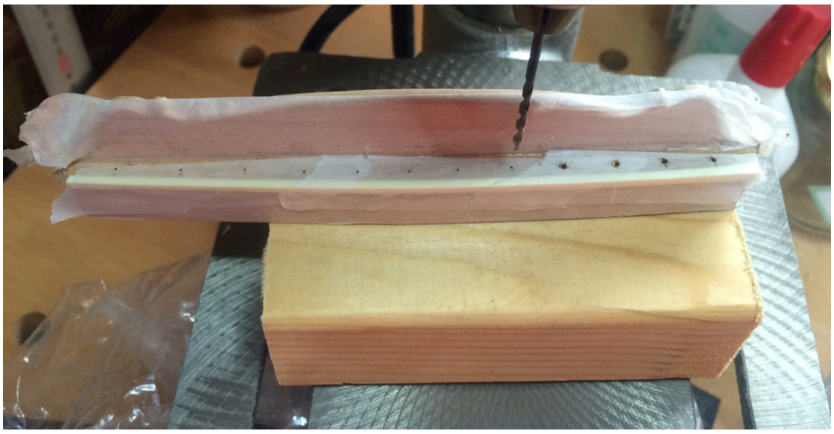


STEP 44: By using a template, the shape is drawn and the bridge is started carving.

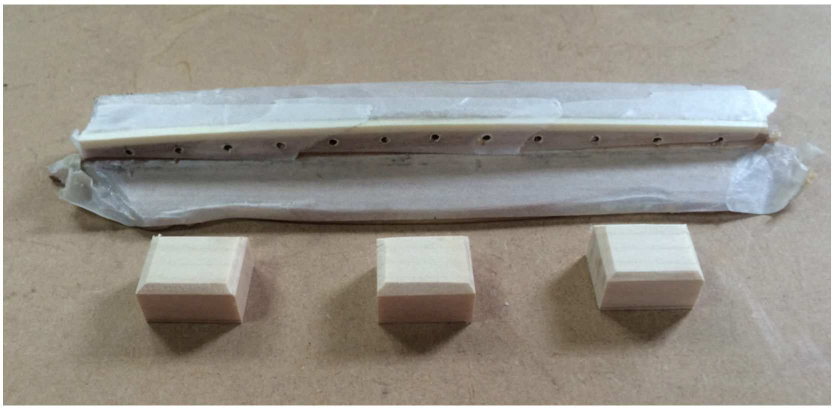
STEP 45: Continue carving.

STEP 46: Once get in shape and smoothing out with files and scrapers, the bridge is ready for gluing the saddle.

STEP 47: As to artificial material (ivoroid), to fix the saddle artificial glue is used.

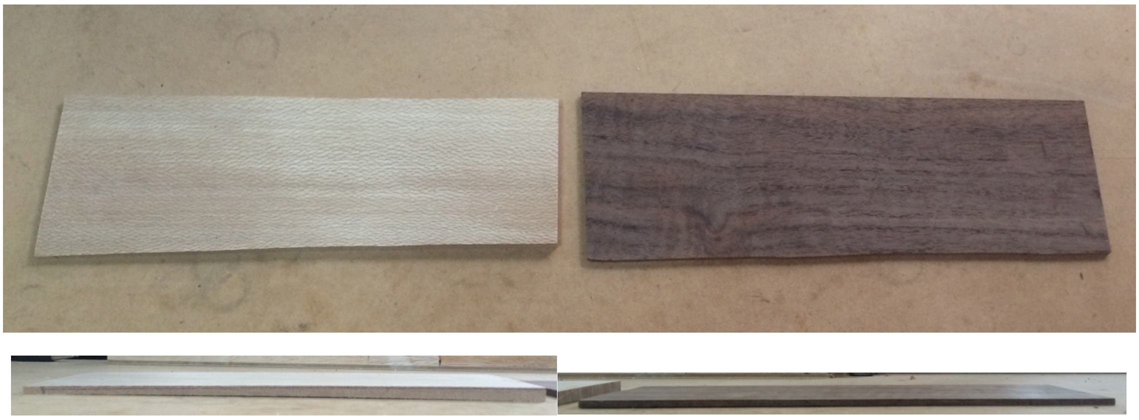


STEP 48: Holes for strings are drilled.



STEP 49: Together the completion of three blocks that will hold the bridge from underneath the soundboard, the bridge is completed.

VIII. FINGERBOARD



STEP 50: Two layers of fingerboard are prepared: one (left) is the lower piece slightly tapered while the other (right) is the upper piece being completely flat.

STEP 51: The two pieces are glued together.

STEP 52: Fret positions are marked. The formula is:

Bridge to fret [n-1] = Scale length - Nut to fret [n-1]

Nut to fret [n] = (Bridge to fret [n-1] / 17.817)+Nut to fret [n-1]

nut to 1st fret = 400 / 17.817 =22.45

nut to 2nd fret = 43.64

nut to 3rd fret = 63.64

nut to 4th fret = 82.52

nut to 5th fret = 100.34

nut to 6th fret = 117.16

nut to 7th fret = 133.03

nut to 8th fret = 148.01

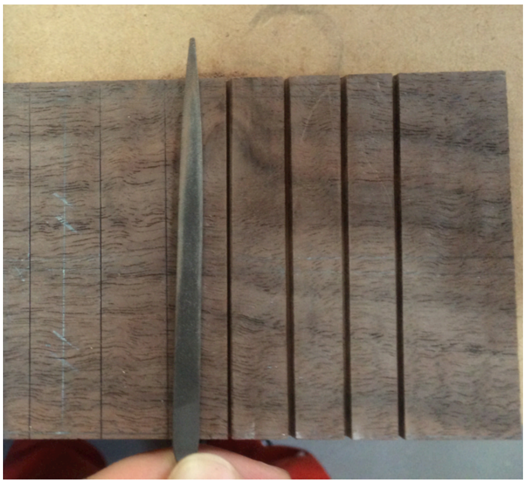
nut to 9th fret = 162.15

nut to 10th fret = 175.50

nut to 11th fret = 188.10

nut to 12th fret = 199.99

nut to 13th fret = 211.22

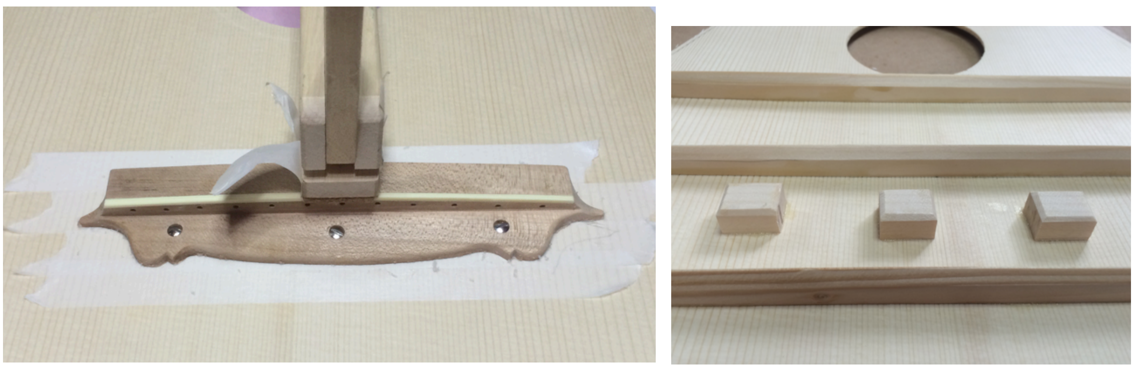


STEP 53: Cut the slots with a saw and enlarge them with a file.

STEP 54: Cut the fingerboard in a required shape.

IX. ASSEMBLY

STEP 55: The upper and the lower necks are glued together with a self-made jig.



STEP 56: The bridge is glued to the soundboard (left) with support of screws that are held by the block glued underneath the soundboard (right). N.B. The nickel screws shown in the picture were later replaced with brass screws, which is the authentic ones used by the original

instrument, since they became available.

