

Symphonia / Organistrum

keyboard

in Santiago de Compostela cathedral.

(Inquiry into a troubling problem of interpretation.

Analysis of possible solutions)

by

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FOREWORD

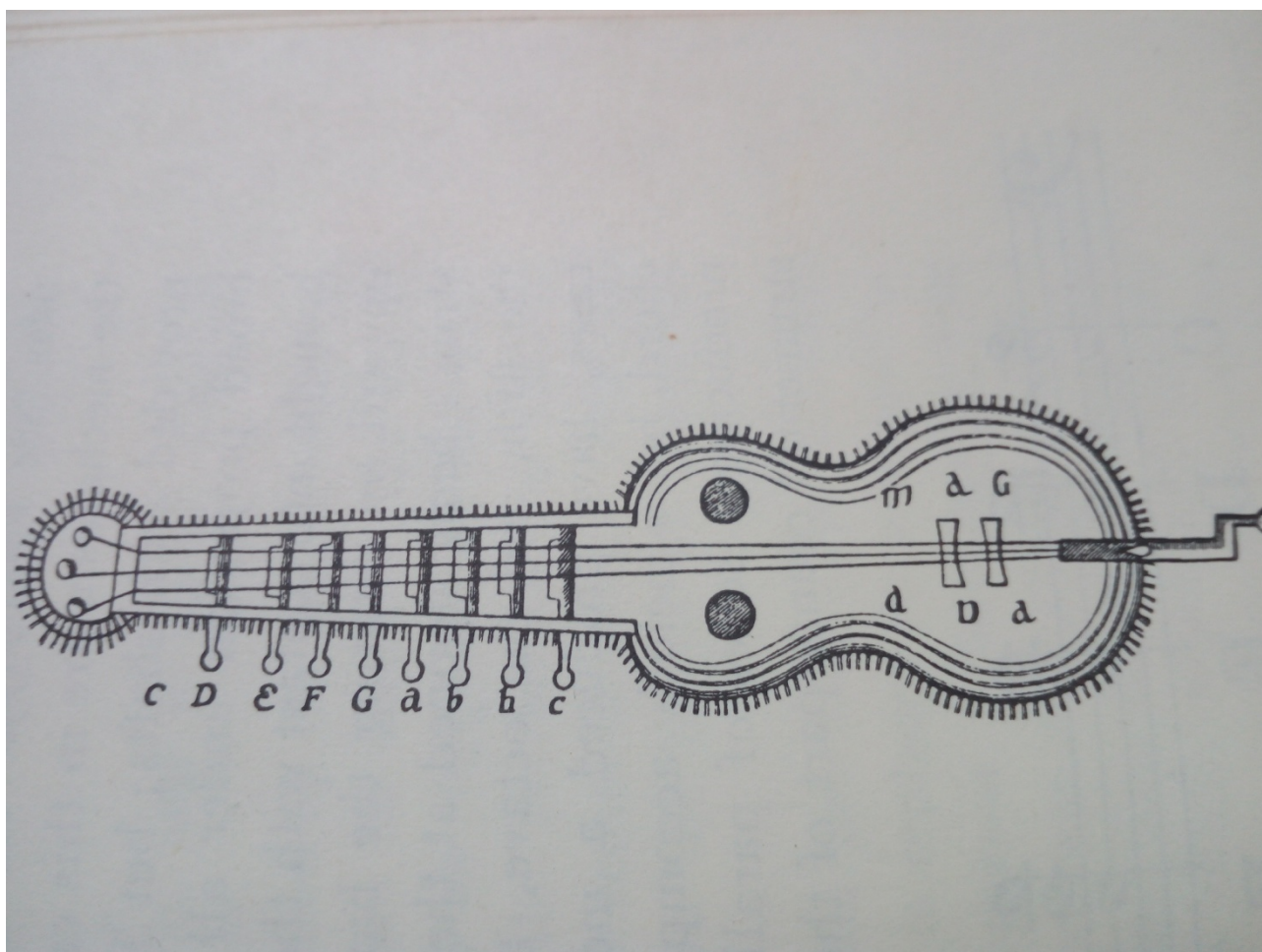
In former articles I wrote both about different aspects of this problem and about practical means to build a replica of the instrument in order to make it work the best way. My aim is to match not only with organological and technical subjects, but to discuss musical ideas connected to them, in the way Music was considered as an art and as part of the mathematical knowledge of Nature, since Pythagoras to the Middle Ages and further.

