

THE INFLUENCE OF LEATHER IN THE FORTEPIANO EVOLUTION IN THE XVIII AND XIX CENTURIES.

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The Fortepiano origin

I can imagine most of the presents will have many questions on my presentation: First of all what is the relation between Leather and the Fortepiano? Why here in the Palazzo della



Great Prince Ferdinando de Medici

Signoria? Let's look back three centuries ago in this same room, during the baroque period, the times of the Great Prince Ferdinando de Medici. He himself was an excellent harpsichordist and had one of the most impressive collections of musical instruments made by great luthiers and cembalari (harpsichord makers) of that times.

In 1690 the Great Prince Ferdinando hired a well-known cembalaro from Padova, Bartolomeo Cristofori, to work as curator of his collection and to



Bartolomeo Cristofori

create keyboard instruments. In that period two families of stringed keyboard instruments were available: the clavichord, an instrument with metallic tangents hitting the strings and the harpsichord family (including the harpsichord, spinet and the virginal), where strings are plucked by a plectra. The first one is a highly expressive instrument but with very soft sound, the second is loud as sound but with less expressive possibilities. The creation of an instrument with both expressive and volume capabilities was the obsession of many musical instruments makers. Since then, Cristofori devoted his career to the creation of musical instruments, mostly harpsichords, some of them curious as the Oval Spinet that You can see in the collection of the



Copy of Bartolomeo Cristofori's Oval Spinet by Tony Chinnery & Kerstin Schwarz
(Galleria dell'Accademia, Firenze)

From now on we can see that the choice of the Leather layers was as important as the mechanics evolution to define the sound.

Cristofori's invention had no immediate success, in fact no other instruments are known in the next four decades. In the late 1730s' Gottfried Silberman read Maffei's description of the first pianos and built his first Fortepiano, which was tested by the great Johann Sebastian Bach who did not like the heavy touch of the keys, and suggested to continue working in it's improvement. Now the way was open to the piano evolution.

Evolution of the Fortepiano

To the end of the XVIIIth century we don't see a great evolution on Cristofori's creation, till the Austrian Johann Andreas Stein, improved escapement mechanism. In the following example, we can see an Italian hammer 1790 ca. (with viennese mechanism) with just one layer of oil tanned crossbred Leather. This thin layer of skin generates a very clear, somewhat metallic sound.