STEP 57: By using a self-made jig, positions of the neck and the pillar are determined and the neck is temporarily held with a screw and two nails as seen in original.

STEP 58: The pillar is fixed with a small wooden dowel.

STEP 59: All slots for the harmonic bars are chiselled on linings and then the soundboard is fixed to the soundbox with fish glue.

STEP 60: A groove on the heel is carved out.

STEP 61: Holes for the tuning pins are drilled on the upper neck.

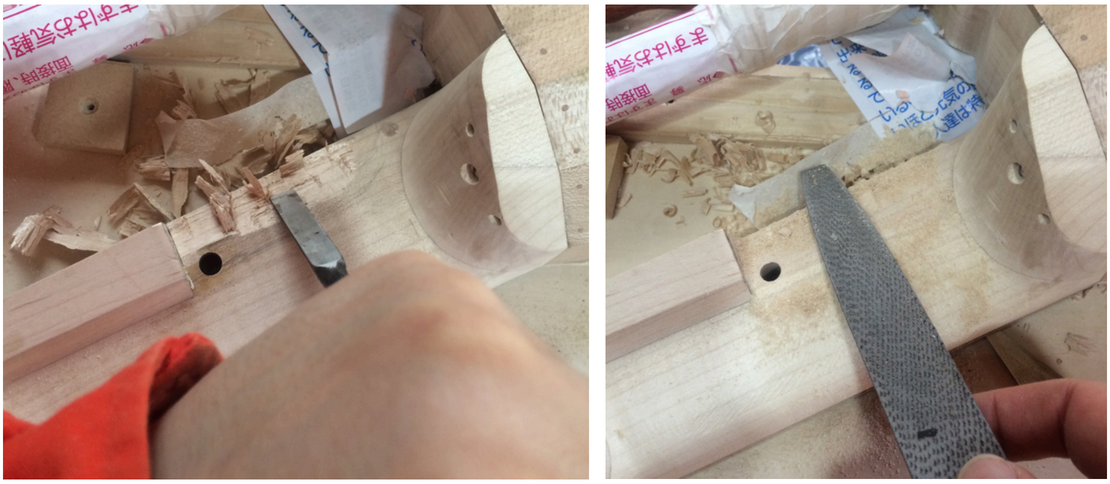

STEP 62: Upper part is glued to the body in the self-made jig.

STEP 63: By positioning the fingerboard with three nails (one at first fret and the other two at sixth fret), it is glued to the neck and the soundboard.

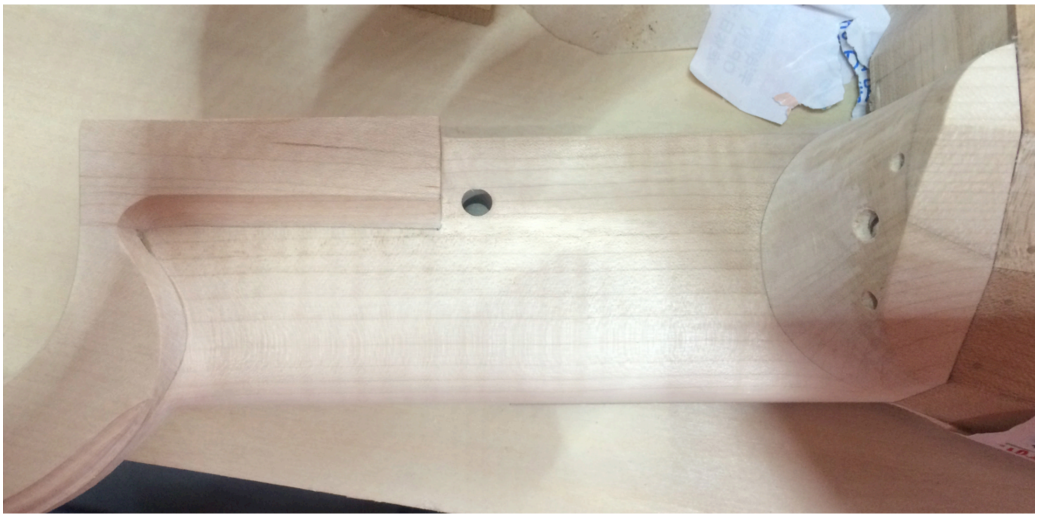
STEP 64: Hole for the capotasto is drilled on behind the second fret.

STEP 65: By using a special tool (left), the fingerboard is filed so that the surface becomes arched.

STEP 66: Bar frets (made of bone) are glued to the fingerboard.



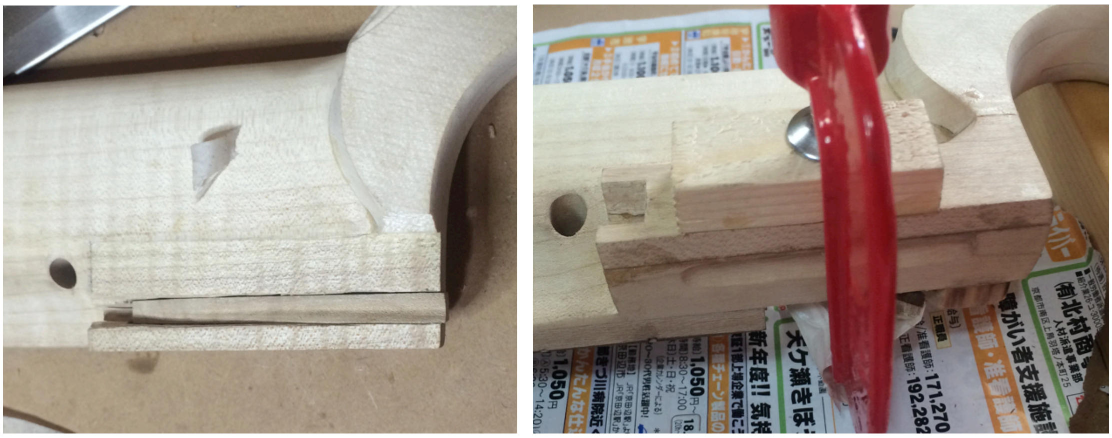
STEP 67: The lower neck and the key box are carved and filed.



STEP 68: The beading on the upper neck is given a final adjustment to be smoothly integrated with the design of the lower neck and of the pillar.

STEP 69: Heads of the screw and nails on the heel are hidden by dwells.

STEP 70: String guide is prepared with holes and glued to the lower neck with support of screws.



STEP 71: Slot on the keybox is carved by opening it (this is the process of recovering a mistake).

STEP 72: After the instrument is cleaned with scrapers and sand papers, all accessories are in position and frets are lowered down to the appropriate height, the harp-lute is completed and ready for playing.

