



UKHU PACHA & LA HISTORIA DE NOSOTROS
ELECTROACOUSTIC MUSIC COMPOSITION
PORTFOLIO

by

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ABSTRACT

This composition portfolio comprises two large musical works which explore non-Western musical instruments in electroacoustic music contexts. The *fututos* and the *maguaré*, two fundamental signalling and ritual instruments from the Latin American highlands and rain forests, reside in the cultural collective memory of two native nations as paramount archetypal sounds. Cultural values around the instruments such as symbology and ritual functions were analysed whilst constructing the contextual soundworld that hosts the material within the works.

Two large electroacoustic works, *ukhu pacha* and *La historia de nosotros*, are based on archaeological, historical, literary and mythological sources from different South American historical and geographical locations.

All sharing octophonic setups as a common multichannel format, the works display a variety of media configurations, including works for fixed audio media, mixed and instruments with live electronics. The accompanying commentary on the pieces focuses on a discussion of their musical and referential relation to their sources. Likewise, detailed musical analysis of certain compositional strategies is presented.

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to Cata, my parents and family (my main pillars)...

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LIST OF DEFINITIONS AND ABBREVIATIONS

- *Ámbil*: Tobacco paste.
- *Caucho*: rubber.
- Entheogen: A chemical substance, typically of plant origin, that is ingested to produce an altered state of consciousness for religious or spiritual purposes.¹
- *Firisai*: Seed shakers / rattles.²
- *Fututo / Waylla Kepa*: Conch shell horns found in a number of locations in South America.³

¹ 2013 Online Oxford Dictionary of English. www.oxforddictionaries.com.

² YÉPEZ (1982), 44.

³ HERRERA (2010).

- *Maguaré* (*Juai* or *Juai-rai* in Nipode): Originally from the Amazon region, the *Maguaré* or *Manguaré* is a percussion idiophone consisting of two large wooden cylinders made out of hollowed trunks, and performed using two beaters covered with rubber.⁴ The *corabiki* is a version of the *Maguaré* that is smaller in size (and in symbolic value).⁵
- *Maloca*: Traditional Amazonian collective house, 'axis of social life, temple of the rituals and mosaic of the symbolisms, is the place where all activities and cultural activities of the Huitoto take place'.⁶
- PAC: Peruvian Amazon Company.
- *Poietic(s)*, *Esthetic(s)* and the *Neutral level*: 'One takes the whole nature of musical meaning into a *tripartition* process of analysis (dimensions of symbolic phenomenon): '*poietics*, the analysis of the neutral level and *esthetics*. *Poietics* is defined as [the description of] the link among the composer's intentions, his creative procedures, his mental schemas, and the result of this collection of strategies. [...] By *esthetic*, [is understood] the description of perceptive behaviours within a given population of listeners'.⁷ Finally, the neutral level (the trace), is defined as an analysis realised upon the 'material reality of the work (its live production, its score, its printed text, etc.) - that is, the physical traces that result from the *poietic* process'.⁸
- *Siringa*: *Hevea brasiliensis*, commonly known as rubber tree.
- *Soundscape*: 'An environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society. It thus depends on the relationship between the individual and any such environment. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an artificial environment'.⁹
- *Soundwalk*: 'A form of active participation in the Soundscape. Though the variations are many, the essential purpose of the *soundwalk* is to encourage the participant to listen discriminatively, and moreover, to make critical judgments about the sounds heard and their contribution to the balance or imbalance of the sonic environment. In order to expand the listening experience, *soundmaking* may also become an important part of a *soundwalk*. Its purpose is to explore sounds that are related to the environment, and, on

⁴ URBINA et al. (2000), 43.

⁵ YÉPEZ (1981)

⁶ TAGLIANI (1992), 9.

⁷ NATTIEZ (1990), 92.

⁸ *ibid*, 15.

⁹ TRUAX (1999)

the other hand, to become aware of one's own sounds (voice, footsteps, etc.) in the environmental context'.¹⁰

- *Yadico*: Large carved wooden tree trunk rhythmically struck towards the floor by the community of men, using their feet, making the maloca resonate during the ritual.¹¹
- *Yuca* (yucca): cassava.
- *Yagé* (*ayahuasca*): A tropical vine of the Amazon region, noted for its hallucinogenic properties.¹²

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¹⁰ TRUAX (1999)

¹¹ YÉPEZ (1981)

¹² 2013 Online Oxford Dictionary of English. www.oxforddictionaries.com.

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1. INTRODUCTION

This document presents an analytic commentary related to two works composed as a major part of my PhD research in Electroacoustic Music Composition at the Music Department of the University of Birmingham, United Kingdom, under the supervision of Dr. Scott Wilson, between October 2010 and September 2013.

ukhu pacha, a fixed audio media multichannel piece (8.0 system) of 21 minutes' duration, is based on archaeo-musicological research on conch shell horns as paramount signalling and ritual instruments in the Chavín de Huántar historical context.

La historia de nosotros, a cycle of 80 minutes' duration, is composed of four 20-minute pieces combining instrumental, fixed audio media and live electronics. The work takes as its point of reference mythological and historical sources from the Huitoto nation, an Amerindian ethnic group based in the Amazon.

The document discusses not only the nature of the quoted musical and text sources but also comments on the consequences of including such material in each case.

Likewise, a number of descriptive analyses covering a selection of technical procedures alongside the compositional systems used in all the pieces has been undertaken, placing special emphasis on discussing the rather idiosyncratic nature of the pre-compositional schemes in praxis, and their effect as determinant shapers of the musical output.¹³

¹³ All the analytical and pre-compositional schemes are accompanied by larger versions as an appendix when necessary.

2. UKHU PACHA

Fixed audio media (8.0 multichannel format).

Duration: 21:12.



Figure 1: Voice of a deity out of a conch shell from the *Tello Obelisk* (detail).¹⁴

'ukhu pacha: pathways of the underground world by which deceased were believed to be on pilgrimage (it was transformed into [the concept of] "catholic hell" by the colonial clergy)¹⁵

2.1.Context

ukhu pacha, inspired by pre-Columbian conch shell horns,¹⁶ reflects the interest in exploiting particular symbolic archetypes in their role as agents of cultural transmission. The work, based on prototypes from South American archeo-musicology, brings to light not only the acoustic characteristics of the *fututos* or *waylla kepa*, but also takes into account their particular socio-cultural roles.

The interest in making reference to pre-Hispanic cultures in 20th century music as a tool for cultural belonging can be identified in Latin America in cases such as Heitor Villa-Lobos' ballets-symphonic poems *Uirapurú*¹⁷ (1917) and *Amazonas* (1917); Carlos Chávez' *Xochipilli*¹⁸ - An Imagined Aztec Music - (1940) or Alberto Ginastera's *Panambí* (1935-37) and *Popol Vuh*¹⁹ (1975-83). In more recent examples, Cergio Prudencio, Mesías Maiguashca or Coriún Aharonián, amongst many others, share similar positions. Likewise, contemporary Colombian composers such as Jesús Pinzón Urrea, who attempted to 'integrate Indian music from the Colombian Amazon [...] in his cantata *Goé Payarí* (1982) or *Bico amano*, based on [a] Huitoto legend'²⁰ or Jacqueline Nova with her *Creación de la*

¹⁴ DOYON-BERNARD (1997), 17.

¹⁵ JACOBS (2007), <http://aulex.org/qu-es/>

¹⁶ In South America, they are known as *Fututos* and/or *Waylla Kepa*. HERRERA (2010).

¹⁷ Specially *Uirapurú* serves as a clear example of Villa-Lobos' interest in establishing himself as a [Brazilian] national composer by basing the piece on 'a legend involving an enchanted bird from the Amazons, considered by the Indian worshipers to be the king of love'. BÉHAGUE (2013)

¹⁸ A chamber piece requiring a 'variety of Indian drums, among them the teponaxtle, a wooden a two-tongued wooden slit-drum, and the huéhuetl, a large upright drum, as well as rasps made of wood and of bone, and a trombone simulating the conch trumpet' PARKER (2013).

¹⁹ The *Popol Vuh* is based on Mayan creation story, whilst *Panambí* 'conjoined indigenous elements with what were then radical references to Stravinsky and serial technique'. SCHWARTZ-KATES (2013).

²⁰ BÉHAGUE et al. (2013)

Tierra, an acousmatic work based on Earth creation chants from the Tunebo Indians²¹, and more recently Ana María Romano in *Sin coincidencias I - silencio* (2004) have commonly embraced these concerns.

2.2. The piece

2.2.1. General remarks - The symbolic value

Since art is timeless, the significant rendition of a symbol, no matter how archaic, has a full validity today as the archaic symbol had then. Or is the one 3,000 years old truer?

Adolph Gottlieb and Mark Rothko (with Barnett Newman).²²

Canadian composer R. Murray Schafer argues that the horn, long before being conceived as a musical instrument, was a tool of communication through coded systems extending by these means the reach of the human voice.²³ 'The first horns were aggressive, hideous-sounding instruments, used to frighten off demons and wild animals; but even here we note the instrument's benign character, representing the power of good over evil, a character which never deserted it, even when it began to be used as signalling device in military campaigns'.²⁴ Accordingly, it has been stated that the recurrent use of this type of sound signal generates an *acoustic profile*, understood as the areas over which a signal may be heard; they define acoustic community boundaries. These acoustic communities, behaving as systems in which sound plays a predominant role in defining the self, are further defined in spatial, temporal, social, cultural and especially linguistic terms.²⁵

By evoking community demarcation through the reiteration of the sound of the *fututos*, *ukhu pacha* makes allusion to a theocratical soundscape, similar to the acoustic profiles demarcated by the bells of a church or the call to prayer of a mosque (*adhan*), bringing to light the dominant religious institutions of the community.²⁶ Given their ability to generate considerably high sound pressure levels (especially in ensembles), as well as their relative

²¹ ROMANO (2002)

²² DOYON-BERNARD (1997), 9.

²³ SCHAFER (1994), TRUAX (2001), HERRERA (1999), BHAT (1992)

²⁴ SCHAFER (1994), 165.

²⁵ TRUAX (2001), 66.

²⁶ *ibid.*

harmonicity,²⁷ *fututos* and equivalent instruments have been favoured as signalling and ritual instruments to a great extent by a diversity of cultures throughout history.

Widespread civilisations located around the world such as those in the Indian peninsula, the Tibetan mountains, the Philippines archipelagos, the Yucatan gulf or the highlands of Peru, to mention but a few, have used this instrument in their ritual ceremonies.²⁸

Schafer again notes: 'The sounds of the environment have referential meanings'.²⁹ The conch shell horn, while assuming its *signalling* function, conveys specific meanings and stimulates the community to react in certain codified ways. According to the *2013 Oxford Dictionary*³⁰, the word *signal* denotes 'a gesture, action or sound that is used to convey information or instructions [...]. Signs take form of words, images, sounds, [...] but such things have no intrinsic meaning and become signs only when we invest them with meaning. [...] Anything can be a sign as long as someone interprets it as *signifying* something - referring to or standing for something other than itself.'³¹ Philosopher and logician Charles Sanders Peirce understands this concept in terms of a triadic relationship between 'the *representamen* (the form the sign takes), an *interpretant* (the sense made of the sign) and the *object* (something beyond the sign to which it refers, a referent)³². Music semiotician Jean-Jacques Nattiez further defines the sign in terms of 'anything which is related to a second thing, its object in respect to a quality, in such a way as to bring a third thing, its interpretant, into relation to the same object, and that in such a way as to bring a fourth into relation to the same object in the same form, ad infinitum'.³³ In addition, it is stated that 'a sign, or a collection of signs, to which an infinite complex of interpretants is linked, can be called a symbolic form.³⁴ Furthermore, it is said that a sound is symbolic once it 'stirs in us emotions or thoughts beyond its mechanical sensations or signalling function[s]'.³⁵ Certain sounds, however, have the intrinsic power unconsciously to arouse intense human feelings, deeply affecting personal emotions. These types of sounds, mostly either related to natural forces or having divine connotations, tend to be culturally

²⁷ Harmonicity: 'A property of a sound when its partials are integral multiples of the real (or imaginary) fundamental'. WISHART (1996), 58.

²⁸ RATH and NAIK (2009), BHAT (1992), MOYLE (1975), HERRERA (2010), CIVALLERO (2008).

²⁹ SCHAFFER (1994), 169.

³⁰ *2013 Online Oxford Dictionary of English*. www.oxforddictionaries.com.

³¹ CHANDLER (2007), 7%.

³² *ibid*, 11%.

³³ NATTIEZ (1990), 6.

³⁴ *ibid*, 8.

³⁵ SCHAFFER (1994), 169.

ubiquitous. The psychological power accompanied by the special mood or “aura” behind these sounds, known as “archetypal sounds”, tend to be strongly retained in the collective memory of a diversity of cultures. ‘Some level of explanation for their effect exists because there are always comparisons to human features or those of the natural soundscape, with their age-old associations, but ultimately a sound that functions symbolically achieves its power because of its simultaneous uniqueness and universality’.³⁶ These archetypal sounds ‘are inherited, primordial patterns of experience, reaching back to the beginning of time’.³⁷ ‘The conch shell is one of the earliest wind instruments found in nature’.³⁸ The *fututos*, not only because of their deep and harmonic sound, but also because of their denotative relation to water - and, even more specifically, to the sea - heighten the mystical associations given to this archetypal sound. In the case of the Andes, their importance has been stressed because of their constant association with luxury and lushness linked to their oceanic provenance. This association with the sea, and by extension, to the survival of fundamental social activities such as agriculture or livestock through the natural cycles of water, has, throughout history, imbued these instruments with a rich symbology.³⁹

ukhu pacha develops these principles by means of articulating a network of acoustic signs which, altogether, make reference to a particular physical and ritual environment embodied in one of the most predominant pre-Inca cultures, known as the Chavín empire. ‘The term Chavín, derived from the site of *Chavín de Húantar*, has [...] been used to denote an art style, an archaeological period, a “horizon”, a “culture”, a “basic root culture”, a civilisation, and an empire’.⁴⁰ The Chavín influence embraces two important dimensional frontiers: a time based unit, spreading from ca. 900 to 200 BC and a geographic dimension encompassing most of modern Peru, spreading north towards southern Colombia, and south to cover parts of the territories of both Chile and Bolivia. With its political and theological capital located nearly 3200 meters above sea level in the Mosna Valley (Peru), *Chavín de Húantar* holds unique emblematic symbols appertaining to this civilisation.

³⁶ TRUAX (2001), 114.

³⁷ SCHAFFER (1994), 169.

³⁸ RATH (2009).

³⁹ HERRERA (2010).

⁴⁰ WILLEY (1951), 103.

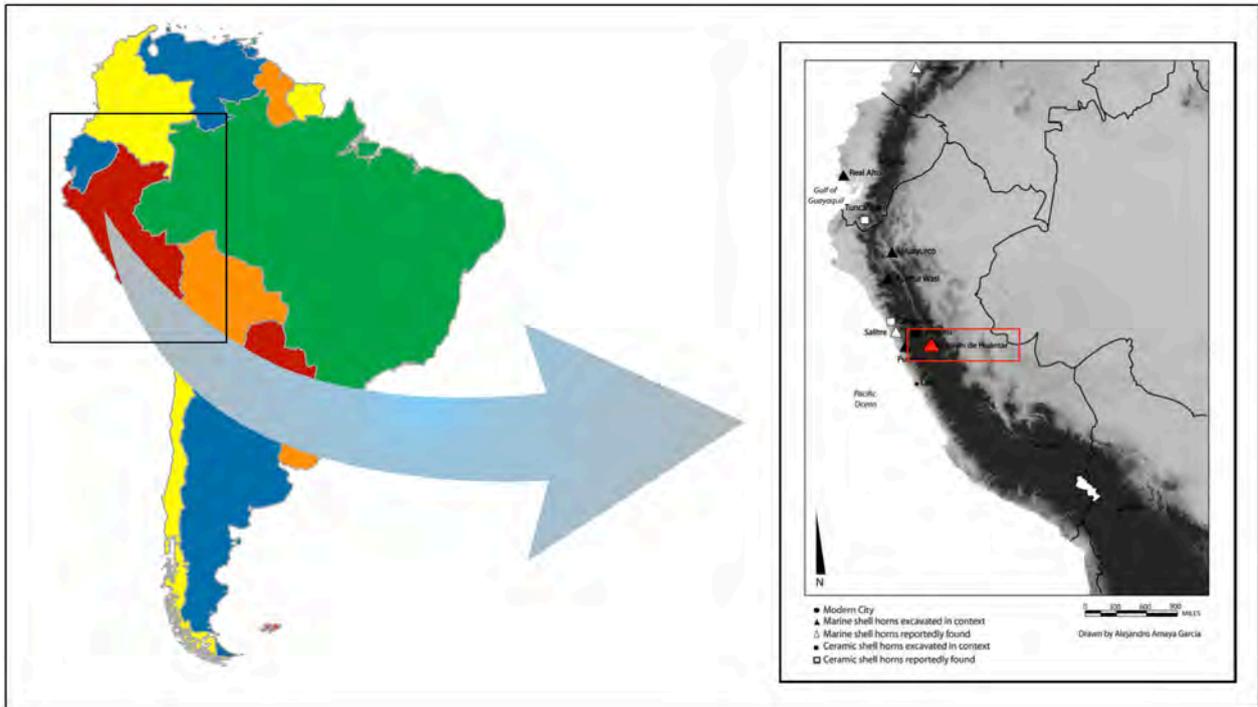


Figure 2: *Chavín de Huántar* site location⁴¹

‘Due to its location, religious importance, and ceramic offerings found in Chavín, this site has been interpreted as a pilgrimage centre’.⁴² *ukhu pacha*, therefore, unfolds as an imaginary ritual soundwalk towards and through this once sacred location, whilst the listener is placed as a silent witness of the pilgrim’s final contact with the ancient divinities. The sounds of the conch shell horns, placed in their contextual outdoor and indoor natural forestal spaces which represent this archetypical soundscape, are constantly reiterated alongside the worshipper’s footsteps throughout the duration of the work.

Referred to as Peru’s Temple of sound effects,⁴³ Chavín de Huántar is located in the Andes highlands with its underground, sunken courtyard and plaza complexes connected through a number of ‘dark, narrow passageways leading to small chambers, with no source of natural lighting’.⁴⁴ It has been hypothesised that the massive stone architecture surrounded by its internal canals and galleries was part of a multi-sensorial ritual space, where diverted water streams roared through the canals projecting a ‘thunderous sound

⁴¹ Internal picture on right, HERRERA (2010)

⁴² DRUC (2004), 344.

⁴³ STARR (2012)

⁴⁴ PAUL (1993)

onto the plazas below'.⁴⁵ Due to its marine origins, the shell horns have been traditionally associated with the deep and hence, with the underworld.⁴⁶

Having swallowed a bowlful of San Pedro cactus juice (a powerful hallucinogen), the worshipper descended into the black ritual maze where terrifying dancing shadows projected on stone walls were followed by the storming reverberations of the primordial sounds; surrounding streams of rumbling water collided with the ubiquitous blasts of the blown *fututos*. The deafening roar of the feline and reptile oracles (mimicked by the rumbling water) baffled an already overwhelmed pilgrim, excited by the vivid memories of the sumptuous iconographical representations carved all around the temple.⁴⁷

Given its narrative⁴⁸ and connotational⁴⁹ character and somehow related to programmatic principles, *ukhu pacha's* 'music is determined by the development of its theme [or subject]'; the design of the discursive material as well as the order of presentation of the contextual soundscapes observe a type of '[...] music mov[ing] in time according to the logic of its subject and not according to autonomous principles of its own'.⁵⁰



Figure 3. *Chavín de Huántar* underground plaza (detail with artificial light).⁵¹

⁴⁵ PAUL (ibid)

⁴⁶ RONNBERG et al (2010), 212.

⁴⁷ SOLOMON (2012); STARR (2012)

⁴⁸ Differing somehow with Nattiez' dissenting position about fully accepting a *narrative* in musical terms (see NATTIEZ (1990), 127.), Landy states in this regard that '*narrative* here is by no means to be taken literally; instead, it concerns the notion of a piece's taking the listener on a sort of *voyage*, one in which exact repetition of longer segments is rare. This is the source of Michel Chion's description of the experience as *cinéma pour l'oreille*.' LANDY (2007), 27%.

⁴⁹ 'The term 'connotation' is used to refer to the socio-cultural and 'personal' associations (ideological, emotional, etc.) of the sign. [...] Connotation is thus context-dependent.' CHANDLER (2007), 38%.

⁵⁰ SCRUTON (2011)

⁵¹ Chavín de Huántar Archeological Acoustics Project <https://ccrma.stanford.edu/groups/chavin/current.html>. Stanford University. Accessed 15 November 2011.

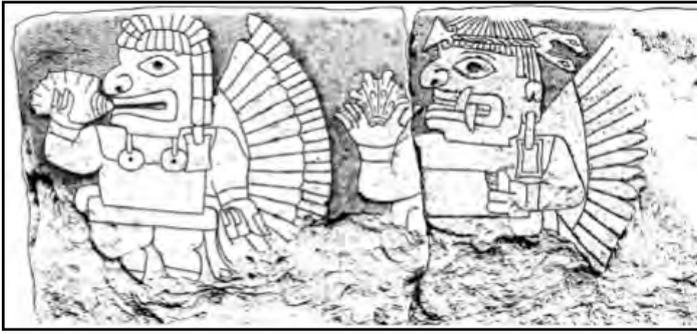


Figure 4 (above left) Drawing of engraved cornice from *Chavín de Huántar*, [...] showing an apparent procession.⁵²

Figure 5 (above right) ‘*Chavín* art showing semirealistic human figures: the cactus-carrying individual from the *Circular Plaza*’.⁵³

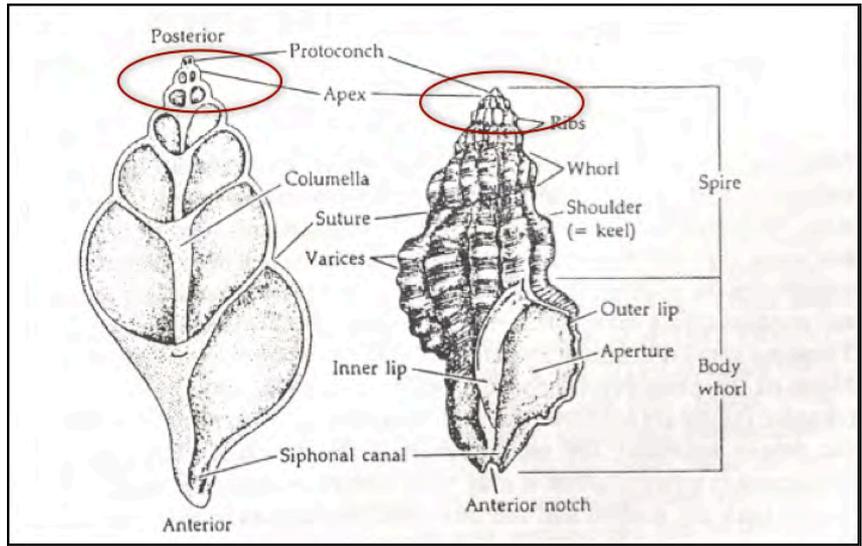
2.2.2. Manufacture and analysis of the instruments

In 2010, a number of *fufutos* were manufactured at Los Andes University⁵⁴ following traditional techniques. A number of conch shell specimens from a variety of families, such as *Malea Ringens*, *Strombus Gigas* (Figure 6), *Strombus Peruvianus*, *Strombus Galeatus*, *Pleuroplocacea* and a ceramic replica of a pottery *Waylla Kepa*, were collected from different parts of the Andean region.

⁵² RICK (2005), 85.

⁵³ *ibid*, 83.

⁵⁴ This activity has its roots in the research project “*Acoustic properties of the conch shell trumpets Fututo & Waylla Kepa*” performed at Universidad de los Andes, Bogotá, Colombia; the project team included Dr. Alexander Herrera, Department of Anthropology, Juan Pablo Espitia and Jorge Gregorio García Moncada, Music Department, Universidad de los Andes. The project focused on the characterization of the sounds of these aerophones by means of performing in-depth analyses of their historical, cultural and technological contexts.



Figures 6 and 7. *Strombus Gigas* and Morphology of the conch shell.⁵⁵

Figure 7 displays the cutting point on the protoconch section of the shell. In addition, a small longitudinal incision was performed on top of the apex with a conical drill bit, allowing the performer's incoming air column to pass through the instrument. The aforementioned procedure was performed for all of the sixteen available shells, thereby obtaining the same number of instruments (fututos).



Figures 8 and 9. Polishing of apex cut and instrument performance in situ (*Guatavita lake*).

⁵⁵ Figure 7 - REITZ (1999)

Studio and field recordings were performed in contextual sites, such as at Guatavita Lake in the Sesquilé municipality of the State of Cundinamarca, Colombia, where the utilisation of these instruments was recorded in documents dating back to colonial times.⁵⁶



Figure 10. *Guatavita Lake*.

Figure 11 displays an spectrogram of a *Strombus Galeatus fututo* FFT analysis with a fundamental tone around 297 Hz. The spectral energy's concentration on the first ten whole multiples of the fundamental tone provide evidence of the inherent *harmonicity*⁵⁷ of the instrument; the rightmost portion of the analysis window presents the dynamic peaks of the spectral components, showing a progressively linear drop in the amplitudes of the higher harmonics.⁵⁸

⁵⁶ El Carnero [The Billygoat] by the American-born chronicler Juan Rodríguez Freyle (Santa Fe de Bogotá, 1566-1638) describing the initiation rituals of succession and inheritance of the Muisca leaders, commonly known as El Dorado: 'During the departure of the raft, little horns, *fututos* and other instruments began to perform, and with these a huge yelling that thundered mountains and valleys, [...]' RODRÍGUEZ (2006), 11. Translation, Jorge García.

⁵⁷ Using Wishart's term related to consonance stating that 'an interval is more consonant the simpler the ratio of the frequencies of its components'. (WISHART, 1996:71).

⁵⁸ The data on the graph corresponds to the specific specific time indicated by the vertical red line in the spectrogram. Nevertheless, the spectral behaviour tends to be similar throughout the total length of the sample with subtle oscillations as already stated above.

