

## CRISTOFORI AND THE MEDICI

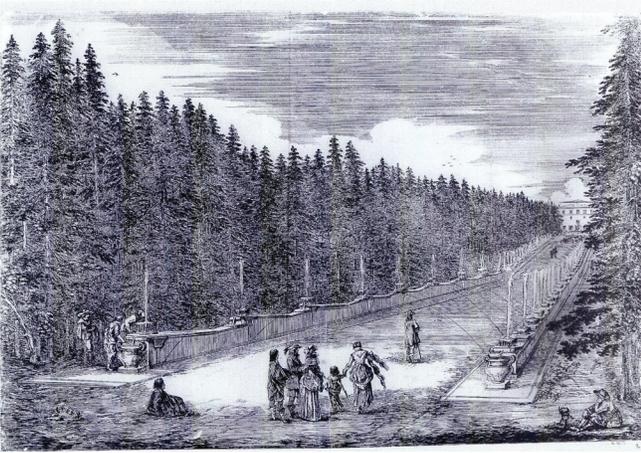
Bartolomeo Cristofori (1655-1732) is one of the most important instrument makers of the past, best known as the inventor of the piano action. Unfortunately almost nothing has come to light about his first 33 years in his native city Padua. The only known document from Padua is the announcement of his Baptism on 6th May 1655 in the church of the S. Luca, giving his birth date as the 4th of May 1655. It was in spring 1688 that Cristofori came to Florence to serve the Tuscan Prince Ferdinando de' Medici (1663-1713) as his musical instrument maker.

Ferdinando was the oldest son of Cosimo III de' Medici. (1639-1723). Cosimo's reign has been described by historians as time of decline (All three of Cosimo's children remained childless with the consequence of the Medici dynasty's extinction in 1737). However, like his ancestors, Cosimo was interested in art and employed a big variety of artisans and craftsmen. It was him who reorganized the extensive art collection of the Medici family, who moved it into the building of the Uffizi and opened it to the public – laying the foundation of the today's world famous museum. Prince Ferdinando (ill.1) was a man with a vast culture and refined taste, universally highly valued for his knowledge and generosity. There was much hope amongst Florentines that with him Tuscany could eventually reestablish its old prestige. Thanks to Ferdinando and his passionate interest for art, music and theatre the Medici court went through a 30 years heyday before its eventual decline. Ferdinando – by his contemporaries called "Orpheus of the princes"- kept his own court independent of his father, where art and music was of paramount importance. The prince played various string instruments

and the harpsichord at a professional level. He also knew about composition and singing. According to an anonymous contemporary biography he could read and memorize at sight. During the winter months chamber music was performed every night at the prince's apartment on the right side of Palazzo Pitti. For the summer months he created his own personal paradise in the Villa of Pratolino, 10km north of Florence, known for its beautiful park with refined fountains and plays on water (ill.2)



ill. 1 Prince Ferdinando, copper engraving from: *Elogio del fu Serenissimo Ferdinando de' Medici*, "Giornale de' letterati d'Italia", XVII, 1714, pp. 1-27



ill. 2, copper engraving, road with magnificent fountains Villa of Pratolino, from: Sgrilli, Bernardo Sansone, *Descrizione della regia villa, fontane e fabbriche di Pratolino*, Stamperia Granducale, Fienze 1742, "...There is a magnificent avenue, that descends gently, ...and each side is majestically decorated with little stone vases and fountains, which all to the same time throw out beautifully jets of water. Also, here and there gushes of water raise up from the ground ...therefore they form a big road covered with water, but you can go comfortably underneath without getting wet..."

Ferdinando arranged to build a theatre on the third floor of the Pratolino Villa and every year in the autumn he organized an opera performance for which he invited the best musicians from Italy and abroad. For thirty years from 1680 – 1710 Pratolino was a cultural centre of European importance. A multitude of professionals (painters, sculptors, stage designers, costume designers, instrument makers, composers, performers and singers), all worked under the direction of the prince for the *mise en scène* of the performances. The musicians of Pratolino were a handful of castrati and tenors, a small group of bowed strings, a harpsichord-theorbo continuo group were the famous "Medici-Quintet", two violins, one viola, one tenor viola and a violincello, occasionally reinforced by a bass and another harpsichords. The main group of bowed strings for whom Antonio Stradivari in 1690 built a complete new set of instruments.