FEW WITNESSES

Several researchers have already carefully examined the few witnesses related to this instrument. I am not going to repeat the whole list, I just want to offer here a short survey.

The sound box consists as usual in two oval parts plus the neck, there are three strings, 6 to 8 keys within the half of the

diapason, sound holes often in D shape. The keyboard mechanism appears only once, in a 18th century copy (Gerbert) of a 13th c. *deperditum* manuscript: 8 revolving keys and the list of the notes, from C to c (including Bb and B) are clearly visible. Three letters below the wheel might indicate a tuning: d, D, a.



A 13th century manuscript entitled "*Quomodo organistrum construatur*" illustrates the method to divide the monochord into the eight stops of a diatonic scale starting from *Ut*.

No instruction about the way to play the instrument is available. We can only guess it was played mainly for sacred music along the 12th century. Christopher Page, the only scholar who faced the problem of the name: *Symhonia* / *Organistrum*, has several doubts and no definite answer.

SOME FEW SPECIMENS

We know that almost all depictions and witnesses belong to the 12th century, but the year and the decade are mainly unknown. Since it is impossible to follow an exact chronology it's absurd to define an evolution of the instrument through these witnesses. I can just study carefully the features.

In Ahedo de Butron (Burgos) sculpture, one of the musicians



might be turning a crank with his right hand, while with his left hand forefinger he is actually touching the second string; the second musician is touching the third string with his right hand forefinger

and with the other hand is turning the corresponding tuning key. There is no evidence of a keyboard (as in *Hortus deliciarum* manuscript), and I guess the two musicians are just tuning a large viella, since no crank and no wheel are there. In Soria sculpture (Spain) we see only one string (?), no bridge, no wheel, no keys.



The musicians look as they were actually turning a wheel and pulling the keys, but the damages suffered by this sculpture do preclude a clear observation of details. On the contrary the similarly shaped instrument in Boscherville capital (France) presents crank, tailpiece, wheel and keys.



What was this wheel intended to do, but to produce a continuous sound? This is the first observation with musical relevance in our description. Now, suppose we have built a large Viella, about twice the size of an usual one, with a wheel in it: one of the two musicians can stop the strings all along the neck with his fingers, but he is not at ease cause his fingers interfere accidentally with the closest strings. To have a system of keys might be suggested. In some depictions they appear, 6 to 8 within the half of the diapason. They look like little bars passing beneath the strings (Boscherville and Vercelli)