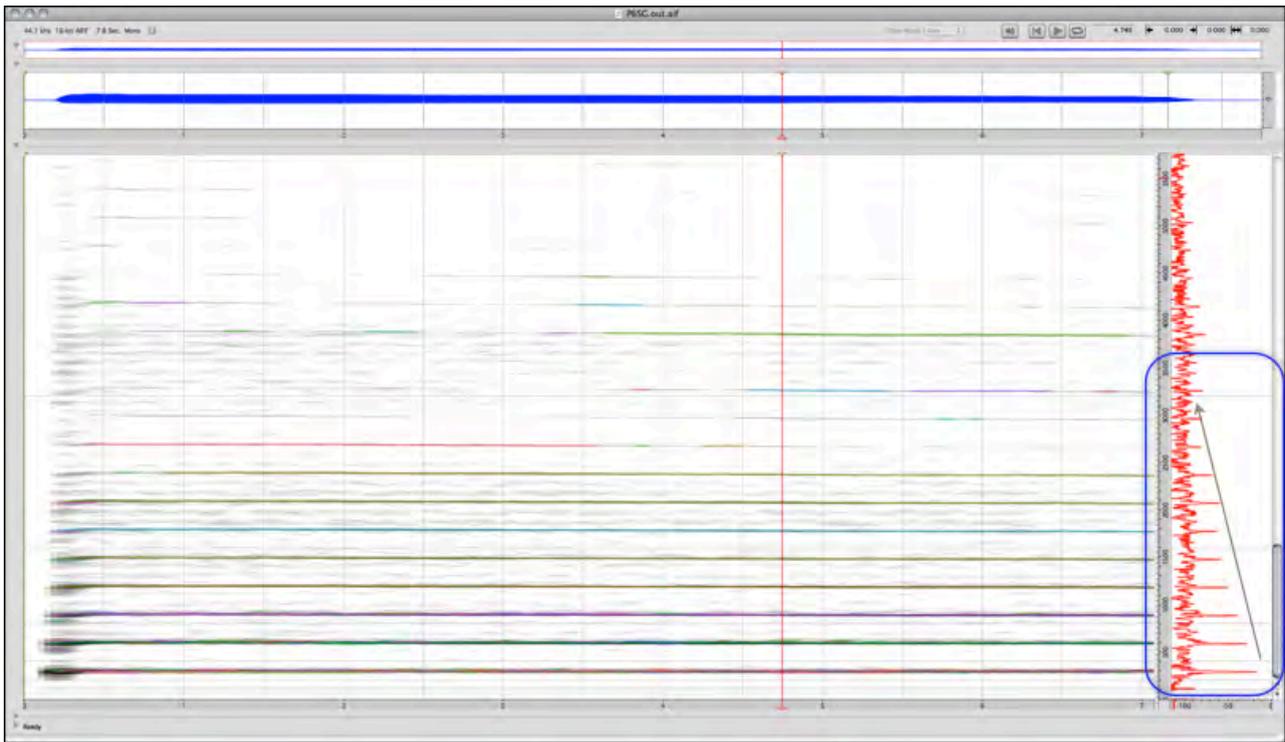


Figure 11. Spectrogram of a *Strombus Galeatus fututo* from the Pacific Coast.

FFT spectral analysis⁵⁹ of the samples obtained in the studio recordings displays a list of averaged fundamentals, in Hz, for all 16 instruments:⁶⁰

301.9	368.8	332.8	339.5	337.2	357.2	342.5	351.2
259.4	297.2	299.0	290.1	347.8	328.5	327.5	445.9

Table 1: list of fundamental resonant frequencies.

Rounding these values to the quarter tone,⁶¹ the following pitches in standard music notation, in ascending order, make evident the relatively narrow tonal range of the ensemble obtained:⁶²

⁵⁹ The analysis was performed using IRCAM'S AudioSculpt, version 2.9.4v3.

⁶⁰ As normally observed in lip reed instruments, there is no case of a single fundamental tone in time given the microtonal fluctuations resulting from the natural changes of air pressure produced by the lips. Hence, the fundamentals stated are to be taken as averages.

⁶¹ See *microtone* in List of terms and abbreviations.

⁶² Since the individual dimensions of the instruments did not differ widely, the predictability narrow nature of this range comes from the fact that the resultant frequency of the instrument is dependent on the frequency of the lip vibration of the person blowing adjusted 'so that one of the harmonics matches with the shell cavity fundamental frequency'. BHAT (1992).

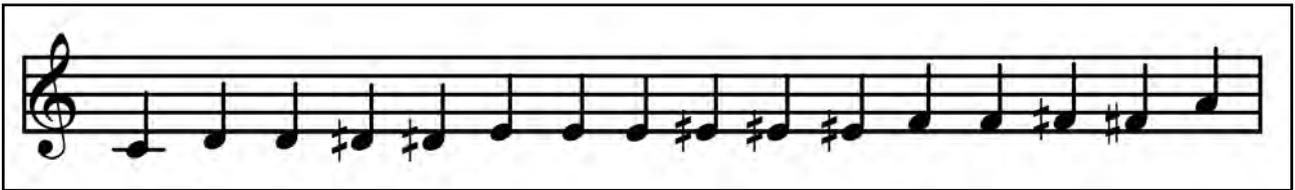


Figure 12. Average Fundamentals of instruments in ascending order.

The compositional relevance of the above relies on the fact that since these instruments were traditionally performed in homogenous ensembles,⁶³ it would be usual to perceive the so-called *Tartini effect*. This is as a result not only of the typical high levels of sound pressure produced by these instruments, but also the proximity of their fundamental frequencies. ‘When two tones are perceived simultaneously, other tones often appear, because of distortion effects in the ear; [...] high intensity levels are required for combinational tones to be heard’.⁶⁴ This phenomenon is particularly exploited in section 2 (3:30) and in the middle of section 7 (16:37 and 17:09), by adding synthetic material as well as transpositions of the instruments.



Figure 13. Original fundamental frequencies (left) and harmonic series from differential tone (right).

Figure 13 exemplifies the aforementioned concept: two *fututos*, with average fundamental tones at 301.9 and 368.8 Hz (left), are embedded inside a harmonic series whose fundamental tone is the difference between both original fundamentals (66.9 Hz). The sound of the original horns are mixed with transposed portions of their spectra (isolated harmonics) as well as synthesis-based material from which pitch material is derived in the aforementioned procedure.

⁶³ HERRERA (2010)

⁶⁴ TRUAX (1999)

2.2.3. Form (pre)Definition

As a structural symbolic form, a link was built between the main sound sources (the conch shell horns used) and the formal design of the work according to a mapping process that transformed the list of *fundamental resonant frequencies* of the instruments into a *time proportion grid*. This process of translation between a physical phenomenon such as the aforementioned resonant frequencies into a pre-compositional formal scheme was performed in order to propose a structural correlation between the main sound sources of the work, the *fututos*, and the form of the piece.

APPENDIX 1 summarises the mapping procedure, explained as follows:

1. The list of fundamental tones is given in ascending order (16 elements in the list, in Hz).
2. The list above is transformed into intervalic values between the elements (15 intervals); an extra item, the sum of the elements of the list (186.6) is added in order to match the number of elements in the lists.
3. This new item (186.6) is multiplied by 3 = 559.8. Since the aim of the operation was to re-interpret the numbers in terms of durations of individual sections (given in seconds), the numbers were proportionally scaled in order to yield a more suitable result in the following terms: (1.0, x_2 , x_3 , x_4 , [...] x_{15} , 186.6) into (1.0, y_2 , y_3 , y_4 , [...] y_{15} , 559.8), when ($186.6 * 3 = 559.8$) and x_x represents the original value and its position within the list, whilst y stands for the new scaled value and its position.
4. All numbers are left in their original position and the list is unified.
5. All resulting numbers below 50 are combined and added together - this ensures that the smallest section would have a duration of 50 seconds. A first chart of section durations is given at this point. It is important to point out that the piece is macro-formally divided into two large sections. This serves the purpose of presenting the two main types of soundscapes introduced above; the first half of the piece, from the beginning to 11:54 presents sounds inspired by the open air, such as natural forest scenes. The shell horns are heard in the distance against the sounds of birds and wind, and the footsteps and breath of the pilgrim, whilst the storm is announced in the distance (2:48); this is followed by material based on the sound of rain and sustained harmonic material from the horns. All this material alludes to external setups, whilst the second part of the piece, from 11:54 to the end, presents large, enclosed reverberant scenarios, alluding to the subterranean

stone galleries where the heart of the ritual used to take place. Further detailed descriptions by section are given below.

6. Since the last section of the piece is noticeably larger than the previous ones, it was necessary to partition it. This was done by recycling the same time proportions obtained in step 4 (as can be seen in the appendix) and reusing them (without grouping those lower than 50) in order to obtain the internal time proportions.

Micro-Formal definition of first part of the work (0:00-11:54)					
0:00-3:38	3:38-4:46	4:46-8:14	8:14-8:50	8:50-9:57	9:57-11:54
Micro-formal definition of second part of the work (11:54-21-12)					
11:54-12:40	12:40-12:47	12:47-13:02	13:02-16:03	16:03-16:29	16:29-16:55
16:55-17:06	17:06-17:22	17:22-17:55	17:55-18:13	18:13-18:51	18:51-20:10
20:10-21-12					

Table 2. List of time proportions obtained from APPENDIX 1.

For reference, Figure 14 illustrates the aforementioned process as originally programmed in OpenMusic:

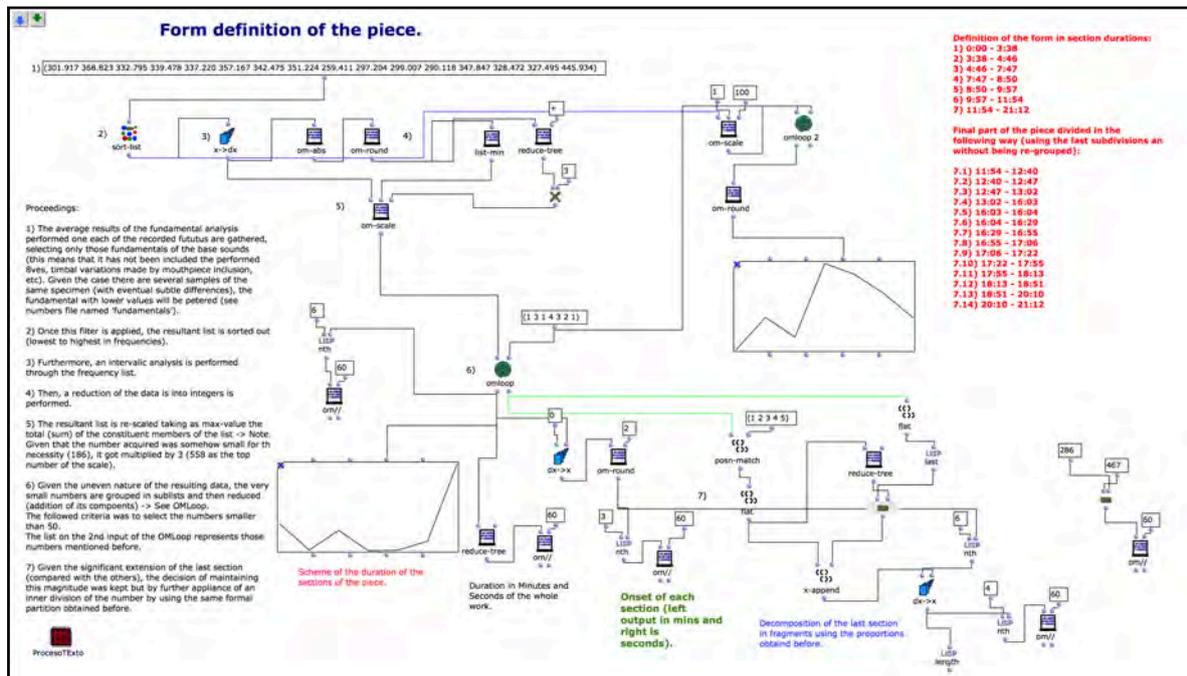


Figure 14. *ukhu pacha*'s form definition OpenMusic patch.⁶⁵

⁶⁵ APPENDIX 2 displays figure 14 in a larger size for convenience.

APPENDIX 3 displays in a graphic timeline the output of the operation above, where the durations of the individual sections as well as a brief description of their content is summarised.

2.2.4. "Filling up the containers"

The dramatic nature of the piece - the worshipper wandering through the imaginary forestal scenes being guided by the voices of the gods (the *fututo* calls) - brings to light the architectonic *directionality*⁶⁶ underlined by the rather narrative approach in which the piece was conceived. Authors like Nattiez or Abbate, though, state that what could be considered as *musical narrative* relies explicitly on syntactical musical facts, given that, unlike music, linguistic syntax is grounded in the logical connection between subject and predicate, as well as the use of verbal tense.⁶⁷ *ukhu pacha*, nevertheless, whilst presenting the sound material articulated in such a way as to deliver a perceptible idea of linear progression of events in time, fills up the empty structures above with the rich symbolic content typical of the archetypal sounds. Directionality in this case relies on cause-effect relationships compositionally intended throughout the piece, such as the *crescendi* of the *fututos* coupled with the suggestion of physical movement of the character, implying temporal and spatial displacements. Two examples illustrate this notion:

1. In macro-formal terms, the second half of the piece follows the metaphorical arrival at the ceremonial centre preceded by the pilgrimage of the first half. The significant change of the acoustic architecture introduces the reverberant ritual chambers flooded by the sound of running water and the shell horns.

2. In micro-formal terms, the thick texture of the second section is based on cloudbursts and *fututo* sounds, announced as approaching distant events in section one in the first half of the piece.

⁶⁶ The piece begins and ends in quite different locations/scenarios, and the metaphoric displacement through them is an important part of the musical discourse.

⁶⁷ NATTIEZ (1990), 127-28.

Poietically, the characteristics of the extra-musical references, as well as the evocative soundscapes, provide the work with a chronological discourse. In my opinion, it is precisely in the act of placing such a sequence of related events that the intended meaning by the composer (a compositional intention) is given to the formal structure described above. In this way, a meaningful musical discourse arises when these 'empty [temporal] containers', a term applied to John Cage's early approaches to structural organisation in situations of indeterminacy,⁶⁸ are posteriorly loaded with coherent sound structures which interact with each other in the temporal axis in different ways.

This interplay between an *indeterministic - formalistic* approach (i.e. the calculation of abstract time durations prior to knowledge of the actual sound material allocated in them) and the *bottom-up* approach to composition⁶⁹ (*on the go* compositional decisions based on the aural qualities obtained through the sound manipulations) is characteristic in this case. By mapping the fundamental resonant frequencies into time values, an allegorical correlation between the sound sources - the *fututos* in this case - and a pre-compositional form sketch was performed in order to allow me, as the composer, to have an abstract graphic skeleton as an *a priori* visual aid that will later be fed with the output from the various sound manipulations. Constant feedback between the resulting sound materials and those abstract sketches informs the compositional process, just as the final output from a couturier's initial basic paper model is usually adapted to the nature of the materials, influencing in meaningful ways the initial design. By these means, the sketch represents to me an abstract point of departure instead of specific rules. In other words, these time proportions work as a pre-compositional referential map instead of a *lex scripta* list of constraints; decisions such as the choice of a sharp contrast rather than a smooth cross-faded transition between adjacent sections in a given location or the constitution of the internal *gestalt* structures are 'tuned by the experience of aural feedback [...]'.⁷⁰ I would like to stress that, since what is to be appreciated (and judged) by the general audience is the aural output, whatever pre-compositional conceptual structure was used will remain in the poietic⁷¹ domain, relevant in the domain of composition or analysis, but mostly

⁶⁸ MORGAN (1991), 360.

⁶⁹ LANDY (2007), 34.

⁷⁰ WISHART (1999), 123.

⁷¹ The semiological model offered by Nattiez, after the theories of Jean Molino and others, presents the study of musical meaning as a *tripartition* process of analysis (dimensions of symbolic phenomenon): the *poietic* dimension (study of the intentions of the author), the analysis of the *neutral level* (description of the morphological properties of the examined symbolic phenomena) and the *esthetic* dimension (construction of meaning by the receiver). NATTIEZ (1990).

meaningless in the concert scenario. To me, as a composer, I do not feel compelled to make structures audible in order to consider them legitimate; structures help me to take decisions rather than constraining or validating the musical output.⁷²

2.2.5. Conclusion

ukhu pacha, an acousmatic piece based on South American archaeological sources, takes as its point of reference the contextual soundscapes around the *fututos*. Their historic function as important signalling and ritual instruments in the pre-Columbian Andes brings into the piece a whole set of sound references articulated in a succession of events representing the act of pilgrimage. For the realisation of the project, a collection of instruments was built, recorded and described, while attempting to make symbolic bridges between the sound sources, formal design and musical content. Given the work's special emphasis on the construction of *imaginary contextual soundscapes*,⁷³ the multichannel setup allows the audience to experience a considerable degree of immersion in the soundworld presented in the piece.

3. LA HISTORIA DE NOSOTROS

3.1. Context

La historia de nosotros is an 80 minute cycle of four pieces inspired by a corpus of mythological and historical chronicles from the *Huitoto* nation (an ethnolinguistic group based in the Amazon region), depicting the cosmogonic and ontological stories that keep society together. Four ancestral beings from the mythical world are symbolised by the main pillars of the *maloca*, gathering sanctuaries for the Amerindian Amazonian culture. These '*Cathedrals of the jungle*'⁷⁴ shelter amongst others, one of the ancient rituals known as *La Historia de Nosotros* [The history of us].

⁷² Discussions about this topic in contemporary music are addressed by a number of scholars - SCHWARTZ (1982); LANDY (2007); EMMERSON (2000); WISHART (1999).

⁷³ A tangential reference to John Cage in the form of homage, specially considering his *Imaginary Landscape No. 5*, for any 42 phonograph records (1952) - See *filling up the containers* in *ukhu pacha*.

⁷⁴ TAGLIANI (1992), 15.

3.1.1. The Huitoto

The tropical rainforest between the Caquetá and the Putumayo rivers, and in particular the space in between its tributaries, the Igaráparaná and the Caraparaná rivers, has served as traditional natural habitat for the Huitoto.⁷⁵ 'At present, the "Huitoto" denotation is used as a location reference for a multiplicity of communities'.⁷⁶ By no means disregarded by numerous diasporas generated by the industrial, "civilized" world, these communities have been decimated since the early 20th century.⁷⁷ Scattered patches of communities - which either escaped or were displaced by force as groups of slave workers on the rubber plantations during the so-called early 20th-century rubber boom - settled in distant locations between northern Peru, and the Colombian Amazon region in the south.

The Huitoto are currently found in demographic recuperation,⁷⁸ despite many other hazards brought about by Colombia's modern day internal conflicts: illegal drug smuggling, and armed conflict between guerrilla and paramilitary governmental forces are just basic social consequences of the permanent abandonment of the region by the continuous negligence of centralised bureaucratic administrations.

⁷⁵ URBINA (2010)

⁷⁶ YÉPEZ (1982), 13. Translation, Jorge García.

⁷⁷ The Huitoto, who might have counted with a population of no less than 30.000 at the end of the 19th century, ended up as dispersed communities with a total population of no more that 6.000 habitants in the present. URBINA (2010), 9.

⁷⁸ Huitoto, among other groups in the region such as the Bora or the Okainas URBINA et al. (2000)

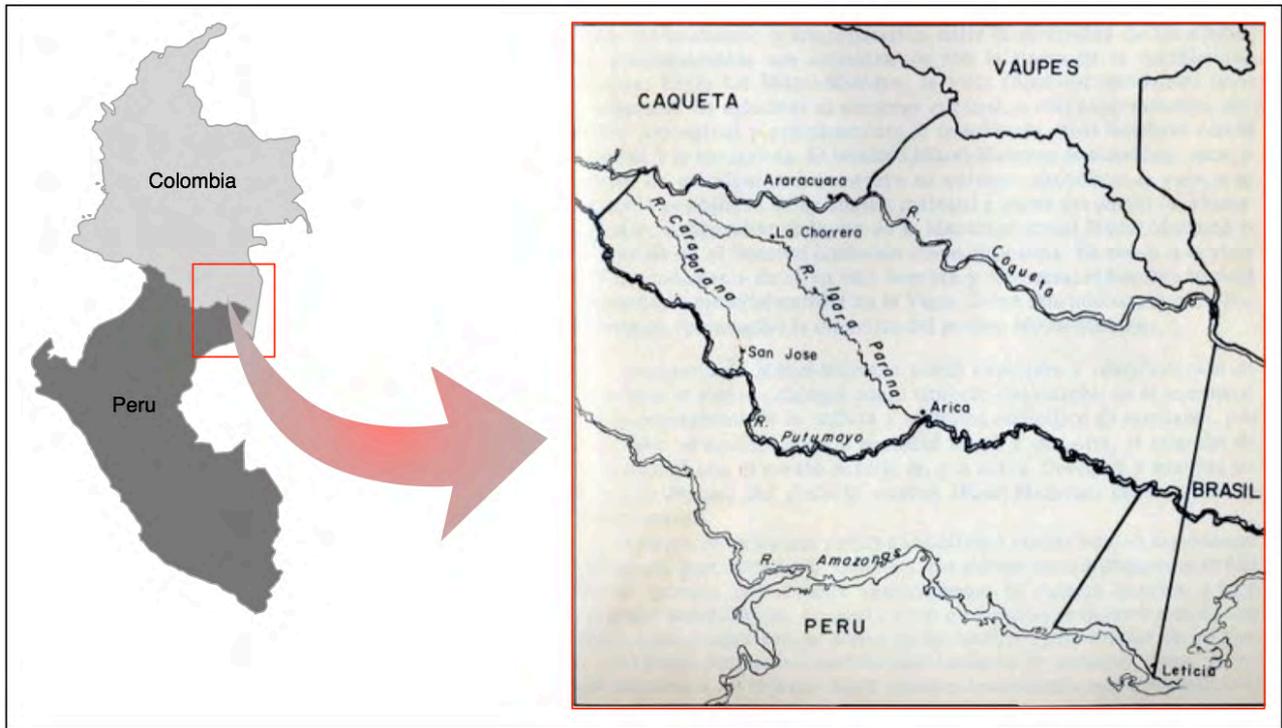


Figure 15. Colombo-Peruvian Amazon Region in detail.⁷⁹

The Huitoto, a common linguistic family, is comprised of two social groups - *murui* and *muinane*⁸⁰ - linked by duality and complementarity principles mirrored by paired oppositions. This dichotomy has been observed not only in their east-west location settlements, taking as reference the directions the river flows, but also in their vast symbology. Hence, *murui*, understood as *those belonging to the headwaters* (West) is the opposite of the *muinane*, taken as *people belonging to the tributaries* (East).⁸¹ This symbolic social duality is found extended into other orbits of their cultural and ritual domains: 'the *murui* are the highlanders, black, male; the *muinane*: lowlanders, white, female'.⁸²

3.1.2. The *maloca*⁸³

Complementary to the previously discussed concept of sign in chapter 1, the Saussurean notion proposes a dyadic model comprising two basic elements, the *signifier* standing for

⁷⁹ Map in right square, YÉPEZ (1982), 15.

⁸⁰ YÉPEZ (1982), 13; TAGLIANI (1992), 3. URBINA (2010).

⁸¹ TAGLIANI (1992.)

⁸² YÉPEZ (1982), 14.

⁸³ APPENDIX 4 presents an outline of the symbolic analysis presented by Tagliani, Torres and Yépez.

'the form which the sign takes' and the *signified* by 'the concept it represents'. A given relation between these two elements is known as *signification*. In social contexts, 'every sign acquires a history of connotations of its own which are familiar to members of the sign-users' culture'.⁸⁴ Umberto Eco brings together this concept of sign in cultural terms by understanding the collective interpretation and application of such a system of signs as the main way in which the concept of culture is brought together.⁸⁵



Figure 16. Female *maloca*.⁸⁶

Documented in specialised literature, the *maloca* constitutes a paramount cultural signifier embodying a rich symbology. There is no architectural detail that does not carry symbolic meaning in these structures.⁸⁷ Given that the human body in Huitoto culture has been traditionally conceived as an all-inclusive yardstick,⁸⁸ this principle is likewise embodied in the symbolic conception of the *maloca*. Two types, male and female, keep their fixed designated gender functions according to ancient local traditions.

⁸⁴ CHANDLER, (2007), 10%.

⁸⁵ ECO (1988), 187.

