

**Historical background, structural characterization and repertoire constitution
with the creation of Sixxen by Iannis Xenakis. ¹**

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Abstract - Different composers and compositional schools have contributed to the percussion literature, creating new possibilities and interpretative challenges. The composers' search for new sound possibilities and specific timbres boosted the research and development of new percussion instruments, Iannis Xenakis being one of many examples of such a composer. This article seeks to outline and discuss the definition, the historical overview, structural characteristics, diffusion and the repertoire composed for the Sixxen. The definition of such an instrumental type is challenging and takes the perspective of questions about its peculiar ontological characteristics. Does it exist as a single instrument? A six-part instrument? Six instruments associated in a poly-instrumental set? With regard to the historical aspects points will be presented that characterize the creation of the first Sixxen set, due to the composer's relationship with *Les Percussions de Strasbourg*. A review of the Sixxen sets around the world (currently numbering 43 prototypes) will be presented. They have been constructed by universities, conservatories, formed groups or particular interests in 18 countries. Four companies have already studied the prototype's development for commercialization, and three of these brands were related directly to Xenakis and *Les Percussions de Strasbourg*. The repertoire expanded with the construction of different units and requests from the percussion community. The repertoire that came into existence after *Pléiades*, which is made up of parts for sextet but also smaller formations, will also be discussed and related to other instruments, solo, with electronics, among others. This paper will bring into being an extensive documentation on an important instrumental creation of the 20th century.

Key-words: Sixxen, Pléiades, Iannis Xenakis, Percussion.

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Introduction

Composed in 1978 by Iannis Xenakis, *Pléiades* is his second direct collaboration with *Les Percussions de Strasbourg*. Ten years after *Persephassa* (1969) - his first composition for the French sextet - Xenakis writes a work of grandiose proportions. HARLEY (2004) claims that at around 50 minutes long, *Pléiades* is Xenakis' second largest instrumental piece, just after the 75 minute *Kraanerg*.

Pléiades is divided into four movements (*Peaux*, *Métaux*, *Claviers* and *Mélanges*). As is the case with many other percussion works by Xenakis, it is a fundamental piece in the instrument's repertoire. The four movements can be played in different orders, though certain sequences are suggested by the composer. The piece uses three basic groups of instrumental timbres: drums, keyboards and an invented metal instrument, the Sixxen. Three movements utilize only one type of instrumental timbre: *Peaux*, which is written exclusively for skins; *Claviers*, for percussion keyboards - including 3 vibraphones, marimba, xylophone and xylorimba; and *Métaux*, which only utilizes the Sixxen. The movement *Mélanges* (from the French word 'mixtures'), is the only one where the three different types of instrumental timbre are joined together.

There are a few academic sources about *Pléiades*. Specific analytical questions are addressed in LACROIX (2001) - who makes a historical contextualization and analyzes the movement *Claviers*, HARLEY (2004) - who conducts a broader analysis of the work correlating it to other works by Xenakis, and MARANDOLA (2012) - who makes an interpretative analysis of the movement *Peaux*. For more details on the compositional and mathematical theories that Xenakis uses in this work, one can consult his book *Kéleütha* (XENAKIS, 1994).

The work was commissioned to be premiered with ballet. The website of *Les Percussions de Strasbourg* provides a few details:

Iannis Xenakis (born in 1922) wrote « Pléiades » during the years 1978 to 1979 on a commission from the City of Strasbourg. This work was performed for the first time by Les Percussions de Strasbourg at a concert with the Ballet du Rhin 3rd May 1979. The Pléiades' title refers to the six members of the Percussions de Strasbourg. But for Xenakis, the reference to the multiplicity of existence seems more important. (LES PERCUSSIONS DE STRASBOURG, s.d.).

In north-america, the US premiere took place on November 10, 1981 by the Oberlin Percussion Group at Oberlin College under the direction of Michael Rosen, with the presence of Xenakis in the audience (NEWS, 1982). Nexus gave the first performance of the work in Canada.

