PRESENTATION
by
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Music Archaeology of the tympanum at the Abbey of Moissac

« From Stone to Sound »

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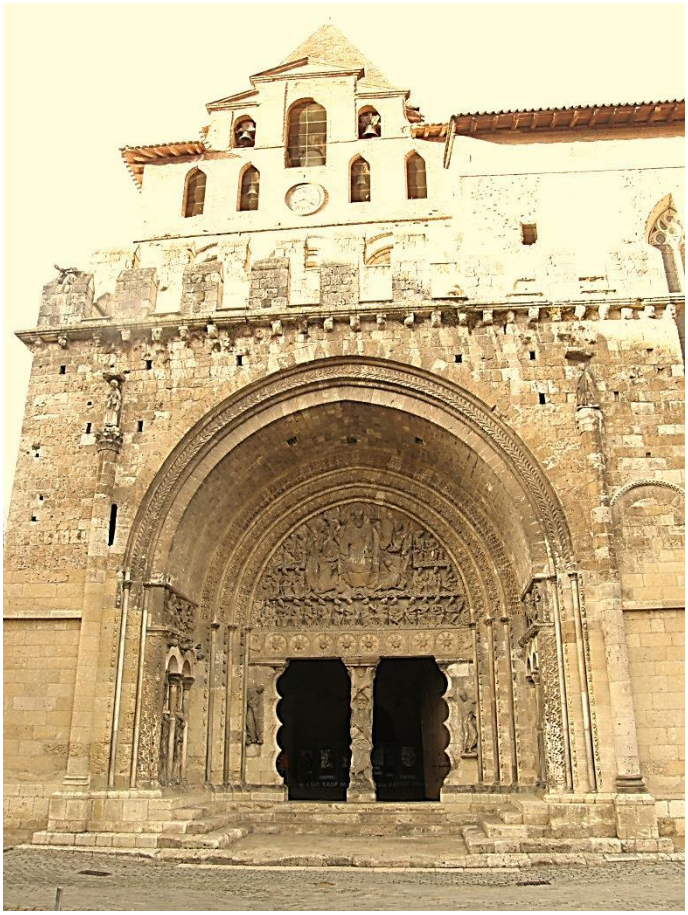
Part 1

The Tympanum of the Abbey in Moissac (Tarn et Garonne - France)



Welcome here in Moissac, all of you, musicians of « Pans on Fire ».

Thank you to Rita Seethaler for your suggestion for me to guide you through a visit and workshop on one of my most favourite topics: Instruments sculpted in stone.

The sculpture of Moissac is the first at the start of the 12th century to illustrate the famous vision of John, the Apostle.

He had a dream in which he saw Christ (en majesté) majestically in the centre surrounded by four apostles and twent four wise men of the Apocalypse.
Each elder held a perfume vase in one hand, symbolizing the prayers rising up towards the Lord, and in the other a "cithara".

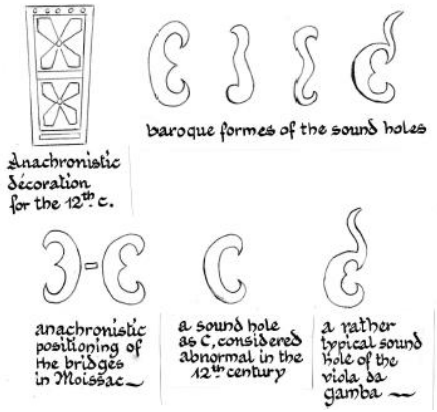
This term "cithara" is a generic term for string instruments, without further specification.

Thus, whenever a visual artisan (in this case, a sculptor) was invited to illustrate this theme of the Apocalypse, he was free to present different instruments, according to his preferences.

For musicologists this is obviously of interest. If the presented instruments are not mere products of the sculptor's imagination, their study could guide the process of reconstruction.

Since the early 1980's, a number of musicologists became interested in these instruments presented as sculptures or paintings. In St Jacques de Compostella in Spain all the instruments presented there have been reconstructed – an exemplary work.

But the musicologists had stressed the fact that most of these instruments showed details that were much too "modern", stemming notably from the Baroque era.



So it was concluded that the instruments had been restored in a baroque style, which would explain their advanced form and modern detail.

Thus, in a first stage we need to localise, list and observe exactly which restorations were made for this collection of instruments.

On the lower part of the entrance of the portal and on the left, you easily identify new stones in the arch.

Above you are able to note a curiosity. Closely observe the characters.

The persons that uphold the cornice, called "atlases"(French: Telamons), are very damaged when they are under shelter, while persons outside the cover in the corner, exposed to the weather, appear to be perfectly conserved.

I was searching for a logical explanation in recent documents, as this sculpture is obviously recent.

I found two postcards: a first one from 1924 on which this person doesn't appear and a second from 1925, where it is present.

1924 *1925*

Consequently, I searched the archives to find out which sculptor could have been in Moissac in 1925 capable of undertaking this undocumented work. His name is André Abbal.

He was commissioned to construct the monument of the deceased (monument aux morts) as a memorial for the people who disappeared in the first world war 1914-1918.

On this same side, balusters made from marble were restored and we know all the details of this work due to documents containing invoice information.

The work was undertaken under the leadership of Viollet le Duc, a famous architect who came to Moissac in the middle of the 19th century.

In fact, Viollet le Duc specified that he reinstalled these corner decorations that he calls "arabesques".