⁸⁶ YÉPEZ (1982), 27

⁸⁷ TORRES (1988); URBINA et al. (2000); TAGLIANI (1992)

⁸⁸ TAGLIANI (1992)

A female *maloca*, with its essence of *giver of life*, stands predominant in symbolic terms (Figure 16). The triangular shape of the frontal skylight represents the mouth of the *maloca*, a particularly special locus in the structure where the *word of wisdom* makes its way into the communal site (Figure 17). In Huitoto mythology this is the path taken by the *vital thinking-energy* of the *creator-father*, power received by a gathered community during the celebration of codified rituals.⁸⁹

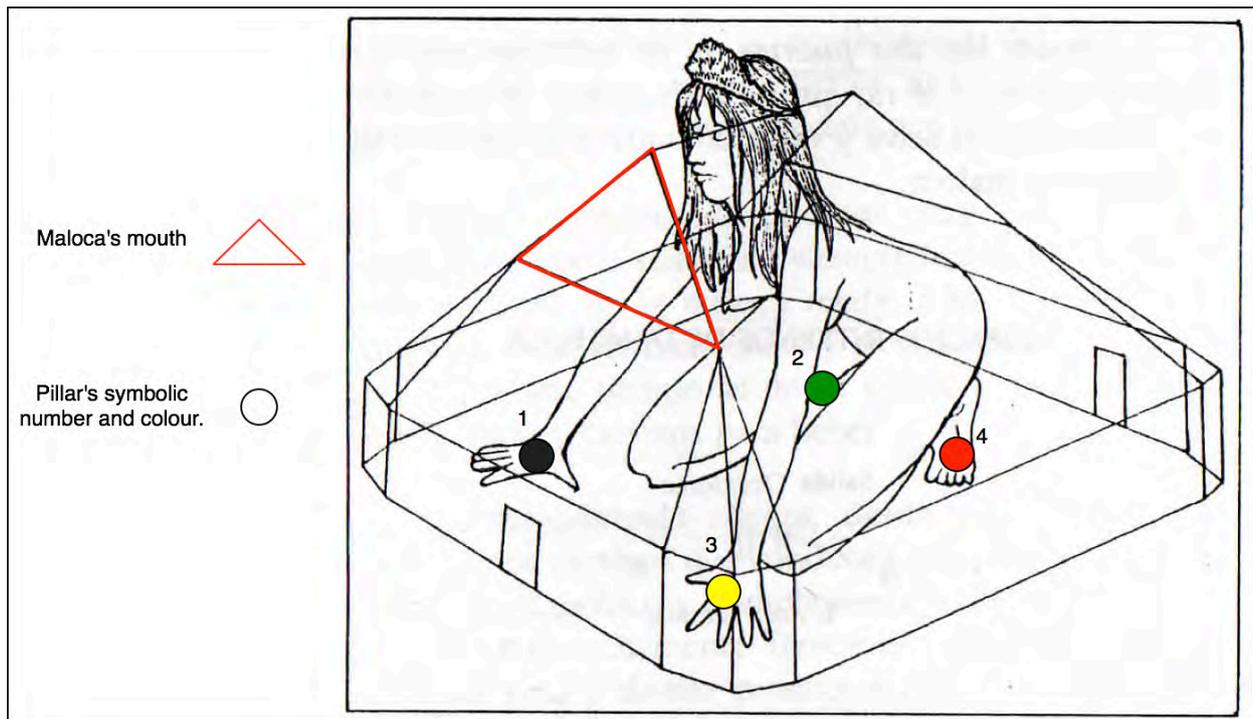


Figure 17. Symbolism of the female *maloca*.⁹⁰

The figure above renders Tagliani's depiction of his analysis of the structure standing for a woman giving birth, the uterus-abdomen symbol representing the *maloca's* fertility. Yet, to grow life, this space has to be fertilised. The owner of the *maloca*, by sharing *La historia de nosotros*, communicates with the creator, who at the end of the night, in complete silence, manifests himself in the arrival of a warm wind, the breath of the father-creator's spirit fertilising the *maloca*.⁹¹ The coloured circles indicate each of the main pillars of the *maloca*, the four ancestral characters in *La historia de nosotros* and, by extension, the four limbs of the human body, the basis of their numeric system.⁹²

⁸⁹ TAGLIANI (1992)

⁹⁰ *ibid*, 32.

⁹¹ *ibid*, 31.

⁹² TORRES (1988)

3.1.3.Pakado

The symbolic numerical system *pakado*, from the Nipode (one of the four dialects spoken by this group)⁹³, has been introduced by William Torres as the *Huitoto numerical dance* in a detailed article of the same name.⁹⁴ The system is expressed as a series of quintuple groups centred in the circular process of counting. (Figure 18)

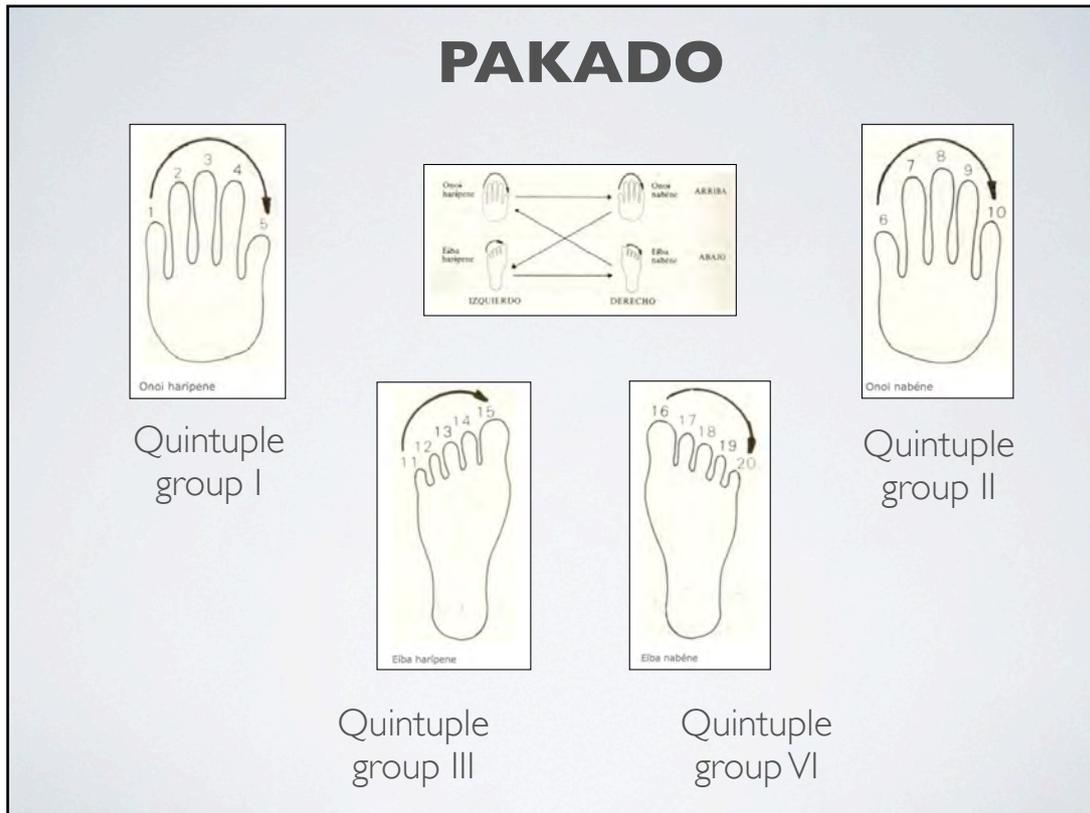


Figure 18. W. Torres' graphic description of the *Pakado* system.⁹⁵

The system is shaped by the five digits of each hand and foot grouped in their four natural sets, the limbs. Each quintuple group has as its unitary basis the first four digits; once the fifth digit is eventually reached, it activates a unitary quintuple group, embracing the fundamental tetradactyl basic group in accordance with the following principle:

⁹³ The Huitoto have a language divided in four main dialects: the *bue*, the *mika*, the *minika* and the *nipode*. URBINA et al. (2000).

⁹⁴ TORRES (1988)

⁹⁵ *ibid.*

1. A first basic tetriad, (1st, 2nd, 3rd, 4th) plus a fifth element (5th) = 1st quintuple group;
2. A second basic tetriad, (6th, 7th, 8th, 9th) plus a tenth element (10th) = 2nd quintuple group;
3. A third basic tetriad, (11th, 12th, 13rd, 14th) plus a fifteenth element (15th) = 3rd quintuple group;
4. A fourth basic tetriad, (16th, 17th, 18rd, 19th) plus a twentieth element (20th) = 4rd quintuple group; and so on.

The above is rendered in Nipode as:

First quintuple conjunction				
Basic tetriad, left hand.				
1	2	3	4	5
<i>dá</i>	<i>ména</i>	<i>daámani</i>	<i>á:marie</i>	<i>húbe ónoi</i>
	dá's partner	the one that has no partner, beginning of dá's plurality		The whole hand. 1st quintuple conjunction.
Second quintuple conjunction				
Basic tetriad, right hand.				
6	7	8	9	10
<i>enépene ónoimo dá</i>	<i>enépene ónoimo ména</i>	<i>enépene ónoimo daámani</i>	<i>enépene ónoimo á:marie</i>	<i>nagíni ónoi</i>
other side in the hand, one	other side in the hand, two	other side in the hand, three	other side in the hand, four	both hands, (1st) <u>double</u> quintuple conjunction.
Third quintuple conjunction				
Basic tetriad, left foot.				
11	12	13	14	15
<i>eíbamo dá</i>	<i>eíbamo ména</i>	<i>eíbamo daámani</i>	<i>eíbamo á:marie</i>	<i>húbe eíba</i>
in the foot, one	in the foot, two	in the foot, three	in the foot, four	whole foot, (2nd) quintuple conjunction.
Fourth quintuple conjunction				
Basic tetriad, right foot.				
16	17	18	19	20
<i>enépene eíbamo dá</i>	<i>enépene eíbamo ména</i>	<i>enépene eíbamo daámani</i>	<i>enépene eíbamo á:marie</i>	<i>nagíni eíba</i>

other side in the foot, one	other side in the foot, two	other side in the foot, three	other side in the foot, four	both feet, (2nd) double quintuple conjunction.
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Table 3. Summary of *pakado*, first four conjunctions.

Once the second double quintuple conjunction has been reached (number 20), a cyclical operation restarts on the first finger on the left hand, beginning by these means another layer (starting at 21), *ad infinitum*.

3.1.4. *La historia de nosotros*, the myth.

Anthropological archeologist Brian Bauer states that ritual and myth define social structures as echoes of broader social processes, especially in terms of the history of stratified societies. This being the case, it has been stressed how ‘the reenactment of these actions [of cultural heroes in mythology], within the codified contexts of rituals, reestablished the ruling elites’ ancestral linkages with mythical personages and events as well as their access to universal forces’.⁹⁶ The myth is a form of narration in which, by means of symbolism, the fundamentals of a given society are preserved. Its primordial function is to structure culture in coded systems in order to prevent traditional values from being forgotten. These principles, sometimes codified in the form of advice, the morals of fables, knowledge and reflexions, sustain the dynamism of the Huitoto culture in open forms. Internally, the myth is an open form as it does not have a specific conclusion; its plot usually takes different forms and merges with other stories. Likewise, externally, the myth nourishes itself with the constant flow of life of its people, mutating according to the ever changing conditions of society.⁹⁷ For the Huitoto the myth, expressed in the first instance by *the word*,⁹⁸ is then to be materialised inside the *maloca*, the sacred place where the rituals of *La historia de nosotros* are concretised: ‘[It] is the narration about the origins of the way people appeared in this world, the word, food, tools, and everything that makes culture be in such a way and not any other’.⁹⁹

⁹⁶ BAUER (1996), 333.

⁹⁷ URBINA (2010)

⁹⁸ An important number of related non-verbal expressions in this regard are found in iconographic and musical forms.

⁹⁹ YÉPEZ (1982), 19. Translation, Jorge García.

This narrative adopts different versions depending on the type of tradition recounted in the specific *ceremonial career*. Within this context, *career* is understood as the sporadic celebration of a particular cyclical rite, performed to ‘repair or revitalise [society] by re-enacting the origins of all that exists. In this ritual, men, by words and acts, are transformed into contemporaries of the origins of Múruí-Muinane society’.¹⁰⁰ The ceremonial careers, known to the Huitoto as *bailes* (dances), materialise *La historia de nosotros* while making men conscious of their society and natural habitat. Positive and negative critical aspects of society are then unfolded in the ritual, during which symbolism needs theoretical guidance ‘to decode its metaphoric content. This explicative theory, known in Nípodé as *Bakakĩ*, transforms *La historia de nosotros* into a vivid reality as it was believed to be at the beginning of existence, and since then it has manifested itself over the *Múruí-Muinane* people and its surrounding world’.¹⁰¹ Each dance, likewise, represents a tournament in which *el dueño del baile* (the leader of the dance) displays his knowledge by conducting the ceremonies and rites according to tradition.

Pakado’s tetradic structural principle can be observed in the way these ceremonial careers have been traditionally laid down for generations. Four main dances are celebrated in the *maloca*, representing the four ancestral characters from one of the myths about Creation:

‘And then Buinaima went to the place indicated by the Mother.
There he found his daughter, the sweet yucca plant.
He took great care of her, he nurtured her while she was growing.

And when she produced branches, he called all his sons
and gave them the branches, conferring duties on each:

Eldest son! to you corresponds the principal branch,
You will become *Meníza Buináima*, Owner of the Meniza Dance.
Second born son! to you, the secondary branch,
You will become *Zikída Buináima*, Owner of the Zikíi Dance.
Last born son! to you, the third.
You will become *Yuái Buinaima*, Owner of the Yuái Dance.

The trunk of the plant will be mine.
I will go with it beneath the Earth.
I now become *Nóino Buinaima*, Owner of the Yadico Dance.
The Dances will be performed
So that they [people] multiply over the Earth

¹⁰⁰ YÉPEZ (1982), 19-20. Translation, Jorge García.

¹⁰¹ *ibid*, 20. Translation, Jorge García.

... to live in happiness'.¹⁰²

The four mythical *Buinaima* characters, alongside their ritual dances, are erected as the four main pillars of the *maloca*, which, besides fulfilling their structural purpose, frame the ritual space. During the performance of the ritual dances the shaman, master keeper of the traditional symbols' meanings, by means of the correct use and manipulation of the power given to his body by the four entheogenic plants (tobacco, coca, yucca and yagé), transmutes himself into each of the ancestral characters until acquiring his full shamanic strength.¹⁰³

Maloca's Pillar	1	2	3	4
Pillar's Name	<i>dá</i>	<i>ména</i>	<i>daámani</i>	<i>á:marie</i>
Cardinal point	West	North	South	East
Mythical Character	<i>Meníza Buinaima</i>	<i>Zikída Buinaima</i>	<i>Yuái Buinaima</i>	<i>Nóino Buinaima</i>
Plant	Tobacco	Coca	Yucca	Yagé
Ritual Color	Black	Green	Yellow	Red

Table 4. Summary of symbolic equivalences.

3.1.5. Las historias de castigo.

Aside from the aforementioned mythology, there is a special variety of stories known to the Huitoto as *Historias de castigo* (stories of punishment), chronicles that are to remain in the shadows of collective memory. These are the stories to be left buried in the depth of the

¹⁰² TORRES (1988) Quoted in Torres, 1988, the fragment is narrated by Jitóma Safiáma, collected and edited by Urbina Rangel, 1984. Translation, Jorge García.

¹⁰³ 'With the first dance, Meniza Dance, [the shaman] becomes *Meníza Buinaima* (the first born) associated with tobacco's vitality, performed during the construction of the *maloca*. With the second dance, the Zikíi Dance, [he] becomes *Zikída Buinaima* (the second born son) associated with the potential of knowledge given by the coca, performed in order to gain access to the alliances with the jungle's animals: it is the hunting dance. The third dance, Yuái Dance, is the one to access the body's fundamental nourishment: the domesticated and savage alimentary fruits. This dance is directly associated with the yucca as primordial fruit of their basic diet by which means he becomes *Yuái Buinaima* (the last born son). Once the shaman has performed these dances in the *maloca*'s ritual space, he becomes *Nóino Buinaima* [demiurgic nomination] by performing the Yadico Dance, the ancestral anaconda's dance, by means of the yagé's power.' (TORRES, 1988). Translation, Jorge García.

*hamper of sadness*¹⁰⁴, a memory vessel meant to be left closed for eternity; they are different since they cannot be materialised by action(s). *Historias de Castigo* are stories of the *Ancient Men* 'that failed within the dynamic of culture and society; they are stories to be forgotten'.¹⁰⁵ Such is the fate of *yarocamena*, a myth and a ritual not powerful enough to counterattack either the bullets of the Peruvian army or the lash of the Colombo-Peruvian rubber [collector] companies. Although these particular historical events remain in the collective memory, the unsuccessful myth was consigned to oblivion owing to its failure to fulfil its purpose. Consequently, it needed to be banned from society because of its malicious power. These stories are known and learnt by the *aima*¹⁰⁶ and in general by anyone searching for wisdom. Nevertheless, their dangerous potential means that these stories remain unknown by the community.¹⁰⁷

3.2. The cycle

The cycle of compositions was based not only on the aforementioned symbolic complex but also took into consideration specific historical events. The mythological corpus is introduced, along with the *pakado*; these and the symbolism imbedded in the *maloca* are jointly embodied within the cycle. That being the case, the cycle's structural design is influenced by the elements already discussed, not only in macro- but also in microformal terms.

¹⁰⁴ Antonio Morales Riveira uses this metaphor, commonly heard among the Huitoto, in an article from *El Tiempo*, 17 October 2012 regarding the commemoration of the first hundred years of the Amazonian Indian genocide of the 20th century by the Peruvian Amazon Company.

¹⁰⁵ YÉPEZ (1982), 20. Translation, Jorge García.

¹⁰⁶ Sorcerer. YÉPEZ, (ibid), 18.

¹⁰⁷ YÉPEZ (ibid); URBINA (2010)

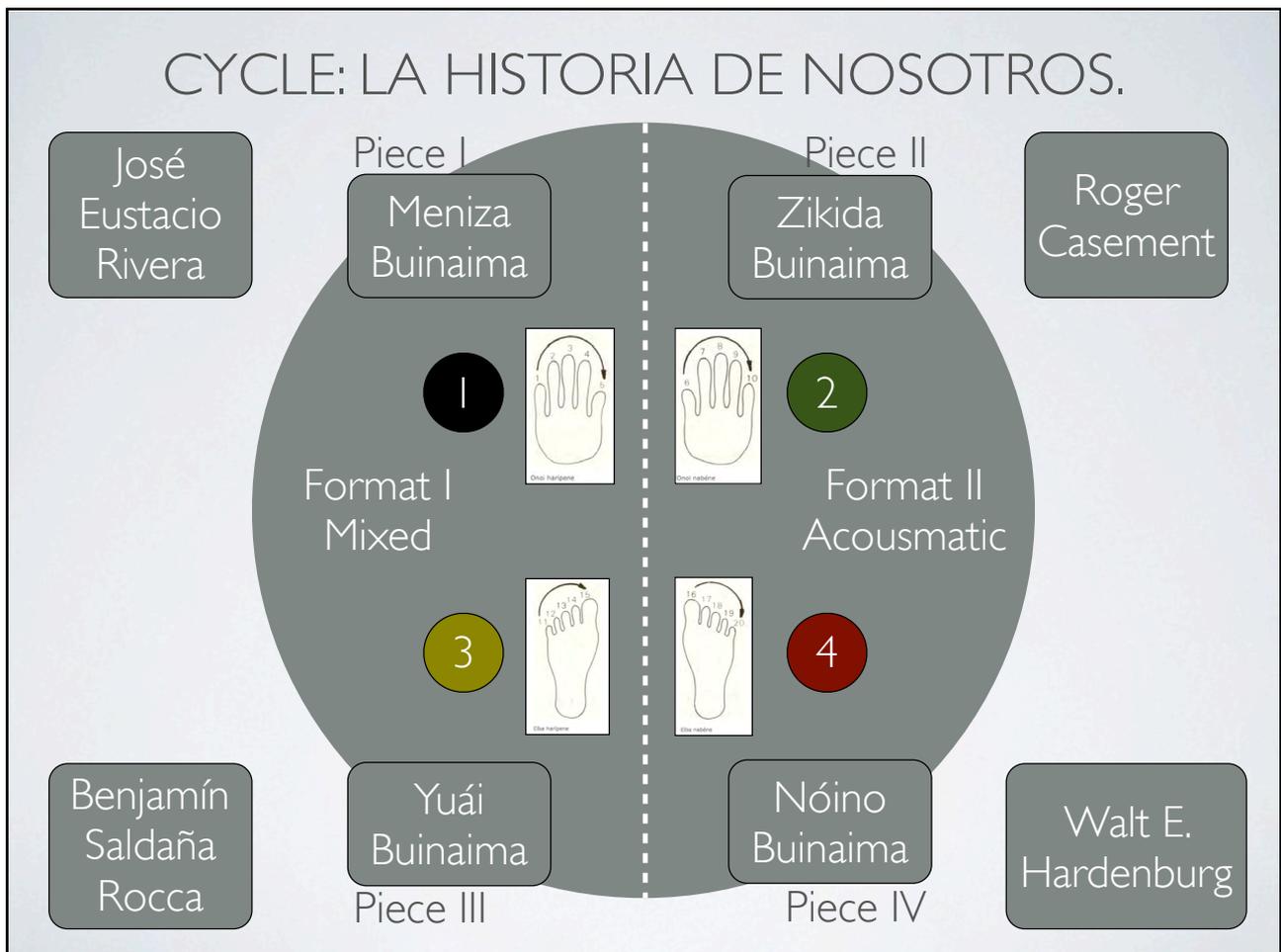


Figure 19. Structure outline of the cycle.

The paired complementarity and opposition of the Huitoto culture¹⁰⁸, are reflected here in the format of the pieces, two mixed and two acousmatic, and share common soundscapes as a unifying feature. The instrumental parts of the mixed pieces, scored for percussion, share recognisable sound material with the acousmatic pieces and vice versa. The four pieces, each denoting one of the four pillars of the *maloca*, follow the *pakado* layout:

- First Piece: Meniza Buinaima:

Duration: 20 minutes → 5 equal sections of 4 minutes.

Format: Percussion (shakers), live electronics and tape (8.0 multichannel system).

- Second Piece: Zikida Buinaima:

Duration: 20 minutes → 5 equal sections of 4 minutes.

Format: Acousmatic (8.0 multichannel system).

¹⁰⁸ Murui - muinane.

- Third Piece: Yuái Buinaima:

Duration: 20 minutes → 5 equal sections of 4 minutes.

Format: Percussion and tape (8.0 multichannel system).

Percussion: Tam tam, 3 tpl.b., 2 bongos, 2 toms, 1 bs.dr. and marimba.

- Fourth Piece: Nóino Buinaima:

Duration: 20 minutes → 5 equal sections of 4 minutes.

Format: Acousmatic (8.0 multichannel system).

By these means, the *pakado* is presented here as one cycle (the human body - one *maloca*), of four pieces (the limbs - the four pillars), each one containing five sections (five human digits) each one with a four minute duration (tetriad basis). Similarly, the signification of the four mythical beings is paired with four historical characters that publicly denounced the Huitoto genocide.

3.3. Treatment of the sources.

The meaning of a poem can only be another poem.

Harold Bloom.¹⁰⁹

Many years ago when I first encountered the sound of the *maguaré* (Figure 20), I considered the idea of exploiting it in a musical piece, either in an instrumental work (following a spectralist approach) or in electroacoustic terms. The fact that, when compared to the Western musical concepts, aboriginal Amazonian people bestow a contrasting meaning upon music has already been acknowledged. For the Huitoto, music tends to be directly related to their personal and collective universe as a manifestation of their cosmological visions of life.¹¹⁰ After learning about the profound ritual and cultural connotations of the instrument, I progressively became aware that an *écoute réduite* approach - following Schaeffer's 'reduced listening theory [which] is more concerned with the quality of sounds than their source'¹¹¹ - towards not only the sound of the *maguaré* but

¹⁰⁹ KLEIN (2005), 1.

¹¹⁰ YÉPEZ (1992)

¹¹¹ LANDY (2000), 26%.

also to the other sonorities surrounding it within the composed music, like the contextual soundscapes; that is to say, it could raise important personal ethical issues.



Figure 20. *Maguaré*.¹¹²

Research into cultural appropriation studies has revealed that cross-cultural borrowings ‘have often been fed by racial fantasies and have given no voice to the original tradition’.¹¹³ Examples of Western composers venturing into these arenas have been criticised, and the artists labelled as “tourists” or even “imperialists”. In Luigi Nono’s indictment of Stockhausen’s approaches in works such as *Hymnen* or *Telemusik*, the author claims that ‘the composer blindly tossed together musics of different cultures and political regimes without being sensitive to the historical and political connections between them’.¹¹⁴ Bearing this in mind, I approached the sources not only by digging into their societal and historical backgrounds but also by observing a whole thread of cultural content running through them; more than composing a piece using the instrument, I began to think of composing a piece which addressed the culture itself.

¹¹² YÉPEZ (1982), 31.

¹¹³ METZGER (2003), 198.

¹¹⁴ *ibid.*

What is the meaning behind bringing all the ritual and cultural context to the piece, as performed in *La historia de nosotros*? Taking into consideration the broad sense of the word “*meaning*”, it has been postulated that ‘*to mean* means the *ability of any kind of data to be translated into a different language*’.¹¹⁵ That being said, a number of connotational elements natural to the original culture have been assembled and structured within this electroacoustic cycle, performing by these means a personal rendering of what Lévi-Strauss calls *translation*. This rendering process was compositionally supported by taking into account what Lévi-Strauss defines as the *need for rules* for the translation to acquire meaning: ‘To speak of rules and speak of meaning is to speak of the same thing; and if we look at all the intellectual understanding of mankind, as far as they have been recorded all over the world, the common denominator is always to introduce some kind of order’.¹¹⁶ During the compositional process, the translations, or re-contextualisations of the original material into new structural and sonorous domains follow certain procedures described in detail in the following chapters. Nevertheless, it is important to stress that these *translation rules*, more than finding particular ways to address technical compositional issues, such as overall form definition or placement of sound events within the timeline, were instead assumed to be the need to design a musical discourse that would not completely amputate this particular material from its original context. In this way, by researching into myth and history, I intended to avoid making a naive pastiche of the culture as a result of such a project.

It has been argued that ‘quotation performs as a cultural agent’,¹¹⁷ in the sense that when borrowing music, a whole corpus of cultural associations accompany the sound material. Additionally, while developing the borrowed material, the composer has the capacity consciously to extend such musical transformations by commenting extra-musically on the various cultural referents embedded within the sound, reconfiguring by these means fundamental cultural relationships.¹¹⁸ Source/cause recognition processes have been highlighted by scholars as way to reinforce the ‘powerful expressive attributes of the

¹¹⁵ LEVI-STRAUSS (2004), 28%.

¹¹⁶ *ibid.*

¹¹⁷ METZGER (2003), 2.

¹¹⁸ *ibid.*

[electroacoustic] medium'.¹¹⁹ This, echoing Nattiez's concepts of the subject¹²⁰, is discussed in Smalley's concept of *transcontextuality*, which considers the dual nature of sounds in electroacoustic contexts when they display both intrinsic (musical form and structure) and extrinsic aspects (lived experience and the real world).¹²¹ *La historia de nosotros* carries the listener through a variety of contextual soundscapes while hosting the quoted material, enabling extrinsic bridges of signification for the listener. 'A rhetorical communication system of soundscape codes is suggested to assist composers in defining the listener's extramusical responses to their music'.¹²² Research in semiology shows evidence that 'the listener will project configurations upon the work that do not always coincide with the poietic process'.¹²³ Evidently one sole interpretation by all listeners is never expected; nevertheless, sound events undertaking the role of broad referential codes such as the playful squealing of children, the chants, and the melodic excerpts are positioned in the pieces in order to steer the audience through general changes of mood according to the compositional program.

