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Reflections on Archaeomusicological Practice in South America

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Abstract

This paper aims to describe some problems and issues that have emerged from the practice of archaeomusicology in South America, especially in the Andean region. Some methodological approaches emerge from the specific problems of organological studies of pre-Hispanic objects, related to the evidence about sound use and the interpretation of sound by local cultures. This article presents four features of Andean music that illustrate some of the main methodological approaches that must be utilized when studying pre-Hispanic music in the Andes; the tone quality, the organological expansion from a singular object to multiple objects; the physical movement of musician and hearer as part of the sound properties, and musical performance as part of a social exchange between musicians and listeners. Each of these features offers a new perspective on archaeo-musicological studies, as well as on the contributions of the field to a greater understanding of new discussions in present society.

The focus of this article will be to understand the 'sound object' as an acoustic object, as one or more objects, as related to the surrounding ambient, as a moving object, and as a modifier of the player's or listener's experience.

Keywords

Andean methodological tools – Sound design – Sound movement – Sound and society

1 Introduction

This paper aims to highlight some tendencies in archaeomusicology that have emerged in South America, as identified by myself and some of my colleagues from Ecuador, Peru, Bolivia, Argentina, and Chile. I will focus on some methodological approaches linked to organology, which is the main source of data for our studies of pre-Hispanic sound cultures. Frequently the instruments and "sound objects" under study lack any contextual data whatsoever regarding their provenance, or indeed regarding any other aspect, and this means that we must rely only on organological analysis to interpret them. This poses a fundamental problem of analysis, as our methodological tools to define a musical instrument, to understand how it was used, and what relation it had to the

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society that produced it, come mainly from Europe. We have a large bibliography on pre-Hispanic Andean instruments, however, this is not the place to refer to it, except for those authors who have attempted to understand local instruments through the interpretation of local cultural clues, as is the case with the study of Sinu flutes of Colombia (Olsen 1988), and Nazca flutes from Peru (Gruszczyńska-Ziółkowska 2014), among others.

Since the colonization process in South, Central, and parts of North America consisted in erasing all remains of the pre-European past, we had been taught that all "musical" traces from past centuries were definitely lost (see, for example, Martínez 2004). Since the second half of the 20th century, however, this idea has been questioned, and in recent years indigenous voices have become part of the process. Decolonization has become a new position in the debate (Rivera 2010; Castro-Gómez and Grosfoguel 2007). Through this process, we have the opportunity to revise our concepts of 'music', 'sound object', and other concepts akin to these topics in the Andean region.

In this article I will present some of the findings that I have been discussing with other scholars from Chile, Argentina, Bolivia, Peru, and Ecuador.[1] I have divided them into four topics that can be used as hypotheses and methodological tools when studying ancient sounds in the Andes. They refer to the tone quality, the organological inclusion from a singular to multiple objects; the physical movement of musician and listener as part of sound properties, and the playing of music as a social dynamic.

2 Tone quality: the expression of sound

This hypothesis is based on many current Amerindian practices in which the concept of 'timbre' or 'tone quality', as the spectral composition of sound, has a central importance for their music. This applies to single instruments as well as consorts of many instruments. After describing several examples, I will assess this concept as a tool for interpreting archaeological instruments.

Many Andean panpipes (*sikus, antaras, surisiku*) have a second row of tubes attached to the main tubes, whose purpose is to enhance their timbre. I will refer to these tubes as *palq'a*, one of its Aymara names.[2] There are many types of *palq'a*; while the ratio between the main tube and the *palq'a* can vary, it is often 1:1 (the same length), 1:2, or 3:4. *Palq'a* tubes can be open or closed at the distal end. By combining varying length ratios with an open or closed end, a different harmonic response is obtained, enriching the timbre with diverse spectral structures (Gérard 1999; 2008), whereby a single instrument as well as an orchestra composed of many instruments use only one

[1] I am indebted to many scholars, such as Arnaud Gérard from Bolivia, Carlos Sánchez and Carlos Mansilla from Peru, Estelina Quinatoa from Ecuador, Esteban Valdivia from Argentina, among many others. All of them have helped and contributed to this investigation for over 40 years, for which I am very grateful.