But if you look closely,  *you will see*  *little heads of human-lions*  *or human-monkeys*  *in an Asian inspired style.*

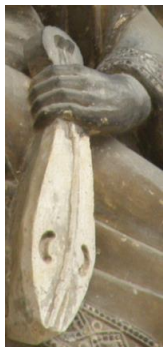
Before turning to the right side, let's examine the tympanum first.

Take a close look at the first row of elders. You will find that two amongst them have a somewhat reddish head. Counting from the left side it is the second and the seventh elder. These are undocumented restorations and we don't know the reason for these modifications.

The first figure on the left seems to be crafted in a different stone. However, this is merely the result of a cleaning trial with a sandblasting machine.

You also find that one of the elders has much longer fingers than normal. Truly the "surgical aesthetics" were still in their infancy.

In addition to these details, you will find that only one of the musical instruments has been restored. It is located all the way up on the right hand side and quite white - Perhaps another trial in the workshop of Viollet le Duc. This is only a hypothesis without warranty!



A little curiosity still needs to be mentioned here. In the lower row, two stone blocks are swapped. In fact, four elders do not wear their attention to the central figure

Here is what we see:

D3 D4 D5 D6

Here is what we should see :

D5 D6 D3 D4

I can confirm that there are no other restorations, because I had the chance to study the sculptures of the tympanum from above (on the scaffolding).

Looking towards the lower parts, on the right side of the entry hall (narthex), one sculpture immediately stands out as different, not in the same style of the other sculptures.

It is obvious! Actually, this re-invention has been documented. It is a reconstruction undertaken in the middle of the 19th century, yet again under the direction of Viollet le Duc or Olivier, his off-sider.

We know the artisan was a man named Perrin from Carcassonne.

There is however a subtle almost undetectable difference. We know that stone doesn't resonate in a hollow way, neither in your Australia nor here at our town Moissac.
Look at those two children. They have detected an anomaly by tapping on the sculptures. In fact, these are not the original sculptures but reconstructed replacements made from polyester or a similar composite material.

Based on this model one could even create a second Moissac similar to the existing Lascaux II.

Over these sculptures, we notice a repair of rosettes, which reminds us the telamon which faces them, appeared in 1925.

This is in essence what we can observe in situ at this entrance.

You know what comes next … a nice tea will be served at Scrakoss, after which I will invite you to the second part of my talk inside the auditorium, in which we will study the musical instruments of the elders in more detail.

Questions & Answers:
Q.1) While we are here at the entrance, could you explain to us how the environmental impacts are damaging the stone?

A.1) Thirty years ago it was understood that the passage of motorcars in front of the tympanum are detrimental to the stone and hence, the motorised traffic was prohibited.

Secondly, the ground used to be higher a few decades ago. Thus, there was a considerable accumulation of moisture that affected the stone by capillary infiltration. The level of the ground has therefore been lowered considerably and connected to the storm water system to prevent this problem.

There is also a time factor. 900 years is a considerable time span. Our fax messages and text messages will last less long!

Q.2) Why would one not repair the entire ensemble of sculptures?

A.2) In Asia, for example, the maintenance and rebuilding of old structures is tolerated. But here in Europe one doesn't renovate or replace items. At the time of Viollet le Duc, repairs were done and missing items were replaced, for example the arm of an angel. Today, this is no longer the case, one tries to conserve the actual state only.

Q.3) Does one know where the initial sculptors came from and what were their names?

A.3) Their names are unknown in Moissac, but I can show you two details: In the vertical line of these birds here on the right, the sculptor is presented and can be recognised by his beard.

Whereas on the left you see a young apprentice, shown without a beard.

I would also like to point out that the word "sculptor" was not used at the beginning of the 12th century. One used the term of "image maker" (visual artisan). These masters were capable of creating paintings or sculptures in stone, wood, or engravings on bone … according to the request.

Q.4) Were these artisan sculptors who travelled from one site to the other, or did they stay on one site working for several years?

A.4) Some of them were required to travel far, others not. The master of Moissac, as we will soon discover, must also have worked in Souillac in the Quercy region, but we don't know where he came from.

Only rarely do we know the names of the sculptors, such as Gislebertus of Autun, or Mateo in Santiago de Compostella, because it wasn't in the spirit of the time to preserve their names. But sometimes we can identify them by their signatures. I will talk about this shortly.






Part 2 of the Presentation in the auditorium of the former "Matin Musical" in Moissac (France)

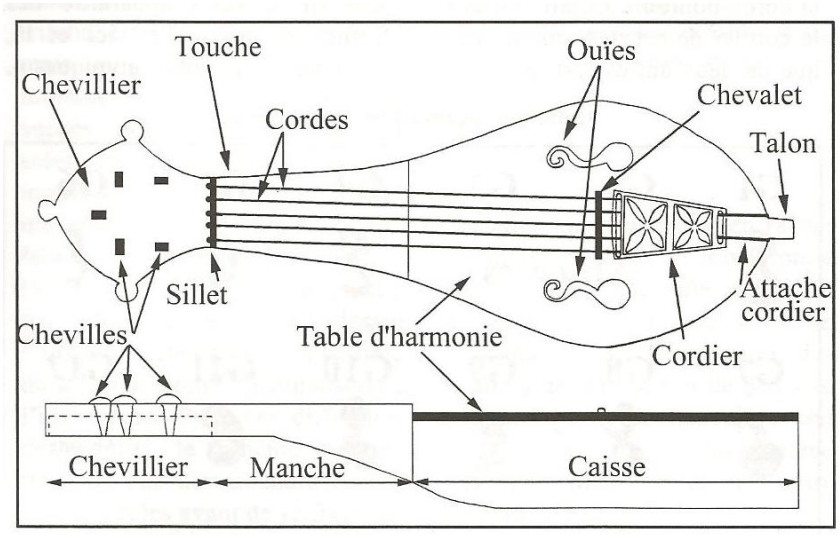
Question: Is there a problem with us taking photos?
No, not at all. Don't hesitate.