A very nice testimonial of the time are the paintings of Anton Domenico Gabbiani (1653-1726), a young Florentine artist who had been send by Cosimo III to Venice and Rome to study and specialize in portrait painting (ill. 3). This painting could refer to the famous quintet. The two violinists are probably Antonio e Francesco Veracini, important personalities in the Florentine panorama. Antonio Veracini became, after Ferdinando's death, a famous violinist at the court of Dresden in Germany. Next to them two violists – one tenor viol and one contralto. The circle is closed by a violoncellist, one musician playing the harpsichord and another the mandolin. The violincello and the tenor viola of the Stradivari quintet have survived. They are one of the highlights of the Musical Instrument Museum at the Galleria dell'Accademia in Florence where they are on display next to the other remaining instruments of the Medici collection (ill. 4, 5).



ill. 4 viola tenore Antonio Stradivari 1690 (left)  
ill. 5 violincello Antonio Stradivari 1690 (right)



ill. 3 Anton Domenico Gabbiani, Musicians of the Granprincipe Ferdinando, 1685 (?), Galleria dell'Accademia, Florence



ill. 6 Anton Domenico Gabbiani, Seven musicians of the Granprincipe Ferdinando, around 1685 Galleria dell'Accademia, Florence

The famous painting (ill. 6) shows Prince Ferdinando with his musician friends. Standing, he is turning to its left to the singer Vincenzo Olivicchiano, on the right of the Prince is the bust of Alessandro Scarlatti. The young man with the chitarrone in the centre could be Giovanbattista Gigli, lutenist and composer who had just arrived from the court of Modena. The figure in the centre, sitting with a violoncello in his hands could be Pietro Salvetti, maestro di capella in 1683 and from 1689 to 1691, but also mathematician and numismatist. Observe the 4th cord of the violoncello covered with silver, a revolutionary system which had just been introduced to augment the sonority of the bass notes without enlarging the dimensions of the instrument.

In this painting (ill. 7) we have three singers whose names are written on the music itself. On the left Vincenzo Olivicchiano, musician of the Granduke Cosimo III. and later soprano singer in Vienna, Antonio Rivani, singer, and Giulio Cavalletti, composer and contralto singer at Ferdinando's court.

This is a portrait of Giovanni Maria Pagliardi (ill. 8) who composed many of the early Pratolino operas, the violinist and composer Martino Bitti and the famous castrato Francesco de' Castris (called Cecchino) who spent much of his time living in Rome, having been banned from Florence by Cosimo for his powerful influence on Ferdinando.



ill. 7 Anton Domenico Gabbiani, *Ritratto di Vincenzo Olivicchiano, Antonio Rivani e Giulio Cavalletti, musici e cantanti del gran principe Ferdinando de' Medici*, Galleria dell'Accademia, Florence



ill. 8 Anton Domenico Gabbiani, *Concerto con servo moro*, Galleria dell'Accademia, Florence

The name of Alessandro Scarlatti is closely related to Prince Ferdinando. The numerous letters between the Prince and Scarlatti, conserved at the *Archivio di Stato* in Florence, are important sources for today's research. Although Scarlatti never received the post he hoped for at the Florentine court he received many commissions from the Prince. In 1702 he stayed for a longer period at Pratolino together with his son Domenico to supervise the performance of his opera *Flavio Cuniberto*. He wrote another four operas for the Pratolino seasons in 1703, 1704, 1705 and 1706 as well as church music performed in the church of *SS. Annunziata*. Unfortunately none of the music performed at Pratolino seems to have survived but only the libretti.

The young Georg Friedrich Händel is also associated with Ferdinando. He was in Florence in 1709 where he wrote his first Opera *Rodrigo*. The prince praised him highly for the work and when Händel left Florence he had three letters full of recommendation in his luggage.