CASE MAKING

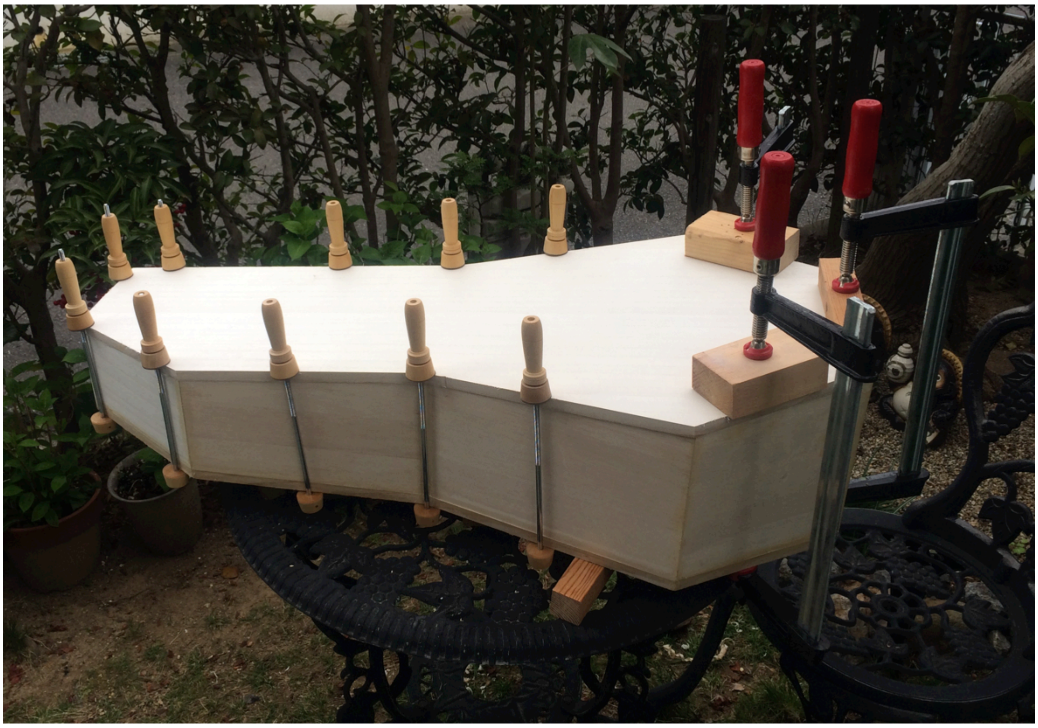
(Additional information)

As no case fit to the duplicated harp-lute was found, the author decided to make a copy of original case following pictures taken through the research visiting numbers of museums and collections. The following is a very brief procedure of the coffin case making as additional information. It has to be noted that this is not an authentic making of coffin case since it is not supported by any academic research or sufficient evidence and documents; the materials used for it is artificially created boards. This is just an idea how it is possible to make, but may be a good idea to include the process of making in this section as a supportive document for future researchers.

STEP 73: Board for the bottom and top are prepared while sideboards are cut to fit them.

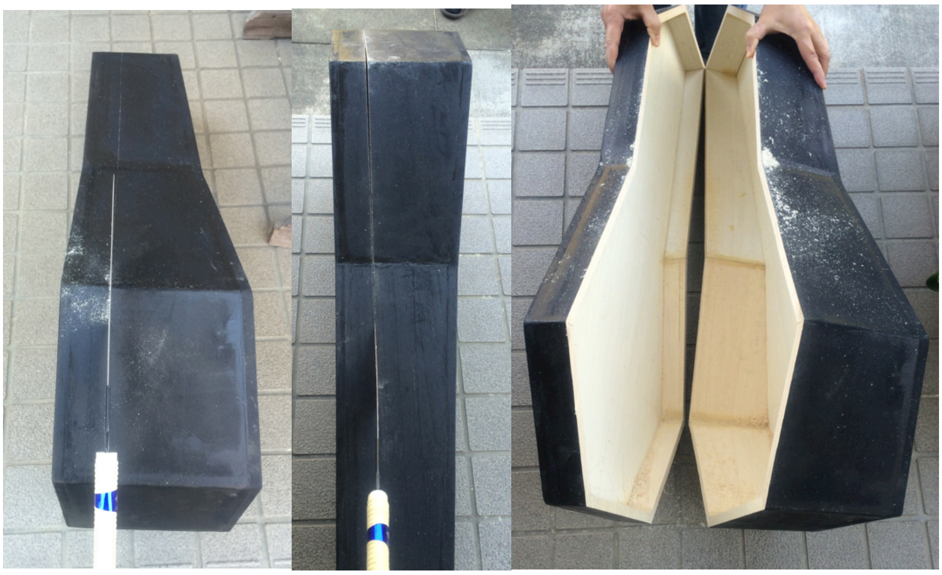
STEP 74: Sideboards are glued to the bottom board one at a time.

STEP 75: Gaps created between joints are filled with filler.



STEP 76: Top board is glued.

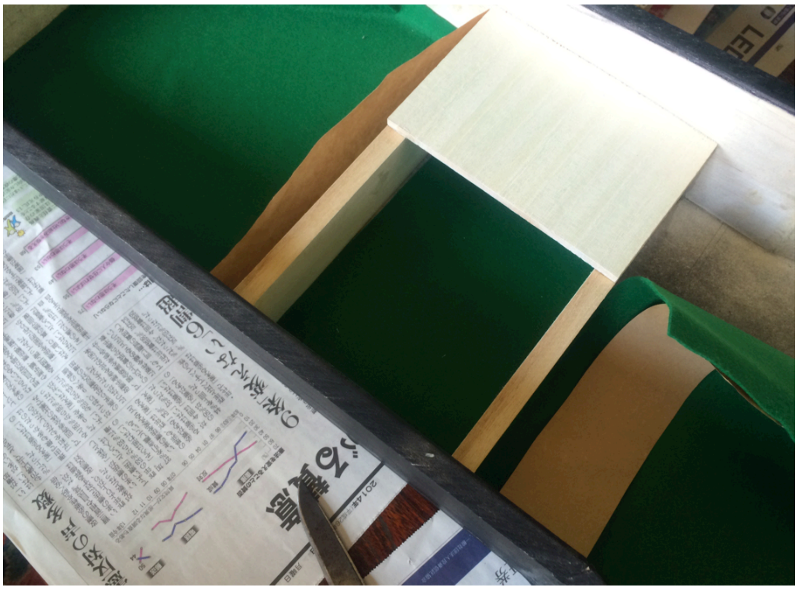
STEP 77: Case is sprayed black.



STEP 78: Case is cut in half.

STEP 79: Instrument is nicely fit in the case.

STEP 80: After the lock, handle, hinge and accessary case are attached, felts are glued inside the case.



STEP 81: Felts are also glued inside the accessary case.

STEP 82: Completed case (inside).

STEP 83: (from left to right) views of left side, front and right side.

STEP 84: Completed case with instrument.

APPENDIX vii:

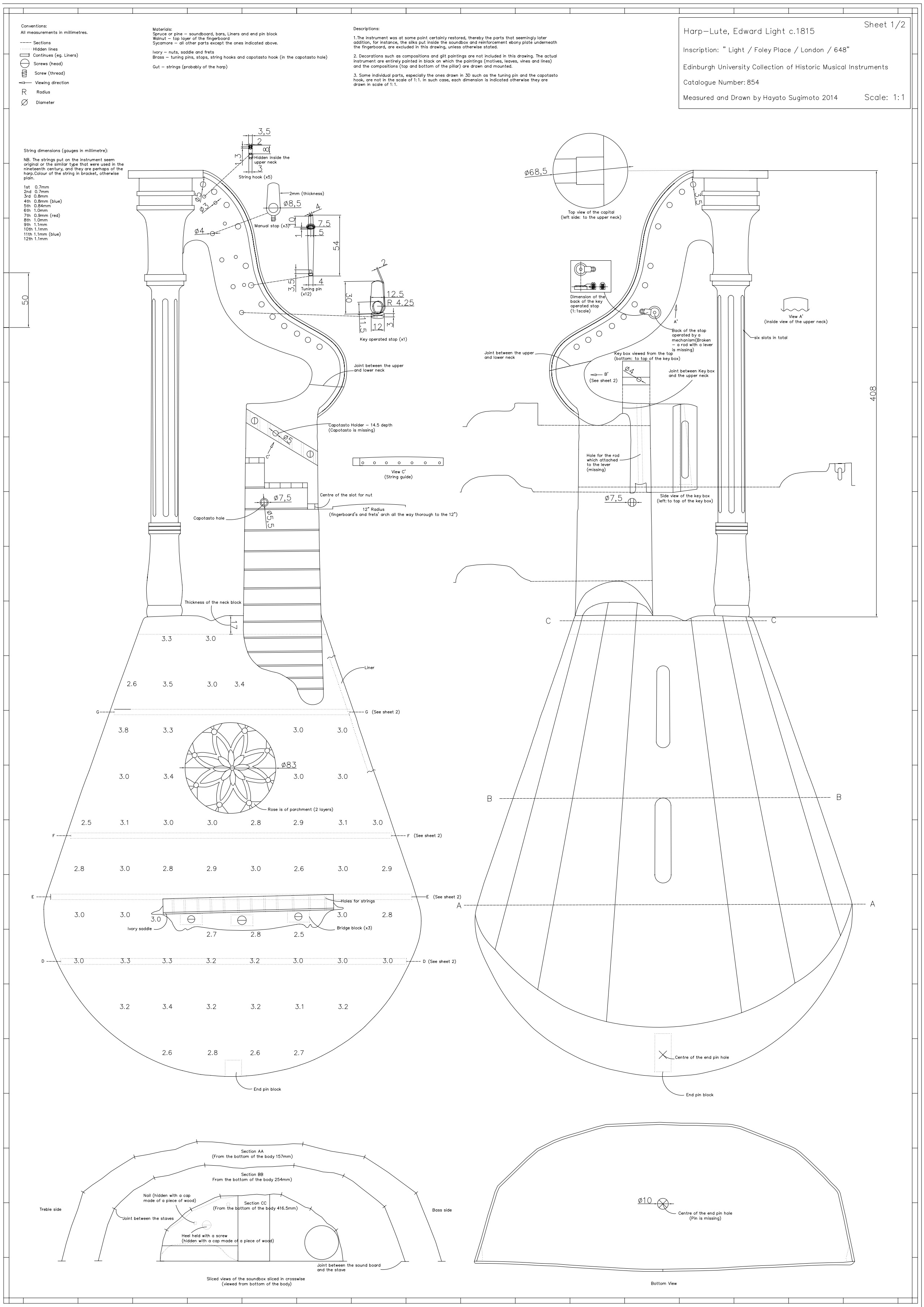
TECHNICAL DRAWING OF THE HARP-LUTE

[MIMEd: 854]

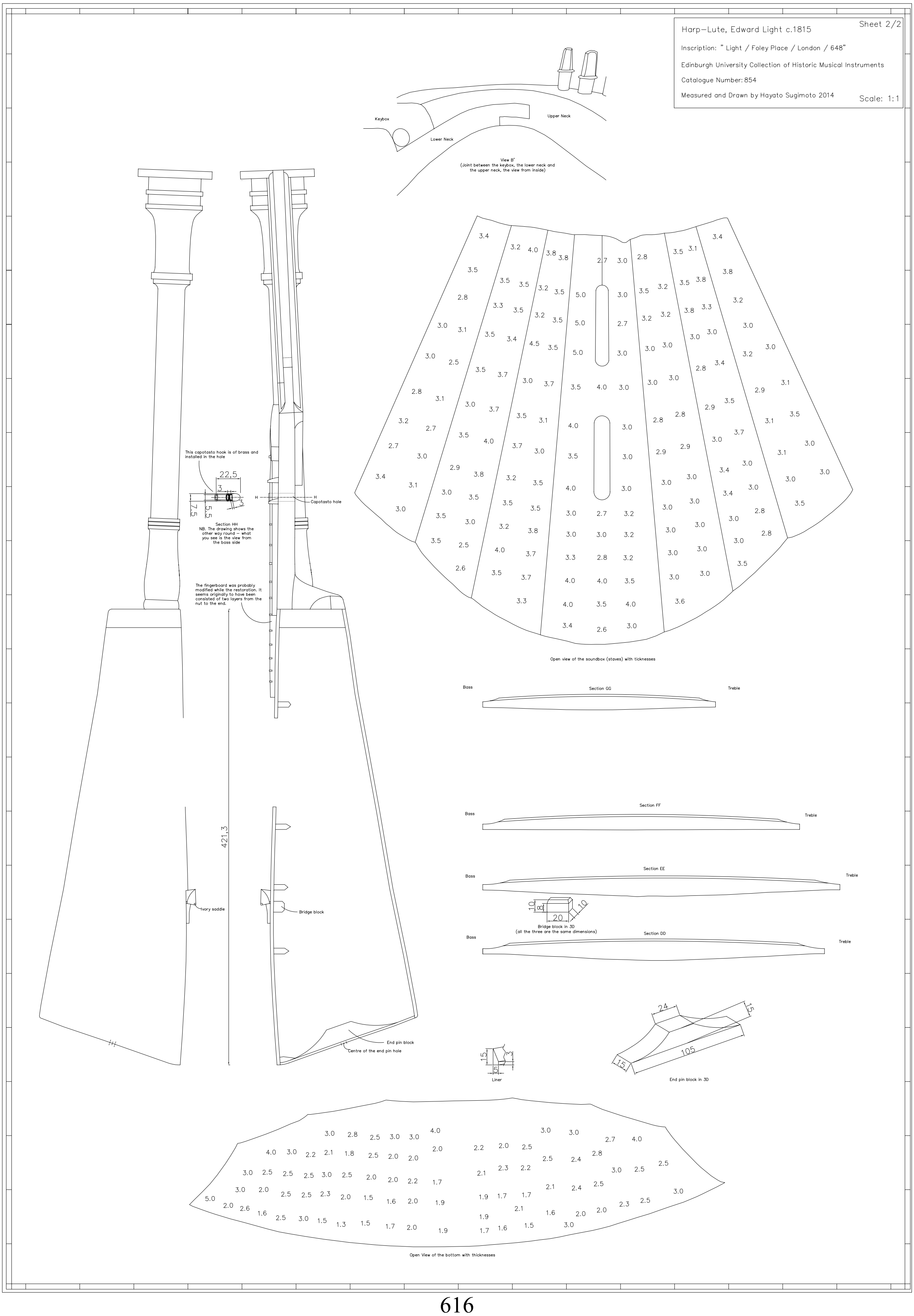
SMALL-SCALE TECHNICAL DRAWING

A sacaled technical drawing of the harp-lute by Light, currently in possession of EUCHMI (inventory number [854]) and the one a copy was made by the author as part of the study for PhD project, is presented below, so as for readers to get an idea of the instrument's structure. The drawing consists of two parts: Sheet 1 contains front and back view of the instrument and Sheet 2 involves side views and open plans of soundbox and bottom. Due to such small-scale drawing, some parts (e.g. descriptions and figures) may be unreadable – it is important to make access to the original drawing if someone needs to see it in more details.

N.B. For technical issues, the name of Musical Instrument Museums Edinburgh is of their previous name 'Edinburgh University Collection of Historic Musical Instruments' (EUCHMI): despite the deference, the inventory number is the same.