These issues tend to have significant repercussions in the poietic context, as questioned by Metzger concerning cross-cultural issues: '[...] who, how and what. Who can borrow? Specifically, who is entitled to borrow from a cultural tradition - someone on the inside or someone on the outside of that tradition?'¹²⁴ I personally do not think it is a matter of ethnic or national belonging; a number of writers, artists and musicians have addressed cross-cultural issues as important parts of their work; genres such as the historical novel in literature testify to the aforementioned postulation: Mario Vargas Llosa, for example, does not need to belong to a particular Amerindian or Irish community to become sensitive enough to make a work such as *The dream of the Celt* respectful and historically enlightening towards its sources.

In cross-cultural artistic expressions, there will always be different levels of tension between the concept of the *insider* and that of the *outsider*. Am I an "outsider" for not being Amerindian? Up to what point can I claim to be an "insider" just because I am Colombian?

¹¹⁹ HARRISON (2006)

¹²⁰ Jean-Jacques Nattiez introduces the intrinsically / extrinsically referencing concept as well. NATTIEZ (1990), 118.

¹²¹ LANDY (2000), 35%; NATTIEZ (1990), 118.

¹²² FIELD (2000), 16%.

¹²³ NATTIEZ (1990), 17.

¹²⁴ METZGER (2003), 190.

It goes without saying that I am very aware of the fact that I will always be an outsider in the eyes of the Huitoto people as well as in my own eyes. On 16th October 2012, the Colombian journalist Antonio Morales Riveira published a chronicle in *El Tiempo* newspaper, reporting on the commemoration of the first centenary of what the news called the 'indigenous genocide of the *caucherías*' (rubber extraction companies); this ceremony, held in *La Chorrera* finally reunited three of the involved governments with the affected indigenous communities. Despite crossing paths during the ceremony, the article demonstrated the gap between those indigenous nations and what Morales calls, the western sector of Colombian society: 'They [were] there, and we, the white and mestizo here, on the stage, close but invariably distant, Westerners observing the exotic, as usual'.¹²⁵

Given the colonisation process in Colombia and its consequent cultural mixtures, it is highly unlikely that one can describe a single Colombian culture. "Colombian" in this sense can never mean any one, singular form: it is always plural. Colombia is a multicultural nation acknowledged by the national constitution.¹²⁶ Nevertheless, it is impossible to overlook an evident mirage behind the rather demagogic discourse praising social equality under the figure of multiculturalism and diversity when critically considering the impoverished situation of these communities in the region. Argentinian semiotician Walter Mignolo states that the idea of *cultural differences* is a mere invention of modern imperial hegemonic discourses behind the exercise of disguised control and domination over a sector of the population; the sordid output of stressing such *cultural differences* is racism. On the contrary, multiculturalism, under the understanding that all cultures are different, calls for the liberation of controls of life and social relations from hegemonic powers by weakening the former *colonial (cultural) differences* - i.e. those systems that exercise their power by 'defining and ranking people and nations in relation to an ideal pattern of society, of freedom, of democracy, of market, of labour relations, and on legal organisation'.¹²⁷

In this sense, it is not surprising to find resonances in authors like Vargas Llosa, while addressing the matter as shown in an interview with Irish historian Angus Mitchell about the aforementioned novel:

¹²⁵ MORALES (2012). Translation, Jorge García.

¹²⁶ Seventh article of the Political Constitution of Colombia states that 'The State acknowledges and protects the cultural and ethnic diversity within the Colombian Nation.' (SECRETARÍA NACIONAL DEL SENADO, REPÚBLICA DE COLOMBIA). Translation Jorge García.

¹²⁷ MIGNOLO (2003), 440.

'I discovered another dimension of my own country which I knew nothing about and, I suppose, this kind of experience, to be suddenly immersed in a very different cultural world and cultural environment and to discover the tremendous social, political, cultural problems, so different from the problems of the world in which I had been living before'.¹²⁸

As stated, research into aesthetics has revealed that an art work, a complete and carefully assessed closed form, is likewise open, with its non-reproducible singularity being altered in any case by the possible multiplicity of the recipient's interpretations.¹²⁹ Regardless of the intentions of the author, the output of such approximations involving borrowing are always received differently by the public because of their particular culturally-conditioned sensibilities. What might be appealing for some part of the audience as politically and culturally inclusive might represent for others something intrusive and disrespectful. This is particularly evident in contemporary works of art which address iconic religious or sacred material in non-conventional ways in order to reconfigure traditional interpretations by applying different processes of re-contextualisation.

Taking into consideration Metzger's questionings, in the case of *La historia de nosotros*, borrowing was preceded by a process of research into the nature and cultural values of the sources in order to acquire a degree of familiarity with them. The music I composed is intended to contribute to the process of building the collective memory of a South American region to which I belong. As a Colombian artist, my aim in this particular work is to highlight and acknowledge, by these means, Amerindian-descendent nations as a fundamental part of the multicultural web that constitutes present-day Colombian society. The country is home to at least 64 Amerindian languages, grouped in 13 families located in rural zones away from the urban centres,¹³⁰ yet constituting only the 3.4% of the population; the distribution of the rest of the population is 10.5% of black African descent and a majority of 85.9% is classified as 'not belonging to any ethnic group'.¹³¹

The consequences for acculturation caused by mass displacement and genocide of these ethnic groups, especially after the 20th century Amazon holocaust make it imperative for

¹²⁸ VARGAS LLOSA in MITCHELL (2009) - [sic - this quotation comes from the transcript of a spoken interview, hence the incomplete sentence].

¹²⁹ ECO (1992)

¹³⁰ MIÑAÑA (2009)

¹³¹ HERNÁNDEZ et al. (2005), 27.

contemporary society to avoid continuing the common absentmindedness long endured by these populations. To shed light upon the vast mythology, cosmogony and history of a part of this 3.4% of Colombia represents another way to underline cultural self-identity. *La historia de nosotros* was therefore composed as a reminder to the common citizen, not only in Colombia but elsewhere, that we live in a country in which cultural manifestations are bigger and more varied than what is commonly acknowledged and that they form an active part of our reality. This concurs with Huitoto historian Raúl Teteye's words: 'We are endangered peoples in risk of disappearance. [...] Forgetfulness is killing us. We are entitled to have our own life, territory and culture'.¹³²

3.4. The pieces

3.4.1. MENIZA BUINAIMA - *In memoriam José Eustasio Rivera.*

For percussion, live electronics and fixed audio media (8.0 multichannel format).¹³³

Duration: 20:14.

The form of the butterfly was devised in the *cauana* [fruit nectar and yucca starch mix], and that is how they have fun. It was in that *cahuana* that the *mico fraile* [little Amazonian monkey] moved and that is how they were born. I am skilled in [playing the] *firisai* [rattle-seed shaker], I am *Firisai Buinaño* [rattle-woman], and that is how I was born.

The *firisai* sounds like this in my ankle. Likewise, this is how I leave you the example. I leave you the remembrance of my example, watching her singing, decorated and painted. That is how you will see me arriving with the *jiruya* chant [entrance of the maloca chant], and you will make me happy with that song'.¹³⁴

pakado, first group (digits 1 to 5).

Colour: black.

Type of dance: inauguration of the *maloca*.

3.4.1.1. Context.

¹³² MORALES (2012)

¹³³ An alternative mixed version for shakers and fixed audio media is also available as stated in the music score.

¹³⁴ En la *cauana* [jugo de frutas con almidón de yuca] se vio la *forma de la mariposa*, y así se divierten. En esa *cahuana* se movieron los *micos frailes* y así nacieron. Soy especial en *firisai* (sonajero de semillas), soy 'Firisai Buinaño' (mujer-sonajero), y así me nació. El *firisai* suena así en mi tobillo. Así mismo les dejo a ustedes el ejemplo. Viéndole cantar arreglado y pintado, les dejo el recuerdo de mi ejemplo. Así ustedes me van a llegar con el canto *Jiruya* (canto de entrada a la maloca) y me alegrarán con esa canción.' - Fragment of a '*carrera ceremonial*'. YÉPEZ, (1982), 44. English translation, Jorge García.

Meniza Buinaima, the first piece of the cycle, is dedicated to one the most important figures of Colombian modern literature: José Eustasio Rivera (1888-1928). His most famous novel, 'La Vorágine'¹³⁵, is an historical and a social document',¹³⁶ considered to be 'the best of South American novels with jungle settings'.¹³⁷ It depicts the decadent world where the *beri-beri* or the *green-madness* equally devoured foreman and slave. The wretched regions where, in early 20th century industrial world, white blooded *siringa*¹³⁸ trees crushed the Indians through the lash of the rubber extraction companies, is vividly portrayed in the novel.

From the ontological myths of the Huitoto, the *History of Creation*,¹³⁹ *Buinaima*,¹⁴⁰ the sole lasting being after the universal flood, introduces his first born son, *Meniza Buinaima*.

'From its four main pillars [of the *maloca*], the first one, *Da*, is located towards west, marked by the "*roguéramu*" cooking stove,¹⁴¹ the place where the vital power of tobacco is activated. The tobacco in Huitoto mythology is the plant that re-activates human life after the first human beings have been punished and submerged under the great burning flood. The *ámbil* is linked with the colour black, with obscurity and with lack of sun; here, the men overwhelmed by the burning flood, emerge from it through the action taken by *Buináño* (the ancestral mother), who deposits tobacco seeds there, where human voices are heard under the mud that covered the Earth'.¹⁴²

3.4.1.2. The piece.

Meniza Buinaima is scored for three shakers (rattles), live electronics and fixed audio media. Three shaken idiophones are to be freely selected as long as they comply with a basic criterion: they have to be made out of seeds, wood, bamboo or a free combination of them. Nevertheless, given the fixed nature of the work in both the instrumental and live electronics parts, an alternative mixed version for percussion and fixed audio media was

¹³⁵ *The Vortex*, English translation by E.K. James, New York, 1935.

¹³⁶ NEALE-SILVA (1939), 330.

¹³⁷ "José Eustasio Rivera". Encyclopedia Britannica. Encyclopedia Britannica Online.

¹³⁸ *Hevea brasiliensis*, commonly known as *rubber tree*.

¹³⁹ TORRES (1998)

¹⁴⁰ *Owner (-ma) of the first water (buina)* URBINA (2010)

¹⁴¹ Cooking stove to prepare the *ámbil* or Tobacco paste.

¹⁴² TORRES (1998) Translation Jorge García.

composed. In this second version, a live electronics studio performance using the three Amazonian seed rattles displayed in Figure 21 was embedded and mixed in the tape part. Each of the versions has its own advantages: the original allows the possibility of trying out different types of rattles (materials and dimensions), exploring by these means different sonorous outcomes. On the other hand, the second version presents itself as an alternative to those performers who prefer a mixed version instead of the use of live electronics.



Figure 21. Shaker / rattles used in *Meniza Buinaima*.

The piece, following the *pakado* structure, is divided into five sections, each one lasting four minutes. (Refer to APPENDIX 5).

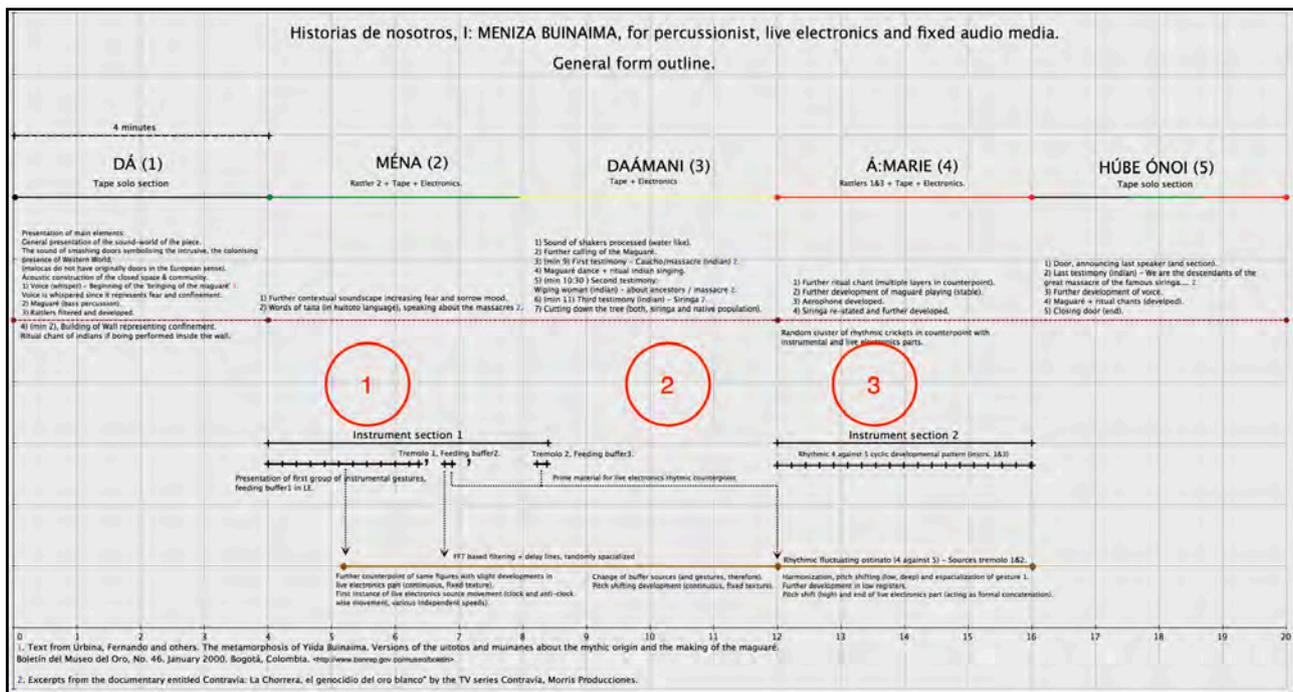


Figure 22. Compositional sketch form of *Meniza Buinaima* - APPENDIX 5.

As presented in the above graph, sections one and five, for fixed audio media only, frame both the instrumental and live electronics activity, which takes place in the three middle sections. Marked 1 in a red circle, the chart displays the point in time when the performer appears on stage¹⁴³ at 4:00 (page 2 on the music score, 4:00, second section), executing the first sound material which is buffered in the live electronics patch for further processing. All the buffered sounds to be processed during sections two to four rely upon the recorded sound material in three buffers. The first development of the buffered material selects random portions of gestures *a* to *g* (circled, pages 2 and 3 in the music score), whilst performing operations such as pitch shifting (through constant and random playback velocity variation) or playback of random portions of samples either backwards or forwards. Finally, random EQ fluctuations over portions of the spectra are performed via four discrete *biquad*-filters with *peaknotch* filter response (*Q* and *gain* remain fixed, while *cutoff centre frequencies* randomly vary between fixed specified limits - parts *1A*, *1B*, *2A* and *2B* of the patch, circled 1 in blue below). The product of this procedure is subsequently spatialised using ICST's ambisonic system.¹⁴⁴

¹⁴³ Either by stepping in or by lighting fade in.

¹⁴⁴ Left inferior semicircle, all coordinates given for spatialisation and source movement are horizontally fixed.

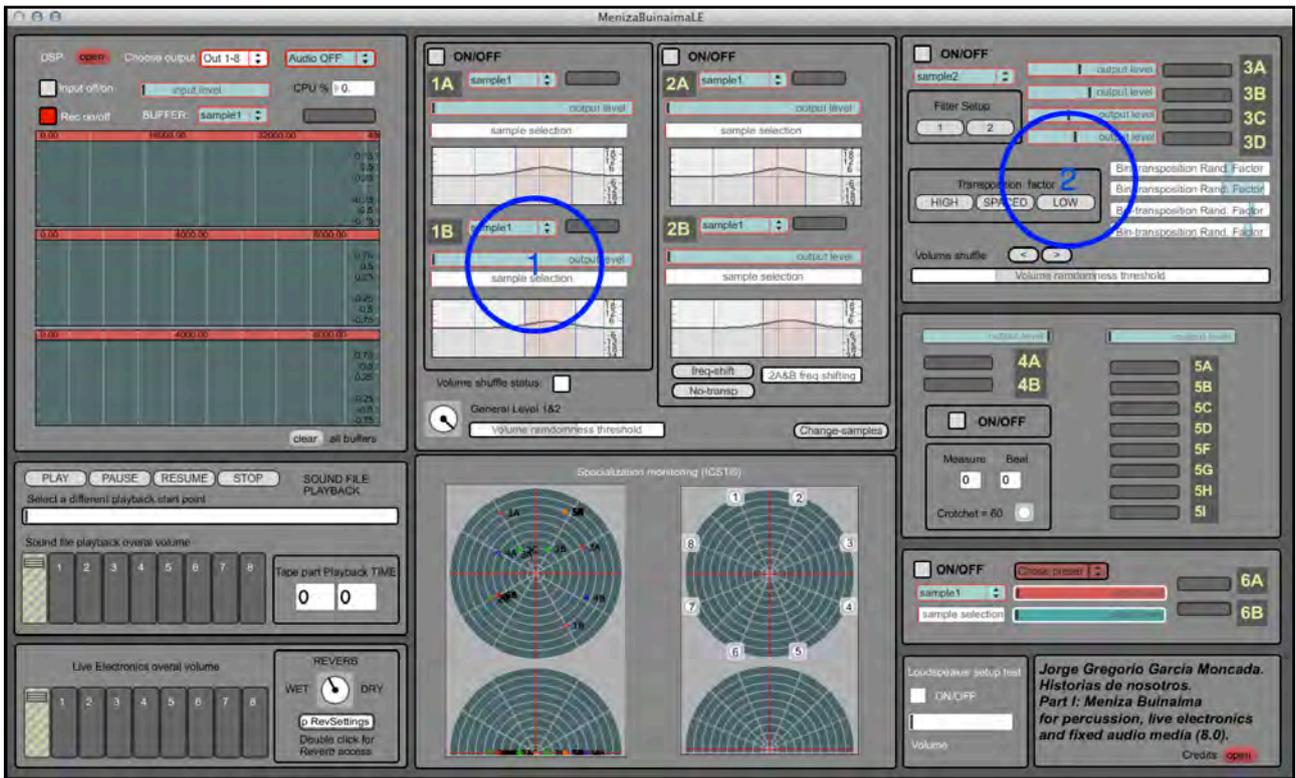


Figure 23. Live electronics standalone application of *Meniza Buinaima*.

Buffered tremolos of *rattles one and three* (pages 4 and 5 in the music score) constitute the raw material for the live electronics processes taking place from that point until the end of section four. Circled 2 in blue, figure 23 displays the location in the interface where further development of this material involves FFT based processes, together with further application of delay lines with random feedback values.

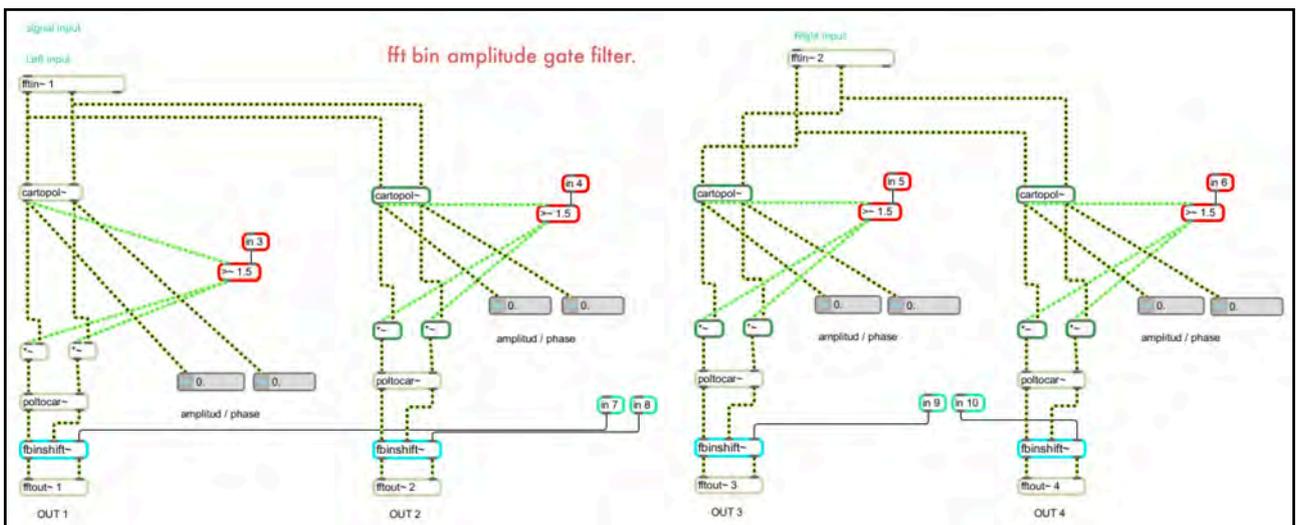


Figure 24. *Meniza Buinaima* MaxMSP subpatch.

The figure above shows in detail the aforementioned FFT based process (delay lines are applied in another subpatch): four outputs of sound material from the buffered tremolos, previously processed by applying *fft bin amplitude gating*¹⁴⁵ and *pitch shifting*, are divided into four discrete bands, acquiring by these means timbral characteristics that resemble streaming water or rain; the outputs are randomly positioned and spatialised using the ICST system. Throughout this 3rd section, from 8:00 to 12:00, the resulting transpositions, amplitude variations, and changes in motion velocity generate an interplay of exchange between foreground and background with the material in the tape part (pages 5 - 7, live electronics part, outputs 3A to 3D).

A development section for the percussionist is given in section four (from 12:00 to 16:00). Page 7 of the score displays the introductory beat to be taken as reference by the performer (quaver = 60). The whole structure of the section deals with the relationship, described in the *pakado*, between the numbers 4 and 5.

The basic unit, found in the last two bars of page 8, a quaver quintuplet against four quavers, is shown as follows:

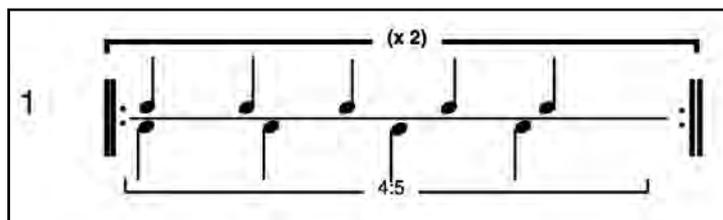


Figure 25. *Meniza Buinaima*, fourth section's rhythmic unit.

Further developments involving subdivisions of the elements of this basic material (the crotchets as units, marked 1 in the analysis below), including quaver (2), quaver-triplet (3) and semiquaver (4) subdivisions are found throughout the section in increasing complexity (following by these means the division of the *pakado* quintuple-tetriad system). The second voice, originally written as tuplet-ratios is transcribed into basic subdivisions (quantifying and approximating to the demisemiquaver subdivision point) to ease its reading, especially while the complexity grows within the patterns.

¹⁴⁵ The same principle is shown in the MSP's *frequency domain signal processing with pfft*- tutorials, noise-gating.

1		
2		
3		
4		

Figure 26. *Meniza Buinaima's* first development layer, fourth section.

The chart above presents the first development step (1st subdivision type, using only crotchets (1) and quavers (2)) - the numerals in red and blue designate subdivisions per voice; the quantised results are shown to the right of each example.

5			
6			
7			
8			

Figure 27. *Meniza Buinaima's* second development layer, fourth section.

The figure above illustrates the same principle with a second subdivision layer, including the next subdivision type (triplet-quavers). Likewise, the following figure specifies the last subdivision layer, using semiquavers as subdivision values (4).

Figure 28. *Meniza Buinaima's* third development layer, fourth section.

As observed in page 12 of the music score, the last iteration of rhythmic cell number 12 marks the end of section four, giving way by these means to the final section for fixed audio media only. The two tape-only sections, one and five, make extensive use of door sounds, which symbolises the presence of the *white* (Western).¹⁴⁶

The percussive sound of smashing doors is positioned at the beginning and at the end of these two sections, framing the extremes of the arch form. The extensive use of related,

¹⁴⁶ The entrance on 15 October 1910 of Roger Casement's diary recalls: 'They [Huitotos] are excellent builders and put up these huge Station houses to harbour a dozen "whites", and perhaps twice as many "wives", without a single nail used in the construction, or a single penny expended. Nails are used only when, as here at Entre Rios, rough European doors have been added to some of the rooms by the Barbadians of other civilised employées.' CASEMENT (1910), 245. - Emphasis mine.

loud wooden struck material such as the *maguaré*¹⁴⁷ attacks in these two sections make the form scheme described above evident to the listener.