In the first image of the presentation you recognise the tympanum of Moissac. You remember the two heads of the elders made from a material that resembles terracotta. You also remember other details – the elongated fingers, the white instrument that is not an original…

We now have to study the different instruments of the tympanum in order to ascertain that they were not mere products of the sculptor's imagination. Did they really exist?

We will encounter several types of instruments. Instruments with two strings and instruments with five strings, called "vièles" or fiddles.

The instrument itself is quite simple: the head, the neck, the heel, a tailpiece, the string attachment, a bridge, pegs and the sound holes. In French we use the word "ouïe" which is synonymous with the ear. You find your way now with the different parts of the instrument – and we're on the way…



Vocabulary:

French	***English***	***French***	***English***
Chevillier	*Head*	*Table d'harmonie*	*Sounding board*
Chevilles	*Pins*	*Ouïes*	*Sound holes*
Manche	*Neck*	*Chevalet*	*Bridge*
Touche	*Finger board*	*Cordier*	*Tail piece*
Sillet	*Nut*	*Talon*	*Heel*
Cordes	*Strings*	*Attache cordier*	*String attachment*
Caisse	*Resonance body*		

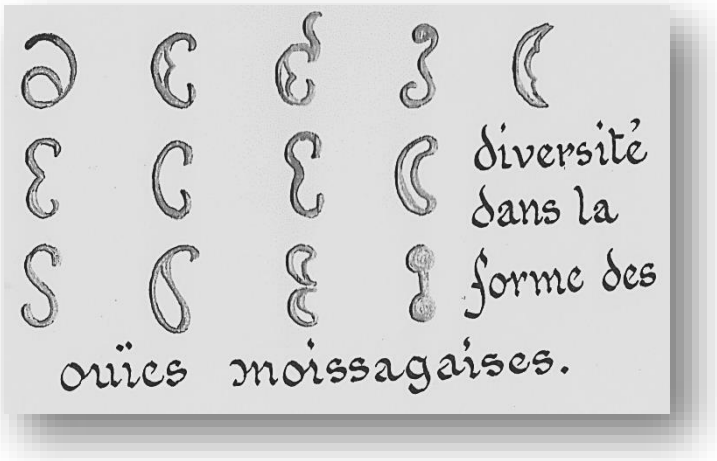
For historians, the sculpture of Moissac would have been made between 1115 and 1130.

Researching the iconography before this time, mural paintings, sculptures on wood, on stone, engravings in ivory etc. one discovers representations of musical instruments, for example string instruments.

On these instruments the sound holes are only represented by simple holes or half-holes, also called half-moons. Sometimes a curved bean shaped form is also found but considered more typical of the 13th century.

(Typical sound holes in the middle ages. top: round hole, middle: half moon, bottom: bean shaped from XIIIth century onwards)

However, the forms of sound hole found in Moissac are of a great richness in variation; forms that seem much to modern for this era.



The tailpiece has also been contested because it is decorated with four-petal flowers. This design is typical of the 13th century.

The position of the bridge is also contested. A number of musicologists claim that the centring of the bridge, that is its central position with regards to the sound holes was typical of the 18th century, a heritage of the great masters like Stradivarius, Amati, etc.

Except, here in Moissac starting in the 12th century, this central position didn't seem to be accidental but was indeed very systematically used on all instruments. It must therefore have been a fixed principle or rule.

This detail is important, because when travelling an instrument may become out of tune, and to play properly it was essential to reposition the bridge precisely at the same place, in order to find its habitual position and to play properly.

Until the Moissac sculpture, instruments were found with a bridge located either above or below the centre, and only very rarely in the centre.

It is unthinkable that one could have repositioned the bridges on sculptured instruments just to centre them. That is totally improbable!

The same applies to the tailpieces with their four-petal flowers. This type of flowers did appear actually in previous general iconography.

Here is now a first instrument with one string and a sound hole forming a C. We can simply think of the letter C.

A second instrument is much more interesting. One string, one peg logically. A round head. All the mono-stringed instruments before Moissac had always this round head.

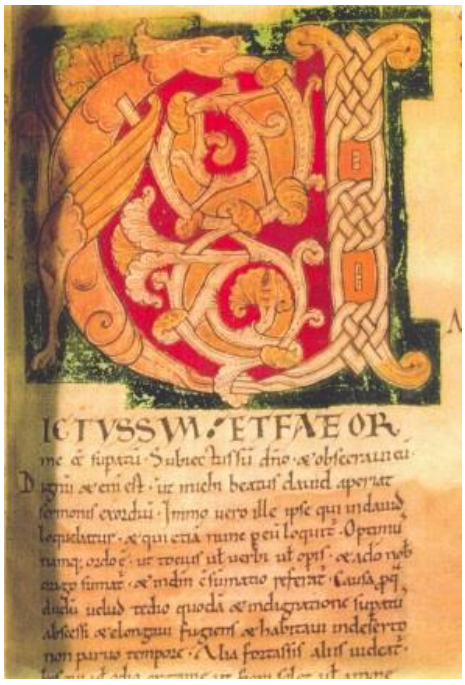
We get a first idea of the length of the neck from the width of the four fingers of the hand holding the instrument.