Conventions:
All measurements in millimetres.
Sections
Hidden lines
Continues (eg. Liners)
Screws (head)
Screw (thread)
Viewing direction
R Radius
Ø Diameter
Materials:
Spruce or pine – soundboard, bars, Liners and end pin block
Walnut – top layer of the fingerboard
Sycamore – all other parts except the ones indicated above.
Ivory – nuts, saddle and frets
Brass – tuning pins, stops, string hooks and capotasto hook (in the capotasto hole)
Gut – strings (probably of the harp)
Descriptions:
1.The instrument was at some point certainly restored, thereby the parts that seemingly later addition, for instance, the silks put inside the soundbox and reinforcement ebony plate underneath the fingerboard, are excluded in this drawing, unless otherwise stated.
2. Decorations such as compositions and gilt paintings are not included in this drawing. The actual instrument are entirely painted in black on which the paintings (motives, leaves, vines and lines) and the compositions (top and bottom of the pillar) are drawn and mounted.
3. Some individual parts, especially the ones drawn in 3D such as the tuning pin and the capotasto hook, are not in the scale of 1:1. In such case, each dimension is indicated otherwise they are drawn in scale of 1:1.
Sheet 1/2
Harp–Lute, Edward Light c.1815
Inscription: " Light / Foley Place / London / 648"
Edinburgh University Collection of Historic Musical Instruments
Catalogue Number: 854
Measured and Drawn by Hayato Sugimoto 2014
Scale: 1:1
String dimensions (gauges in millimetre):
NB. The strings put on the instrument seem original or the similar type that were used in the nineteenth century, and they are perhaps of the harp.Colour of the string in bracket, otherwise plain.
1st 0.7mm
2nd 0.7mm
3rd 0.8mm
4th 0.8mm (blue)
5th 0.84mm
6th 1.0mm
7th 0.9mm (red)
8th 1.0mm
9th 1.1mm
10th 1.1mm
11th 1.1mm (blue)
12th 1.1mm
Hidden inside the upper neck
String hook (x5)
2mm (thickness)
Manual stop (x3)
Tuning pin (x12)
Key operated stop (x1)
Joint between the upper and lower neck
Capotasto Holder – 14.5 depth (Capotasto is missing)
View C' (String guide)
Centre of the slot for nut
12" Radius (fingerboard's and frets' arch all the way thorough to the 12")
Capotasto hole
Thickness of the neck block
Liner
G (See sheet 2)
Rose is of parchment (2 layers)
F (See sheet 2)
E (See sheet 2)
Holes for strings
Ivory saddle
Bridge block (x3)
D (See sheet 2)
End pin block
Top view of the capital (left side: to the upper neck)
Dimension of the back of the key operated stop (1:1scale)
View A' (inside view of the upper neck)
Back of the stop operated by a mechanism(Broken – a rod with a lever is missing)
six slots in total
Joint between the upper and lower neck
Key box viewed from the top (bottom: to top of the key box)
B' (See sheet 2)
Joint between Key box and the upper neck
Hole for the rod which attached to the lever (missing)
Side view of the key box (left: to top of the key box)
Centre of the end pin hole
End pin block
Section AA (From the bottom of the body 157mm)
Section BB From the bottom of the body 254mm)
Section CC (From the bottom of the body 416.5mm)
Treble side
Bass side
Nail (hidden with a cap made of a piece of wood)
Joint between the staves
Heel held with a screw (hidden with a cap made of a piece of wood)
Joint between the sound board and the stave
Sliced views of the soundbox sliced in crosswise (viewed from bottom of the body)
Centre of the end pin hole (Pin is missing)
Bottom View


Harp–Lute, Edward Light c.1815
Sheet 2/2
Inscription: " Light / Foley Place / London / 648"
Edinburgh University Collection of Historic Musical Instruments
Catalogue Number: 854
Measured and Drawn by Hayato Sugimoto 2014
Scale: 1:1
Keybox
Lower Neck
Upper Neck
View B'
(Joint between the keybox, the lower neck and the upper neck, the view from inside)
This capotasto hook is of brass and installed in the hole
22,5
Capotasto hole
Section HH
NB. The drawing shows the other way round – what you see is the view from the bass side
The fingerboard was probably modified while the restoration. It seems originally to have been consisted of two layers from the nut to the end.
421,3
Ivory saddle
Bridge block
End pin block
Centre of the end pin hole
Open view of the soundbox (staves) with ticknesses
Section GG
Section FF
Section EE
Section DD
Bass
Treble
Bridge block in 3D
(all the three are the same dimensions)
Liner
End pin block in 3D
105
Open View of the bottom with thicknesses

BIBLIOGRAPHY

(NB. Contemporary music publications are presented in Appendix iii)

LITERATURES, JOURNALS, ARTICLES AND THESES

Anon., *Made for Music: An Exhibition to mark the 40th Anniversary of the Galpin Society for the study of Musical Instruments* (England: Halstan & Co. Ltd., 1986).

Anon., *Catalogus Muziekinstrumenten: Museum Vleeshuis Antwerpen* (Antwerpen: Ruckers Genootschap, 1981).

Anon., 'Rossini in England', *The Musical Times and Singing Class Circular*, Vol. 41, No. 683 (Jan. 1, 1900), pp.18-22.

Anon., *Transactions of the Society, Instituted at London, for the Encouragement of Arts, Manufactures, and Commerce; with the Premium offered in the Year 1814*. Vol. XXXII, (London: R. Wilks, 1814).

Armstrong, Robert Bruce., *Musical Instruments: Part II – English and Irish Instruments* (Edinburgh: T. AND A. CONSTABLE, 1908).

Ashton, T. S., *The Industrial Revolution* (Oxford & New York: Oxford University Press, 1968).

Bachmann, Alberto., *An Encyclopedia of the Violin* (New York: Da Capo Press, 1966).

Baines, Anthony., *Victoria and Albert Museum Catalogue of Musical Instruments. Vol. II Non-Keyboard Instruments* (London: Her Majesty's Stationery Office, 1968).

--- *European and American Musical Instruments* (London: B. T. Batsford, 1966).

Baldwin, Mike., 'The Erat Harp Manufactory: Painted and Gilded Decoration 1821-1826', *The Galpin Society Journal LXVI* (2013), pp.149-164.

Barnett, David., *London, Hub of the Industrial Revolution: A Revisionary History 1775–1825*, International Library of Historical Studies 14 (London & New York: Tauris Academic Studies, 1998).

Barker, Hannah., *Newspapers, Politics, and Public Opinion in Late Eighteenth-Century England* (Oxford: Clarendon Press, 1998)

Bennet, Woodcroft., *Chronological Index of Patents of Inventions* (London: George Edward Eyre and William Spottiswoode, 1854).

Berg, Maxine., 'Factories, Workshops and industrial organisation', Roderick Floud & Deirdre McCloskey, eds, *The Economic History of Britain since 1700*, 2nd edition, v1, 1700–1860 (Cambridge: Cambridge University Press, 1994), pp.123–50.

Bonner, Stephen., *Angelo Benedetto Ventura teacher, inventor, & composer: a study in English Regency music* (England: Bois de Boulogne, 1971).

--- *The Classic Image: european history and manufacture of the lyre guitar, 850-1840* (England: Bois de Boulogne, 1972).

--- 'Harp Lute (ii)', *Grove Music Online*,
<http://www.oxfordmusiconline.com.ezproxy.is.ed.ac.uk/subscriber/article/grove/music/12416#S12416>
(Accessed Aug., 2012).

Boyden, David., *Catalogue of the Hill Collection of Musical Instruments in the Ashmolean Museum, Oxford* (Oxford: Ashmolean Museum and W. E. Hill & Sons, 1969).

Busby, Thomas., *Concert Room and Orchestra Anecdotes, of Music and Musicians, ancient and modern*. Vol 2, (Clementi & Co.; Knight & Lacey: London, 1825).

Button, Stewart., *The Guitar in England 1800-1924* (New York & London: Garland Publishing, Inc., 1989).

Clarke, Deborah., *The Palace of Holyroodhouse, official souvenir guide* (London: Scala Publishers Ltd., 2013).

Courtnall, Roy., *Making Master Guitars* (London: Robert Hale Limited, 1999).

Cranfield, Ingrid., *Georgian House Style Handbook* (UK: David & Charles Limited, 2013).

Cruhn George and Walter Carter., *Acoustic Guitars And Other Fretted Instruments: A Photographic History* (Hong Kong: GPI Books, Miller Freeman Inc., 1993).

--- *The Ultimate Guitar Book* (London: A Dorling Kindersley Book, 1993).

Dodd, George., *Days at the Factories; or, The Manufacturing Industry of Great Britain Described, and Illustrated by Numerous Engravings of Machines and Processes*. Series I (London: Charles Knight & Co., 1843).

Downing, Sarah Jane., *Fashion in The Time of Jane Austen* (Oxford: Shire Publications, 2013).

Ehrlich, Cyril., *The Piano: A History* (Oxford: Clarendon Paperbacks, 1976).

Evans, Tom and Mary., *Guitars: Music, History, Construction, and Players from the Renaissance to Rock* (New York and London: Oxford University Press, 1984).

Flood, John A., *Barrister's Clerks The Law's Middlemen* (Manchester: Manchester University Press, 1983).