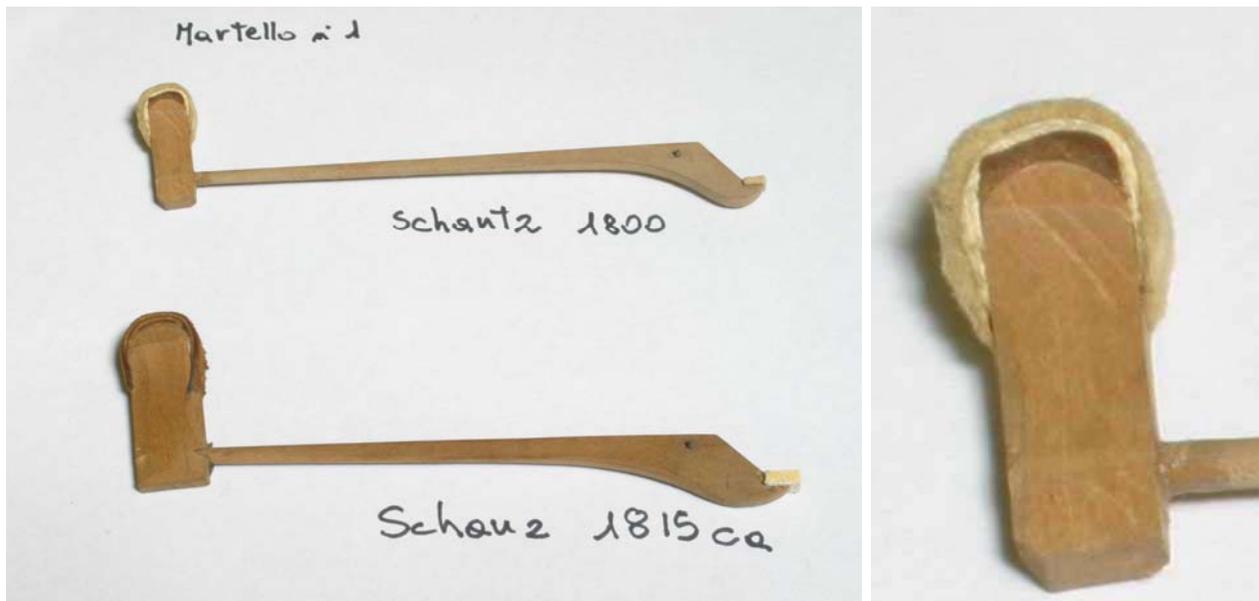


Anonimous italian 1790 (viennese mechanism)

Maybe the interest shown in this instrument by composers such as Karl Philip Emmanuel Bach, Mozart, Haydn and Clementi, who dedicated many scores to the Fortepiano, is the reason of the frenetic evolution during the XIX century.

The Fortepiano became a soloist instrument, the ideal instrument for singers' accompaniment, leaving small private meetings to every time bigger theatres. In this period we enter to the race for a stronger pasty sound, less metallic, rich in harmonics, doubling or tripling the strings, increasing their tension, reinforcing hammers and adding keys to meet the requirements of the composers discovering the new expressive possibilities of this instrument.

In the image we can see two hammers by Schanz made in 1800 and 1815 to appreciate how they became stronger. Schanz in this instruments added up to three layers of Leather. The inside layers of the instruments of this period are made of vegetable tanned sheepskins or crossbreeds, and in the top we find oil tanned Leather, in the early models sheepskins and in the later deerskins. Always dampers were done with oil tanned sheepskins or deerskins in the later models while a small square of alum tanned Leather was placed in the back of the hammer to avoid the sound of wood against wood with it's return.



Viennese fortepiano hammers by Schanz 1800 and 1815

This is the great classical composers' period. Beethoven and Schubert played in this type of instruments. Conrad Graf built a special instrument for Beethoven, particularly strengthened and with four strings in the treble. At the same time we can find also in Vienna other excellent instruments such as the Walter, et Al.



This period in England, is the era of the square pianos. These instruments are smaller than german or viennese models, being also very affordable and thus popular. We can find constructors such as Broadwood, who mostly used domestic sheepskins, vegetable and oil tanned for his hammers.

These instruments have a round non-metallic sound, and not very high volume, being ideal as home instruments. Dampers were mostly made of oil tanned sheepskins. By mid 1830 we found up to six layers of Leather in the hammers as we can appreciate in the pictures of the model by Kirkman..

We can find some excellent examples of Grand pianos with strong sound as well in this period.



Mid 1830's English Square piano by Kirkman

Back in the continental Europe, precisely in France, two famous makers Erard and Pleyel. The last built for Frederick Chopin a small piano and a Grand piano. About Pleyel, Chopin once said: "... when I'm feeling inspired and strong enough to find my own sound, it is then that I need a Pleyel piano." Pleyel, being also composer and pianist, knew what he wanted of his instruments, proposing models with a tendency of what was going to be the modern romantic piano. He was not a great inventor, but used the best ideas from his contemporaries. Erard invented the double escapement mechanism that we can find in nowadays instruments. Also in this period we can find Fortepianos built in America. With the advent of romanticism, we also can see the end of the Fortepiano and the modern Pianoforte as we know it nowadays is born.