[2] Its nomenclature is extensive, and it sometimes very precisely identifies a particular kind of *palq'a*. Some of them are *palq'a*, *phallqa, pallqa, sanq'a, shallka, chala*, *q'asa, kaéharisqa*, *china*, *compañía, sirinu, serena*, *siruni, sirena, haylli, ch'usa, orko, iiojo, falso, falsa, falsete, falsos, carga, resonador, marimacho, alto y bajo.* For its use, place of use, references and analysis, see Pérez de Arce 2021: 92.

Figure 1: *Baile chino*. Kilimarí (central Chile) 2010. Photo by the author.

type of *palq'a*. This is applied to the entire ensemble of flutes, thus giving it its characteristic sound quality.

In order to enrich the timbre of many flutes in highland Bolivia (*tarkas, jantarkis*) and Chile (*flautas de chino),* their internal tube is perforated in such a way as to produce two different diameters along its length. When blown with considerable strength, this renders a multiphonic effect (i.e., two tones are heard) with a pulsating quality. Flutes in general tend to be blown with a technique producing multiphonics and harmonics (Cepeda 2011: 8; Prudencio 2015: personal communication; Gérard 1997; 2015: 11, 52; Sánchez 2016: 67; 2018b: 241; Pérez de Arce 2018). Local musicians can distinguish subtle differences in these characteristics, showing preferences for specific flutes (Gérard 1997: 41–42; Cepeda 2011: 89; Stobart 1996; 2018: 217). There is a preference for dense, complex sounds, with distinct dissonances. The so called *bailes chinos*, in central Chile, take this notion to the extreme, as their orchestras avoid any consonance, all flutes are in a dissonant relation, and there is no melody or rhythm, only one continuous pulse (Figure 1). The sound complexity is so great that it almost defies description, not only because it is ever changing, but also because it changes with the location of the listener. There is a sort of equilibrium between the precise local control of sound aesthetics in the creation of each flute, in each musician, in each group, and with the presence of random situations that occur during the performance. Chaos seems to be as important as controlled situations (Pérez de Arce 1996).

If we look at the pre-Hispanic record of flutes in the Andes, this hypothesis about the importance of tone quality as the main subject of study changes our understanding of pre-Hispanic 'music'. First, we must pay attention to hundreds of double flutes found elsewhere – from Chile to Colombia, but mainly in Ecuador and Peru (Gérard 2015; cf. Figure 2). They consist of two globular flutes with a common airduct which, when played together, produce strong *battimento* (a beating