The sound hole has a small inner hook (notch) that allows the perfect centring of the bridge. And an important detail: even the sides of the bridge are cut in order to ensure a perfect alignment.

The question is now, whether the forms of these sound holes can still be qualified as typical for the baroque period, although we find them here at the start of the 12th century.

At the time when the Moissac sculptures were made on the forecourt, monks in the cloister and scribes were busy making copies of their parchments.

Thus, here are some documents that were made in the 12th century in Moissac. The one below, "Ictus Sum Et Fateor" (translation from latin "I am beaten and I admit") offers a magnificent C with inner hooks.



Another very beautiful document. Again you notice the C with ornamental notches, proving that this motif was known and appreciated in Moissac.

Last proof: a decorative frieze with no less than nineteen of these motifs facing each other.

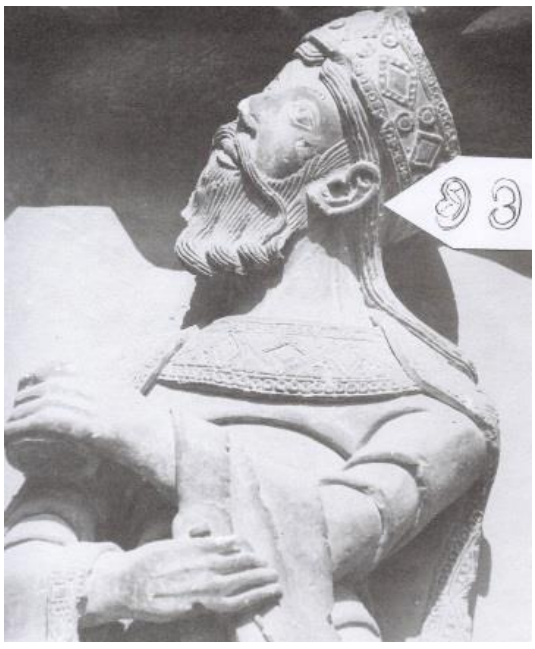
As this motif was appreciated in Moissac, was it also first invented in Moissac?

No! It first developed much earlier.

No! It is very previous and already present in the form of riders' shields in the Roman mosaics.

Here for example is a Roman silver platter from the 3rd century, and we can also find the same profile in the shields of the amazons in Roman mosaics.

A small aside: We have often wondered about the names given to the famous sound holes in French: "les ouïes", another word for "ears". A curious designation, because the sound comes out of the instrument through those "ears", that we then hear with our ears.
You will agree with me about the similarity between the motif of a C with hooks (pointed C) and the contours of this elder's ear. The closeness is obvious.



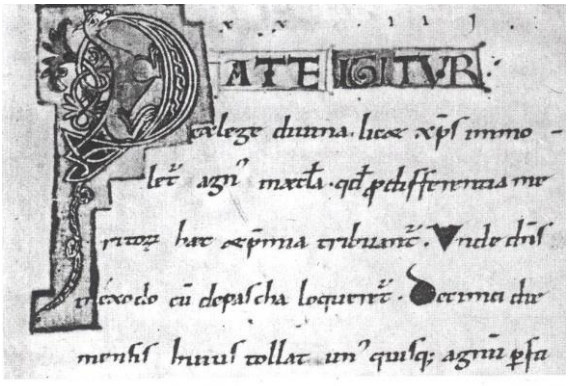
Another aside: Note the particularly fish-like form of those little instruments, and we know the importance of the fish symbol (with sound holes) in Christian religion.

Here now a new instrument with five strings in two groups. One group with two strings and the other with three strings. You note the five pegs.

We can also confirm that the length of the neck corresponds to the width of the four fingers of the hand.

Another detail: the strings don't lead directly to the pegs on the front of the instrument. Instead, at the level of the nuts (sillet) they are led through little holes to the back of the head and are attached from behind.

A new tail piece with a four-petal flower. We note the detail in the attachment of the heal, the centred bridge and two new forms for the sound holes. We associated the first design to the letter C. Here we could think of the letter B or D, but in documents of this same period the "b" was never written with a curved vertical end. In contrast, the D was systematically presented with a curved neck.

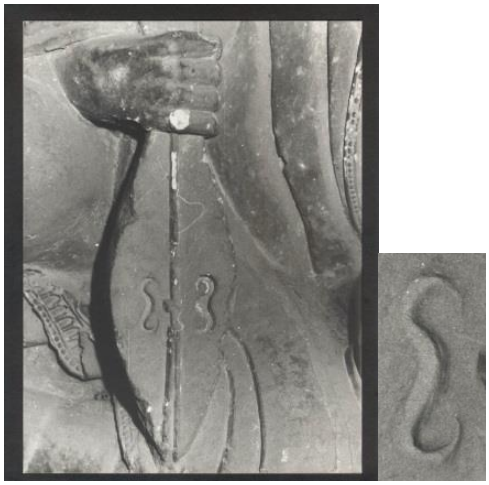


XXX. Leyde, Bibl. Univ. B.P.L. 1822 (f. 109): main *b (33)*

Here a new text "Pate Igitur" ... (it is therefore ...) You see the D. Its belly has been blackened to make it stand out, and its neck is curved. We don't know the exact date but according to historian Jean Dufour, we know that this text has been written under the Abbey of Durand, i.e. between 1048 and 1072.