Anonymous viennese Fortepiano hammer 1845 ca. (gift by Prof. Paul Poletti)

Keys extension are reaching their maximum expressive possibilities so pianists can perform the new music in all its dramatic splendour. The old wooden structure is replaced by cast iron to resist the many tons tension of the strings. Reinforced hammers have now an intermediate felt layer as we can see in the image, and gradually Leather will be eliminated from them. The modern Pianoforte or Piano became a soloist instrument to be played alone in day by day bigger concert halls. These are the times of Liszt, Schumann, and Brahms. In the image we can see that late hammers have vegetable tanned Leather in the inner layers, felt in the intermediate and oil tanned on the surface layer. By 1860 / 1870, the felt will definitively replace oil tanned Leather.

The material used in the hammers has an important influence on the resulting sound. That's why understanding the sort of Leather used, and it's characteristics (fibre density, softness, elasticity) are in many cases the clue for the philological restoration of ancient pianos. Few references are given in the old Leather technology books. Some references can be find on Grassmann's *Handbuch der Gerbereichemie und Lederfabrikation*.

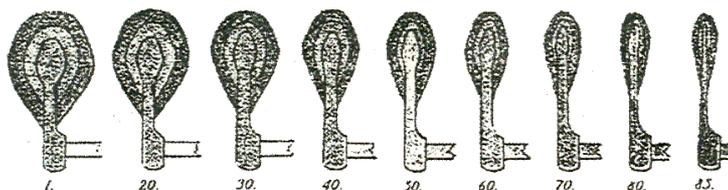


Fig. 218

Giacomo Sievers, Napoli 1868
Examples of Leather in the late Fortepianos

We can read a useful testimony of how to choose and replace the Leathers for the Fortepiano in a manual written by the Russian Pianoforte constructor and restorer Giacomo Ferdinando Sievers in Napoli 1868. The volume is named "Il Pianoforte:

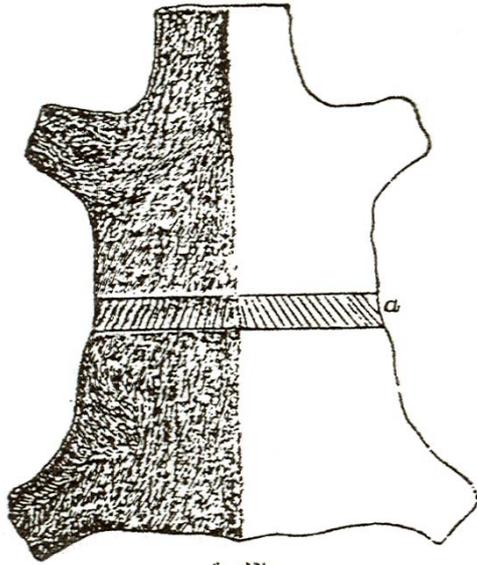


fig. 221.
Giacomo Sievers Napoli 1868
Fibre direction to cut Leather for Hammers

guida pratica per costruttori, accordatori, dilettanti e possessori di pianoforti” (The pianoforte: practical guide for constructors, tuners, leisure time players and piano owners). This book with many illustrations explains how to choose the Leather to use in hammers (orientated to the last period of the Fortepiano with a clear viennese influence).

In the first image we can see some suggestions of how many layers of Leather should be used in the hammers, depending of the position of the keys. I’ve extracted some phrases from Sievers’ text: “... many constructors don’t use hammers with wooden heads, and make them with sole Leather, or other sort of Leather, as hard as possible...” “...the hammer’s thickness has influence in the sound’s quality: a small hammer in the bass produces a small

sound...” “... hammers should keep a proportion with the length and thickness of the strings...” In the second image extracted from Sievers’ book shows how to cut the Leather strips to avoid excessive elasticity. “...male animal’s Leather, if were slaughtered after a good pastures season, will be fatter; if the animal are of intermediate age or young, also the skin will be fatter, will have a tendency to separate...” “...the best result is when the animal is not very fat nor very thin, and of the correct age...”

Conclusions:

I’ve shown in this paper how the use of Leather changed the sound of the Fortepiano. Actually Leather characteristics are theme of a strong debate on the softness, elasticity and other characteristics, which are of vital importance for the philological performance of music.

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