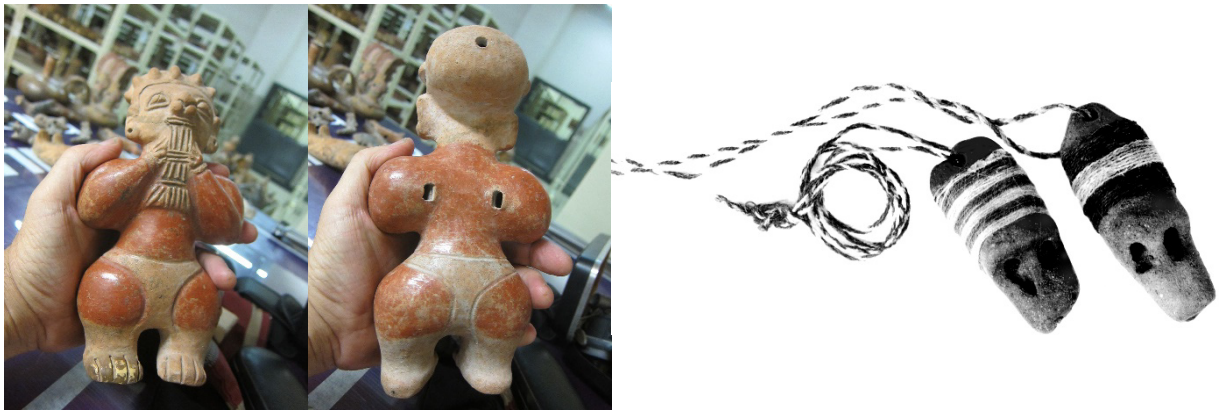

Figure 2: Prehispanic double flutes. Left: La Tolita, (500BC–500CE, Ecuador). Museo de Antropología y Arte Contemporáneo de Guayaquil, Ecuador. The hole at the top is for blowing, the two holes at the shoulder of the figure correspond to the airduct openings. Right: Faldas del Moro (900–500BC, Chile). Museo Chileno de Arte Precolombino, Chile. Two similar flutes, each one with two slightly different tones. Photos by the author.

effect when two slightly different frequencies interfere). Almost all of them lack fingerholes, which has left them out of most descriptions (although well known, see Brohée 2019). Many seem to have been important instruments, built with outstanding craftsmanship (Figure 3). We find the same search for *battimento* in different flute types, such as 'ocarinas' (duct globular flutes), 'whistling bottles' (that are sounded by the movement of water, without human breathing), and also 'antaras', a kind of panpipe that comes in pairs, which, when played together, give a delicate *battimento* throughout (Gruszczyńska-Ziółkowska 2009).

This changes our understanding of the importance of a musical instrument, in which pitch production and tuning possibilities are only one of its properties, and sometimes the least important one. There is an Andean aesthetic paradigm of *poco varía* ('little varies', Borras 1998) that allows us to consider the great amount of fine variations between similar artifacts as a value. For example, the little variation on the small vibration of sound we find in hundreds of double flutes can be seen as part of the aesthetic quest of these communities.

Figure 3: Cabinet with dozens of one-note clay flutes from different cultures from Ecuador. Museo Centro Cultural de Manta, Ecuador. Photo by the author.

Another example of the rich timbre expression of flutes as an intentional characteristic of the instruments is demonstrated by the blowing of flutes with a strong, energetic, intense breath in search of a complex timbre response, as is generally done in flute playing in the region. When played with a gentle stream of air, these flutes respond with a 'European' tone quality, that is to say, with pure tones. When overblown, or when blown with a higher pressure of air, they respond in an 'Andean way', so to speak, expanding the horizon of our interpretation of sound towards an expression of complex timbre.

Figure 4: Two sikuris playing a melody by alternating their notes. Jaiña (Northern Chile) 2014. Photo by the author

3 Instruments as single or multiple sound objects played in pairs or in ensembles

This paradigm is used in almost all traditional flute playing in consorts in the highlands of Bolivia and Peru. The *siku*, a type of panpipe, is a flute made of two separate objects, played in alternation by two musicians. Each player has a set of notes that the other lacks, which, when intertwined, form a scale (Figure 4). Thus, to play a melody they must *trenzar* (intertwine) their sounds (Valencia 1982; Bellenger 2007; Ávila and Padilla 2002; Stobart 2002; Ibarra 2011; Barragán 2013; Castelblanco 2016). The result of this performance is a sound that seems to be played by a single flutist who does not breathe between notes, rather than being perceived as played by two persons. The same intertwining technique is common to many other flutes and trumpets in northern South America (Colombia, Venezuela, Surinam, Guayana), Amazonia (Brazil, Colombia, Venezuela, Ecuador, Peru), Chaco (Paraguay, Argentina, Bolivia), the highlands (Peru, Bolivia, Chile, Argentina), the central and southern Chile and Argentina.[3] This indicates that the concept of playing two instruments as one is a common practice among vernacular music throughout the continent.