We find that the curved shape of the "d"  *used repeatedly. This letter D actually reminds us of the Greek letter "delta".*

In a new instrument the motif of the sound hole is not a Latin letter but a Greek one. We identify it as the "epsilon".



We know that some of the monks in Moissac knew Greek as well as Latin. This type of design is found much later again, in the iconography after Moissac.

The picture here depicts musicians extracted from a manuscript of "Cantigas de Santa Maria" (Chants of Santa Maria) a song collection from the 13th century, ordered by Alphonse X, known as el Sabio (the wise), King of Castile.

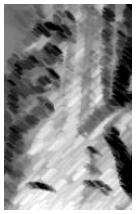
The musician on the right plays a lute with sound holes forming an epsilon. 

Musical instruments with intact strings dating before the 15th century are rare. Therefore, research turns to iconographic sources.

Now we look at an instrument with five strings, that we have re-constructed as a model, as it is located at the top of the tympanum on the right next to the white instrument.

When I was up there on the scaffolding, I could see that the form of the sound holes of this instrument is the letter "a". 

Other information: confirmation with regards to the length of finger board, the strings passing through the holes of the neck to the back of the head, the four-petal motif of the flower on the tailpiece, the type of string attachment at the tailpiece, etc

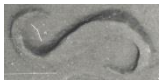



Here we see a rest of a bow, from which we get an idea of its curved shape.

We also observe in which position the instrument is held. It is not the academic position of nowadays. Here, the instrument is resting against the armpit.

Another very interesting detail: the use of the thumb – here slightly damaged – on the first string.

I found a wedding treasure box from the 13th century with the image of a musician that confirms this practice. Jimmy Hendrix also used the thumb on the strings – it's true.


Musicologists of the 1980's did not note the S-shaped forms  *of the sound holes of this next instrument, otherwise they would have ordered the demolition of this sculpture.*

I'm just joking…

This is precisely this S-motif that we find again on instruments of the quartet (violin, cello, viola, double bass …), but also with jazz guitars, on the 'Dobro' and other American mandolins.

Thus, in Moissac there was an S-shaped sound hole at the start of the 12th century, whereas musicologists dated its arrival six centuries later, with Amati and Stradivarius, etc.

Here the only instrument with two strings of the entire sculpture. These little instruments could have been called a "rebec" according to the philological study of Pierre Bec. The Arab world knew two types of these little instruments – a single string instrument and a two-string instrument, called "rabab". In Occitan texts we find the term "rebeb", "rebec" …

It is possible that in the 12th century these instruments were called rebec. This is my thinking, but for the time being the musicology doesn't validate this hypothesis given that the term wasn't present in texts of the 12th century.

The term jig had been proposed, but I have to point out that this word cannot be found in any text of the 12th century. Let's move on, as this question is not critical.

Actually, there are two questions: What do we have to call this instrument today? And, what was the instrument called at the start of the 12th century in Moissac?

Here now a first representation of a string instrument with S-shaped sound holes, held in the hands of a musician angel.

This painting is dated 1522, but we don't know the gender of the angel.

Just before, Rita asked if it was an S or an F for the sound hole. In old scripts until the 18th century, we find that the letters S and F are often confounded. The morphology of the writing is quasi identical.

Lute players in France utilise more often the S, while their German cousins speak of F. It is easier for you as in English you talk about a sound hole.

Here another instrument with five strings. One discovers a design that a priori doesn't evoke a letter. But the form of letters has changed over the course of time. In texts from Moissac I will demonstrate to you in a moment that the letter on this instrument on the right is a "G".

You remember that we have encountered the letters A, C, D and epsilon taking the place of E and the letter G.

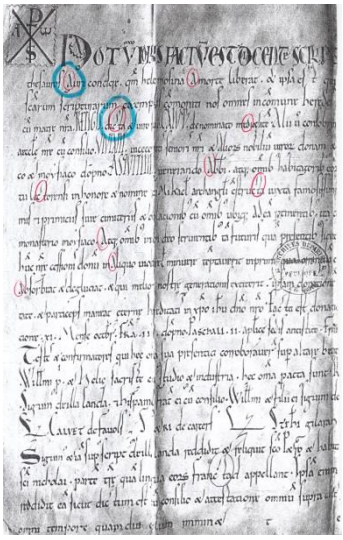
These are the first letters of the alphabet. This begs the question if at this point in time the letter system was known that we call Anglo-saxon today?

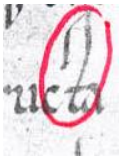
Much earlier. In fact, in the antiquity, letters were already used to note music but it was a system much more complex than what we will see in a moment.

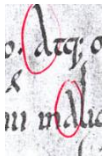
One more instrument with a centred bridge. We see the letter C with the notch as in the beginning and added to it a little flame, a little extension.

Consulting manuscripts of Moissac, I found this letter C with the small flame and I realised that this element, also called "ligature" or link, was systematically added, when passing from the letter C to the letter T.