As we have already seen with the Medici quintet, Ferdinando de' Medici was not only interested in music and theatre but also in musical instruments. His collection contained more than 150 instruments of all types but specially string and keyboard instruments. There were around 50 harpsichords, an upright harpsichord, two clavichords, various spinets and two organs. From the detailed inventory of the year 1700 we know that all the keyboard instruments, except for a German clavichord were of Italian make. Some instru-

ments were already one hundred years old such as the harpsichords and spinets by Domenico da Pesaro, Antonio Baffo and Giovanni Celestini, instruments by makers just one generation older than Cristofori such as the instruments by Girolamo Zenti, Giuseppe Mondini, Niccolò Berti, Giuseppe Buoni and there were six instruments by Cristofori himself. The 1700 inventory of Ferdinando de' Medici's instruments is also the first document which mentions Cristofori's invention – the harpsichord with a hammer action.

Bartolomeo Cristofori was responsible for Ferdinando's collection. He received a monthly salary from the Prince for keeping the instruments maintained, regulated and tuned. He also was the tuner technician at Pratolino. Thanks to bills Cristofori wrote to Ferdinando's court administration between August 1690 and August 1697 we know that he was responsible for transporting harpsichords to the various Medici villas, that he restored the organ of Pratolino and made an organ himself, that he restored a harpsichord by Zenti, one by Celestini and a spinet by Domenico Pisarenensis, that he made a new keyboard and new bridges for a Pisarenensis harpsichord and that he built two oval spinets from 1690 and 1693, mentioned also in the 1700 inventory. The Celestini harpsichord and both oval spinets have survived to this day. We further read in these bills that Cristofori made an upright harpsichord and a harpsichord with cypress case and two 8' registers. We read that Cristofori sub-contracted work to an assistant, to a wood worker and to an ebenista (a wood worker specialized in marquetry). There is also some interesting information about materials such as the use of cypress wood from Crete and the use of vulture feathers for quills. Cristofori's invoices appear to have been for work not covered by his salary. Adding the amount of these bills to

his normal salary, plus the extra pay for the work at Pratolino, plus the rent of his house which was paid by the Medici court (even the household items were borrowed from the court), we arrive at a sum more than twice that which a Florentine artisan could expect to earn, and as much as that of Ferdinando's musicians. Cristofori never joined the Florentine guild but had a privileged position at court. Until Ferdinando's death in 1713 he belonged to the Prince's closest circle of musicians and composers called the *virtuosi di camera*.

After Ferdinando's death in 1713 Cristofori only earned a small amount from tuning for Cosimo. By 1716 Cristofori was appointed custode (or steward) by Grand Duke Cosimo III, a position which does not seem to have required making or tuning instruments. It entailed keeping track of intermittent loans of instruments and recording them in the back of inventories, so it was more a bureaucratic position. Five signed instruments and a few attributed ones survived from this later period of Cristofori in Florence. By studying their history and comparing them to the instruments from his early period it has become evident that they were all made for nobleman musicians outside the Medici court.

### 300 YEARS LATER

In 2001, thanks to the fruitful efforts of Galleria dell'Accademia's former director Franca Falletti, the remains of the Medici musical instruments collection, for many years inaccessible to the public, were put on display in the same museum as the famous statue of Michelangelo's David. Some instrument collections in Europe display copies of their most precious instruments to give an idea of the sound of the 'untouchable' originals. In Italy, this is still



ill. 9 hall with the two Stradivari's and the Gabbiani paintings, Galleria dell'Accademia Florence

very rare and the Galleria dell'Accademia thus serves as an example for others.

The restoration philosophy behind copy-making in museums has been developed over the last two or three decades. For hundreds of years the restoration of musical instruments was aimed at keeping them in playing condition or re-establishing such conditions. Re-establishing playable conditions in an instrument of 200, 300 or 400 years, however has consequences that – according to today's philosophy of conservation – are no longer justifiable. Too many instruments have been modified at a time when the concept of respect for the original did not yet exist.

Curators of public museums therefore concentrate more and more on restoration in the sense of a careful conservation, and less on the functionality of the object, in order to preserve the instrument as important research tools for the future, when analytical methods might have evolved well in advance of today's level of research. As far as rediscovering the original sound is concerned, copies might in fact make much more sense although we have to be aware of their limits. Instrument makers know that every instrument sounds different, even when using the same drawing, the same material and the same working

methods. This reinforces the fascinating elusiveness of sound and its not-reproducibility. But not even an original instrument we perceive as it sounded 200, 300 or 400 years ago, not only for the different cultural context we live in and the information not recoverable like the characteristics of the strings and the exact pitch, but also for many other reasons like the effect of age on materials - above all the wood - which leads to a different sonority.