Building Sixxen - whose name references the Strasbourg percussionists (SIX) as well as the composer (XEN) - is thus a *sine qua non* condition for the performance of *Pléiades* in its entirety. And though it has been almost 40 years since the work's premiere and the design of the first Sixxen, there is still relatively little written data and information about the piece or the instrument, and they certainly deserve more academic attention. Many percussionists, musicologists, theorists, aestheticians and musical historians research and analyze theoretical and practical relents of Iannis Xenakis' music. However, no work has been devoted exclusively to data collection, recording of data and discussion of Sixxen today. Some questions remain unanswered as well: How many prototypes of Sixxen have been built? Who built them? What are their characteristics? Is *Pléiades* the only work for this instrument? What are the historical aspects that characterize the construction of the first Sixxen and what was Xenakis' relationship with *Les Percussions de Strasbourg* during the construction of the Sixxen?

Thus, in order to conduct a historical overview, discuss the dissemination, the ontological and structural characteristics, as well as the repertoire composed for the instrument, this article discusses the Sixxen through an extensive bibliographical and documental review (including sound recordings, photos, digital media, several sources and files) to weave an understanding of the relevance of the instrument in the history of the 20th and 21st century.

Sixxen: the Xenakian Definition and Conceptual Foundations

On the first page of the complete score of *Pléiades*, Xenakis addresses some questions about the Sixxen in his own words:

The second essay was to have a new metallic instrument built, called the SIX-XEN, comprising nineteen irregularly distributed pitches with steps of quarter-tones or thirds of tones or their multiples. In addition the six copies of the instruments taken as a whole should never produce 33 unisons. As far as the first question is concerned, after long trial I constructed a series (scale) which, surprise!, was similar to the scales of ancient Greece, of the Near East or of Indonesia. However my scale, unlike these traditional scales, is not based on the octave; it possesses internal symmetries and manages to cover the total chromatic space in three consecutive copies (periods), thus enabling it to create by itself, without any transpositions, supplementary harmonic fields when polyphonic superpositions are made." (XENAKIS, 1979).

It is clear that Xenakis' description gives some generic information, but lacks detail, providing few structural specifications of how this instrument should be built. The few indications by Xenakis in the score leave many possibilities for interpretation. Composer Philippe Manoury brings some important considerations:

Nevertheless, in the present state of things, we can say several things. First, that the quite inharmonic nature of their sound makes it difficult to define the quarter tones that Xenakis wanted. The inharmonicity, as we know, takes away the sensation of the fundamental pitch. These instruments consist of 19 pitches grouped in six sets (hence the name six = 6 and xen = Xenakis) and would be "theoretically" all supposedly "tuned" on a scale in minor third, the second sixten sounding a quarter tone above the first and the third sixten a quarter tone above the second, etc. The total range, starting from the first note of the first sixten (the lowest) to the last of the sixth sixten (the highest) would then cover an octave plus a major sixth. For the sake of notational convenience, these instruments are arranged as keyboards similar to the pianos, therefore from F3 up to B4. Of course, the played bars do not correspond to these notes. (MANOURY, 2012).

Moreover, Xenakis leaves a series of elements at the discretion of manufacturers: the choice of the metal being used, the timbre and pitch of each bar, the resulting ranges of desired notes for each unit, the size of the bars and the instrument body, the arrangement of notes, how each note is attached to the body of the instrument, the presence or not of a damper mechanism, the necessity of additional structures such as resonators or the like. Still, according to REED (2003), based on the sampling of the available recordings of Pleiades, the construction instructions given by Xenakis produces instruments with sufficient enough similarity to be recognized as the same type of instrument, although each reflects its own sonic identity. Manoury corroborates this statement:

One can imagine that different sixten sets can sound different (which is also the case in reality because, as I explained, the instruments are absolutely not standardized) while playing a musical structure that will keep its formal consistency whatever the nature of the pitches which constitute it. (MANOURY, 2012).

Manoury exposes some more evidence about their tuning features:

The "individual" nature of these instruments that do not merge together is very convenient in the case of polyphony and polyrhythms. Indeed, the simultaneous perception of the layers is reinforced by the fact that the lines will not meet around common lines but, instead, assert their independence. The consistency is then to be found in a different area than the harmonic pitches, as

is the case in the use of “classical” instruments, here it is the rhythmic treatments and the relation between figures that will ensure this function (MANOURY, 2012).