Pre-Hispanic evidence of paired flutes includes references to double Nazca 'antaras' (Gruszczyńska-Ziółkowska 2009), whose description mentions a single instrument consisting of two flutes played by two people. A similar interpretation may be applied to pre-Hispanic flutes linked with the present-day *siku* (Sánchez 2018), *baile chino* flutes (Pérez de Arce 2018) and *pifilka* (Pérez de Arce 2007; cf. Figure 5). It seldom occurs that we find clues about pre-Hispanic pairs of

[3] To understand this practice, I have searched the following list of ethnic groups where this practice can be found in many publications: Kuna, Motilon, Wayana Apinajé, Nahuquá, Sicuani, Sucre, Ipure, Kolomoto, Cumaribo, Guahibo, Baniwa, Ye'kuana, Makiritare, Desana, Verékushi, Kalina, Desana, Waura, Kogi, Ijca, Sanká, Reribakue, Witoto, Murui, Waunaná, Wanano, Piapoco, Ware-kena, Puinave, Siriano, Weó, Tukano, Pedubá, Cubeo, Epera, Amuesha, Yánesha, Guarayo, Ioresox, Cuña Pirúi, Chipaya, Aymara, Quechua, Mapuche. Today it is present in many mestizo societies, and in large urban cosmopolitan ones as well (González Bravo 1949; Borrás 1985; Baumann 1996; Gérard 1999; Rios 2012; Sánchez 1996; Barragán 2013).

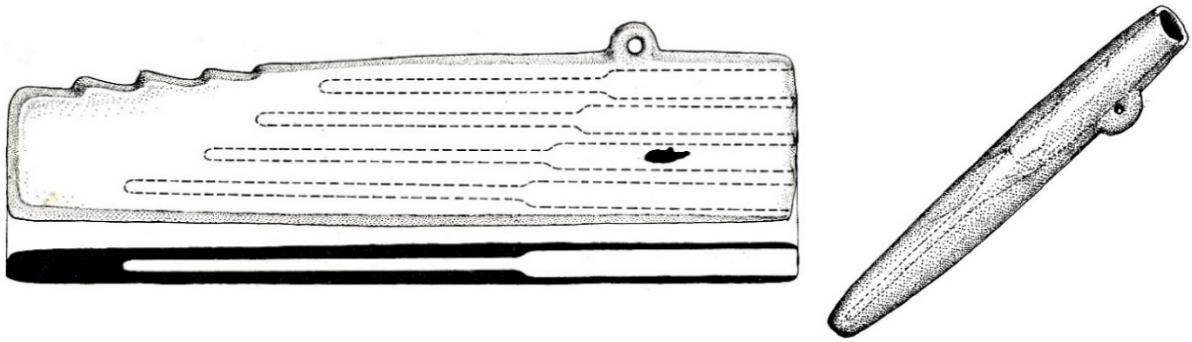

Figure 5: Prehispanic stone flutes, Aconcagua (900-1500 CE, Chile). This acoustic design shows direct connection to the present day *baile chino* tradition. Drawing by the author.

flutes that can be interpreted as having been played in pairs, but iconographic evidence attests to such a practice (Valencia 1982; 1987; 1989a; 1989b; 2016; Gruszczyńska-Ziółkowska 2004: personal communication; Ponce 2007: 162; Uribe 2007: 285; Sánchez 2016: 72, 83–84; La Chioma 2018). This alters our approach to the study of a flute, as we have to consider whether an instrument played in pairs is a flute or half a flute. Based on this consideration, we must redefine our concept of "musical instrument" or "sound object", and, consequently, our approach to organology as focused on single instruments.

The present Amerindian concept of "musical instrument" extends beyond two flutes played in alternation. Almost all flutes (*siku, tarka, pinkillo, kena, flauta de chino* among others) in the southern Andes are played in consorts in which all flutes share the same organological characteristics (typology, number of holes, sound producing mechanism, etc.), meaning that all have a similar timbre and share a similar playing technique. They are always played in unison; thus their individual sounds merge into the whole, giving the impression of an enormous single instrument played by many musicians (Figure 6; cf. Pérez de Arce 2018). There is strong evidence for the existence of this practice in some pre-Hispanic cultures, such as Moche and Nazca (D'Harcourt and D'Harcourt 1925; Jiménez Borja 1951; Pollard 1979; Valencia 1982; 1987; 1989a; 1989b; 2016; Gruszczyńska-Ziółkowska 2004: personal communication; 2009; La Chioma 2013).

