

What is the difference between a piano and a harpsichord? Part 1

A harpsichord is the English name of cembalo in German, and also called clavecin in French, and clavicembalo in Italian.

The origin of harpsichords is not clear. However, since a written article about harpsichords is seen in a book published in 1397, it is presumable that harpsichords have a history of not less than 600 years.

When the Baroque was in full flower (1600~1750), harpsichords were used in the court music and colored the ages brightly.

Then around the end of the 18th century, harpsichords became losing popularity because of the invention of a piano and its rapid expansion.

A piano and a harpsichord look similar in the shape. They both play by pressing the keys with your fingers. So you won't see much difference.

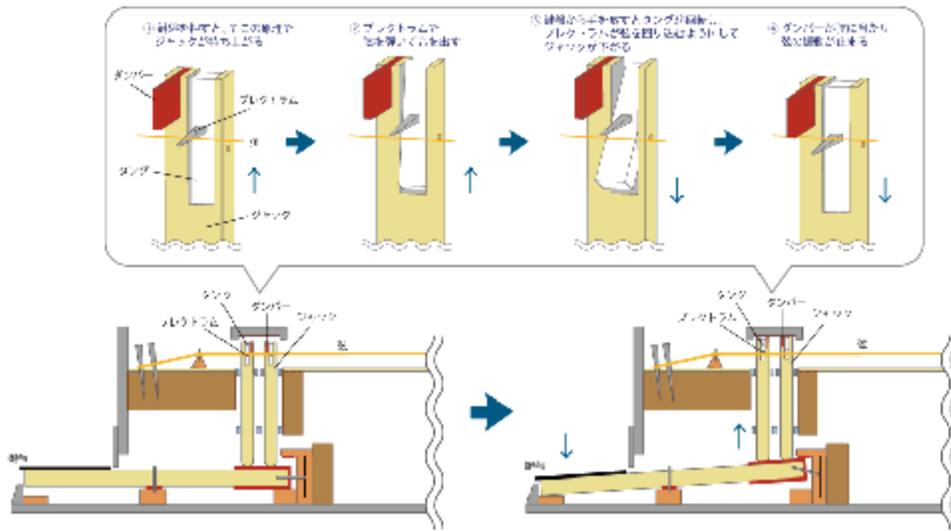
Are there any differences?

Let me tell you easily about the differences between a piano and a harpsichord.

Difference 1. Sounding mechanism

A piano is a "struck string instrument" that makes sounds by striking strings with hammers and vibrating them. A harpsichord is a "plucked string instrument" that makes sounds by plucking strings with plectrums and vibrating them.

The sounding mechanism of a harpsichord is near to a guitar whose strings are plucked with a pick and a koto plucked with plectrums. The figure below shows how a harpsichord makes sounds by plucking the string with a plectrum when you press a key.



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Difference 2. Characteristics of the sound

When a harpsichord is played, you can hear air-slashing sound that is not heard with a piano. This slight sound is made when a jack falls by its own weight (the jack returns to its rest position). (When the jack returns, the plectrum circumvents the string and thus the string is not plucked again.)

In addition, it is said that no other instruments have more harmonic sounds than harpsichords; harpsichords have far many harmonic sound components compared to pianos. (Harmonic sound: the sound that has a double frequency of the fundamental pitch) This is another characteristic of harpsichords, and it becomes an element of the harpsichord tone.

On the contrary, they say a piano is produced to eliminate the harmonic sound as much as possible and to emit a just sound beautifully. (If you play forte, or use pedals, harmonic sound will increase as a matter of course.)

Difference 3. Performing technique

A harpsichord cannot make a sound in different strength because of its structure. It was one of the reasons why a fortepiano, an early piano, was invented.

A fortepiano was a revolutionary instrument that had the characteristics a harpsichord didn't have: a fortepiano could make both forte and piano and it had a pedal that could sustain the sound.