Thus, we see the peculiarity of a tuned “instrument” with subtle microtonal differences but which is designed as an ensemble instrument. It should be built in six units that have slightly close tunings yet are relatively distinct from each other, creating friction due to these differences in frequencies.

Robin Engelman cites - in a footnote of his personal website - some statements from Xenakis on the Sixxen:

But the SIXXEN is not yet fully satisfactory. It would be desirable to construct a new one. This is its description: each one of the six percussionists use 19 metal pieces (made of brass, steel, etc) of approximately the same timbre. It is highly desirable that the timbre be a really interesting metallic one. By interesting I mean astounding, strange, full, resounding, and without too much reverberation, so that the minute rhythmical patterns be clear for the audience. These 19 metal pieces should be tuned to produce 19 pitches but which should absolutely not form an equally tempered scale. The whole range of the 19 pitches is arbitrary and should depend on the available pieces. However, this range should be nearly the same for all the six percussionists and placed within the same extremes of pitch. This means that for a given pitch out of the 19, and for any of the six SIXXEN, the other 5 corresponding ones must not form unisons. The deviation could be slight but should still be noticeable. (ENGELMAN, 2010).

The Xenakian concept thus shows an idea of sound totality in the sense that the characteristics he desires are put into evidence across the entirety of the six instruments, with each unit having particular and specific features. He does not seem to conceive of the Sixxen as six instruments put into action together, but instead, as a whole unit consisting of six interdependent, intricate and related parts, each being played by a different musician. The full set is called Sixxen here (with a capital S) in contrast to the individual instruments, which we will call units or sixxens (with lowercase s). It is the confluence and simultaneous performance on these six units that gives meaning to all of them, as well as giving the desired result, the phenomenon of entirety.

When Xenakis called for SIX-XEN, he was referring to a unit (as follows stating that “comprising nineteen irregularly distributed pitches with steps of quarter-tones or thirds of tones or their multiples.”) but soon following he specifies that it is with the entirety that the desired effect will be produced (“In addition the six copies of the instruments taken as a whole should never produce unisons.”). So, Xenakis refers to Sixxen as an inseparable and interdependent set with six non-exact pitch copies. This subtle difference in

concept may change the analytical perspective of later repertoire and show the change from Xenakis' original concept that occurred when other composers began to write for sixxen solo or chamber music using only a sixth (one unit), a half (three units) or parts of the original set.

The definitions and ways to describe the Sixxen are diversifying; according to STILLITANO & SIMON (2013), one can describe the Sixxen as an instrument “consisting of a series of tuned metal flat bars on a quarter-tone scale and shared between six keyboards, covering the scope of nearly two octaves.” The authors also claim that the sticks used are “vibraphone mallets” or “gong / tam mallets”. Xenakis did not mention that the material should result in flat bar, although this was the result that he approved for *Les Percussions de Strasbourg*. He also didn't discuss which sticks should be used. He was restricted instead to define the material source (metal) and to describe aspects related to the frequencies. Still, the authors above conceive of the totality of the keys as a gigantic scale that is divided into six units (“six keyboards”), very close to the Xenakis' considerations.

On a website related to an event in The Hague (Netherlands) it is described as follows:

The instruments all consist of nineteen metal plates with the SIXXEN all microtonally differently tuned. The piece itself is based upon shifting of tempi, with the six SIXXEN eventually coming together. As I understand the six SIXXEN should be regarded as one instrument. (DAY OF PERCUSSION, 2012).

On another website: “For Pleiades Xenakis invented a type of metal vibraphone, the Sixxen...”. (WANDERER, 2013). And in another:

The 19-note microtonal metal instrument, similar in appearance to a marimba, was designed to bring out the clashing harmonic overtones between notes. The effect is clangorous and mesmerizing. (LESNIE, 2012).

These two concepts approach the Sixxen as a percussion keyboard (and was even called a vibraphone and compared to a marimba), but Xenakis never said this instrument would fit into that category. He didn't necessarily think it would be a new kind of percussion keyboard, even though the original model was built like that.