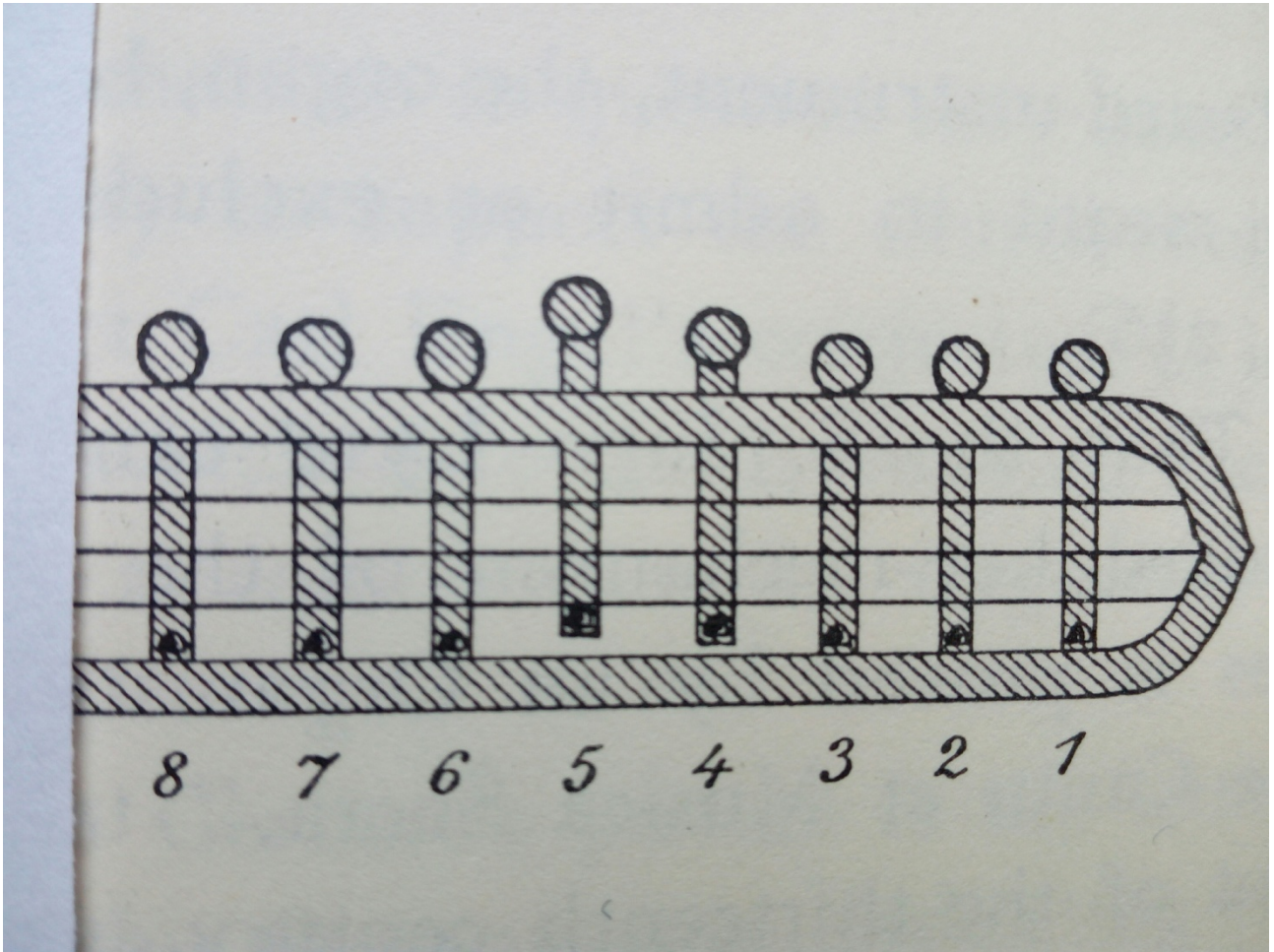


or simply protruding from a box that hides the mechanism. It is reasonable to think about a simple diatonic scale, but we can't state the keys are touching either only one or more than one string.

The structure of the keyboard depends on which kind of music we are going to play.

Suppose we've got a musical instrument which can produce a continuous sound and we want to perform a simple melodic line with it, with drones accompaniment and at a moderate speed, the following sort of keyboard would be

Type 1:

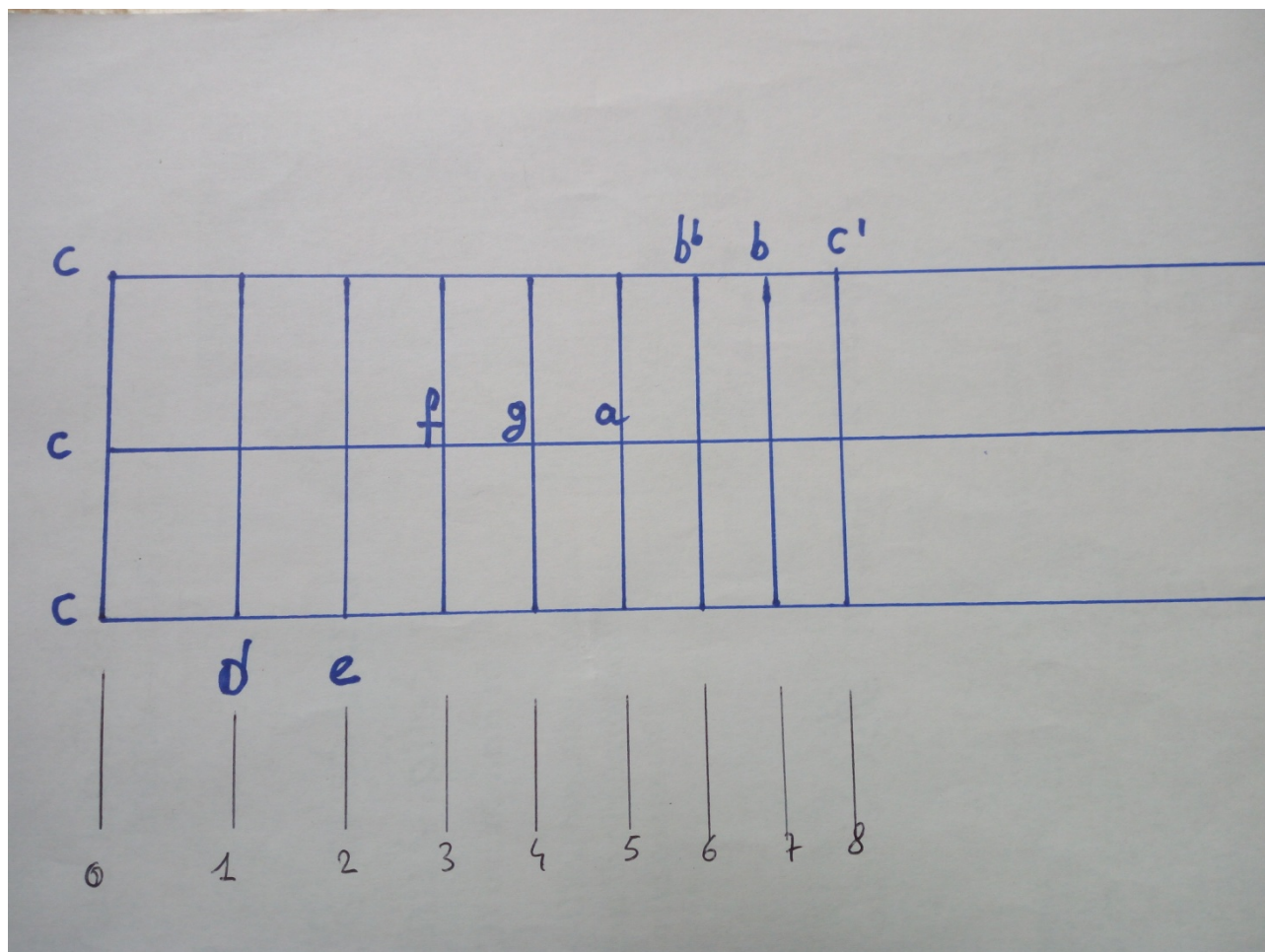


Type 2: you want to play a melody *in organum* with drone accompaniment. You will provide the keys with double tangents to stop the treble and middle strings tuned a fifth or a fourth apart, leaving the bass string free, tuned an octave under the treble.

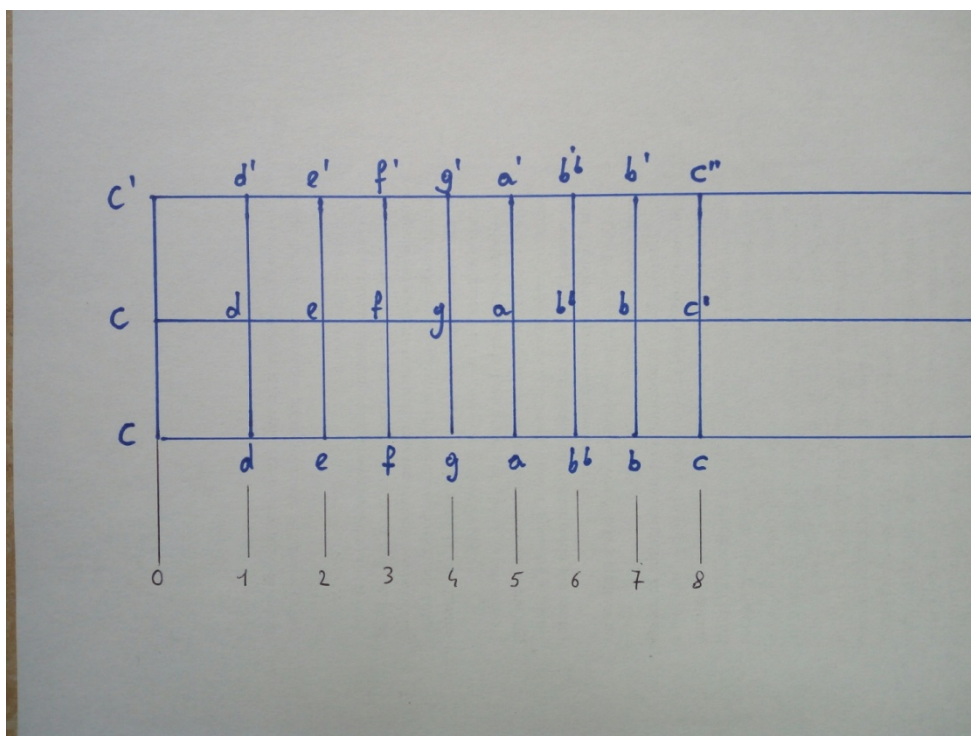
Type 3: according to Gerbert's drawing:

keys acting on the three strings simultaneously: a) to play *in organum prallelum* (?) b) to play very loudly a simple melody on three strings tuned at the same pitch (?).