Figure 6: Sikuriada (panpipe ensemble). Puno, 2008. Photo by the author.

Thus, our concept of a single "musical instrument" or "sound object" must extend to a group of objects. The usual way we understand "ensemble" in urban music, as a group of different instruments (piano, bass, drums, etc.) in which they can be substituted if circumstances require it (guitar, bass, drums), does not correspond to the Andean concept of "ensemble", in which a single flute –

with all its organological characteristics – defines the whole ensemble due to its specificity. For instance, the sound of ensembles in two villages may be perceived as different, if the flutes played in these ensembles slightly differ (they may have a different *palq'a* modificator of the tone quality, for example). If we consider the possibility of interpreting a pre-Hispanic flute as part of a more complex multiple instrument (Figure 7), a single instrument may no longer emerge as simple and crude, but as part of a complex sound system. If we extend the role of organology from the analysis of single objects to paired objects or multiple objects of similar characteristics, our possibilities of interpretation expand dramatically, because multiple objects can be understood as part of a single complex one. Since both practices (playing paired and multiple instruments) are found today in distant parts of the continent, this hypothesis gains weight as a methodological approach to archaeomusicological research. Using the Theory of Systems to interpret the complex multiple flute structures has proved very successful in my research, as it has permitted me to define some abstract concepts in a more comprehensive way (Pérez de Arce 2022).

Figure 7: Part of a large collection of similar clay flutes in the form of human figures. Museo de Antropología y Arte Contemporáneo de Guayaquil, Ecuador. Photo by the author.

4 Physical movement as part of the sound properties

The movement of the body of the performer (in dance or music) is an integral part of so-called "music" in the whole continent.[4] Instruments are usually played while dancing, walking or jumping. "Movement and music are the same" is said all over the Andes (Jiménez Borja 1951).

The musician's movement changes the concept of 'music' conceived as a pure sequence of sounds, isolated from its surroundings. The sound is influenced by the movement as it changes its relation with the listener and when it changes its position in space (Briceño 2015; Martínez 2014).

[4] The concept of "music" is Eurocentric, as has been extensively discussed (see Nettl 2001: 125; Green 2003: 270; Szurmuk and Irwin 2009: 150–52; Castelblanco 2016: 48). This term does not exist in Amerindian languages and in great part of non-European languages (Nettl 2005: 17). However, all cultures use something we understand as "music", but its scope, its borders, and its relation with other expressions (human and non-human) varies greatly from one case to another. Even inside Eurocentric terms, definitions of music are multiple, depending on different perspectives (Cámara de Landa 2004: 128; Jiménez 2013: 131; RAE 2016), sometimes describing it as an activity (Small 1998: 2, 9, 13; Turino 2008: 1; Feld 2013: 237). In this article I use "music" as a universal system of organized sound, different from speech, used by man, and will not discuss its application to "musical instruments", whose discussion I have presented earlier (Pérez de Arce and Gili 2013).

Figure 8: A *lakita* ensemble (panpipes) entering the village of Jaiña (Northern Chile) at the beginning of the patrons-day celebration. During three days they will continuously travel through the village and its surroundings (2014). Photo by the author.

This creates a 'listening perspectivism' that can be considered a common aspect of all flute orchestras in the Andes. The sound is perceived in a different way by each of the listeners (because of their relative position to the sound sources), and the tone qualities of the sound also change constantly (because of the simultaneous movement of all sound sources; cf. Figure 8).

This concept is difficult to apply to pre-Hispanic sound objects, because we cannot remove them from museums, therefore we cannot test their sound in different locations, nor do we know in what places they were used in the past. There is little research on the acoustics of space in the Andes (Ferrari et al. 2017). But if we accept that the spectral composition of sound changed in subtle ways when these instruments were sounded along a ritual path, we broaden our understanding of sound as something that emerges from an object, but can be shaped by changing surroundings. Sound is not only something that emerges from a sound object, but is shaped by the surroundings in a dynamic, in resonance with the concept *yacha* used in northern Potosi, meaning knowledge as mutual transformation (Stobart 2002). According to the theory of perspectivism (Brabec de Mori 2022), houses, rivers, hills and other features of the landscape are not passive actors, but active participants, sharing in ritual practices with humans.