The ensemble *Clocks in Motion* defines it as follows:

Sixxen are made up of six 19-pitched metal keyboards. Each of the six keyboards are not exactly in tune with one another, but are always within 3/4 tones of each other. The result is a sort of messy non-repeating scale. The sixxen are extremely loud and resonant. A variety of mallets and implements sound good on sixxen. (CLOCKS IN MOTION, 2015).

This group also conceives of the Sixxen as a percussion keyboard instrument and leaves complete freedom to the composer with regard to sticks used, amount of units and composition with other instruments for new works for the group.

The composer Philippe Manoury also considers it a keyboard, inserting two movements sextet Sixxen in *Le livre des claviers*. For the composer, moreover, the construction of new acoustic instruments like the sixxens permitted him to tackle new scenarios in the sense that the notion of pitch is no longer predominant, but rather, it becomes more complex.

According to the members of the group Third Coast:

Although Sixxen are set up like a marimba or vibraphone in many ways, they are not standard instruments and cannot be purchased anywhere in the states. So it's up to us to build the instruments from scratch.

Just like a marimba or vibe, they look a bit like a piano with "white keys" and "black keys" all laid out horizontally. The major difference is that each Sixxen is purposefully *slightly* out of tune with every other Sixxen. When all six instruments play together, these slight difference result in a kaleidoscopic whirl of competing resonances that when experienced live create a sound that is so thick and vibrant one feels as if you could almost reach out and touch it. (THIRD COAST, 2010).

ENGELMAN (2010) still recalls some facts about the first time he played the work:

My first encounter with *Pleiades* was in the early 1980s in Walter Hall of the University of Toronto. Xenakis was the featured composer on flutist Bob Aitkin's New Music Concerts.

I believe our performance in Toronto was the Canadian premiere. The work is 43 minutes in duration and besides drums, marimbas and glockenspiels, *Pleiades* requires six instruments [...]

If memory serves, Xenakis' description of Sixxen was vague. Each Sixxen was to consist of 19 slightly out of tune metal bars pitched within a tessitura similar to each, but avoiding unisons. The father of a percussion student at the University of Toronto faculty of music worked in a foundry about 45 miles north of Toronto. He made these instruments free of charge and delivered them to Walter Hall.

They arrived covered with oil, grime and metal filings. By the time they were unloaded and ready to be played, our hands were filthy. We rehearsed and I remember very little about the piece except that it was brutally loud, very difficult to play and its pages black with notes. [...] Many years later I learned that Xenakis had objected to the original Sixxen built by the Strasbourg Percussion Ensemble and indeed, to every Sixxen built during his lifetime.

Historical considerations on the first Sixxen built

To Jean Batigne, “To reech Xenakis is something very important. It is going toward history.” (BATIGNE, 1981). This became less metaphorical and more concrete with the first collaboration between his group, *Les Percussions de Strasbourg*, and the composer. When Batigne asked Xenakis to compose the first piece for the group, he answered “When I write to you this will be a keystone piece for percussion” and thus emerged *Persephassa* in 1969 (BATIGNE, 1981), premiered in the Persepolis ruins during the first Shiraz Festival. Nothing could be more emblematic and representative.

Situer Xenakis, comme je l’ai dit en commençant, c’est le rencontrer. Et pour rencontrer quelqu’un il faut faire la moitié du chemin alors que l’autre en parcourt l’autre moitié. De 1969 à 1979, c’est ce qui s’est passé entre Xenakis et le groupe. [...] Lors de la création de *Pléiades*, j’ai pensé avec mes amis que le chemin de la rencontre était fait. Si l’attitude de Xenakis à la première répétition de *Pléiades* a été la même qu’à Persépolis, nous avons su comprendre et calmer notre propre inquiétude. En vérité, ce qui se passe chez cet homme dans de telles circonstances, c’est qu’il découvre tout à coup le concret de son oeuvre. Alors qu’il ne consulte personne pour imaginer sa musique, il vient écouter... ce que cela donne. (BATIGNE, 1981).