Floud, Roderick and Deirdre N McCloskey, (eds), *The Economic History of Britain since 1700, 2nd edition*, v1, 1700–1860 (Cambridge: Cambridge University Press, 1994).

Furusho, Takayasu., *Catalogue Museum of Musical Instruments Musashino Academia Musicae*. Vol.3, (Tokyo: Bun-ei Sha, Inc., 1979).

Gétreau, Florence., *Instrumentistes et luthiers parisiens : XVII-XIXe siècles / réd* (Paris : L'Action Artistique, 1988).

--- *Aux origine du musée de la Musique : Les collections instrumentales du Conservatoire de Paris 1793-1993* (Paris : Klincksieck, réunion des musées nationaux, 1996).

Gibbs-Smith, Charles H., *The Fashionable Lady in the 19th century* (London: Her Majesty Stationary Office, 1960).

Goff, Moria., Goldfinch, John., Limper-Herz, Karen., and Peden, Helen., *Georgians Revealed; Life, Style and the Making of Modern Britain* (London: British Library, 2013).

Griffin, Emma., *A Short History of the Industrial Revolution* (Basingstoke: Palgrave Macmillan, 2010).

Grunfeld, Fredric V., *The Art and Times of The Guitar : An Illustrated History of Guitars and Guitarists* (New York: Macmillan Publishing Co., Inc, 1974).

Haine, Malou., *Les factures d'instruments de musique à Paris au 19e siècle: des artisans face à l'industrialisation* (Bruxelles : Editons de L'universite de Bruxelles, 1985).

Hart, George., *The Violin: Its famous makers and their imitators* (London: Dulau, 1875).

Hardy, William., *The Origins of the Idea of the Industrial Revolution* (Oxford: Trafford Publishing, 2006).

Harvey, Brian., *The Violin family and its makers in the British Isles: An illustrated history and directory* (Oxford: Clarendon Press, 1995).

Heron-Allen, Edward., *De Fidiculis Opusculum II: Hodges against Chanot being the history of celebrated case collected from the newspapers and from personal observations, and annotated by Ed. Heron Allen* (London: Mitchell & Hughes, 1883).

--- *Violin-making, as it was and is: being a historical, theoretical, and practical treatise on the science and art of violin-making for the use of violin makers and players, amateur and professional* (London and Melbourne: Ward, Lock & Co., Limitted).

Heyde, Herbert., 'Entrepreneurship in pre-industrial instrument making', *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts* (Augsburg Michaelstein: 2007).

Hibbert, Christopher., *The English: A Society History 1066-1945* (London: Harper Collins Publishers, 1988).

Holman, Peter., 'Dorothy Jordan, Joseph Buckinger, ''The Blue Bells of Scotland'' and the ''Lute''', *Lute News,* No.96 (2010), pp.5-9.

--- *Life After Death: The Viola da Gamba in Britain from Purcell to Dolmetsch* (Woodbridge: Boydell Press, 2010)

Holtzapffel, Charles. *Turning and Mechanical Manipulation*. Vol.1 'Materials; Their Differences, Choices, and Preparation; Various Modes of Working them Generally Without Cutting Tools' (London: Published for the author, 1846, 1852).

--- Vol. 2 ‘The Principles of Construction, Action, and Application, of Cutting Tools Used by Hand; and Also of Machines Derived from the Hand Tools’ (London: Published for the author, 1856).

--- Vol. 3 ‘Abrasive and Miscellaneous Processes, which cannot be Accomplished with Cutting Tools’ (London: Published for the author, 1850).

--- John Jacob. Vol. 4 ‘The Principles and Practice of Hand or Simple Turning’ (London: Published for the author, 1881).

Howe, Steve and Tony Bacon., *The Steve Howe Guitar Collection* (Hong Kong: A Balafon Book, 1994).

Hoyler, Helmut., *Die Musikinstrumentensammlung des Kölnischen Stadtmuseums* (Köln : Das Stadtmuseum, 1993).

Hyde, Ralph., *The A to Z of Georgian London* (London: Harry Margary, 1981).

Inglis, Lucy., *Georgian London, Into the Streets* (London: Penguin Group, 2013).

Jahnel, Franz., *Manual of Guitar Technology: The History and Technology of Plucked String Instruments* (Frankfurt am Main: Verlag Des Musikinstrument, 1981).

Jackson, Anna., *The V&A Guide to Period Styles 400 years of British Art And Design* (Hong Kong: V&A publisher, 2005).

Johnson, Chris and Roy Courtnall., *The Art of Violin Making* (London: Robert Hale Limited, 2007).

Kassler, Jamie Croy., *The science of music in Britain, 1714-1830 : a catalogue of writings, lectures, and inventions* (New York: Garland pub., 1979).

Kent, Marie., 'Piano Silkers in Eighteenth- and Nineteenth-Century London (1784-1911): a geographical survey', *The Galpin Society Journal*, Vol. 66 (March 2013), pp.71-98.

King, Steven and Geoffrey Timmins. *Making Sense of the Industrial Revolution* (Manchester & New York: Manchester University Press, 2001).

Kloss, Jürgen., 'The "Guitar" In Britain', <http://www.justanothertune.com/> (online), (first published in March 2, 2012), (Accessed May, 2012).

Kolneder, Walter., *The Amadeus Book of the Violin: Construction, History and Music,* trans. & ed. Reinhard G. Pauly (Hong Kong,: Amadeus Press, 1998).

Kuronen, Darcy., *Dangerous curves: the art of the guitar* (Boston: MFA Publications, 2000).

--- *MFA Highlights Musical Instruments* (Singapore: MFA Publications, 2004).

Laxton, Paul and Joseph Wisdom., *The A to Z of Regency London* (London: London Topographical Society, 1985).

Leppert, Richard., *Music and Image, Domesticity, Ideology and Socio-cultural Formation in Eighteenth-century England* (Cambridge: Cambridge University Press, 1988).

--- *The Sight of Sound: Music, representation, and the history of the body* (Berkeley and Los Angeles: University of California Press, 1993).

Lincoln, William A., *World Woods in Colour* (Singapore: Stobart Davies Ltd., 2001).

Loesser, Arthur., *Men, Women and Pianos: A social history* (New York: Dover Publications, Inc., 1990).

Mactaggart, Peter and Ann., *Musical Instruments in the 1851 Exhibition* (England: Mac & Me Ltd., 1986).

Maxted, Ian., *The British book trades 1775-1787 : an index to insurance policies* (Exeter: J. Maxted, 10, Leighdene Close, Exeter EX2 4PN, 1992).
--- *The British Book Trades, 1731-1806: a checklist of bankrupts* (Exceter: J. Maxted, 10, Leighdene Close, Exeter EX2 4PN, 1985).

Michel, Andreas., *Zithern Musikinstrumentemuseum der Universitat Leipzig* (Germany: CIP-Kurztitelaufnahme der Deutschen Bibliothek, 1995).

Miner, Gregg., 'Organology: Harp Guitar "Relatives"',
<http://www.harpguitars.net/history/org/org-harp-lutes.htm> (online),
(Accessed July, 2012).

Morrison-Low, Alison D., *Making Scientific instruments in the Industrial Revolution* (Aldershot & Burlington, VT: Ashgate, 2007)

Mottola, Littaio., 'Calculating fret position', *Lutherie Information Website*,
<http://liutaiomottola.com/formulae/fret.htm>
(Accessed Apr., 2014).

Myers, Arnold., *Historic Musical Instruments in the Edinburgh University Collection, Vol. 2, Part B Fascicle i: Harps, Dulcimers, and Zithers* (Edinburgh: University of Edinburgh, 1997).

--- *part C fascicle i: Viols and Violins* (Edinburgh: University of Edinburgh, 1997).

--- *part B fascicle ii: Lute, Citterns and Guitars*, Second ed, (Edinburgh: University of Edinburgh, 2003).