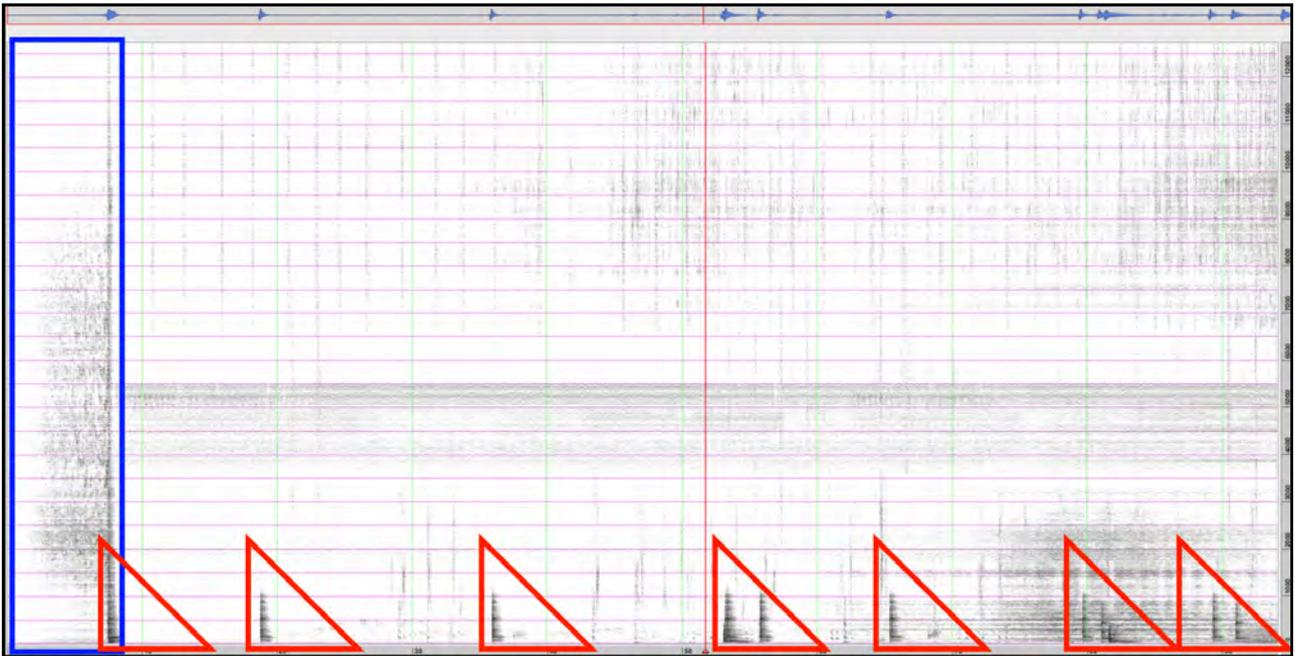


Figure 29. *Meniza Buinaima*'s spectrogram, first section (Detail, first 90 seconds).

The spectrogram above displays the first 90 seconds of the piece where the sharp attacks in the low register, highlighted in red triangles, show the *maguaré*-derived sound material. In the macro-formal sense of the cycle, it is important to point out the reiteration of this material in all four pieces in different forms.¹⁴⁸ Likewise, the fifth section (lasting two minutes in the spectrograph) re-states the material in question as follows:

¹⁴⁷ Originally from the Amazon region, the *maguaré* or *manguaré* is a percussion idiophone comprising two large wooden cylinders made out of hollowed trunks, performed using two beaters covered with rubber. URBINA et al. (2000), 43.

¹⁴⁸ Each of the four pieces refer to the *maguaré* in different ways, such as in *Yuai Buinaima*, (tape and marimba parts, 2nd section), or as in its variety of forms found in *Noino Buinaima*.

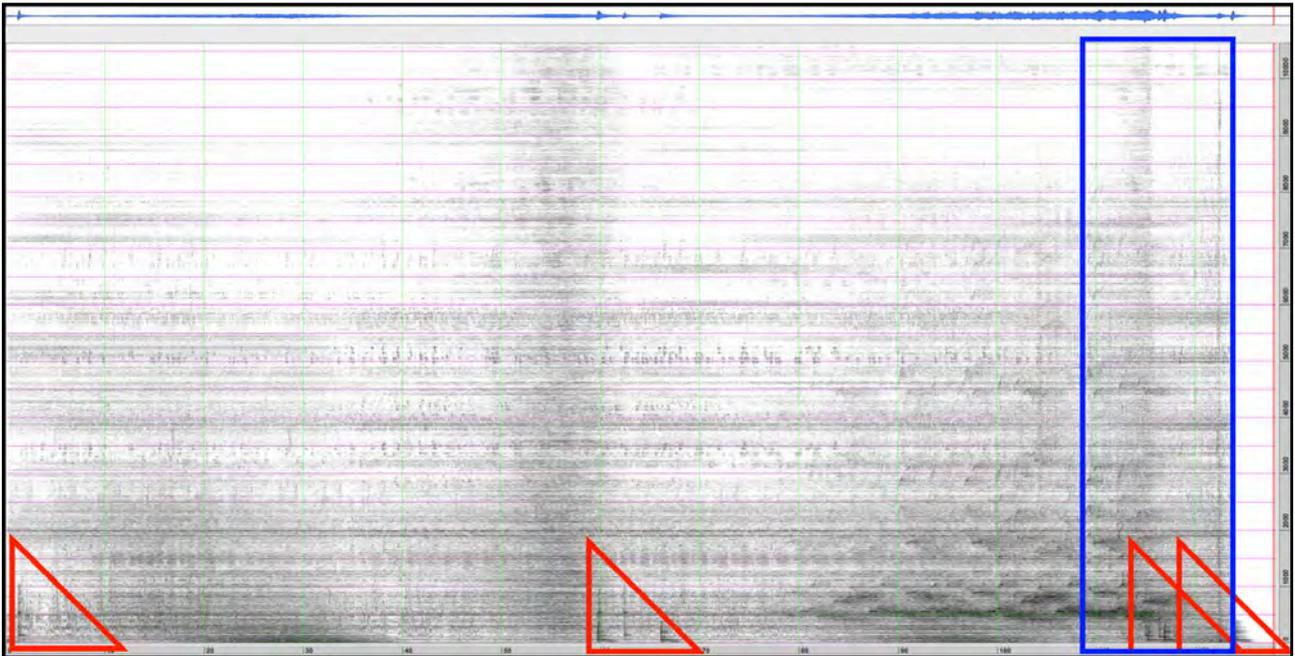


Figure 30. *Meniza Buinaima's* spectrogram, fifth section (detail, last two minutes approx.).

The recapitulation of the *maguaré* sounds in this last section, juxtaposed with developed versions of squeaking door hinge sounds¹⁴⁹ are followed by the conclusive slamming door (blue rectangle), thereby closing the piece in the same way it opened.

3.4.2. ZIKIDA BUINAIMA - *In memoriam Roger Casement.*

For fixed audio media (8.0 multichannel format).

Duration: 20:19.

'The rubber industry so-called, even when unattended by crime and oppression of the Indians, is on the Amazon - throughout Brazil or here in Peru - one of the most harmful pursuits a people could have given themselves up to. Every man has long since abandoned himself to this wretched rush for "black gold", as someone has called it. All else is neglected, not even thought of. Agriculture and the uses of the soil; the comforts of life; the joys of society, and the welfare of the community have been scarified in the rush to get rich. The demoralisation of the Spanish methods of dealing with a subordinate people has here reached a climax. Regular work, the great need of the region, the one thing that would have reclaimed the wild Indian tribes from their irregular and fitful life has been entirely lost sight of'.¹⁵⁰

pakado, second group (digits 6 to 10).

¹⁴⁹ A brief external reference, as *homage* to Pierre Henry - *Variations pour une porte et un soupir.*

¹⁵⁰ CASEMENT (1910) From Casement's diaries, *Steaming on Marañon towards Iquitos - Wednesday, 23rd November, 1910.* Ed. Angus Mitchell.

Colour: green.

Type of dance: hunting dance.

3.4.2.1.Context.

In its 19th July 1916 issue, the British newspaper *The Daily Mirror* portrayed a handcuffed man being escorted by officers to London's HM Prison Pentonville: *Roger Casement's appeal fails: "He was the King's liege wherever he might be"*. On 3rd August 1916 he was executed on charges of high treason.

Peruvian 2010 literature Nobel Prize winner Mario Vargas Llosa refers to Roger Casement (1864-1916) as someone who 'understood better than most of his contemporaries the evil aspect of colonialism and acted in a very coherent way against [it] from the centre of colonial power itself'.¹⁵¹

The latex extracted from the *siringa* was a crucial prime material during the Second Industrial Revolution of Europe and North America in the late 19th and early 20th centuries. A large proportion of industry relied upon rubber as the base material for their production lines, leading to an increase in demand by a world involved in the Great War.¹⁵²

The Peruvian Amazon Company (PAC), registered in 1907 on the London Stock Exchange and capitalised with an approximate value of a million pounds sterling, dominated the vast majority of the *caucho* (rubber) extraction industry in the Amazon region. At the centre of a territorial dispute over the Putumayo region between the Republics of Colombia and Peru, the company, under the direction and ownership of Peruvian Julio César Arana (1864-1952), a major politician and entrepreneur in the early 20th century, monopolised the major extraction and shipping activities in the region.

The growing Arana empire absorbed other companies previously settled in the region, such as those of the earliest Colombian *caucho* venturers who were forced to sell their companies after Arana introduced fluvial cargo transportation on an industrial scale.¹⁵³ It

¹⁵¹ MITCHELL (2009)

¹⁵² MITCHELL (1997), 322.

¹⁵³ Digital resources, Virtual expositions, La Vorágine, Historical context. Biblioteca Nacional de Colombia, Ministerio de Cultura.

has been suggested by various sources, including Casement himself, that swindle and conspiracy were used by Arana's company to acquire the monopoly of the rubber business in the region.¹⁵⁴

The publication in the London financial magazine *Truth* in September 1909 of an article containing serious accusations of mass slavery and genocide of native indigenous populations implemented by PAC during the process of latex collection, caused public outrage. As an immediate consequence, the Foreign Office appointed its Rio de Janeiro Consul-General, Sir Roger Casement to accompany a mission to PAC's headquarters to investigate the issue.¹⁵⁵

A particular note in Casement's diary, dated August 24th 1910, whilst navigating Brazilian territory, records a conversation with Victor Israel, a British owner of the *Pacaya Rubber Company*:

'These tribes, in their unconquered state were no use to anyone - they weren't any use to the white man and before anything could be got out of their rivers they had to be conquered and made to work. It required money to get out the necessary exportations to achieve these ends. The Peruvian govt. would grant a concession of the region conquered and encourage the settlement. It was the only method of subduing the *Montaña* - the great forest region, threaded by many rivers which stretch from the forest of the Andes to the Brazilian frontier - all the region has rubber, but no labour save its Indian tribes and the only means of starting labour is to force the Indians to work'.¹⁵⁶

It was through his particularly critical attitudes towards Western colonisation published in the Congo Report (1903) or the Blue Book (1912)¹⁵⁷ that Casement directed international attention towards the atrocities supported and perpetuated by the Western Industrial World. Vargas Llosa stresses that 'what Roger Casement did was absolutely useful at least to make visible a problem which the great majority of Peruvians [and the whole World] ignored completely. They didn't know what was going on in the Amazon. They didn't

¹⁵⁴ MITCHELL (1997), 84. In a footnote by Mitchell, he brings into account the presumed murder of a Colombian *cauchero* called Serrano in 1908 by representatives of the Peruvian Amazon Co.

¹⁵⁵ *ibid*, 60.

¹⁵⁶ CASEMENT (1910), 78.

¹⁵⁷ A posthumous publication of Casement's Amazon diaries are available, edited by MITCHELL (1997).

know the kind of exploitation, brutality, atrocities committed by the *caucho* people in the Putumayo region'.¹⁵⁸

It is of no surprise to see Sir Roger Casement, a worldwide symbol of anti-slavery in the early 20th century, eventually turning around the power of his political influence in order to begin a crusade against the very system that brought him to the peak of his diplomatic career. In his novel *The dream of the Celt*, Mario Vargas Llosa recreates Casement's last memories as a convict after having been arrested on the shores of Banna Strand, southwest Ireland, shortly after being brought ashore by the Imperial German Navy's SM U-19 U-boat.

"We Irishmen are like the huitotos, the boras, the andoques and the muinanes of the Putumayo. Colonised and exploited, and condemned always to be so, if we keep placing our confidence in the laws, institutions and Government of England in order to reach liberty. They will never give it to us. Why would the Empire that colonises us do it if it does not feel an irresistible pressure that obliges it to do so? That pressure can only come about through armed uprising". The idea that he would be refining and reinforcing in the days, weeks and months to come - that, just like the Putumayo Indians, if the Irish wanted freedom, they would need to fight for it - became an obsession [...].¹⁵⁹

Suspecting Germany's lack of genuine support in both arms supply and general military logistics, Casement makes his final journey to his native Ireland with the aim of preventing what he saw as a doomed insurrection, which quickly erupted into the Easter Rising of 1916. During the fourth and last day of his trial, unusual emphasis over *some recently discovered documents* was raised in court. On July 18th, a Cabinet Memorandum makes reference to what it calls *The Black Diaries* alleging that those documents 'clearly showed that Casement had for many years been addicted to the grossest sodomitical practices'.¹⁶⁰ The public controversy generated by the circulation of portions of these diaries clearly undermined any possibility of granting any of the various solicited reprieves, consequently preventing Casement from attaining martyrdom. 'Many Irish and others continue to believe that Casement was the victim of British Intelligence'.¹⁶¹

¹⁵⁸ MITCHELL (2009)

¹⁵⁹ VARGAS LLOSA (2010), 239. Translated by Jorge García.

¹⁶⁰ MITCHELL (1997), 18.

¹⁶¹ *ibid.*

The piece is dedicated to the memory of this remarkable character; one of the very few courageous men who actively denounced and stood against Western enslavement and genocide in early 20th century. He died a victim of his own deluded nationalistic fervour. His diaries and reports represent a milestone of (another) embarrassing episode in Western industrial civilisation and brought to light the extermination of entire native communities under the cruelty of the lash and the gun. May he be remembered, not for the later political actions which led to his execution, but for his humanitarian work and its historical legacy.

3.4.2.1. The piece.

Following the *pakado*, *Zikída Buinaima* is structured using the second quintuple group enclosing digits 6 to 10 (refer to APPENDIX 6). In the macro-formal sense of the cycle, the piece bridges the first and second pieces thematically by using fragments of texts from two bibliographical sources: Rivera's *Vorágine*¹⁶² and Casement's Amazon diaries.

As mentioned earlier, recognisable sound sources (such as the sounds from the percussion instruments that will be noticed in the instrumental part of the third piece) are used as a unifying factor, reiterated throughout the pieces of the cycle. The first four minutes of the work are focused on developing sounds that are either recordings of wind or have aural similarities to it. In this case, inharmonic (noise) sounds from the bongo's scratched skin are processed and combined with those of wind and the leaves of trees; these are subsequently mixed with recordings of rubbed bongo skin at the edge of the drum, revealing by these means pitched sonorities. Some of these sounds are processed by resonant filters with centre frequencies - as used in the resonant bandpass filter (MaxMSP *reson~* object) - matched to the harmonics of the fundamental frequency of this pitched material. By these means, a reference to the howling sound of the wind and its typical glissandi is produced, progressively unfolding its harmonic content towards 2:20.

¹⁶² 'It has been said that Rivera inaugurates the genre known as "*novela de tierra*" [land novel] in which real or fictitious situations give rise to a description of the landscape and force of nature with fear and fascination; likewise, it extols the national geography and the drama and glories of its inhabitants. Also, it is pointed out its denouncement character and, in that sense, its preoccupation with social conflict.' PÁRAMO & FRANCO (2009) Authors of the research part of the text booklet included in the Biblioteca Nacional de Colombia's web page, La Vorágine exhibition, 2009 - 2010.

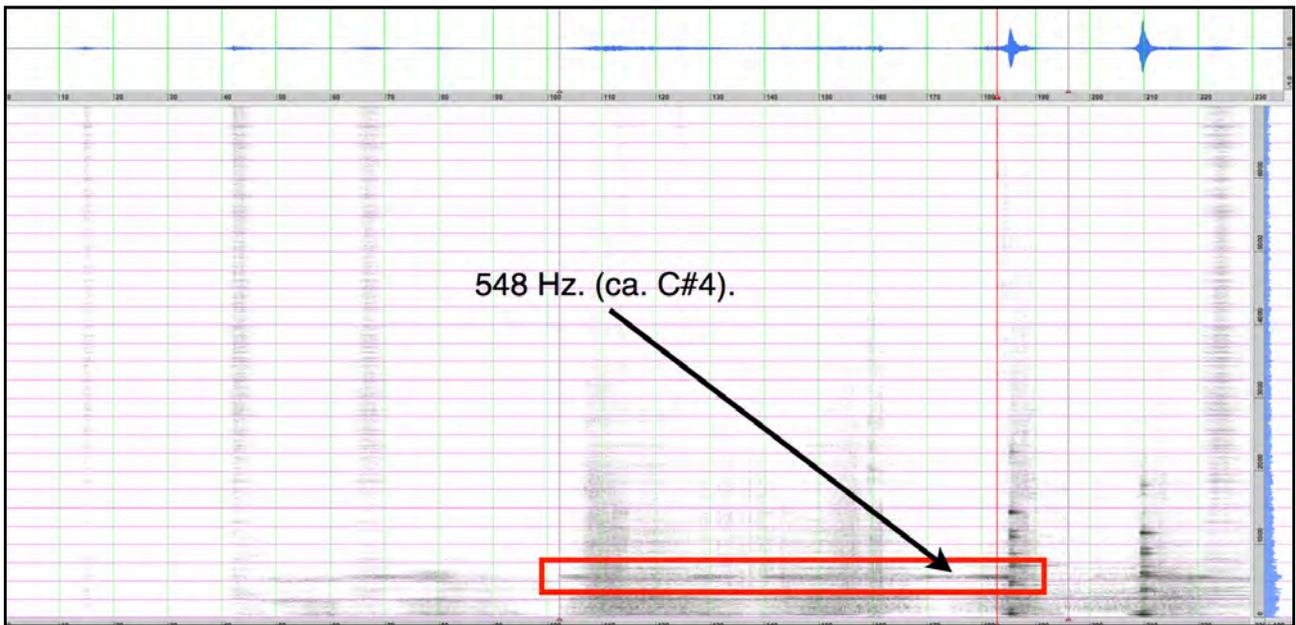


Figure 31. *Zikida Buinaima's* spectrogram, first section.

The second section of the piece (from 4:00), presents an alternation of two types of formal blocks. The first is constructed on the idea of a mutation from the preceding wind sounds into new sonorities with metallic characteristics. This transformation is interrupted three times by the appearance of the voice reciting sections of *La Vorágine*, thus displaying the internal formal outline of *a1 b1 a2 b2 a3 b3 a4*. Structurally, these partitions correspond to the use of the 7th digit of the *pakado* (second digit in the second quintuple group); the duration of 4 minutes of the section is therefore divided into seven equal time units of 34 seconds.

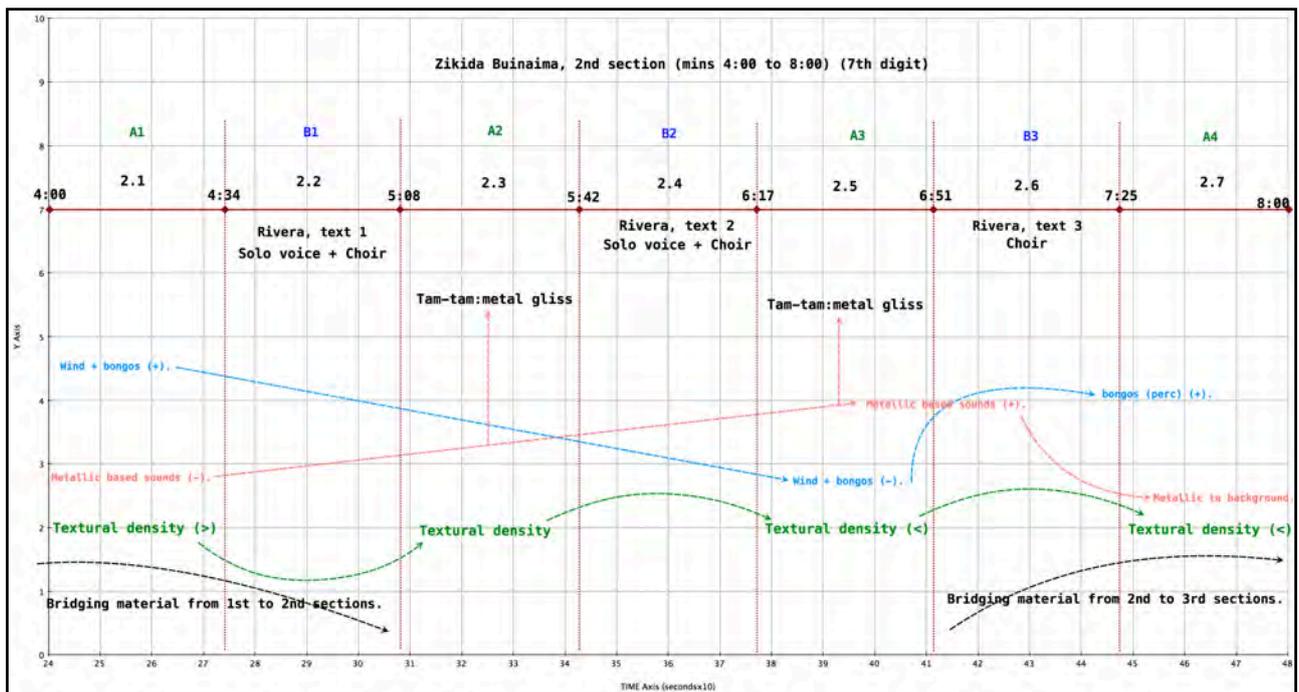


Figure 32. Compositional sketch form of *Zikida Buinaima*, second section - APPENDIX 7.

Further new sounds were obtained by rubbing the skin of the bongo with a small metallic chain as well as by rubbing a large tam-tam with a coin. The relatively high velocity and wide trajectory over the surface of the instruments needed in order to perform these gestures were kept in the resulting spatialisation of the sound material. Hence, there is a constant alternation between loud and rapid motion material of this type (A1-4) with material which tends towards inertia by presenting the reciter in the frontal image (B1-3). Likewise, a growth in textural density towards A4 was taken as a point of compositional reference. It is important to point out that these temporal partitions in the sketch are not to be taken as absolute boundaries; they tend to work more as a reference than as constraints. In this way, it happens that sometimes elements from one sub-section might partially overlap material from the following one. Placement and duration of a particular sound event given within the texture and timeline is highly influenced by both its internal morphology and the type of processing to which it is eventually subjected.

The shotgun sound at 7:10, an evident reference to the *hunting* scene, marks the instance of A4 which, by fulfilling the same formal crossfade function of A1, concatenates the two neighbouring formal sections (second and third). By these means the material already

presented as A progressively dissolves into the Indian chants¹⁶³ of the 3rd section (starting at 8:00).

The chants belong to the type of *entrance songs* performed after the hunting prey is brought into the *maloca* during the ritual.¹⁶⁴ This material, progressively juxtaposed with the Irish pub session setting around 8:35, incorporates a marimba tremolo on a low D which, at the same time, timbrally mutates into a Uilleann Irish pipe drone on D. Providing harmonic ground to the leading melody performed by the accordion (later accompanied by the rest of the ensemble), the addition of this material brings into the scenario the Irish world collapsing into the Amazonian, referencing Casement's odyssey into the jungle. Furthermore, this juxtaposition of sound worlds symbolises Casement's personal belief about the parallelisms he saw between the Irish and the Amazonian nations under foreign colonial powers.¹⁶⁵

The aforementioned material prefaces Casement's testimonies in section four (12:00-16:00). Three sound sources generate the entire structure: the voice, bongo tremolos and tam-tam sounds. Likewise, three layers of textural activity are to be found. The positioning of the voice in the foreground builds an intimacy between the listener and Casement's accounts from his Amazon diaries. The voice is placed against two other layers of musical texture. In the middle ground, polyphonic random excerpts of the text are played back using rhythmically triggered fast envelopes that constantly cut the text into very small regular units. This results in the production of sounds which, although clearly perceived as being spoken parts of texts, barely convey sufficient information to retain complete semantic meaning.

The picture below displays an instance of one of the subpatches performing such a task. The *play~* object at the left of the patch outputs to the *signal multiplier operator* (*~) which

¹⁶³ 'The dance owner was converted into a peccary now [he] becomes Jiaisi Buinasai (sub-water people) Jafaike Buinasai, our Father (of the good word) is the recalled one. Before the dance, he was converted into a peccary. This maloca is converted now into caunana; Once we heard about this caunana we came to drink and eat, but there is nothing and that is why we leave'. YÉPEZ (1981). Translation, Jorge García.

¹⁶⁴ *ibid.*

¹⁶⁵ A number of references to these parallelisms are to be found in his diaries, edited by Mitchell, as well as the narrations found in Vargas Llosa's *Dream of the Celt*.

constantly uses the lists specified in the *coll* object as envelope values creating the aforementioned vocal result. At the bottom of the signal chain, it is mixed with an unaltered output of the same *play~* object, creating a blend between both original and processed versions.

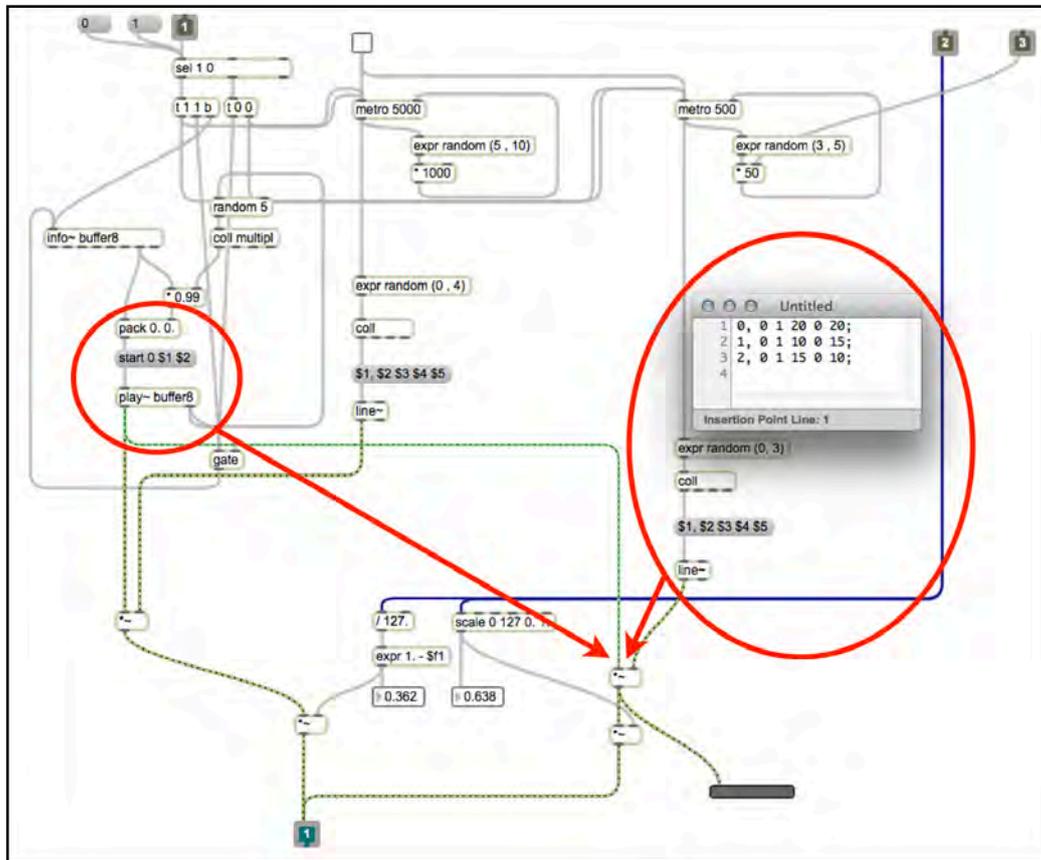


Figure 33. MaxMSP subpatch 1, *Zikida Buinaima*.