In e-mails exchange about the construction of the first Sixxen and the particularities involving this historic moment, Jean-Paul Bernard said:

To my knowledge I know the existence of two versions of sixxens in this period: first Kolberg without pedal and with another pitch, and the second being that which was accepted by Xenakis. The second version is the current one, the instrument that has been kept and which was built by Robert Hébrard who is great for the construction of wood-based instruments, reeds, new creations... The problem with this sixxen is that it does not respect the tuning imagined by Xenakis. On the other hand I know Iannis loved this instrument because it was rich in harmonics, partials... But finally, as he was a composer always connected to sound research, searching sounds continuously, we tried to seek a new sixxen with the Yamaha firm, that would also be for sale. Unfortunately, despite several of Iannis' trips to Japan, in presenting the new sixxen built by Yamaha, Xenakis still wanted to make changes and the project was abandoned with Yamaha.

Finally, the [Strasbourg's] percussionists still play with sixxens of Hébrard. Philippe Manoury also wrote some very interesting pieces with our sixxens which unfortunately are unique. The Kroumata group wanted to buy the same sixxens with Hébrard but he could not rework them exactly alike!

Manoury made a recording and detailed analysis of the sounds of this Hébrard's prototype when he composed for the group. He claims:

Among the most imaginative instruments that were built during the late 20th century we must include sixxens. [...] This phenomena is all the more interesting that research in acoustics has been, for many years, totally supplanted by electronics. Of course there are many cases where new acoustic instruments were invented (the most famous example is the American composer Harry Partch) but generally the players of these instruments were limited to inventors themselves. Several sixxens' generations were born before the one we know today. There are not yet standardization in these instruments that sound quite differently depending on their construction. From what we know, Xenakis wanted an instrument to be tuned to a quarter-tone scale, and that he had not given a very specific ideas about how he wanted to hear the sound. He wanted just that they do not sound as "classical" which is far from accurate. We know he had imagined they are not metal but very hard porcelain.

Considerations of Manoury are very interesting and important in understanding the 'phenomenon' of the Sixxen. The statement about the fact that Xenakis imagined the raw material to be porcelain appears to raise new questions about his constant sound search, about his constant listening and revision of ideas and possibilities.

About the Hébrard's prototype, Jean-Paul Bernard says:

This instrument (at any rate, the version we possess) is absolutely fantastic, because it is of unprecedented variety: you can play *pppp* or *ffff*, it never saturates and for me, it is important to emphasise this as, sometimes, this is confused with a certain brutalism, whereas in fact we are dealing with exceptional material and tone-colour. (BERNARD *in* BARTHEL-CALVET, 2011).

Manoury gives some more details about it:

The sixxens have a special characteristic. As with any percussion instrument, the dynamic variations resonate different spectral densities: a low level sound will have little partial where a sound of high intensity will have many. In the case of high-harmonicity sounds (such as piano and marimba, for example) the pitch sensation does not vary with the dynamic level because the harmonic nature remains the determining factor for the fundamental pitch perception (the spectral fusion principle). In the sixxens' case, due to their strong inharmonicity, the intensities changes will highlight partials that will not fuse with the fundamental pitch, but in another way, it will produce additional and foreign "colors" to the spectrum of the same note played at a low dynamic. The pitch perception will vary depending on the level of attack sounds. (MANOURY, 2012).

Jean-Paul Bernard claims:

I always had the impression that even if it's a work that has been played for many years, each time it was played Xenakis rediscovered it, in part because of the prototype instrument. (BERNARD *in* BARTHEL-CALVET, 2011).

An Overview of Sixxens Built

The bibliographical and documental research considered the most diverse sources of information (bibliographical sources, periodicals, websites, audiovisual recordings, concert programs, critical notes, recordings, reviews and other means). This included data collection about the quantity of groups that built Sixxen worldwide, and as a result it's clear that, to this date, a total of 43 instruments have been built in various ways and with many different features. The groups catalogued so far and the indexed instruments are located in 18 countries and are shown in summary form in Table 1.

Some instruments may be repeated because of a shared use by different groups. Thus, the prototype of Quenns College and the Talujon group may be exactly the same and the prototype used for the TROMP Laureates' concert may be the same as any other institution indicated in the table or may have been rented.