Another argument that helps us understand that the sound holes are really in the shape of letters.



In this other document, a letter A  *was elongated. Here the C*  *that I mentioned, sometimes with the two little flames*  *, like in the word "dicta.*

The D  *with the curved tail, and the A*  *with an elongated upper part*

I don't want to hide anything from you. These two linked sound holes  *in this picture are not a motif of a letter, except in south Arabian language, but this closeness to the Arabian alphabet would rather be doubtful.*

However, it is interesting to note that this motif was quite successful. Later on we will find it on musical instruments. Here on a painting of the Italian painter Francesco Vanni.

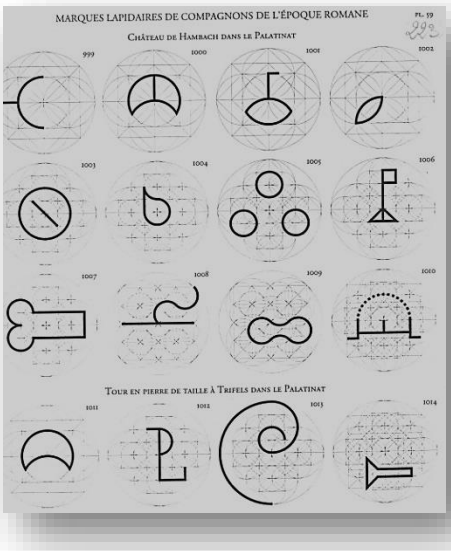
We need to ask ourselves why this motif appeared in the Moissac sculpture.

We find it here in a crown of an elder. 

In the following image we see the sculpture of Moissac with the orphreys of Christ's mantle, on the left the motif appears in the clothes of the prophet Isaia in a sculpture of Souillac.

Souillac *Moissac*

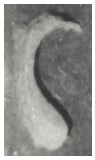
Here a few signs of stonecutters of the Roman era from which you recognize the motifs used in Moissac. 



The visual artists like the builders only used the ruler and the compass. When a young artisan learnt the art of stone cutting, he had to learn the tracing of the signs to perfection.

To trace certain signs, 40 to 50 circles could be used. This was called the secret. But today this word has no longer the same meaning. The secret in this period was the detailed method necessary to reach perfection.

If you climb up above the tympanum into the church tower of Moissac, there is a large room in which you can find several dozens of stone signatures.

Here is a motif that is not a letter,  *but that seemed to suggest to be something similar to the letters of the alphabet used on the instruments. This sign is used in Moissac in the neumatic writing at the start of the 12th century and is called the "virga cornue" a horn-shaped dash (curved comma).*

This dash could for example indicate a change in intonation, an interval of one tone (second major), as it was taught by Jean Dufour.

Extract from Jean Dufour text:

> *2) the dash is not always marking the height, but sometimes the duration. Other forms are also used, with particular values that we find for example in the national library B.N. n.a.l. 1871 (103):*

2) *La virga* n'est pas toujours marque de hauteur, mais quelquefois de durée. Quatre formes sont employées, avec des valeurs particulières, que l'on trouve, par exemple, dans le B.N. n.a.l. 1871 *(103)*:

(a) pourvue d'un crochet à sa base.
(b) dépourvue du même crochet.
(c) cornue: elle indique un intervalle de ton.
(d) semi-circulaire: elle représente un intervall d'un demi-ton.

(a) provided with a hook at its base

(b) lacking the same hook at its base
(c) horn-shaped: indicating an interval tone
(d) half-circle: indicating an interval of a semi-tone

This is another element indicating that in no way this could have been part of a hypothetical restoration done during the baroque era. This particular element was of course unknown to the restoration workers or the sponsors.

We find a similar motif in 1130 in the Atlantic Pyrenees in Oloron Sainte Marie.

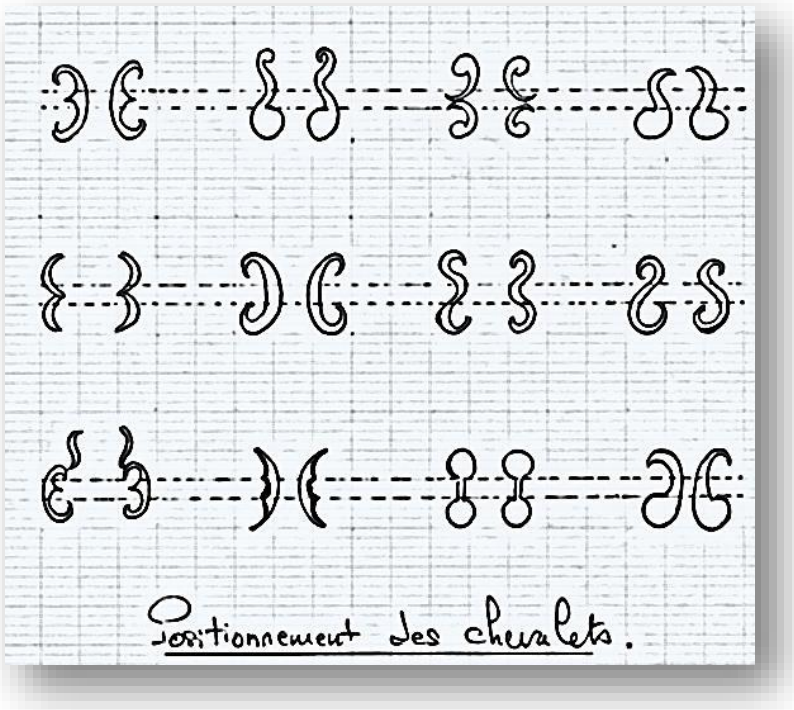
The dash is not very curved  *as in Moissac and a bit rougher.*

The motifs in Moissac have thus started to circulate. We find them little by little in other sculptures and other paintings.