The possibility of reconstructing the original state of an instrument which has been modified over the centuries is another fascinating aspect for museums and builders in general. The reconstruction of the original state of an instrument is limited to where organology has reached and depends also on our capacity to reproduce the construction techniques of the past. The copy or reproduction of a musical instrument also reflects the personality of today's artisan. Unlike a stone sculpture which up to a certain point can be copied by technical means (without manual work), the complex structure of a keyboard instrument with its many different materials, can be put together only by use of manual work.

The **two oval spinets** and the ebony harpsichord are the only surviving instruments Cristofori built for the Medici in his first period in Florence until Ferdinando's death in 1713. They are all three very special for their innovative shape and mechanism and their choice of precious woods. The 1690 spinet is made of a beautiful rosewood and the 1693 of cypress with rich inlay work of ebony. The 1690 oval spinet is the oldest surviving instrument of Bartolomeo Cristofori. It was well known from documents but it had been considered lost. Its rediscovery in the year 2000 is one of the most important modern acquisitions in the history of musical instruments. It was hidden inside a big jumble of objects comprising the contested inheritance of the art dealer



ill. 10 above Cristofori's oval spinet from 1690, Galleria dell'Accademia Florence, underneath Cristofori's oval spinet from 1693, Grassi-Museum Leipzig

Stefano Bardini, active in Florence around the turn of the 19th/20th century.

In his oval spinets Cristofori succeeded in combining the advantages of the harpsichord – long bass strings and two 8 foot registers – with the compactness of the spinet, creating an aesthetically elegant and attractive instrument. The bass strings are in the center of the soundboard. Going up the scale the strings alternate progressively between the front and back of the instrument. This string layout requires a keyboard whose key levers alternately become progressively longer and progressively shorter as we go up the keyboard. The range is 4 octaves C–c''' with a short octave bass (the old system in which the bottom note seems to be an E but is tuned down to C, then the bottom F# and G# keys are tuned to D and E).

The making of the copy was an invaluable tool for studying the original, accompanied by scientific investigations, before going ahead with any intervention on the original. In a certain way, the making of a copy is a long learning process and a useful way to get closer to the object, plus it leaves adequate time for reflexion.

Most interesting was discovering and un-



ill.11 keyboard of the 1690 oval spinet

derstanding the oval spinet's structure. As can be seen in ill. 13, the structure of Cristofori's spinet is basically a double archway. The pressure of the longest strings attached near the points of the arches tends to push the sides outwards rather than pull the bent side inwards as with the harpsichord. Looking at the assembled spinet frame, the pressure of the brass strings transmitted by the curved wall of the spinet is taken by the rectangular part of the frame. The frame is additionally strengthened by a second lower soundboard, forming together with the baseboard and the cross walls a stable box to prevent the soundboard from taking the tension of the strings all alone.

The copy was made in 2003. By the end of this year we will, together with colleagues from other major musical instruments museums, decide about the necessary conservation treatment on the original spinet.

### The ebony harpsichord

The ebony harpsichord was mentioned for the first time in the inventory of Ferdinando's Musical instrument collection from 1700. It is not signed and not dated, but thanks to a careful comparison of this in-



ill. 12, behind the original Cristofori spinet from 1690 and the copy in front, Galleria dell'Accademia, Florence,



ill.13 the copy of the oval spinet, inner construction

strument with the detailed inventory and with the surviving signed instruments by Bartolomeo Cristofori, there is no doubt that he made the instrument.

There are other inventory entries from 1716, 1732 and 1745 describing the instrument and documents that mention its

being lent to musicians between 1745 and 1769. From the years 1765, 1783 and 1784 bills survive describing maintenance and restoration work. They are written by Giuseppe and Filippo Ferrini who were the two sons of Giovanni Ferrini, Cristofori's pupil, to whom Cristofori left all his tools



ill. 14 the ebony harpsichord without its lost outer case, with the legs made by Giuseppe and Filippo Ferrini in 1783/84, Galleria dell'Accademia, Florence

in his will of 1728. The Ferrini family continued the maintenance and tuning of the Medici keyboard instruments after Cristofori's death in 1732, up to the year 1795 when Filippo Ferrini died. These bills reflect very well how a keyboard instrument in the 18th century was adapted to the changing musical requirements.