Afterwards, the subpatch's vocal output is mixed with polyphonic instances of the same bongo trills found in the first section of the piece. The timbral quality of the trills are developed by applying parallel *fffb~* filters (banks of bandpass filter objects) with random frequency, Q and gain values within specified thresholds to each one of the eight internal bandpass filters. The sharp attacks of the incoming trills are ideal to excite the parallel filterbanks since 'by sending unitary impulses to a bank of bandpass filters, it is possible to simulate resonant objects made of various materials, such as [...] wood, consisting of medium frequencies exhibiting short resonance [...]'.¹⁶⁶ Three polyphonic voices of this material, each one discretely tuned to their unique randomly generated parameters per filter, are mixed with the described sliced vocal material, thereby constituting the rhythmic

¹⁶⁶ CIPRIANI and GIRI (2010), 344.

web of the middle ground layer. This material is strewn all over the virtual space. Whilst the voice-based material remains fixed, the resonant filtered trills slowly rotate clockwise and anti-clockwise.

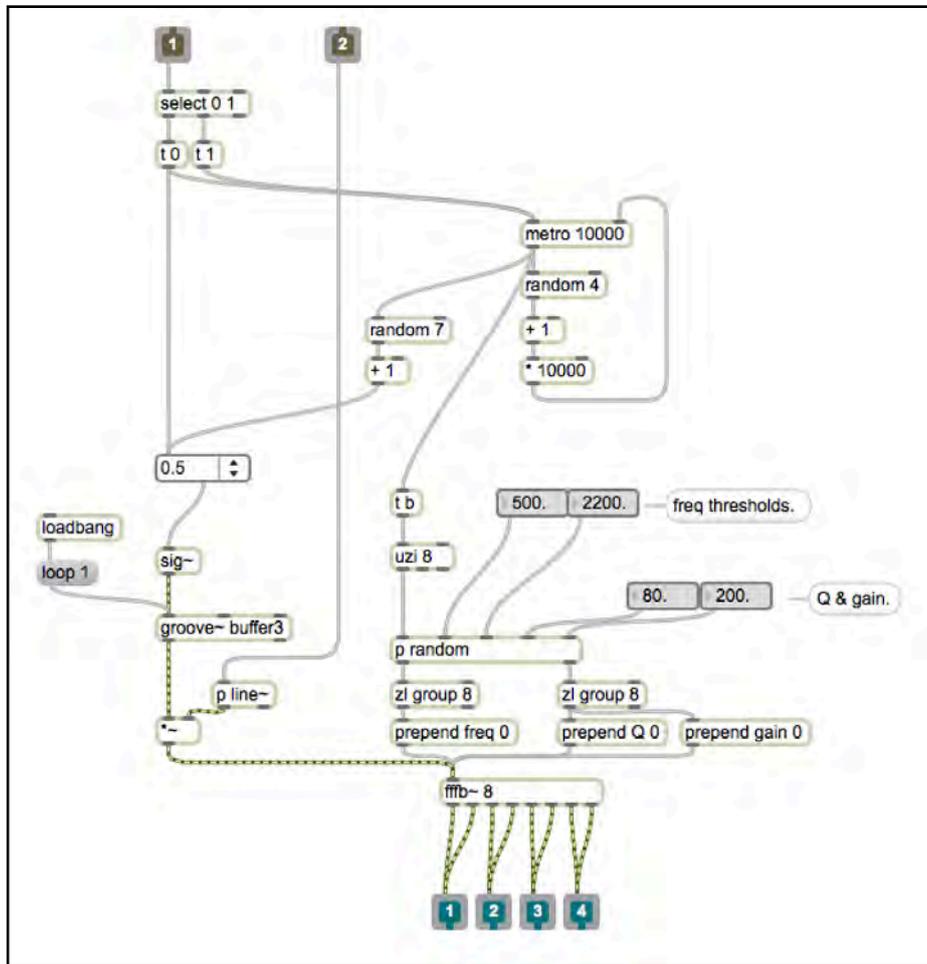


Figure 34. MaxMSP subpatch 2, *Zikida Buinaima*.

Finally, the metallic sounds in the background of the texture were obtained by recording a bowed (large) tam-tam. Two DPA microphones and two accelerometers were used for the recording session. The DPA microphones were widely spaced, closely facing the instrument's body. The microphones, not in a fixed position, were moved around the instrument's surface during its vibration time, thereby enhancing the perception of natural timbral changes during its long decay. In addition, the accelerometers, attached to the metallic frame from which the instrument was suspended, enhanced the perception of particular high-pitched metallic micro-sonorities, especially during its excitation by the bowed attack. This sound material was mixed and played back using the eight-channel granulator system available in BEASTools V1.0, *granul8*, with a slow LFO and relatively

large grain duration in order to emphasise the slow and gradual timbral development of the instrument's resonance.

A transitional bridge between sections four and five takes place from 15:50 to 16:50 through a slow timbral transformation of the sound of a scratched bongo skin placed in the foreground. Through cross-synthesis techniques available in AudioSculpt, a linear interpolation between an instance of a vibrating tam-tam sample used in section four and that of the scratched bongo skin already mentioned is performed in order to prepare the transition between the two backgrounds in sections four and five. Hence, whilst section four displays metallic background timbral characteristics, section five presents sound material originating from the scratched bongo.

A return to a light texture and low dynamics previously found in the first section highlights an arch form, evidenced by including sound material originally heard at the beginning of the piece, such as the breeze against tree leaves and wind sounds. To conclude, a popular Irish lament, *For Ireland, I'd not tell her name* is heard in the distance performed by the Uilleann pipe whilst juxtaposed with a brief recapitulation of the previous Indian chants, referencing once more Casement's final moments.¹⁶⁷

3.4.3. YUAI BUINAIMA - *In memoriam Benjamín Saldaña Rocca.*

For Percussion and fixed audio media (8.0 multichannel format).

Duration: 20:02.

[...] Between Huitotos and Muinanes there are two types of *maguaré*. The small is called *juábiki* [...]. The man of wisdom that owns this type of *maguaré* "does not yet have much outreach", which is equivalent to saying that "his voice still lacks strength". People in this situation are required, in principle, to perform the "*Dance of the fruits*" (Yuai), as that is one of the simple ones'.¹⁶⁸

¹⁶⁷ 'He [Casement] met various Irish people "from both sides", Catholics and some Protestants that, like Douglas Hyde, founder of the National Literary Society, promoted the renaissance of Irish culture; they wanted to reinstate the native names of sites and villages, give rebirth to the ancient songs of Eire, to ancient dances, to yarn and the traditional needlework of tweed and linen. When he was appointed to the Lisbon consulate he delayed his departure to infinity, on the pretexts of health issues, in order to be able to attend the first Feis na nGgleann (Glens Festival), in Antrim, where approximately three million people gathered. During those days, Roger may times felt tears in his eyes when listening to the joyful melodies performed by the pipe players and sang in chorus, or when he heard, even without understanding, ballads in Gaelic and legends from the depths of medieval nights from the storytellers.' VARGAS LLOSA (2010), 143-44. Translation, Jorge García.

¹⁶⁸ URBINA et al. (2000) Translation, Jorge García.

pakado, third group, (digits 11 to 15).

Colour: yellow.

Type of dance: dance of the fruits.

Figure 35. *La Felpa*, Archivo Nacional, Peru.¹⁶⁹



3.4.3.1.Context.

The piece is dedicated to one of the first figures publicly to denounce the atrocities committed by the PAC. Roger Casement's biographer Angus Mitchell, editor of two of the most important and complete versions of his diaries, introduces Saldaña Rocca as a 'socialist agitator who lived and worked in Iquitos and galvanised the first protest against Juilo César Arana and his rubber-gathering regime through his two newspapers, *La Felpa* and *La Sanción*'.¹⁷⁰ As a consequence of his campaign against Arana's management, the local journalist was thrown into exile eventually dying in Lima in 1912, bankrupt and isolated.¹⁷¹ Saldaña Rocca was responsible for facilitating the handover of firsthand investigation material to Walter Hardenburg, leading to the publication of the articles in *Truth* magazine; these caused the public scandal that brought about PAC's eventual collapse.¹⁷²

3.4.3.1.The piece.

Following the pair-opposition concept discussed at the beginning of this commentary, the piece presents both instrumental and electroacoustic forces. The instrumental table specifies the following format:

¹⁶⁹ MITCHELL (2009)

¹⁷⁰ *ibid.* - Editions for both newspapers to be found in Bodleian Library, Oxford N.2343 b.10 (1).

¹⁷¹ TULLY (2011), 92.

¹⁷² MITCHELL (1997), 60.

Percussion:

- 1 large tam-tam
- 3 temple blocks
- 2 bongos
- 2 toms
- 1 bass drum
- 1 marimba (4 octave range)

Following the *pakado*, the piece is based on digits 11 to 15, corresponding to the third quintuple group (refer to APPENDIX 8). Keeping the layout of a form organised in 5 equal sections with fixed duration (four minutes each), the first section is detailed as follows:

First Section, *eíbamo dá* (in the foot, one - 11). *Wind*.

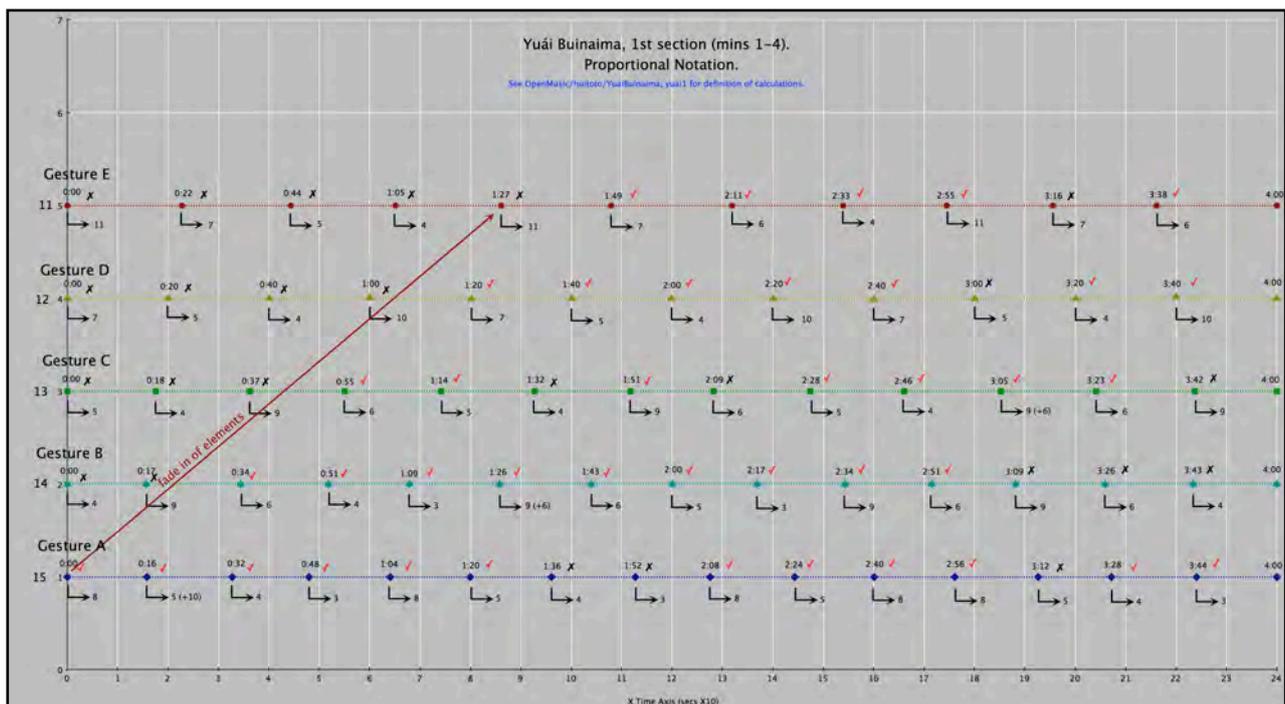


Figure 36. Compositional sketch form of *Yuái Buinaima*, first section - APPENDIX 9.

Figure 36 displays the layout of the instrumental part. The four minute block is divided into five juxtaposed polyphonic layers which correspond to the five main gestures of the instrumental part (labelled A to E in the graph). Likewise, throughout the 240 seconds duration of this first section, each gesture is respectively divided into 15, 14, 13, 12 and 11

equal units. Further systematic internal divisions define the actual durations per event. The whole section, entirely performed by the bongos, is constructed from the following gestures:

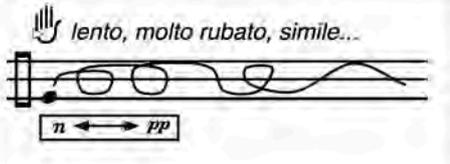
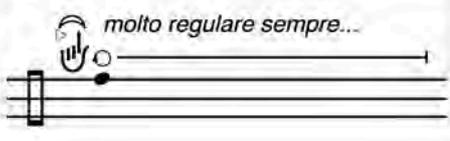
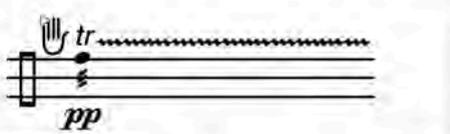
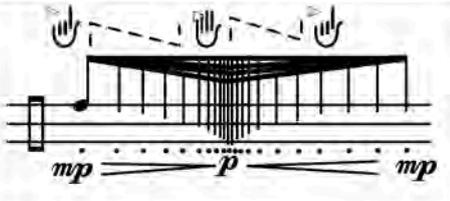
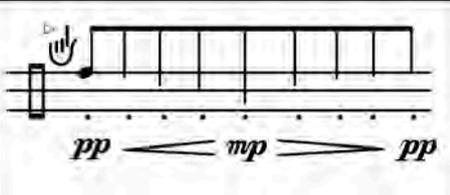
Gesture A		Position: 0:00
Gesture B		Position: 0:34
Gesture C		Position: 0:55
Gesture D		Position: 1:20
Gesture E		Position: 1:49

Figure 37. Five main gestures of *Yuái Buinaima*, first section, instrumental part.

The material above, commonly displaying low dynamics, is reiterated all over the 4 minute timeline axis with durational variations, thereby imprinting these thematic characteristics in the mind of the listener. Representing the wind,¹⁷³ the tape material introduces sounds obtained by rubbing the skin of the bongos with the palm.¹⁷⁴ This material is spatialised by applying constant velocity displacement changes during their trajectories. Programmed in

¹⁷³ 'The Huitoto hold symbolic value for a variety of natural phenomena, given that they establish meaningful associations for them. [...] *Jairifo*, wind, air: has a double meaning: it can convey either havoc and diseases or can be used by the shaman to heal'. TAGLIANI (1992) Translation J. García.

¹⁷⁴ Same instrumental Gesture A1, Figure 37.

MaxMSP, the patch constantly measures the incoming signal amplitude performing a mapping process from amplitude values into velocity displacement criteria. Afterwards, this information is sent to an ICST *ambicontrol* trajectory controller object¹⁷⁵ (in rotate mode) in the form of stepsize¹⁷⁶ data. This procedure constantly changes the source velocity displacement depending on the changes of amplitude (the louder it gets, the faster it moves), giving the sensation of displacement of wind around the listener.

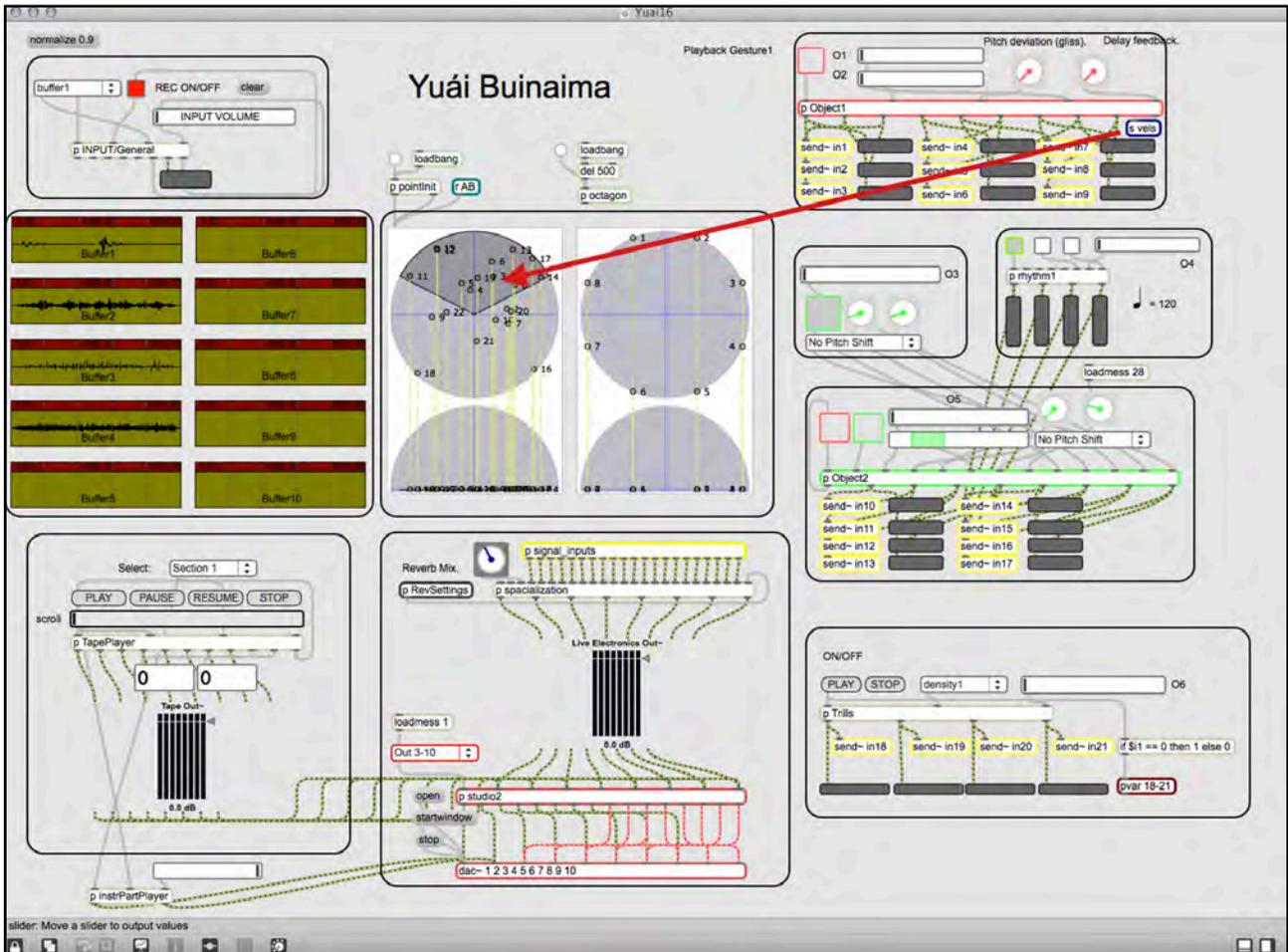


Figure 38. *Yuái Buinaima* top level MaxMSP patch.

¹⁷⁵ The spatialisation and panning was performed using the ICST ambisonics system, using azimuth and distance coordinates for source location and displacement (elevation was pantophonic - horizontal only). Other spatialisation procedures were developed using IRCAM's SPAT system. Both ICST and IRCAM systems were employed using the MaxMSP external objects provided with them.

¹⁷⁶ Velocity of source displacement.

Figure 38 displays the top level of the MaxMSP patch, with *object one subpatch* (top right in red) sending velocity information (*s vels* object in blue) to three sources in the ICST *ambimonitor* object as described above¹⁷⁷.

A subpatch applies further slight pitch shifting, mapping amplitude information into constantly varying glissando transposition data (using *fbinshift~* objects, Figure 39, circled in red). This gives a total of six output sources, each one displaying independent slight transpositions and trajectories.

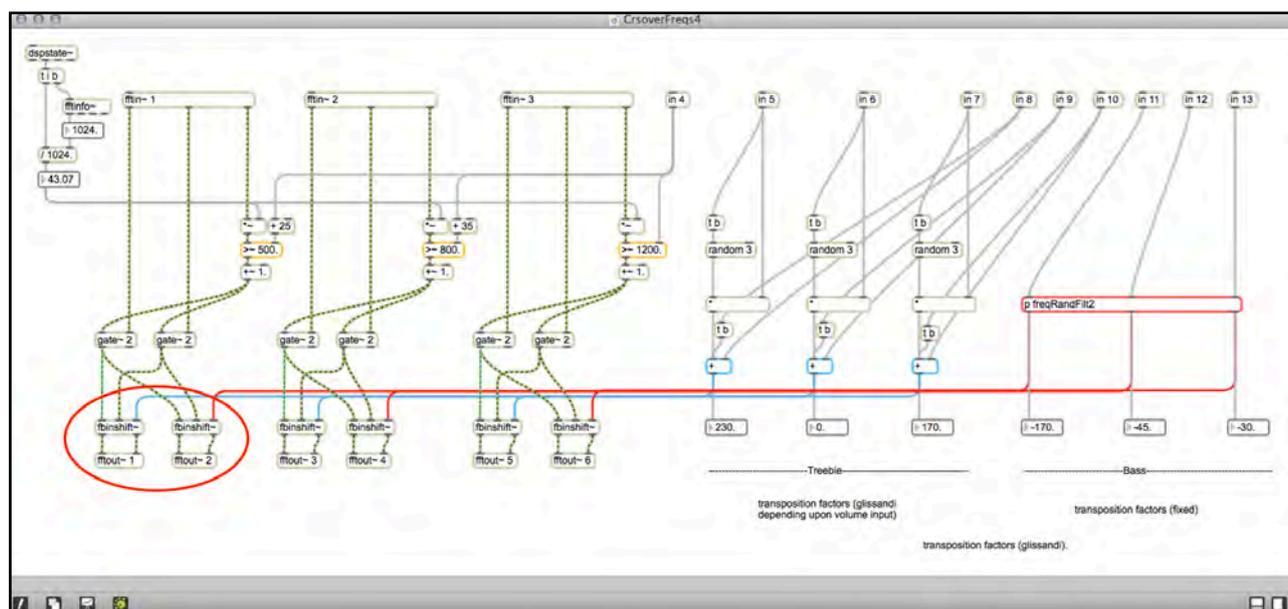


Figure 39. Yuái Buinaima MaxMSP sub-patch.

Evoking in this way a *forestal wind soundscape*, Gesture A1 in the tape slowly mutates into a whistling sound whilst both instrumental and tape parts progressively blend together towards the middle of the section.

Second Section, *eíbamo ména* (in the foot, two - 12). *Maguaré*.

A rhythmic analysis was performed on the fifth track of the (vinyl) disc *Música de los Huitotos*¹⁷⁸ entitled *Toque de Corabiki* (the performance of the *Corabiki*). This idiophone

¹⁷⁷ ICST ambimonitor GUI displays top view as circumference; lower semicircles show front view (all sources leveled horizontally).

¹⁷⁸ YÉPEZ (1981)

corresponds to a small version of the *maguaré* which uses a hole in the floor as a resonance cavity.¹⁷⁹

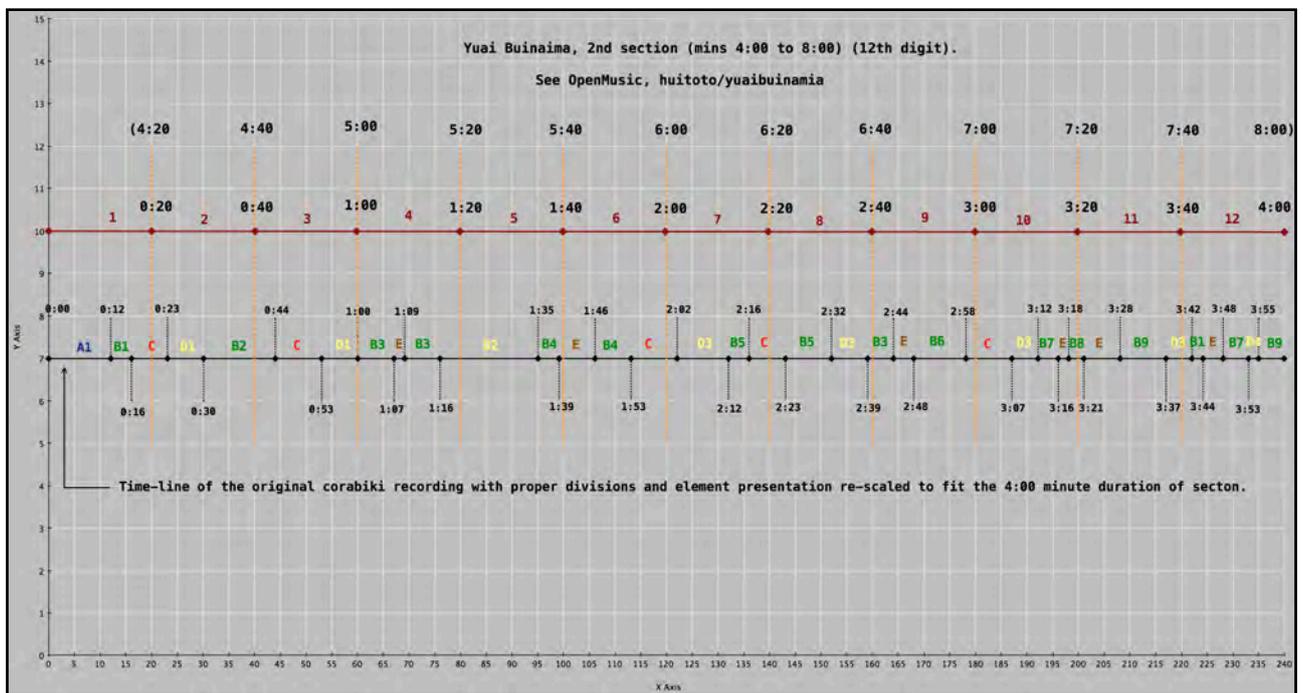


Figure 40. Compositional sketch form of *Yuái Buinaima*, second section - APPENDIX 10.