A, C, D, E, F or S (F) and G … The letter B is missing. But, in Moissac four instruments are missing that had been destroyed or disappeared. If they would reappear by miracle, I would be ready to bet that they would include the letter B, perfectly logical.

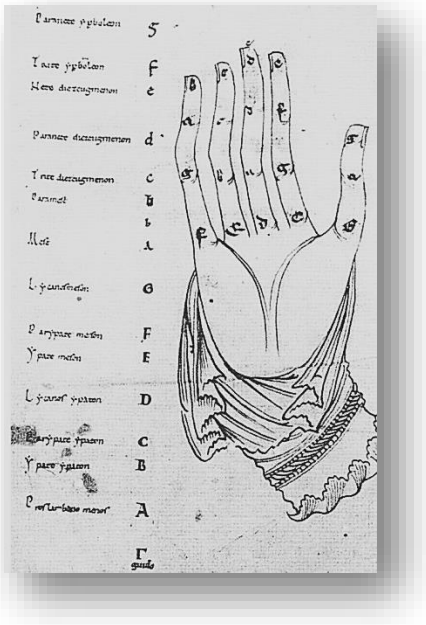
During my research I found three documents from the 12th century where we find a capital letter B: in Chartres (Cathedral, the royal portal), a manuscript in Reims (pontifical of Saint Rémi) and in Santiago de Compostella (portal of Glory).

It is important to remember, that those sound hole profiles were created by the Moissac masters to indicate the correct placement of the bridge. Here again the general catalogue of the rich patterns of Moissac

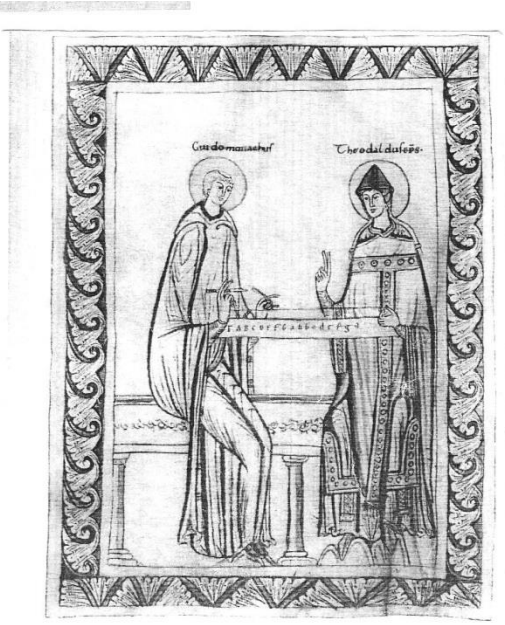


Here you see a detail that is important in Santiago de Compostella. The holding of the instrument is perfectly plausible for the proper positioning of the bridge.

Here some illustrations of music education, Guido's hand (Guido D'Arezzo) on which the notes are written as a memory jogger, and the monochord, a perfect learning tool. You notice the names of the notes: A B C D E F(S) G.



Here is a representation of Guido D'Arezzo who teaches his lesson with a monochord instrument.



Guido D'Arezzo utilised this little resonance case on which a string was stretched, which allowed him to explain the correct placement of notes.
For example, if you position a little bridge in the middle of the string, this will result in an interval of an octave (1/2) between the sound of the empty string and the string divided in two.

I mentioned before that the motifs of Moissac would spread around over the time periods and countries. I only looked at traditional documents that were taken from sculptures and paintings, a body of hundred documents. Motifs that were the most successful were: the "flamed" C, the S and the signature of the Moissac master, and the simple C …

	B	C	C	C	S	S	S	S	S			S									
XIIème s.	3			1			1			2		2	2	1	1						
XIIIème s.	1		2			3			3		3	3				1					
XIVème s.		3	1				1		4				2	1			1				
XVème s.		3	1	1		2	2		2			2									
XVIème s.		3	3				6	1	1			2						1			
XVIIème s.		1	3		3	1	4					1						1	2		
XVIIIème s.			6		1		2	1												2	1
	4	10	16	2	4	6	16	2	10	2	3	10	4	2	1	1	1	2	2	2	1

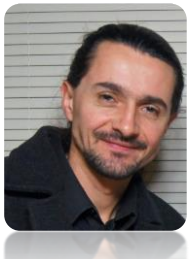
You see here that the same motifs first spread through countries close to each other: Spain, Germany, Italy – which is logical and confirms how the dissemination happened in reality.

	B	C	C	C	S	S	S	S	S			S									
France	3	2	8	1		1	3	1	2	1	3	8	1								
Angleterre			1				2		3	1								1			
Espagne	1		1			3															
Allemagne		4	2		2	1	2		1				2	1					1		
Yougoslavie									1												
Autriche		1					1									1			1		
Italie		1	1	1	1		4		3			2					1				
Tchécoslovaquie		1					1	1												1	1
Suisse													1								
Pays-Bas		1																			
Flandres						1															
Belgique			1				1														
Pologne					1																
Divers			2				2							1	1			1		1	
	4	10	16	2	4	6	16	2	10	2	3	10	4	2	1	1	1	2	2	2	1

We note the appearance of some new motifs, whereby we understand that they were not very successful.