According to the bills, in 1765 Giuseppe Ferrini put in new strings and new quills and repaired the keyboard. In 1783 and 1784 extensive interventions were carried out on the instruments by Giuseppe and Filippo Ferrini. Two more notes were added in the treble (ill. 15) and a new wrestplanck was put in. Giuseppe Ferrini describes furthermore that the round lead weights

inside the keys were corroded and therefore had to be renewed as well as some key guides, the strings, the cloth on the keyboard, the tongues inside the jacks and all quills. Filippo Ferrini also made new legs. These bills are very reliable since all the work described in them is confirmed by the present state of the instrument.

For the reconstruction of the original state of the ebony harpsichord, research was needed to find out exactly what happened when the string layout was changed.

When adding the two extra notes the key frame had to be enlarged and the whole keyboard has been shifted to the left by taking away the key blocks on both sides. The angle of the registers has been changed

(ill.16) and the original ebony jacks as described in the 1700 inventory have been replaced by walnut jacks. The change in the angle of the registers had huge consequences. The whole soundboard was moved 2cm towards the keyboard. That has changed the length of the cheek side and the total length of the instrument. There is much evidence in the instrument itself which confirms these changes. The string layout has been changed completely by putting in a new bridge and a new nut of cypress wood, originally in ebony. The Ferrini string lengths are shorter than the original ones. Three braces of the inner construction have been taken away and been replaced by three flying buttresses (ill. 17).

For reconstructing the original string layout a 1:1 drawing of the present plan of the instrument was made (ill. 20).

When making the reconstruction drawing three important facts have been taken into account

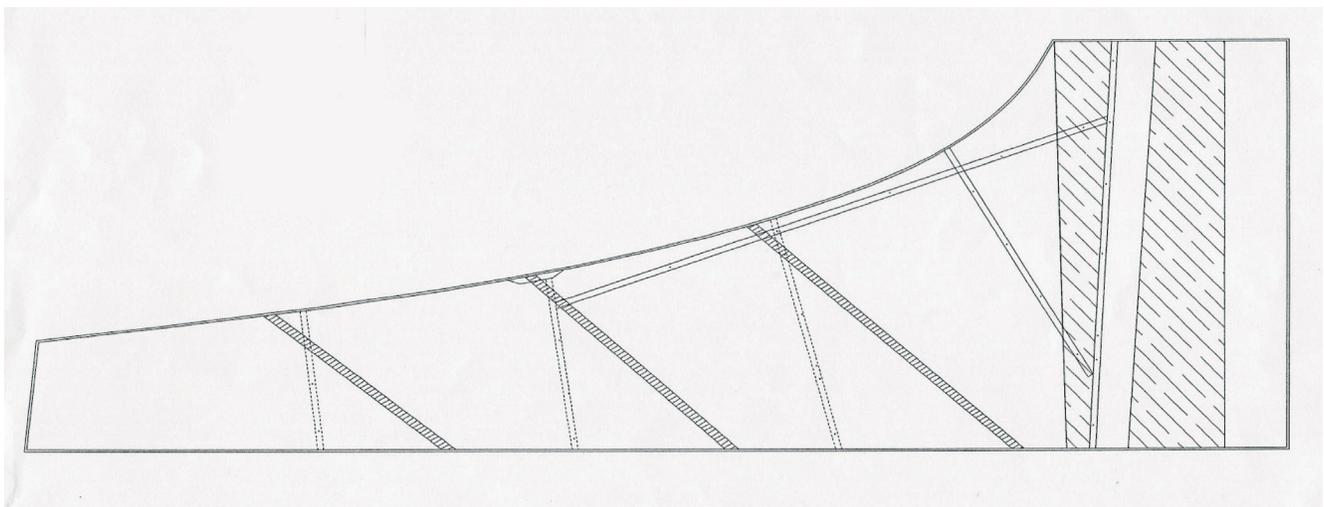
- The belly rail position is original
- The registers are original
- The keyboard is original