Type 4: all strings tuned at the same pitch, the tangents acting on different strings in order to play double stops within the octave:



Type 5: strings tuned in unison and octave, keys which can be lifted and revolved with tangents on three different positions at 90° around the axe in order to play double stops within two diatonic octaves:



A tuning is more suitable in my opinion because it respects both the guidonian *gamut* and the exachordal system, starting correctly from *Protus plagalis*.

Which of these types is the best has to be determined only considering what we know about 12th century music.

Geographic area includes Spain and France mainly, then England, Germany and Italy. We can guess that his instrument served the sacred music composed and performed in Benedictine monasteries. In fact the monks were developing a new technique in polyphonic singing: the *vox organalis* was no longer *in parallelum*, disattending the rules given by *Musica enchiridis* and *Micrologus*, and became more free. An instrument like the described “*Two men lyre*” could fit this kind of music, provided it is equipped with the suitable keyboard: a new instrument for a new repertoire. In any case a very limited one, with a rather short life too: at the end of 12th century composers began writing sacred music for three and four voices, a repertoire that can be performed only by organs.

SANTIAGO DE COMPOSTELA INSTRUMENT

At the top of the Gate of Glory in Santiago de Compostela cathedral *magister Mateus* sculpted a wheel instrument in the middle of the range of 24 Elders all around the Lamb, depicting a scene taken from the book of Revelation. This gate is dated precisely the year 1188. This sculpture differs from all others we have examined

- a) In the general shape
- b) In quantity and quality of decorations
- c) Having 11 keys within the octave.

The sound box consists in two perfect circles connected through lobes and a rectangular box containing the keys. The length of diapason is equal to the circumference of circles. Four triangular sound holes with little holes at the edges are cut in the first circle. A large quadripartite rosette with vegetable decoration is carved in the second circle. A long interlace made of 11 knots and 12 spaces is cut all along the rectangular keyboard lid.

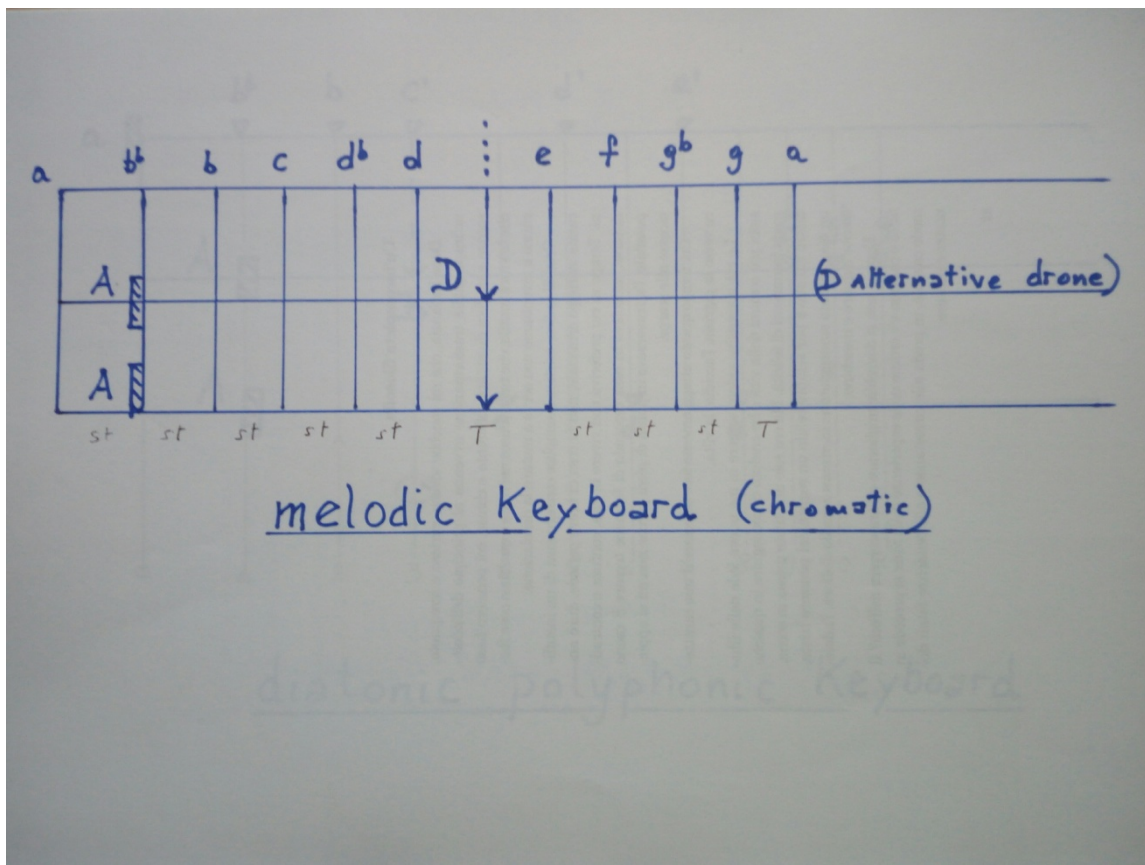
All these features are unique among all depictions of the instrument. In other articles I examined these characteristics in the light of musical theory, astronomy and cosmology of the time. In this paper I would like to focus on the interpretation of the keyboard with 11 keys within the octave, describing a possible reconstruction of it.