Nex, Jennifer Susan., 'The workshop accounts of the London harp firm of Erard, 1807-09', *Making the British Sounds* (Presentation paper: Edinburgh-London: the Galpin Society and Historic Brass Society, 2009).

--- ‘Erard’s Double Action Harp: the early years as seen through the London stock books’, catalogue of ‘Erard et l'invention de la harpe moderne; 1811–2011’, *Musée du Palais Lascaris* (Nice: 2011), 16–23.

--- ‘Gut String Makers in 19th Century London’, *The Galpin Society Journal*, Vol. 63 (2012), pp. 131-160.

--- ‘The Business of Musical-Instrument Making in Early Industrial London’ (PhD thesis: Goldsmiths College, University of London, 2013).

O’Brien, Grant., *Ruckers: A Harpsichord and Virginal Building Tradition* (Cambridge: Cambridge University Press, 2008).

Parkins, Martin., *Catalogue of the Birmingham Conservatoire Historical Instrument Collection* (Funded by Arts & Humanities Research Council, the year and place of publication is not mentioned).

Poulopoulos, Panagiotis., ‘The Guittar in The British Isles, 1750-1810’ (PhD thesis, The University of Edinburgh: 2011).

Rensch, Roslyn., *The Harp: Its History, Technique and Repertoire* (London: Gerald Duckworth & Co Ltd, 1969).

--- *Harps and Harpists* (USA: Indiana University Press, 2007).

Raffan, Richard., *Taunton’s Complete Illustrated Guide to Turning* (Newtown, CT: Taunton Press, 2005).

Riche, Christiane., *Historische Musikinstrumente im Handel-Haus: Fuhrer durch die Ausstellungen* (Halle: Handel-Haus, 2006).

Robbins, Daniel., Suleman, Reena., Hunter, Pamela., *Linley Sambourne House, 18 Stafford Terrace, Kensington* (London: The Royal Borough of Kensington and Chelsea, 2003).

Rushton, Pauline., *European Musical Instruments in Liverpool Museum* (U.K.: National Museum and Galleries on Merseyside, 1994).

Russell, Raymond., *The harpsichord and Clavichord: An introductory study* (London: Faber and Faber, 1959).

Roberts, Rosemary et al, (ed.), *New Oxford Style Manual* (Oxford: Oxford University Press, 2012).

Sadie, Stanley (ed.), *The New Grove Dictionary of the Music and Musicians* (London: Macmillan, 1980).

Salaman, R. A., *Dictionary of Woodworking Tools c.1700-1970* (London: Unwin Hyman Limited, 1989).

Schlenz, Mark and Gay Hagen-Dunn., *The Shrine to Music Museum: A Pictorial Souvenir* (Korea: Companion Press, 1988).

Schott, Howard., Baines, Anthony., *Catalogue of Musical Instruments in the Victoria and Albert Museum; Part I: Keyboard Instruments and Part II: Non-Keyboard Instruments* (London: V&A publications, 2002).

Schrober, Hans., *Museum fur Hamburgsche Geschichte, Berzeichnis Der Cammlung alter Musikinstrumente* (Hamburg: Berlag, 1930).

Steeds, W., *A History of Machine Tools 1700-1910* (Oxford: Oxford University Press, 1970).

Sugimoto, Hayato., 'Analysis of Edward Light's intention: How did he develop the harp lutes?', An online journal proceeding from the first Organological Conference in Portugal, (ANIMUSIC in Portugal: 2013).

--- 'British Harp lutes and the Influence of Regency Classicism'. Unpublished paper presented at the 41st Annual AMIS and CIMCIM meeting, The Metropolitan Museum of Art, New York, (15-20, May, 2012).

--- 'Harp-Guitar and Harp-Lute in Britain: Analysis of their construction and musical capabilities'. Unpublished paper presented at 42nd Annual AMIS Meeting, Williamsburg, USA, (30 May – 1 June, 2013).

--- 'How should the non-traditional European instruments be collected and displayed?: A case study of the harp lutes, inventions of music retailer Mr. Light'. Unpublished paper presented at CIMCIM conference 2014 in the Nordic Countries, (24-31 August, 2014).

--- 'Bibliography of Mordaunt Levien', an entry in *the Grove Dictionary of Musical Instruments*, (New York: Oxford University Press USA, 2014).

Taggart, Caroline., *Her Ladyship's Guide to the British Season* (London, National Trust Book, 2013).

Turnbull, Harvey., *The Guitar: from the Renaissance to the Present Day* (New York: Charles Scribner's Sons, 1978).

Tyler, James and Paul Sparks., *The Guitar and Its Music: From Renaissance to The Classic Era* (New York: Oxford University Press, 2007).

Vannes, René., *Dictionnaire Universel Des Luthiers* (Bruxelles: Les Amis de la Musique, 1979).

Vickery, Amanda., *The Gentleman's Daughter, Women's lives in Georgian England* (London: Yale University Press, 1998).

--- *Behind Closed Doors at Home in Georgian England* (London: Yale University Press, 2009).

Waitzman, Mimi S., *The Benton Fletcher Collection at Fenton House: Early Keyboard Instruments* (London: National Trust Enterprises Ltd., 2003).

Waterhouse, William (ed.), *The New Langwill Index: A dictionary of Musical Wind-Instrument Makers & Inventors* (London: T. Bingham, 1993).

Wayne, Neil., 'The Wheatstone English Concertina', *The Galpin Society Journal*, Vol. 44 (1991), pp.117-149.

Wells, Elizabeth and Nobbs, Christopher., *Royal College of Music Museum of Instruments Catalogue Part III: European Stringed Instruments* (London, Royal College of Music, 2007).

Westbrook, James R., *Guitar Through The Ages: Craftsman to Performer* (U.K.: Crisp Litho Limited, 2002).

--- *The Century That Shaped The Guitar* (U.K.: Crisp Litho Limited, 2005).

---'Guitar making in nineteenth-century London: Louis Panormo and his contemporaries' (PhD thesis, Cambridge University: 2013).

Whone, Adam., *Edward Withers Ltd: 230 Years of Violin Craft in Soho* (London: Mill Hill Publications, 1996).

Woodbury, Robert S., *History of the Lathe to 1850* (Boston: Nimrod Press, Inc., 1961).

Woodcroft, Bennet., *Chronological Index of Patents of Inventions* (London: George Edward Eyre and William Spottiswoode, 1854).

--- *Patents for inventions. Abridgements of Specifications relating to Music and Musical Instruments. A.D. 1694-1866*, Second edition, (Suffolk: Richard Clay Ltd., 1871), Republished in facsimile version (London: Tony Bingham, 1984).

Wrigley, E. A., *Continuity, Chance & Change: The Character of the Industrial Revolution in England* (Cambridge: Cambridge University Press, 1998)

Wright, Anna (ed.), *Royal Northern College of Music: Collection of Historic Musical Instruments* (Manchester: Royal Northern College of Music, 2010).

Wright, Michael., *Guitar Stories, Volume 2* (U.S.A.: An imprint of Vintage Guitar, Inc., 2000).

ONLINE SOURCES

Anon., ‘All Musical Instrument’,
<http://www.allmusicalinstruments.net/catalog/query.php>
(Accessed, 2012).

Anon., ‘Ancestry’.
<http://www.ancestry.co.uk/>, (online archival search engine),
(Accessed, 2014).

--- *Dictionary of National Biography, Volumes 1-20, 22*. (online database), (Provo, UT, USA: Ancestry.com Operations, Inc., 2010). Original source: Stephen, Sir Leslie (ed.), *Dictionary of National Biography, 1921–1922*, Volumes 1–20, 22, (London: Oxford University Press, 1921–1922).

Anon., ‘artnet’,
< http://www.artnet.com/>
(Accessed, 2011).

Anon., ‘Art Resources’,
< http://www.artres.com/C.aspx?VP3=CMS3&VF=ARTHO1_3_VForm>
(Accessed, 2011).