Finally, I need to tell you about the colouring of the tympanum. We know that the colours used in the 12th century were based on minerals and plants.

It is highly likely that the sculpture of Moissac was coloured and I would like to commend the remarkable colouring work of Roland Buc.

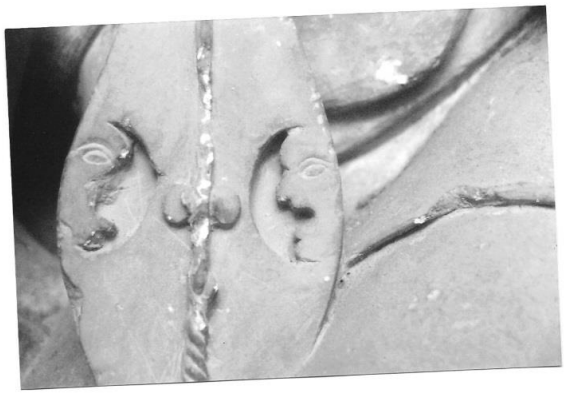


Roland BUC

Some sites testify of the colours used in the past. For example in Conques there are rests of rose and blue colours, or Santiago de Compostella, where two over-paintings covered the original painting of 1188.

I would like to conclude this presentation….

with a twinkle of an eye that is 900 years old.



Here is the most original sound hole presented in Moissac. I have hidden it from you until know. It's a representation of a grotesque figure.

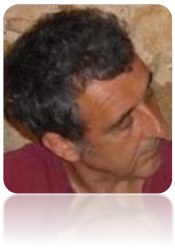
It had its counterpart on the left side of the instrument, but as you can see, this part has been damaged. We often find this type of camouflaged face in the decor of illuminations.

I hope I could convince you about the archaeological-musicological richness of the Moissac tympanum. Moissac is truly a lesson of medieval lute playing. The master of Moissac is a real sculptor of lute playing.

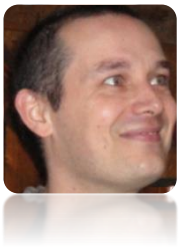
The instruments of stone that are there can be seen as fossil instruments.

You agree with me that this site is well deserved as a study as it deserves its rehabilitation. Thus, it was natural to reproduce some of the studied instruments.

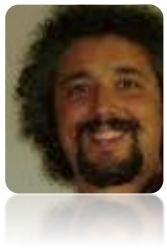
My thanks go to Michel Lasret and Luc Castangé for their kind help in reconstructing of fiddles (vièlles), and I'm thanking Christian Clavère to let us hear the sound of these instruments to continue our travel "from stone to sound". You can ear on andrecalvet.com (free download).



Michel LASRET



Luc CASTAGNÉ



Christian CLAVÈRE

This concludes my presentation and I thank you for your attention. Of course I am here to answer your questions…

A number of different questions:

- *How long has it taken you to conduct your research? –*

About 5 years, between 1994 and 1999.

- *What gave you the biggest pleasure? –*

This study allowed Piou and me to travel: museums, the pilgrims' path of Compostella (by car), the national library of Paris, various documentation centres, etc. It was most of all a human adventure that allowed me to get in touch with other researchers and not insignificant ones too, other authors like Pierre Bec for the philology, Jean Dufour for the palaeography …musicians and lute players specialised in "ancient" instruments, who revive those instruments of the past. The joy was of course complete once we discovered the origin of the sound holes, because this reality is of universal value. This was an incredible opportunity! Finally, as I wrote before:

doing research is a game, finding is a chance, and sharing it is happiness.

*Dédé, can you tell us how you have manufactured the instruments with your friend? – We have rigorously copied the form from the instruments of the tympanum by respecting different pieces of information: The passage of the strings through the head, the tailpiece, the attachment, the motifs of the sound holes, etc. We even followed the design of the clove hitch (*le nœud de cabestan) *that I mentioned before and which is attaching the tailpiece. That not that you saw in the picture only measures about a centimetre in the sculpture. This is work of a goldsmith.*
In terms of wood we used timber from the surrounds of Moissac (linden, walnut, maple ...). For the strings we used the small intestine of a lamb, a technique still used in Africa, in the Maghreb and in central Europe.


From stone to the wood…


From stone to sound…

- *What are you researching at this point in time? – I am doing some work on the art of well-tempered sound. This study is about various tuning systems for key instruments.*
- *How long do you think you will work on this new research topic? – I started 33 years ago. I think I will still take between 500 and 1000 hours approximately. In fact at this stage I work on a program that one day you can put into your smartphones i-pods as an application to tune your piano instruments, like for example they were supposedly tuned by J.S. Bach. If we don't reach this goal, it doesn't matter. At least we have tried.*

Thank you so much Dédé,
for your amazing presentation to the members of the steelband
"Pans on Fire"!

The book "*De la pierre au son / Archéologie Musicale du Tympan de Moissac* », (Editions Accord. Toulouse. 1999) received in 2001 the Gaston BENAC prize (three-year & international prize) of the documentary book. Available and downloadable free of charge on : **www.andrecalvet.com**