Many important scholars stated that this number indicates a chromatic division of the keyboard. They pointed out that no chromatic scale was in use during the 12th century, nevertheless they accepted the number as an absolute evidence concluding that this instrument could have been invented for transposition.

Actually, some other chances are conceivable.

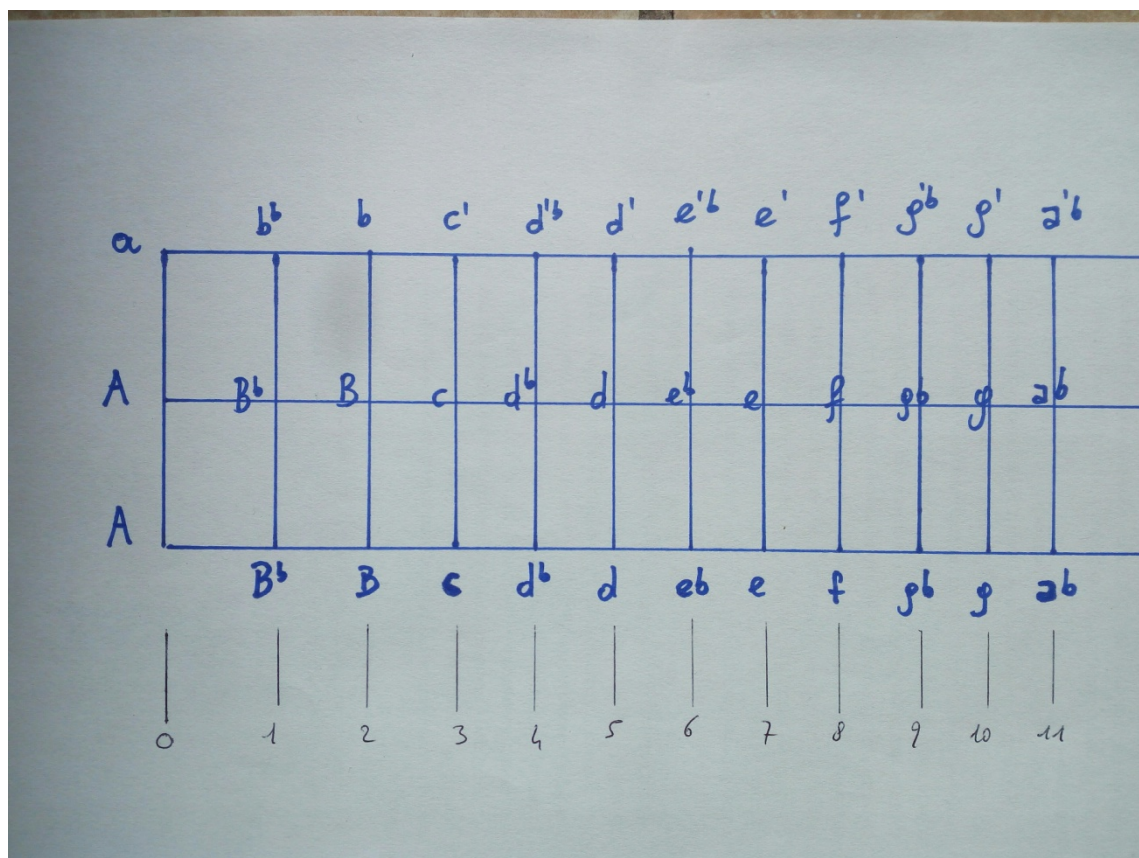
Keeping the 11 keys as they are, we can design