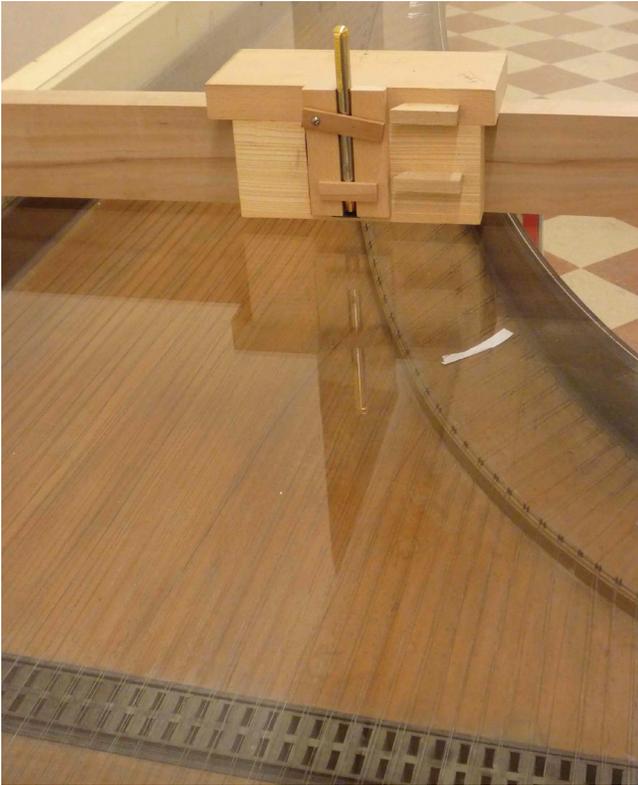
ill. 15, the two added notes in the treble



ill. 16, view underneath the registers, added strip to change the angle of the registers



ill. 17, plan inner construction with the position of the original and replaced braces



ill. 18, photos of the table with the laser pointer used to draw the plan of the case

The registers and the keyboard have been centered inside the instrument leaving space for the blocks on both sides of the keyboard. Using the original angle of the registers, the jack holes turned out to be parallel to the case sides and at right angles to the front board (ill. 19). Using Cristofori's plucking points known from the spinet of 1690 and the harpsichords from 1722 and 1726, the nut turns out to be a straight line.

The possible original position of the bridge was given by small positioning holes found near the present bridge which form an exact parallel line to the bent side at a distance of 10cm (ill. 20). In Cristofori's later harpsichords the distance between bridge and bent side measures 11cm. It is possible that 5mm had been planed off the bent side because the original hitch pin holes are now covered by the molding, something we discovered with the x-ray.

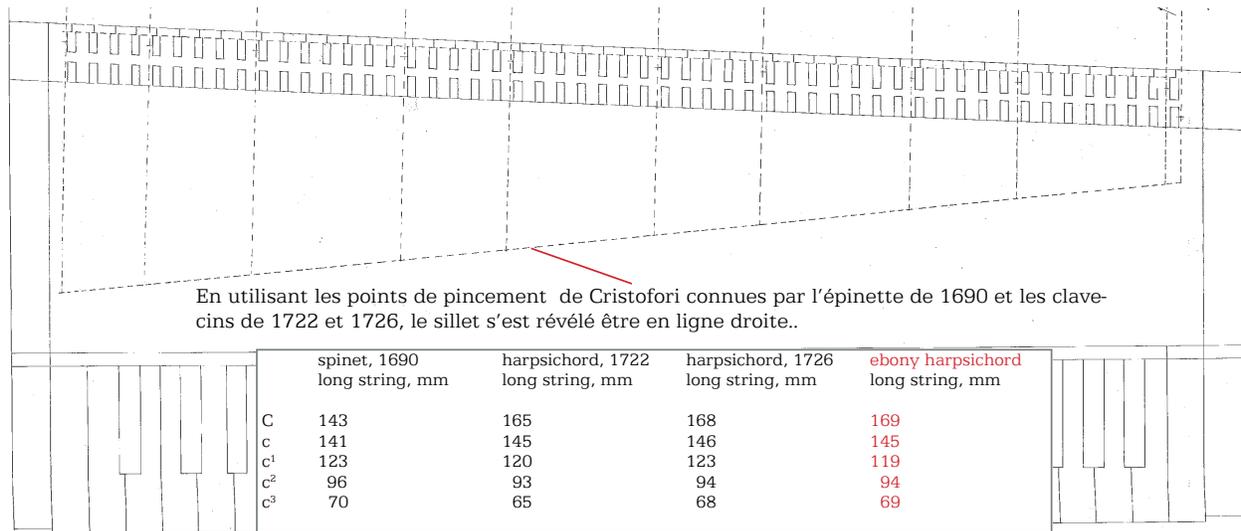
After having decided the nut position, having moved the present bridge line away from the keyboard and using the small positioning holes as a reference, not only did the string length correspond exactly to Cristofori's other surviving instruments (ill. 19) but also the slight angle with which the whole string band sits on the soundboard came out exactly like in the other Cristofori harpsichords and pianos - in fact the strings in Cristofori's harpsichords and pianos never run exactly parallel to the spine.