Figure 40 displays a black horizontal line representing the sequence of units in the original recording.¹⁸⁰ Nevertheless, the duration of this excerpt was mapped from its original 1:44 to 4:00 minutes in order to fit the form of the piece. The alphabetic sequence represents the rhythmic units and their order. The original rhythmic units in the recordings are transcribed as follows (quaver = 100 approx.):

¹⁷⁹ [The *corabiki*] is the voice of the Owner of the dance. Like the *Juai-rai* [or *maguaré*], it announces with its beats the various steps taken for the realisation of the ritual (dance). The beat says: *Jibie garite, gui, gui, gui...* I'm bringing out the coca, I'm toasting it...' YÉPEZ (1981)

¹⁸⁰ Red line above stands for the 12 internal partitions of the section.

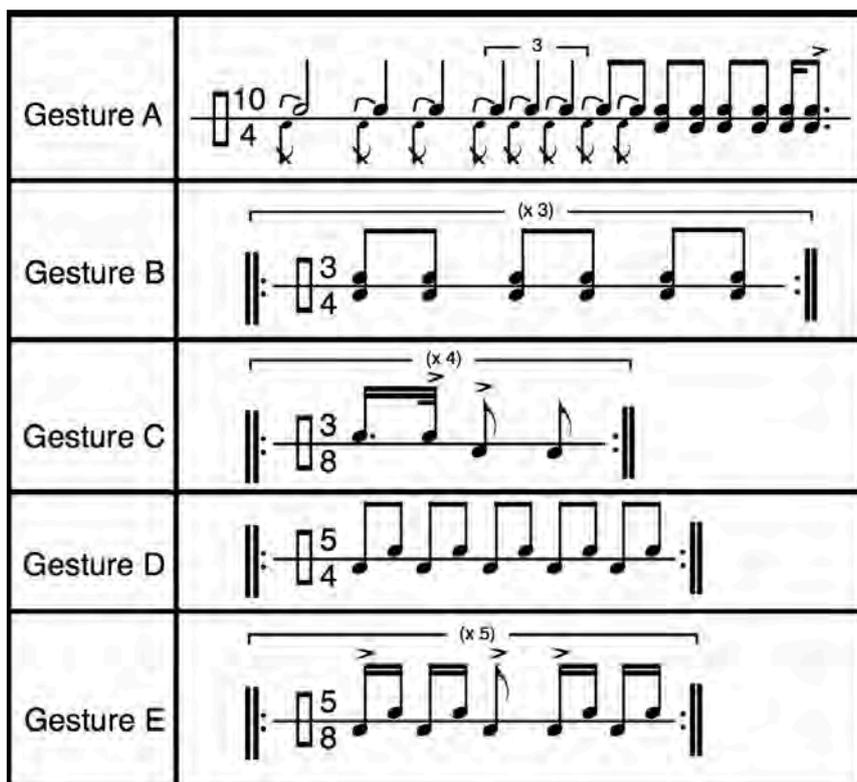


Figure 41. Five main gestures of *Yuái Buinaima*, second section, instrumental part.

It is important to observe that whilst elements C and E remain unchanged, elements B and D vary in terms of their number of iterations per execution (numerals attached to capital letters). Element A stands for an introductory *accelerando* towards the quaver cyclic group in B1.

Spectral analysis was performed on short samples from the aforementioned material, selecting the following type of attacks:

Gesture A1, first two strikes, first one as an *appoggiatura*, on the 2 idiophones.

Gesture B1, both idiophones struck simultaneously.

Gesture C1, complete.

The following spectrogram corresponds to the analysis of A1 described above:

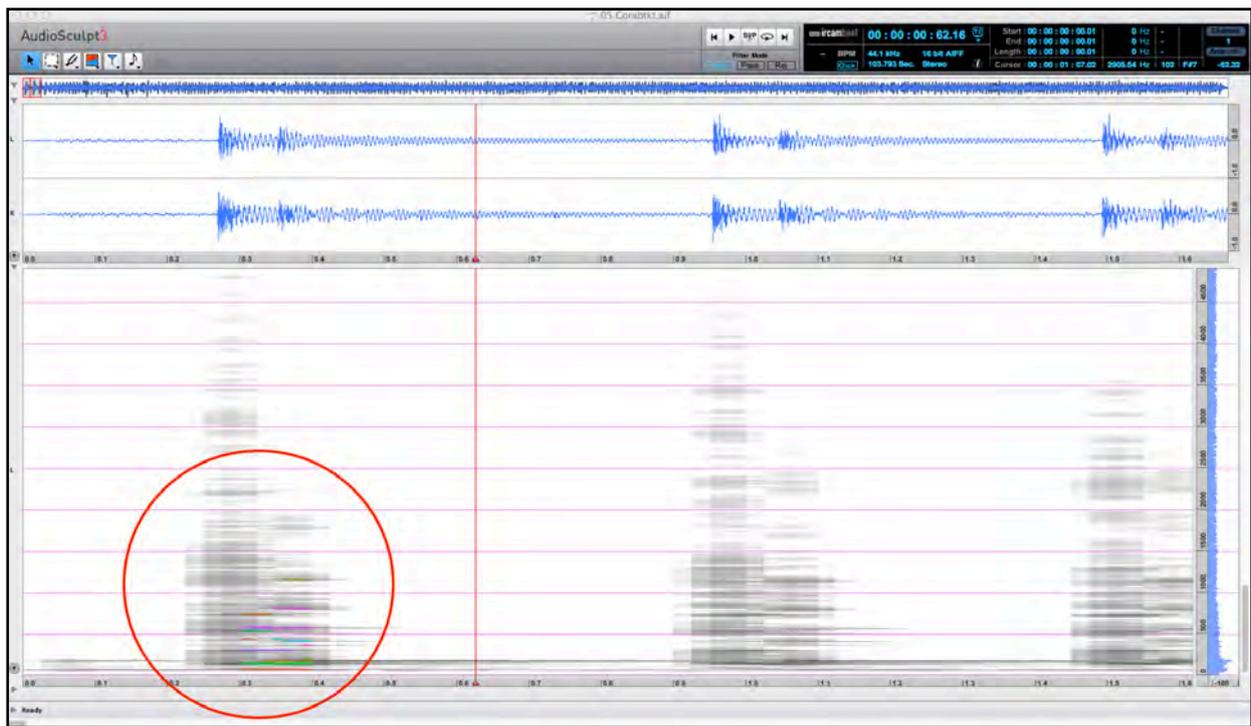


Figure 42. Gesture A1 spectral analysis.

The coloured portion of the spectra in the red circle displays an AudioSculpt FFT analysis performed on the first strike on A1. An inharmonic partial tracking analysis with amplitude threshold of -40 dB and maximum of 10 partials was performed, obtaining the following data, translated into standard music notation using OpenMusic and the *repmus* analysis library¹⁸¹:

¹⁸¹ <http://repmus.ircam.fr/openmusic/home>

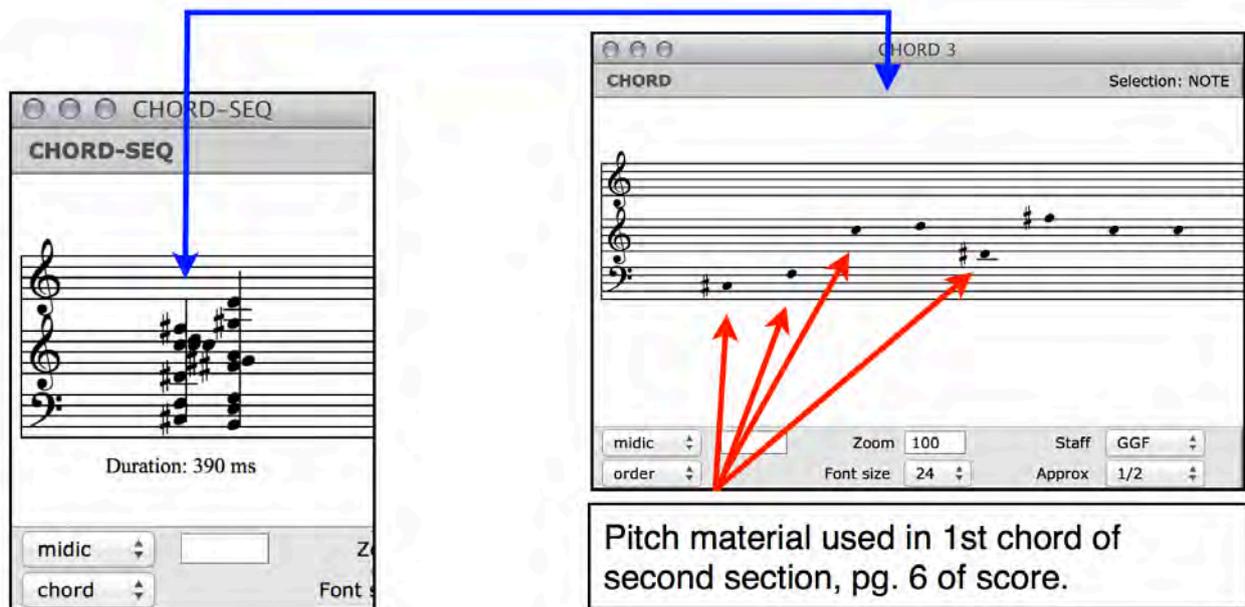


Figure 43. OpenMusic repmus library chromatic rendition of gesture A1.

Besides the necessary chromatic approximation as part of the transcription process from the source (spectral analysis) to the marimba part, the original octave of the pitches was maintained;¹⁸² nevertheless, the order of the pitches within each chord was rearranged taking into consideration the ease of instrumental performance as well as personal taste. This process was applied to each of the gestures and their corresponding variations throughout the section. Further internal rhythmic variations within each of the resulting iterations are freely performed, nevertheless respecting the time proportions as well as the pitch classes obtained through the spectral analysis. Likewise, the original rhythmic characteristics of each of the gestures from the sources were maintained, applying only slight variations.

The tape part is built on the same material from the spectral analysis, produced synthetically, but conserving the original microtonal qualities of each of the chords.¹⁸³ The resulting sound material was further processed by the application of delay filters. As can be seen in the musical score, the attacks occur simultaneously in both media, the aim being to produce a blend between instrumental and tape material.

¹⁸² When eventually original pitches exceeded the marimba's four octave range, they were flipped back to the same pitch class in the nearest octave.

¹⁸³ Produced by using the *bm-microton* application included in the OpenMusic 6 suite.

Third section, *eíbamo daámani* (in the foot, three - 13). Drumming.

The instrumental part of this section was originally intended to be placed in the third section of the second piece of the cycle, *Zikida Buinaima*, which I thought would have a mixed setup. After taking the decision during the compositional process to restructure it as an acousmatic piece, I personally found the remaining output of the percussion part quite interesting. Henceforth the task turned into finding a method to place this already existing material into the structure of the third piece. Hence, the calculation numbers of the structure gravitates around the 8th digit instead of the 13th; the section was therefore divided into eight parts of 30 seconds each. The following scheme summarises the structural process of material development:

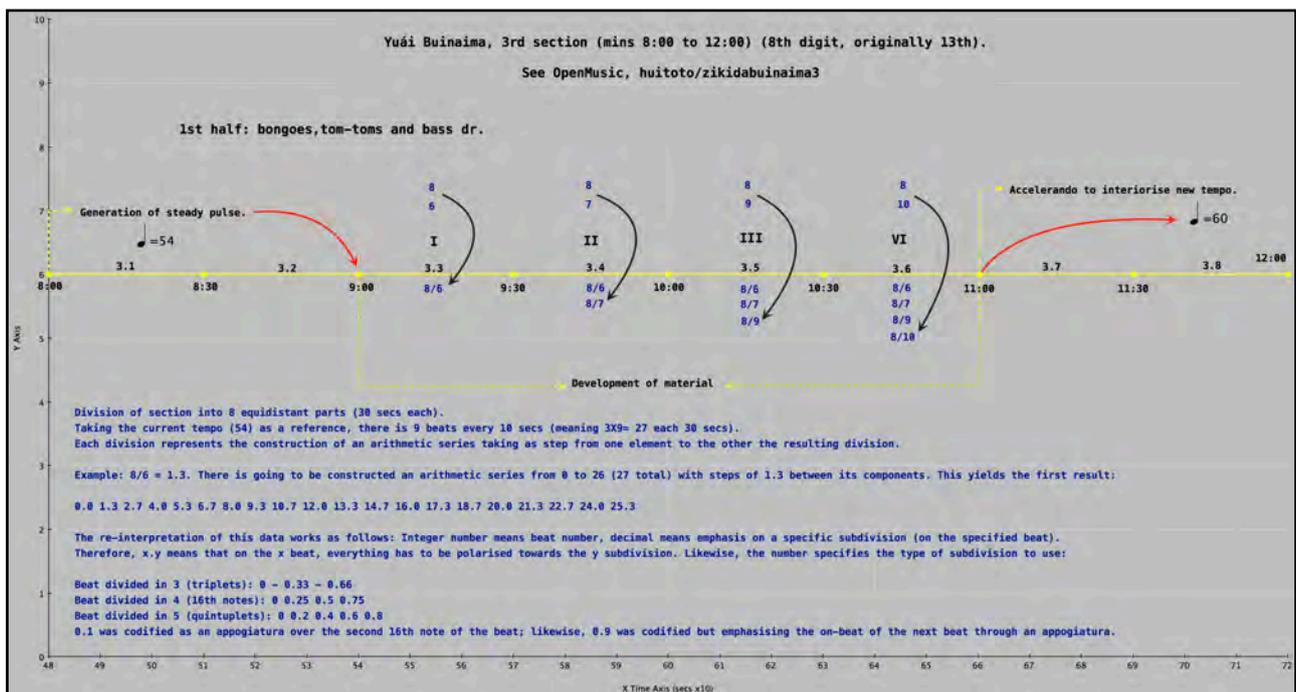


Figure 44. Compositional sketch form of *Yuái Buinaima*, third section - APPENDIX 11.

The *maguaré* rhythmic patterns used in the background of the tape part were taken as a tempo reference for structuring the instrumental part. Notwithstanding the tempo instability of the analysed music source,¹⁸⁴ an average of 108 beats per minute was suggested through the analysis, and I finally assigned a tempo value of quaver = 54 as the temporal

¹⁸⁴ Slight constant *accelerandi* and *ritardandi* are characteristic in this regard.

unit. A constant beat in the form of an *ostinato* from 8:20 until the end of the section allows the performer to internalize the new tempo (changing from quaver = 60 to finally staying at 54) in order to begin the development of the instrumental material from 9:00 to 11:00. Since this new tempo has 9 beats (quavers) every 10 seconds, a total of 27 beats is to be found every 30 seconds. Therefore, the number 27 is taken as a structural point of reference in order to obtain the instrumental material of the section. Given that this procedure originally began as the 8th digit (within the second quintal group), a number of arithmetic series were constructed as follows:

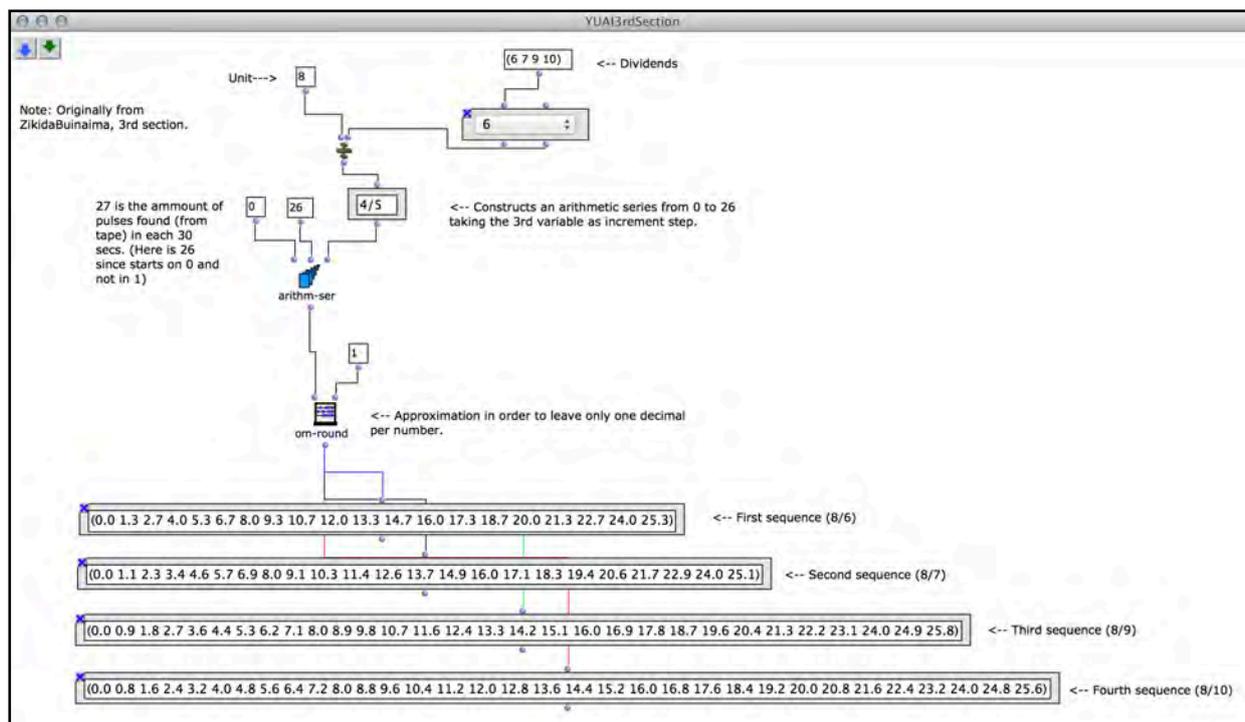


Figure 45. OpenMusic sequences rendition of *Yuái Buinaima*, third section - APPENDIX 12.

Four series of (non-integer) floating point numbers were obtained by dividing the fixed unit (8) into the other digital members of the quintuple group (6 to 10, omitting its same divisor number, 8). Figure 44 displays the juxtaposition scheme of the sequences in Figure 45 within the four consecutive 30 second time blocks from 9:00 to 11:00. The codification of the floating-point series was performed as follows: the integer part of the number is taken as beat position, whilst its decimal indicates the subdivision to be used and the onset attack of the event, in the following way:

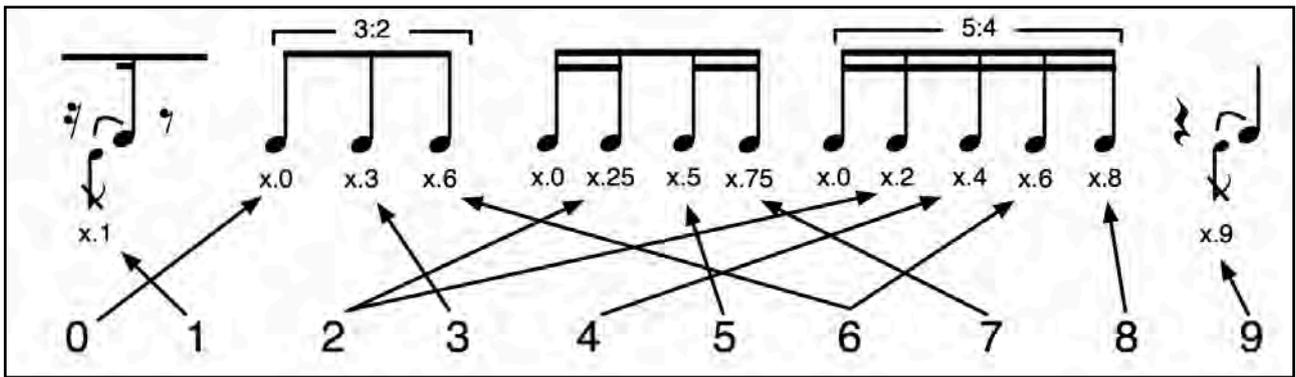


Figure 46. Floating point codification system, *Yuái Buinaima*, third section.

Following the scheme above, when taking the third element of the first list (2.7) as an example (see Figure 45), it is codified as an instrumental attack occurring in the last semiquaver of the second beat.¹⁸⁵ By these means, strict beat positioning and further type and subdivision-onsets are specified for the construction of the instrumental section. Nevertheless, regardless of the rather rigorous generative process, other free material orbits around these pivotal objects. The timbre of the events is likewise left as a free choice. The following excerpt exemplifies the procedure above, from page 15 of the score, at 9:00:

Figure 47. *Yuái Buinaima* percussion part, third section (9:00 - 9:10).

In order to facilitate the return to the original tempo for the next section, at 11:00, the percussionist performs the accelerando from quaver = 54 back to 60 in rhythmic unison

¹⁸⁵ First beat begins on 0, hence the unit 2.7 displaced appears in the third beat; see figure 47, third red circle, 2.7.

with the tape part. Both live and tape parts present a very slow crescendo throughout this entire section as a common dynamic goal.

Fourth section, *eibamo á:marié*, (in the foot, four - 14).

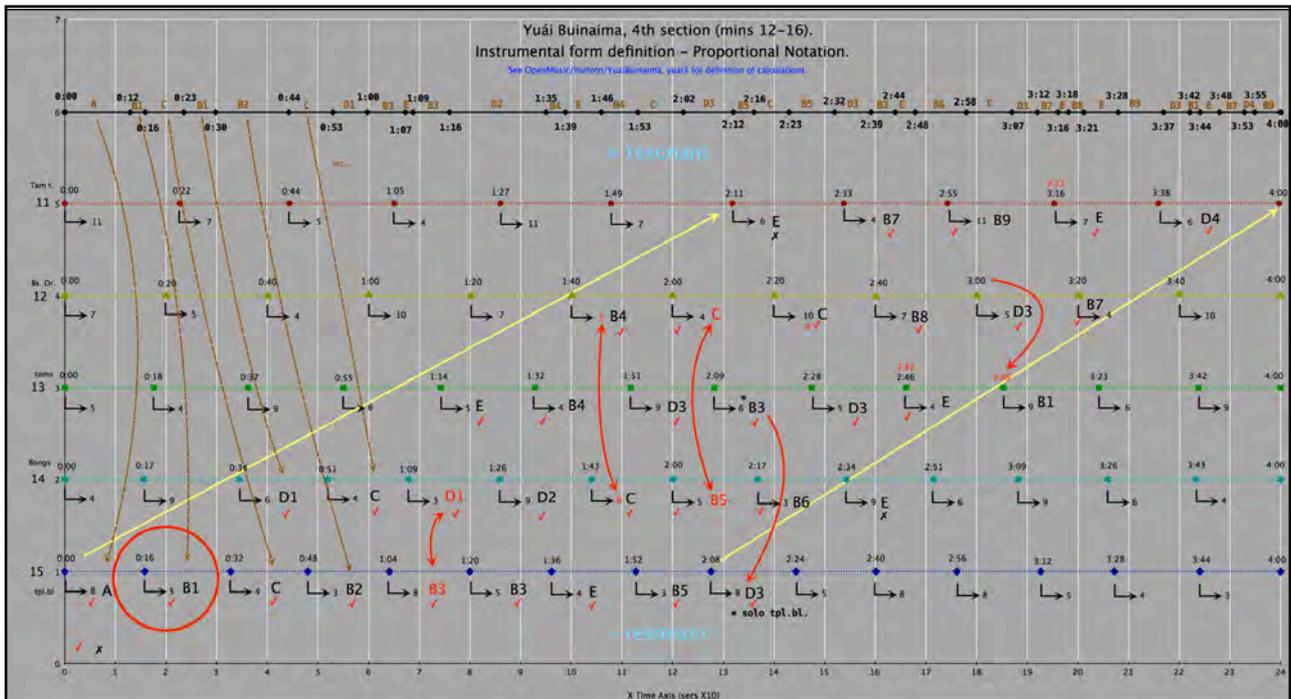


Figure 48. Compositional sketch form of *Yuái Buinaima*, fourth section - APPENDIX 13.

The next section of the piece is developed taking as its point of departure the original rhythmic cells obtained from the analysis of the *Corabiki* extract in section two¹⁸⁶. Following the same principle, a juxtaposition of these predefined objects is presented within a polyphonic texture throughout its four minutes' duration. Nevertheless, it was the instrumentation, arranged from less to more resonant, that was taken as the horizontal axis of the polyphonic grid instead of predefined gestures. The numbers on the y axis of the chart indicate the divisions per layer in time; the top black line is the same found in the chart in section 2. The oblique yellow lines indicate the (re)used material, whilst the brown dotted curved arrows display the placement of the gestures within the structure.¹⁸⁷ The compositional task is focused on the process of stretching the original cells to match the

¹⁸⁶ See figures 40 and 41 above for further reference.