- 1) a chromatic keyboard for melodic playing, as follows:

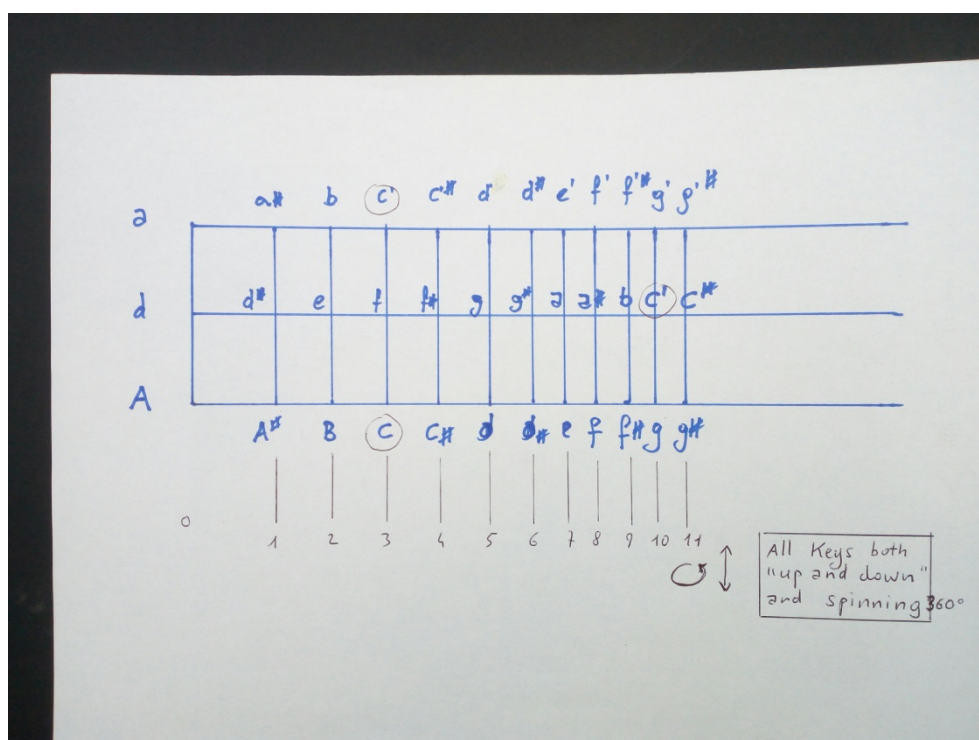


6th key used on middle and bass strings to generate an alternative drone, avoiding *Tritonus* on the melody string.

- 2) a different solution, allowing us to play *discant* –like polyphony: double stops within one diatonic octave + a fifth



We currently use the following tuning by now, which allows us to play the whole 11th and 12th centuries polyphonic repertoire quite easily:



CONCLUSIONS

This report gives rise to more doubts than certainties.

Santiago instrument looks as the more complicated version of the wheel instrument documented for few decades during the 12th century, whose main relevance was due primarily to the continuous sound produced by the **wheel** , secondarily to the **keyboard mechanism**.

Anyone is problematic.

For example, we use to make wooden wheels covered with colophony, but this is actually characteristic of baroque and modern instruments. Was it the same in 12th century?

Some of the 12th century “*Two men wheel lyres*” might even lack the keyboard.

Keyboard can be melodic **or** polyphonic, using the diatonic guidonian *gamut*. In a very special depiction, the Santiago de Compostela one, we can imagine an unusual chromatic scale being adopted. This could be the last step of experimentation.

Then, at the beginning of 13th century, vocal compositions in sacred music became so complex that the Organ only could provide the appropriate accompaniment.

Like many other instruments the “*Two men lyre*” left the churches to assume a new role in secular music, becoming smaller, equipped with a more practical (melodic or polyphonic), keyboard and playable by one performer.