Anon., ‘BnF: Bibliothèque nationale de France’,
< http://www.bnf.fr/en/tools/a.welcome_to_the_bnf.html>
(Accessed, 2014).

Anon., ‘British Newspapers 1600-1900’,
<http://find.galegroup.com/bncn/start.do?prodId=BNWS&userGroupName=ed_itw>
(Accessed Nov., 2011).

--- ‘The Times Digital Archive 1785-2008’,
<http://find.galegroup.com.ezproxy.is.ed.ac.uk/ttda/start.do?prodId=TTDA&userGroupName=ed_itw>
(Accessed, 2014).

--- ‘19th Century British Newspapers’,
<http://www.oxfordmusiconline.com.ezproxy.is.ed.ac.uk/subscriber/;jsessionid=9BD77D3595A6FD51F44B3982D446B882>
(Accessed, 2014).

Anon., ‘Boxedindesign.com’,
<http://boxedindesign.com/2011/01/top-10-most-unique-guitars/>
(Accessed, July 2012).

Anon., ‘Cité de la Musique: MÉDIATHÈQUE’,
<http://mediatheque.cite-musique.fr/masc/?url=/clientbooklineCIMU/toolkit/p_requests/default-collection-musee.htm>
(Accessed, 2013).

Anon., ‘City of Westminster’,
<http://www.calmview.eu/Westminster/CalmView/default.aspx>
(Accessed, 2013).

Anon., ‘copac’,
<http://copac.ac.uk/>, (online archival search engine),
(Accessed, 2014).

Anon., ‘Early Guitars and Vihuela: A network for historic guitars and vihuelas’,
<http://earlyguitar.ning.com/>
(Accessed July, 2011).

Anon., ‘Early Music’,
<http://em.oxfordjournals.org/>
(Accessed Nov., 2014).

Anon., ‘BBC History: George IV’,
<http://www.bbc.co.uk/history/historic_figures/george_iv_king.shtml>
(Accessed 13 Aug., 2014).

Anon., ‘inpi: INSTITUT NATIONALDE LA PROPRIÉTÉ INDUSTRIELLE’,
< http://www.inpi.fr/fr/accueil.html> and < http://bases-brevets19e.inpi.fr/>
(Accessed, 2012).

Anon. ‘Holtzapffel.org: Highlighting Holtzapffel Ingenuity’,
< http://holtzapffel.org/index.html>,
(Accessed May, 2015).

Anon., ‘Horniman Museum: Wheatstone & Co. Concertina Ledgers’,
< http://www.horniman.info/>
(Accessed, 2012).

Anon., ‘Klassikgitar.net’,
<http://www.klassiskgitar.net/1750-1800-3.html>
(Accessed, 2010).

Anon., ‘Museum of Fine Arts Boston’,
< http://www.mfa.org/>
(Accessed, 2014).

Anon., ‘National Trust prints, posters and canvasses’,
<http://www.ntprints.com/>
(Accessed Nov., 2013).

Anon., ‘NYPL Digital Collections’,
< http://digitalcollections.nypl.org/>
(Accessed, 2011).

Anon., ‘Oxford Dictionary of National Biography’,
< http://www.oxforddnb.com.ezproxy.is.ed.ac.uk/>
(Accessed, 2014).

Anon., ‘Oxford Music Online’,
<http://www.oxfordmusiconline.com.ezproxy.is.ed.ac.uk/subscriber/;jsessionid=9BD77D3595A6FD51F44B3982D446B882>
(Accessed, 2014).

Anon., ‘RCM: London Music Trades, 1750-1800’,
< http://lmt.rcm.ac.uk/login.aspx?ReturnUrl=%2fsearch%2fPersons.aspx>
(Accessed, 2011).

Anon., ‘Side and Center Beading Molding Planes’,
<http://www.oldtooluser.com/TypeStudy/sidebead.htm>
(Accessed Feb., 2014).

Anon., ‘The British Museum: Collection online’,
< http://www.britishmuseum.org/research/collection_online/search.aspx>
(Accessed, 2011).

Anon., ‘The Gazette, Official Public Record’,
< https://www.thegazette.co.uk/all-notices>
(Accessed, 2011).

Anon., ‘The Metropolitan Museum of Art’,
< http://www.metmuseum.org/>
(Accessed, 2013).

Anon., ‘The National Archives’,
< http://www.nationalarchives.gov.uk/>
(Accessed, 2013).

Anon., ‘The National Archives of Scotland’,
< http://www.nas.gov.uk/default.asp>
(Accessed, 2011).

Anon., ‘The Proceedings of the Old Bailey: London’s Central Criminal Court, 1674 to 1913’,
<http://www.oldbaileyonline.org/>
(Accessed, 2012).

Anon., ‘University of Birmingham: The British Book Trade Index’,
< http://www.bbti.bham.ac.uk/>
(Accessed, 2011).

Anon., ‘University of Leicester: Special Collections Online’,
< http://specialcollections.le.ac.uk/cdm/landingpage/collection/p16445coll4/hd/>
(Accessed, 2013).

Anon., ‘V&A: V&A Search The Collections’,
<http://collections.vam.ac.uk/>
(Accessed, 2012).

Anon., ‘Wire Strung harp: the complete resource for the wire-strung harp’,
<http://www.wirestrungharp.com/>
(Accessed Nov., 2014).

Aoyama Harp Co., ‘How to change the strings’,
<http://www32.ocn.ne.jp/~aoyamaharp_tokyo/cn20/string/string3.html>
(Accessed Mar, 2014).

Barrow, Mandy., ‘British Life and Culture: Old English Money’, <http://resources.woodlands-junior.kent.sch.uk/customs/questions/moneyold.htm>. (Accessed 2013).

Cowley, William., ‘Makers of the finest quality Parchment & Vellum Since 1870’, <http://www.williamcowley.co.uk/contact/>
(Accessed Mar., 2014).

Critchett. B., ‘Post Office Annual Directory for 1808’, <http://specialcollections.le.ac.uk/cdm/compoundobject/collection/p16445coll4/id/8860/rec/1>
(Accessed 2013).

Griffiths, Tony. ‘Machine Tool Archives’, < http://www.lathes.co.uk/hayward/ > (Accessed May, 2015).

Knowles, Rachel., ‘George IV’, *Regency History*, <http://www.regencyhistory.net/2011/10/george-iv.html>
(Accessed 13 Aug., 2014).

Leach, Patrick., ‘The Superior Works’, <http://www.supertool.com/index.htm>
(Accessed Feb, 2014).

Lee Valley and Veritas., <http://www.leevalley.com/US/Home.aspx>
(Accessed Feb., 2014).

National Portrait Gallery., ‘British picture framemakers, 1610-1950’, <http://www.npg.org.uk/research/conservation/directory-of-british-framemakers/j.php>
(Accessed March, 2014).

Royal Academy of Music, ‘Museum & Collections’,
< http://www.ram.ac.uk/museum>.
(Accessed Dec., 2011).

School of Music, Theatre & Dance, University of Michigan., ‘Stearns Collection’,
<http://www.music.umich.edu/research/stearns_collection/collection_search.php>
(Accessed 13 Jun., 2014).

Sotheby’s.,
<http://www.sothebys.com/en.html>
(Accessed Jun., 2014).

--- ‘Search the Sold Lot Archive’,
<http://www.sothebys.com/en/auctions/lots-archive.html>
(Accessed Jun., 2014).

DVD

Reta, Elizabeth., *Eine Louis XVI-Harfe entsteht*, 30min, (2009).

Sorby, Robert., *Focus on Starting Out Woodturning with Robert Sorby*, 100min, (1998).

ONLINE VIDEOS

Dick van den Oever., ‘The art of harp making’,
< http://www.youtube.com/watch?v=x8j3JfOP1tQ>
(Accessed Feb, 2014).

Muddslinger., ‘How to solder brass’,
<https://www.youtube.com/watch?v=i4bUd8tl7-Y>
(Accessed Feb, 2014).