¹⁸⁷ In some instances, the order is swapped for musical reasons, such as either making the result more interesting or for ease of performance (red arrows).

new durations specified in the system. As an example, we take the exposition of B1 in the temple blocks at 0:16 (Figure 48, bottom horizontal line, circled in red). Keeping its rhythmic structure in section two, B1 is to be extended from its original duration to five seconds. The following OpenMusic patch shows the procedure:

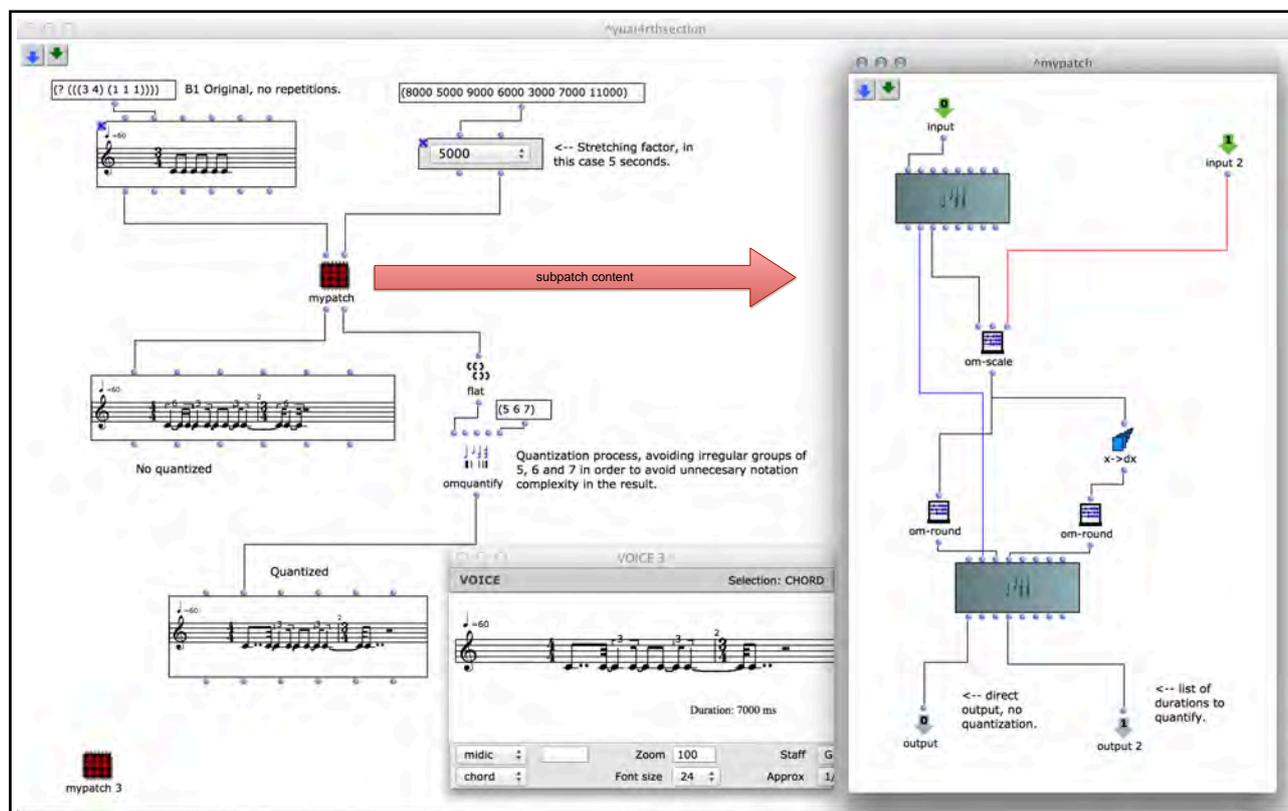


Figure 49. OpenMusic patch, section four, *Yuái Buinaima* - APPENDIX 14.

The top left of the patch in Figure 49 displays the original gesture B1¹⁸⁸ and to its right is specified its assigned stretching factor (5 seconds). The subpatch takes care of the scaling process and outputs two versions, one unmodified and one quantized.¹⁸⁹ Interesting rhythmic structures emerge from the juxtapositions by constantly applying this principle to all the original rhythmic material from section two.¹⁹⁰ This material is placed against the constant *accelerando - rallentando* sharp attacks in the tape, which slowly evolve dynamically and by increasing their textural density towards the *fortissimo* around 15:30.

¹⁸⁸ See Figure 41, Gesture B for reference.

¹⁸⁹ Quantization was applied in order to avoid any unnecessarily complex resulting notation and/or to ease performance.

¹⁹⁰ See for example page 22 of the score, the juxtaposed result of B3 and D1 at 13:04 to 13:12 or the various instances of this type on page 23.

Fifth section, *húbe eíba*, (the whole feet - 15).

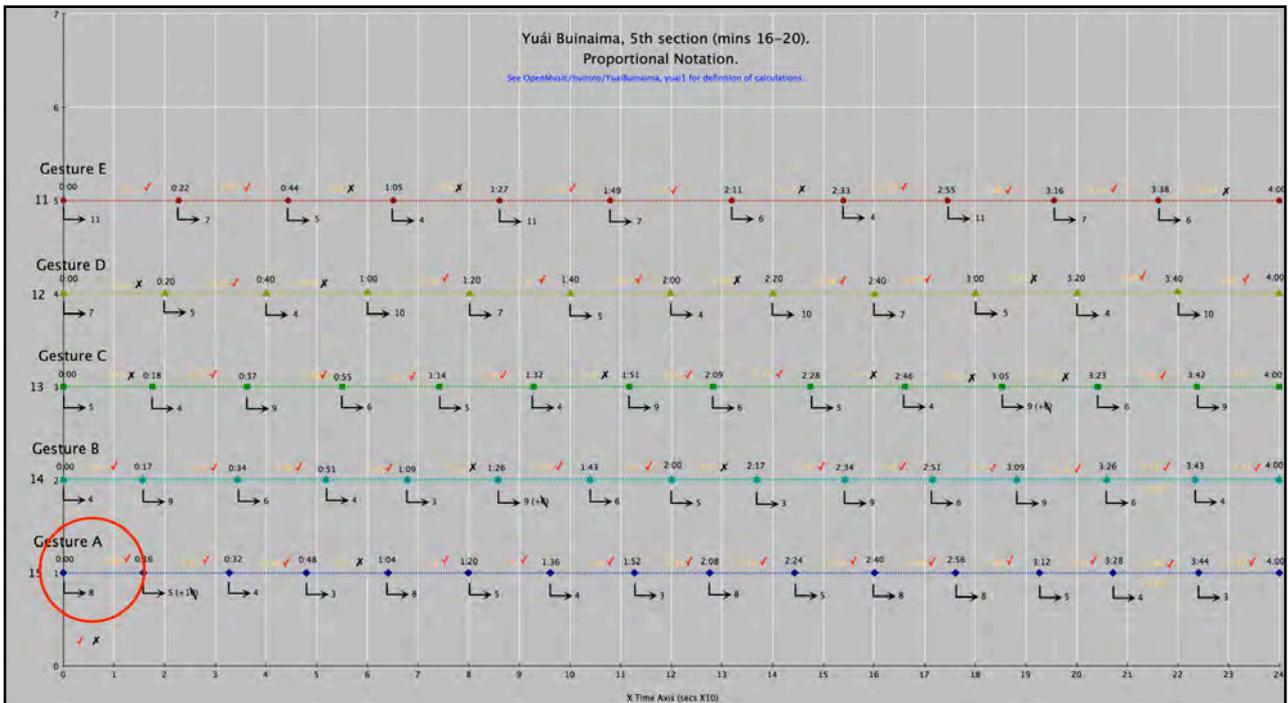


Figure 50. Compositional sketch form of *Yuái Buinaima*, fifth section - APPENDIX 15.

The final section closes the piece in arch form, by using in a similar way the compositional scheme introduced in section 1. Five main gestures are positioned along the four minute polyphonic texture timeline. The simplicity, generally low dynamics and clarity of the whole texture do not only aurally resemble the first section but also offer a strong contrast with the preceding sections. As a simple structural variation, the relationship between values originally used as silences between gestures and sound events has been reversed. Figure 51 displays the gestures including their notation, instrumentation and their first appearance in the score:¹⁹¹

¹⁹¹ Gesture D begins a couple of seconds later, given the high textural activity condensed between 16:21 and 16:26.

Gesture A		tam-tam bass drum	Position: 16:08
Gesture B			Position: 16:04
Gesture C		temple blocks	Position: 16:22
Gesture D		tam-tam bass drum	Position: 16:25*
Gesture E		temple blocks	Position: 16:11

Figure 51. Five main gestures of *Yuái Buinaima*, fifth section, instrumental part.

Finally, Figure 52 exemplifies the aforementioned procedure by displaying the first instance of Gesture A, positioned at 0:08¹⁹² of the musical structure, circled in red:

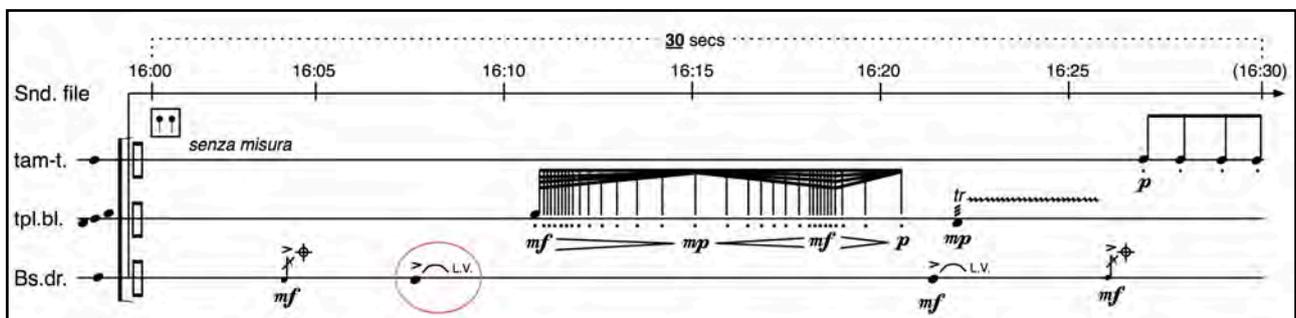


Figure 52. *Yuái Buinaima* percussion part, fifth section (16:00 - 16:30).

¹⁹² Minute 16:08 in macro-formal sense.

3.4.4.NÓINO BUINAIMA - *In memoriam Walter E. Hardenburg.*

For fixed audio media (8.0 multichannel format).

Duration: 20:06.

'Another method of exploiting these unfortunate Indians takes the form of selling them as slaves in Iquitos, and this business in human flesh yields excellent returns to the company or its employees, for they are sold in that capital at from £20 to £40 each. Every steamer that goes to Iquitos, loaded with the rubber from the Putumayo, carries from five to fifteen little Indian boys and girls, who are torn, sobbing, from their mothers' arms without the slightest compunction. These little innocents, as we have already said, are sold at wholesale and retail by this "civilizing company" in Iquitos, the capital of the Department of Loreto, the second port of a country that calls itself Christian, republican, civilized, and, let it be well understood, with the knowledge, consent, and approval of the authorities there'.¹⁹³

pakado, fourth group (digits 16 to 20).

Colour: red.

Type of dance: *yadico* dance.

3.4.4.1.Context.

Nóino Buinaima is dedicated to the American engineer who published the articles on the *caucherías* in the *Truth* magazine which provoked the public's outrage, which in turn led the British government to mobilise and take action against PAC. Walter E. Hardenburg (1886-1942) moved to the Amazon region in 1908 in search for employment where he was captured and imprisoned by PAC's henchmen.¹⁹⁴ Once obtaining Saldaña Rocca's documentation as evidence, he travelled to London to attempt the story's publication. These articles were followed by the extended version, *The Putumayo: The Devil's Paradise* (London, 1912), where evidence collected from Saldaña Rocca, Casement, the French explorer and photographer Eugenio Robuchon and others is assembled to support his allegations.¹⁹⁵

Without Hardenburg's resolute determination to bring to light Putumayo's atrocities and gain international public attention, not only would Saldaña Rocca's substantial local press denouncements have been lost, but also Casement's later investigations would never have taken place. Although no substantial arrests were made after the scandal, at least

¹⁹³ HARDENBURG (1910), 209.

¹⁹⁴ FARJE (2012)

¹⁹⁵ MITCHELL (2003), 1.

the PAC was eventually forced to cease activities. Julio Cesar Arana died in almost complete poverty, in Lima in 1952.¹⁹⁶



Figure 53: Saldaña Rocca's *La Felpa*, cartoon of Julio Cesar Arana, 1907-1908.¹⁹⁷

During the Huitoto ceremony, once the shaman has performed all the previous three dances, he performs the *Yadico dance*, dance of the ancestral anaconda. By using the power of the *yagé*,¹⁹⁸ the shaman acquires the ability to act over all the instances of the world and its culture. Furthermore, by performing this dance, a spatial symbolic reference is assigned to the fourth pillar, *á:marie*. Located at the east, this is the place where light is

¹⁹⁶ BIBLIOTECA NACIONAL DE COLOMBIA. Recursos digitales. Exposiciones virtuales. Literatura. La Vorágine. Available online at <http://www.bibliotecanacional.gov.co/index.php?idcategoria=38757>, accessed on 25 February 2013. Bogotá, 2009.

¹⁹⁷ MITCHELL (2003), 27. 'Satirical cartoon from *La Felpa* of Julio César Arana standing on a safe full of bags of gold and sterling supported on foundations of skulls and bones of tribal people enslaved and exterminated in pursuit of rubber quotas'.

¹⁹⁸ Traditional hallucinogenic beverage used for ritual purposes by a variety of indigenous communities.

announced. Associated with the power of the sun transmitted to the shaman, the colour red symbolises power and shamanic strength.¹⁹⁹

Both the trunk of the yucca plant and the ancient anaconda are represented by the huge carved wood (the *yadico*) that would be rhythmically struck towards the floor, by the community of men using their feet, thus making the *maloca* resonate during the ritual.



Figure 54: Abandoned *yadico*.²⁰⁰

‘So, the people would remember their serpentine ancestor and would be charged with the fertile power of the original vibration. The invited tribes and clans would form, with their twists, the body of the great snake whose segmentation gave birth to the different nations; likewise, this choreography would make [them] remember the primordial unity of humanity. [...] The dance re-affirms culture and harmonises it with the universe: it is the cosmic dance. “*We live to dance and dance to live as true people*”.²⁰¹

3.4.4.1. The piece.

¹⁹⁹ TORRES (1988)

²⁰⁰ YÉPEZ (1982), 31 and 33.

²⁰¹ URBINA (2010), 39-40. Translation, Jorge García.

The work is divided into five equal sections of four minutes. It takes as its focal point *The shadow and the echo*, an ontological Huitoto poem about the origins of humankind, documented by the scholar Fernando Urbina from a narration by Huitoto grandfather don Noé Rodríguez:

The Father, seated amongst the silence
was ripening silences.
Thunder had not yet been invented
nor the wind's whisper between the tree leaves,
the tiger's roar, the shout of the eagles,
nor the voice as mosquito stinger.
To whom could the god speak?
Then [he] saw his shadow,
it was there, seated.
Then the word was created, and the echo answered
(echo, as the shadow of the sound).
- I now have a partner! -
The Father exclaimed.
Such was the way in which men were created.
That is the reason why we sit down in front of the father
and when the voice is raised during the ritual
we repeat his last words.²⁰²

In addition to its beauty, this text was chosen because of its ontological characteristics: 'To sun worshipers over millennia, solar rays have seemed to transfer magical properties of fertility, creativity, prophecy, [...].'²⁰³ The *yadico dance*, while celebrating the universal power of the sun transmitted in the form of knowledge,²⁰⁴ is symbolised in the piece by the inclusion of the poem.

For the Huitoto there is special reason to celebrate in communal festive rituals the act of *giving birth*.²⁰⁵ The opening section of the piece starts with two strong archetypal sounds representing this: the sound of euphoric shouting children, standing for the power of fertility of the sun, and the deep powerful low resonant sound of the *maguaré* and the *yadico*, representing the ritual context (Figures 21, 55 and APPENDIX 16). Various

²⁰² URBINA (2010), 35. Translation, Jorge García.

²⁰³ RONNBERG (2010)

²⁰⁴ URBINA (op. cit.), 68. Translation, Jorge García.

²⁰⁵ TAGLIANI (1992), 21.

instances of voices reciting the first two lines of the poem are juxtaposed with both textural material developed from shouts and pitched sustained sounds from the *maguaré*, which contain slight glissandi. These glissandi are performed in all the simultaneous instances of the material alike, yet the direction, duration and pitch-shift goal of each of the voices are independent. This is especially perceptible from 1:16 to 2:10, when this material slowly shifts to the background in order to give way to the new textural sound in the foreground. The squeals, although retaining their recognisable source, slowly mutate into a flock of “flying shouts” by the application of pitch shifted delays with feedback filters, accentuated by rapid spatial movements, metaphorically evoking the supernatural. The rise in pitch content of the “children into bird-like shout/flock” gesture found at 2:10-3:31 is juxtaposed with the re-exposition of the static low frequency *maguaré* material.

The second section, following the loud sharp *maguaré* attack at 4:00, suddenly re-positions the listener into a forest soundscape alongside the reiterative *bocca chiusa* male utterances in the middle ground. The section is divided into two parts: the first, where the narration of the second fragment of the poem, lines 3 to 6 takes place in the foreground against the forest soundscape background from 4:00 to 6:37; and the second, marked by the sudden loud sustained bass attack at 6:38, which shares similar characteristics with that of the *maguaré*.²⁰⁶ This rather contrasting event is contextualised within the preceding material by maintaining the forest background soundscape with a stream and distant thunderclaps presented throughout the section. An additional sound event composed of brief sibilant iterations dispersed throughout the acoustic space is then juxtaposed with the general crescendo at 7:12, coupled in terms of a textural and dynamic growth whilst the overall crescendo in the other layers continues until they reach their dynamic climax at 8:00.

The third section recapitulates material found in all the previous pieces of the cycle, such as the Indian chants, the *firisa*²⁰⁷ ostinati, and the *maguaré* sounds. Nevertheless, the current scope of interest shifts to exploit the harmonic material inherent in the vocal melodies. By selecting structural melodic key points such as cadential or reiterative tones from the recording of the vocal melodies, a polyphonic texture composed of stretched

²⁰⁶ The female, low-pitched *maguaré* used here has a fundamental tone around 124 Hz (close to a B1-123.47 Hz), whereas the male is around 137 Hz (close to a C#2-138.59 Hz). The related sound object has a fundamental of 68.5 Hz, halving the fundamental of the male idiophone in order to boost the perceived strong, profound-bass qualities of both, *maguaré* and *yadico*.

²⁰⁷ Seed rattler - shakers.

versions of this material²⁰⁸ slowly evolves through the inclusion of different versions, some displaying slight glissandi (pitch shifting) or simple harmonizations (5th and/or octave added within the granular process). From 9:05 to 9:45 this material shifts to the middle- and background when the narrating voice reappears, introducing lines 7 to 9 of the poem. Afterwards, the aforementioned harmonic material derived from the melodies finally shifts to the background, giving way in the foreground to sounds obtained from both processed sounds of shakers and short vocal utterances performed by rapid movements of tongue and lips (DPA microphone placed very close to the mouth). The relative isomorphism of these materials offers the possibility of blending them together into the textural complex that evolves shortly after the reciting voice withdraws from 9:45 to 11:00. The section concludes with the recapitulation of the children's squeals/ stretched glissandi, accompanied by the *maguaré*²⁰⁹ in the background from 11:00 to 12:00.

Section four, contrasting with the previous sections given its relatively static pace, light texture and general low dynamics, presents the recitation of lines 10 to 13. Given the importance of the recited text at this point - where the creation of *the word*, one of the fundamental emblematic symbols for the Huitoto, is so beautifully portrayed in the poem - the atmosphere of solemnity embodied within the text was specially intended to be reflected as main compositional goal.

It is important thus to bear in mind the fundamental role the *mythic word* has for this culture in order to maintain the perpetuation of cultural values as well as the maintenance of social order.²¹⁰ The constant, whispered reiteration of the Spanish word *palabra*²¹¹ and its N'ipode equivalent *uá-í* all over the space, symbolises its distinct, spiritual character, representing the community's father delivering *the word* as the ancient vortex of power, through knowledge, from the *maloca*'s sacred space in the middle of the silent night.²¹² *Maguaré*-derived sounds with slow glissandi are combined with developed versions of the *bocca chuisa* male sounds from section two.

²⁰⁸ Accomplished by granulation techniques.

²⁰⁹ This is an additional example of material previously found in another piece of the cycle, since the section dedicated to the marimba solo in *Yuai Buianaima*, third piece - second section, is structured using the rhythmic cells originally found in this excerpt. Likewise, this same material is found within the third section of the same piece, though in a completely different musical context.

²¹⁰ TAGLIANI (1992), 114.

²¹¹ Word.

²¹² TAGLIANI (op. cit.)

The fifth section introduces the last four lines of the poem. The sharp, loud *maguaré* attacks at 16:00 signal the beginning of this new section by recapitulating developed versions of the same bass sustained sound heard at 6:37, second section. Sharing morphologic qualities, these two sound objects are now amalgamated, and the aforementioned sustained bass sound is now perceived as a resonance caused by the attack of the *maguaré*. Once the last part of the poem is heard from 17:22 to 18:02, the remaining children's squeals give way to a final recapitulation of the Indian chants, framed by the last *maguaré* attacks. At 19:22 the piece slowly fades away after the *maguaré*'s long decay is heard one final time.

3.2. Conclusions.

La Historia de nosotros, based on Huitoto history and mythology, embraces the corpus of symbology discussed in order to link both musical and extramusical references to its sources. In this way, musical factors such as form, shaped through the *pakado* system, govern both micro- and macro-structures of the cycle as a whole. Likewise, timbral design and orchestration are determined by a constant reference to the sources. Influenced by composers of so-called *spectral music*²¹³ such as Murail,²¹⁴ Grisey and Radulescu, a main focus was given to conceiving orchestration in terms of a timbral *gestalt*, aiming to deliver therefore a sonorous unity rather than a summation of instrumental and electronic media parts. Consequently, special attention to developing sound material with similar spectromorphological characteristics in both instrumental and fixed audio media is consistent, although the material in the electronic part usually evolves into new sonorities thus achieving autonomous morphologic characteristics.

By means of incorporating the native instrumental material and quotations from contextual literature and anthropological sources, the cycle constantly alludes not only to the distinctive soundscapes introduced, but also to the complex thread of emblematic cultural symbols discussed.

Likewise, a personal preoccupation with pre-compositional systems has been discussed. Although some structures are pre-planned to certain degrees, various musical

²¹³ ANDERSON, 2013.

²¹⁴ A classic example can be found in the harmonic constructions built from the transformed output of the spectral analysis of Tibetan horns in Murail's *L'Esprit des dunes*, Editions Henry Lemoine. HIRS (2009).

characteristics involving dynamics, orchestration, spatialisation, amongst many others, are left to be decided *on the go*, based on personal taste, where material derived from non-pre-compositional processes is constantly amalgamated within the planned structures.

4.GENERAL CONCLUSIONS

The compositions discussed in this commentary are focused on the utilisation of archaeological and ethnic sources as primary musical and thematic referents in the context of electroacoustic music composition. Two paramount Latin American archetypal sound signals, the conch shell horns, locally known in the Peruvian highlands as *fututos* or *Waylla Kepa*, and the Amazonian *maguaré*, a signalling idiophone composed of two large hollowed wooden cylinders referred to as the *bells from the jungle*,²¹⁵ are brought into two large electroacoustic works, *ukhu pacha* and *La historia de nosotros*.

Given the particular symbolic richness embodied within these instruments, the pieces present as a fundamental part of their musical discourse, contextual soundscapes inspired by literature and by historical and archaeological sources. These *imaginary soundscapes*, designed in surround multichannel setups (8.0), present immersive *soundworlds* that constantly interact with the material developed from these instrumental sources, creating a permanent interplay between the background and foreground layers of the polyphonic texture. Likewise, the constant allusion to the multiplicity of symbolisms derived from either mythology and/or historical sources influences the compositions in different ways: they not only determine the nature and morphology of the musical sound materials by continuously making reference to their sources, but also have a determinant influence on pre-compositional definitions of the work, such as the use of the *pakado* system in *La historia de nosotros*, for example.

The electroacoustic medium, owing to its inherent capacity to access and manipulate any sound, allowed me to approach and use sound sources holding intrinsic cultural and historical values. Thus the use of recordings of ethnic and archeological instruments that retain their specific cultural milieu, and the inclusion of recordings of texts explicitly alluding to historical events, facilitated for me, as a composer, the possibility of confidently bringing to light such extra-musical cultural connotations as a fundamental part of the musical discourse. In other words, instead of composing a sound event that would symbolise a specific signifier (such as happens in (instrumental) programme music), the possibility, through the use of recording media, of bringing the signifier itself directly into play as a

²¹⁵ URBINA et al. (2000), 43.

medium of expression, together with the possibility of its further re-contextualisations, makes the electroacoustic medium an ideal form of expression: the used signifiers hold their intrinsic cultural and historical values, while at the same time, their sound developments and re-contextualisations present a considerable variety of aesthetic values in the musical sense. In consequence, this approach allows the public to appreciate the work through the variety of the multiple interpretations assisted by the symbolic elements presented in the works.

Analyses of both instrumental and electronic parts have been provided for each of the pieces in order to inform the reader of the various generative strategies in both intrinsic and extrinsic aspects.

The works discussed in this commentary represent the major portion of the pieces composed and performed in Birmingham as part of the BEAST community between 2010 and 2013. They address certain musical and cultural aspects related to current personal compositional interests.

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6. APPENDICES

APPENDIX 1: *ukhu pacha* mapping process.

APPENDIX 2: OpenMusic patch, form definition of piece.

APPENDIX 3: *ukhu pacha* sketch form.

APPENDIX 4: Maloca symbolic structure.

APPENDIX 5: *Meniza Buinaima* macro-formal sketch.

APPENDIX 6: *Zikida Buinaima* sketch form.

APPENDIX 7: *Zikida Buinaima* second section sketch form.

APPENDIX 8: *Yuái Buinaima* sketch form.

APPENDIX 9: *Yuái Buinaima* first section sketch form.

APPENDIX 10: *Yuái Buinaima* second section sketch form.

APPENDIX 11: *Yuái Buinaima* third section sketch form.

APPENDIX 12: *Yuái Buinaima* OpenMusic patch 1.

APPENDIX 13: *Yuái Buinaima* fourth section sketch form.

APPENDIX 14: *Yuái Buinaima* OpenMusic patch 2.

APPENDIX 15: *Yuái Buinaima* fifth section sketch form.

APPENDIX 16: *Nóino Buinaima* sketch form.