Although being probably quite close to how Cristofori originally built the ebony harpsichord, two mysteries remain and they should be mentioned here.

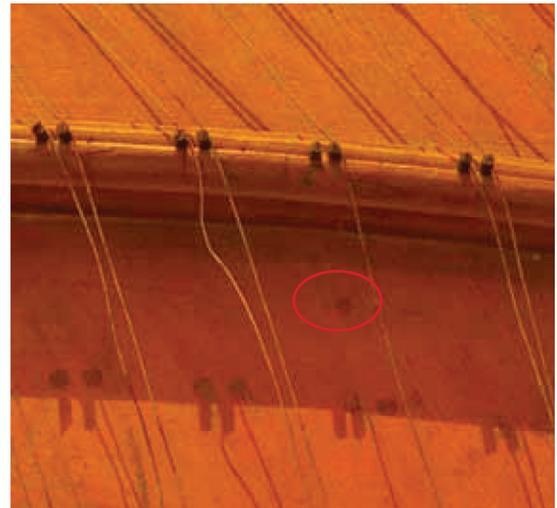
At a distance of around 85mm from the bentside there are large (2,5mm) plugged holes in the soundboard. The number of these holes correspond to the original 53 note compass. These holes in the past have been interpreted as the original bridge pins or as possible hitch pins. Underneath these holes there is a strip of wood around 15mm x 5mm. The wooden pegs have not been cut away. (ill. 21) After carefully studying these holes it turned out that these points, especially in the treble, are positioned much too far to the right of the instrument to function as bridge pins. We can exclude the possibility that the soundboard was shifted further to the right as no strip has been added to the soundboard along the spine. Any change in the angle of the soundboard can be excluded, because that would have changed the distance of these holes relative to the bent side. Despite all the alterations carried out on the instrument, the line formed by the mysterious holes remains exactly parallel to the bent side. The large diameter of these holes makes it unlikely that they were bridge pins. Also the possibility that these holes could have functioned as hitch pins was carefully studied but in the end excluded. For now the function of these

### RECONSTRUCTION DE LA POSITION ORIGINALE DU SILLET

Les registres et le clavier ont été recentrés dans l'instrument pour laisser place aux blocs de clavier des deux côtés du clavier. En retrouvant l'angle original des registres, les mortaises des sautereaux s'avèrent parallèles à l'échine et perpendiculaires à l'avant.



ill. 19 drawing showing the reconstruction of the original nut position.



ill. 20 old positioning holes 1cm apart from the present bridge

plugged holes remains a mystery. The second mystery are the weights inside the keyboard described by Giuseppe Ferrini as being corroded and replaced in 1783. The keyboard with weights in the back, plus the ebony jacks as described in the 1700 inventory result in a touch heavier than a Steinway piano! The ebony jacks

are more than twice as heavy than normal walnut or pear wood jacks. There is absolutely no need for weights in the back of the keyboard. It remains a mystery why Cristofori should have put them in.

The instrument seems from the outside an ordinary Italian harpsichord with the

normal inner outer construction but the structure underneath the sound board turns out to be anything other than normal. The ebony harpsichord does not have the double bent side construction we find in Cristofori's later instruments. But features like the bracing system which forms an A-frame, a typical construction later adopted by the Viennese pianos, as well as the wide board glued behind the belly rail to prevent the registers being squeezed together are features developed by a man who never followed the mainstream but had his own innovative ideas for every instrument he built.



ill. 21, strip underneath the mysterious plugged holes in the soundboard



ill. 22, inner construction, copy of the ebony harpsichord



ill. 23, wide board glued behind the belly rail to prevent the registers being squeezed together