A harpsichord is played not using the sound dynamics, but fully using the technique of

articulation (to connect or divide the sounds) and agogik (to give variety to the expression and movement of the sound by subtly playing fast and slow) to express delicate touch and supple rhythmic sense.



▲ The harpsichord contained in the DVD volume 1



▲ The fortepiano contained in the DVD volume 2

Difference 4. Black keys and white keys

Half-step keys of most of the early harpsichords (before the 18th century) were the same black as modern pianos.

However, the models of the 18th century including the Blanchet Harpsichord that is used in this DVD volume 1 were in an opposite manner, that is, the white keys in the modern pianos were made black and half-step keys were white.

This reverse type with the keys is generally known for us as the keyboard of harpsichords.

Why did the white and black keys reverse?

There are some opinions about it; the three reasons are mainly conceivable in the following:

To play easily

Being pressed down, a key of a harpsichord returns to its rest position not by the device like springs, but by its own weight.

That means the internal part of the key must be heavier than the external part.

That is to say, each whole part of the white key made of heavy ivory become heavier and each whole part of the black key made of light ebony wood become lighter.

The difference between these two weights is very little, but you will feel the difference to the touch when you play. Also if you play for a long time, you will obviously find the difference in the degree of fatigue.

That's why heavier white keys became to be used for half-step keys that have fewer numbers.

To show the hands beautifully

It came into the style for the aristocratic women to play the harpsichord as their cultivation.

It was the age that white skins were regarded as the absolute beauty. Women wore lots of face powders on hands as well as on faces.

The keys that have large numbers were made black for the women to show their hands more beautiful.

To cut the cost

White keys were made of ivory, and black keys were made of wood such as ebony and rosewood.

Both of them were expensive but ivory was especially expensive as much as gold and was difficult to obtain. To cut the cost even a bit, they used ivory to half-step keys that had fewer numbers.

(White keys of the modern pianos are mostly made of plastic.)

As above, the reverse seemed to occur because of the viewpoint of performance, appearance, and economy.

Now, why were the white and black keys once again reversed into the modern way?

The reason is:

1. "White" looks like coming up and "black" looks receding visually. Thus, it looks more stable and balanced to make black the half-step keys that are actually protruding.

2. Because using the white as a base color is lighter visually, it became to meet the preference for the appearance.

Difference 5. The number of keys

Harpsichords had variety in models with single keyboard, double keyboards, and infrequently triple keyboards. Their sound range was from 4 to 6 octaves.

The number of the keys gradually increased to 88 keys of a modern piano, a little more than 7 octaves with single keyboard.

Then, why is the number of the keys 88?

It comes from a scientific reason.

The frequency that humans can hear is considered to be from around 20Hz to 20 thousand Hz. The pitch that humans can distinguish within the frequency range is from about 50Hz to 4000Hz.

The lowest note "la" in the 88 keys is 27Hz. On the other hand, the highest "doe" is about

4200Hz.

That is to say, even if it has more keys, human ears will hear them only as noises; that's why the keys are 88.

Difference 6. Concern for the appearance

Harpsichords were the instruments for aristocrats.

It was the Baroque Age when palaces, churches, gardens, and dresses were at the height of glory. A harpsichord was made as an instrument to fit in the furniture in the age, so that the decoration as well as the tone needed to be delicate and gorgeous.

To put it simply, it was esteemed as a work of art as well as an instrument.

Later, pianos grew together with the middle-class bourgeois that came to the forefront with the agrarian revolution and the industrial revolution, and their mainstream design became simple in cutting off decoration to reduce the cost for the middle-class people.

Difference 7. Tuning

The tension of the harpsichord strings is much weaker than the piano's one.

Performers therefore need not simply to perform, but to tune the harpsichord by themselves after every performance because its strings come loose more frequently than a piano's.

How were they?

Pianos and harpsichords look alike at first sight, but they have many differences as we've seen.

Right from the start, the sounding mechanisms are different.

A piano was invented based on a harpsichord, but it is not true that a piano is the advanced stage of a harpsichord. A harpsichord and a piano are totally different instruments.