With these numbers it is noticeable that in little more than thirty years, the production of Sixxen has been consolidated in several countries, but with greater prevalence in the US, followed by France and Germany. It's also observed that most Sixxens constructed have bars made from aluminum, and that there is some preference for the inverted U profile, without resonators tubes or pedal.

Tab. 1) Data organization with information about country of origin, type of metallic material, bars' profile, use of dampers and resonators.

	Country	Constitutive material	Bars' profile		Square tube	Flat bar	Presence of damper pedal	Presence of resonators
			Channel (Inverted "U")					
			Equal sides	Unequal sides				
4-Mallety	England	Aluminium		X				
Academia Cervantina	Mexico	?						
Baylor PG / Line upon Line / Meehan-Perkins Duo	USA	?						
Bell Percussion	England	Aluminium		X				
Bergerault	France	?		X			X	X
Brake Drum Percussion	Italy	1 Bronze set 1 Aluminium set			(X) Alum.	(X) Bronze		
Centre International de Percussion de Genève	Switzerland	?						
Clocks in motion	USA	Aluminium		X				
Conservatoire de Saint Cloud - Eve Payeur	France	Aluminium		X			X	X
Drumming	Portugal	?						
Hörschule für Musik Freiburg	Germany	?						
Hörschule für Musik und Darstellende Kunst Frankfurt	Germany	Aluminium		X				
Joseph Murfin	USA	Aluminium		X				
Juilliard School of Music	USA	Aluminium		X				
Kroumata Percussion Group	Sweden	?						
Kuniko Kato	Japan	Steel			X			
Les Pléiades - Sylvio Gualda	France	?						
Les Percussions de Strasbourg	France			X				X
Martin Grubinger / Percussive Planet	Austria	Aluminium		X				

Tab. 1) Cont.

Neopercussión	Spain	?			
Nexus	Canada	?			
Oberlin College	USA	?			
Percussions des Jardins Musicaux	France	?			
Percussionisten Conservatorium Brussel	Belgium	?			
Peter Sadlo	Germany	?			
Queens College (CUNY)	USA	Aluminium	X		
Roga Percussion Solution	Belgium	Aluminium	X		
Rowan University	USA	?			
Sixtrum	Canada	Aluminium	X		
Slagwerk Den Haag	Netherlands	Aluminium		X	X
SO Percussion / Meehan-Perkins Duo	USA	Aluminium		X	
Stony Brook University	USA	Aluminium	X		
Synergy Percussion Group	Australia	Aluminium and 2 types of Iron alloy	X	X	
Talujon	USA	Aluminium	X		
Tambuco	Mexico	?			
Third Coast Percussion	USA	Aluminium	X		X
Tom Hunter	Scotland	Aluminium	X		
TROMP Laureates	Netherlands	Aluminium	X		
Typana Percussion Ensemble	Greece	?			
UC San Diego - Red Fish Blue Fish	USA	Aluminium	X		
Usine sonore	Switzerland	Aluminium	X		
UT Austin - UTPG	USA	Iron	X		
Yale University Percussion Ensemble	USA	Aluminium	X		

Total = 43

Considerations on the Repertoire for Sixxen after the Work of Xenakis

Groups that have built Sixxen to play *Pléiades* have expanded the repertoire for this instrument. After building the instrument and playing the original work, they have established relationships with composers to commission new pieces. This enlarged repertoire consists of chamber music with other instruments (oboe, flute, trombone and many others), solos, opera music and pieces using all six units or their fractions. The following list (with 19 works in all) is classified in chronological order:

- *Pléiades* (1978) – Iannis Xenakis (*Métaux* and *Mélanges* movements).
- *Le livre des claviers* (1988-89) – Philippe Manoury: various settings of keyboard percussion, two movements are a sextet of Sixxen.
- *Métal* (1995) – Philippe Manoury: sextet of Sixxen.
- *Interregna* (1998) – Mark Osborn: sextet of Sixxen.
- *Sol* (1998) – Jean-Marc Chauvel: sextet of Sixxen.
- *Répliques* (2001) – Jean-Louis Agobet: sextet of Sixxen.
- *à.X.* (2004) – Daniel A. Weymouth: septet of Sixxen and oboe.
- *Shadowtime* (2004) – Brian Ferneyhough, opera with a sixxen unit in the multipercussion part.
- *Steel Factory* (2006) – Luis Tinoco, quartet of steel drum with bongos and 3 sixxen pitches (3 bars only).
- *Talea* (2007-2011) – François Sarhan: quartet of 1 sixxen unit, 1 marimba, 1 vibraphone and 1 gong.
- *Venus* (2010) – Rozalie Hirs: sextet piece in three movements with the last one (*Morning star*) specifically for Sixxen and live electronics.
- *X-trum* (2010) – Fabrice Marandola: quartet of Sixxen.
- *Obsolve* (2011) – Isambard Khroustaliou: for multipercussion (with one sixxen), piano, radio and speaker.
- *De l'itération* (2012) - Philippe Leroux: multipercussion sextet with 2 sixxen.

- *S(c)enario* (2012) – Flo Menezes: multipercussion sextet with 3 sixxen.
- *1, 3, 6, 10* (2013) – Giovanni Damiani: a solo for sixxen.
- *Beauty Will be Amnesiac or will not be at all* (2013) – Anthony Pateras: sextet of spatialized Sixxen and six speakers for the electronic part.
- *Lachez Tout ! / Enough Already* (2013) – François Sarhan: multimedia concept and work for theatre, video and chamber group (multipercussion part with 1 sixxen).
- *Night* (2014) – Ben Davis: sextet of 3 sixxen units and 3 multipercussion sets.

The relationship between groups that constructed Sixxen and composers was fructuous and expanded Xenakis' initial idea of beyond certain limits (in terms of instrumentation and the amount of sixxen requested). There was a significant expansion of resources available to performers and composers with regard to instrumental arsenal, timbral aspects and sound possibilities.

Final considerations

This paper has assembled a large amount of information about Sixxen. The amount of prototypes and builders around the world shows the great importance of *Pléiades* and Xenakis to the history of percussion. The data disclosed herein records a part of the history of this instrument, an instrument that has a recent story (40 years soon). Currently it's still possible to make contact with the musicians who worked closely with Xenakis, their experiences should be registered.

More works may discuss new matters relating to Sixxen, other focuses may further extend the considerations about this Xenakian creation. Certainly more existing prototypes will be computed and the future will bring even more models and constructive approaches to solving practical and performative problems. This research will continue and seek to supplement the information missing here directly with the responsible agents.

This article has partly described the Alpha / Beta / Omega history of Sixxens. The symposium theme is represented here by the Sixxen's past, present & future through standard repertoire, interpreters, and performance practices, exploring yet the cutting edge crossroads between percussion and technology and percussion as a multidisciplinary art. Alpha / Beta / Omega is also rich in significances in regards to Xenakis' personality because, as MÂCHE (1981) describes well, he was someone who was fascinated simultaneously by the distant past of the mankind and the universe and by the “formidable terrestrial crisis” of the 21th

century. Certainly is the immense knowledge, wisdom and possibilities found in Xenakis' work has not yet been exhausted. It will live on in the doubts, anxieties, questions, solutions, proposals and sounds of percussive community indefinitely. The history of percussion is represented in the work of Xenakis and Xenakis is a part of the telluric force characteristic of the history of percussion; this "magmatic" relation between Xenakis and Percussion will still be the focus of numerous performative projects, research and theorists who will define new paths and possibilities.

We would like to end this work proposing a website that can gather information about Sixxen, receiving the informations of anothers colaboraters too. The aims of this website are to complement the archiving of information about Sixxen and also providing links and other information to interested parties. The site is www.ronangil.com (in the home page click in the link "Sixxen Project"). This web project aims to build a database and compile references that help percussionists, researchers and interested parties to access information. It can serve too as a repository of information for those who want to send images, program notes and other links. Thus, we try to consider possible future collaborations with other percussionists, institutions and research groups to create a great database about Sixxen.

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