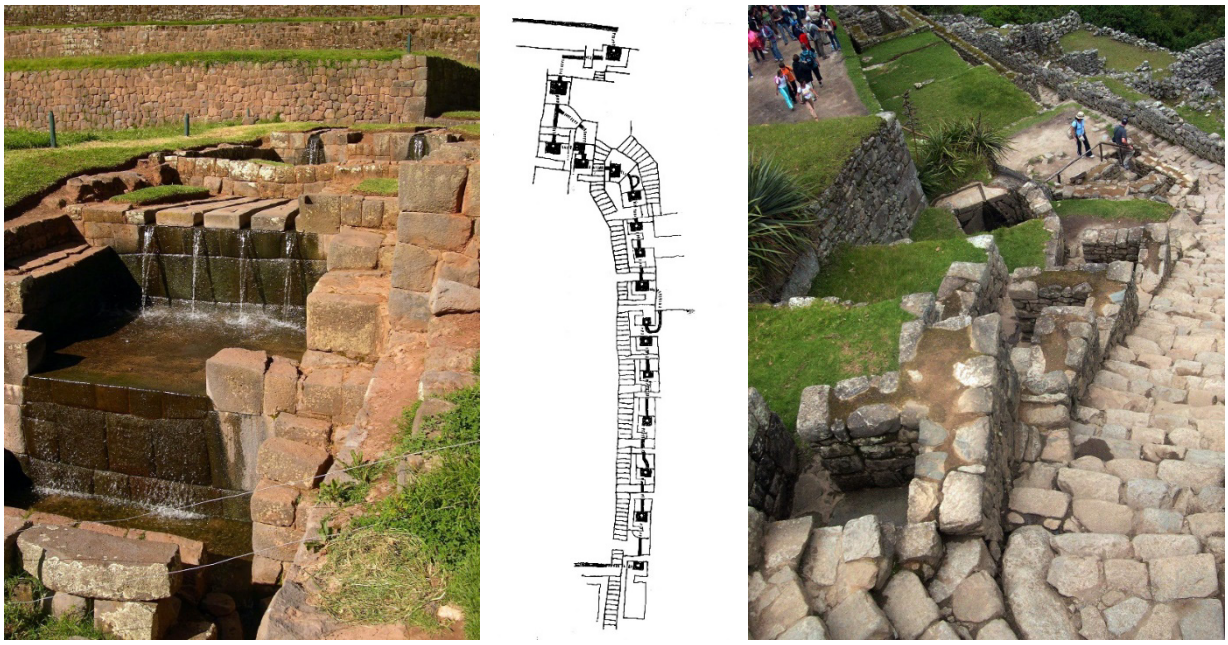

Figure 9: Inca (1200-1500 CE, Perú) waterfalls. Left: waterfall system in Tipón. Centre: plan of the great system of connected waterfalls in the main staircase in Machu Picchu, showing the connection between all waterfalls. Right: the same system, general view. Photos and drawing by the author.

This interpretation can also be applied to other kinds of sound structures. For example, in Machu Picchu (the Inca city in highland Peru) there are 16 waterfalls, each of which consists of a small water channel that transports water to a little rectangular pool about a meter below. All of these structures are carved in stone with great precision. Each pool is situated inside a small open chamber that condenses the sound of the waterfall. The whole structure is a masterpiece of precision, but it apparently had no practical use (Figure 9). However, if we think of it as a sound installation, perceived when climbing or descending the staircase, it can be interpreted as a precise sequence of sound events. This example is similar to dozens of places near Cuzco, and also as far away as Santiago, Chile and Cuenca, Ecuador, where I have seen similar waterfall structures associated with Inca culture. As waterfall sounds have a deep meaning for Andean music, in the role of the *sereno* (Diaz 2000; Mercado 2004), we can assume that these examples could have had a profound cultural meaning in the past. We can associate the interpretation of water as part of the 'musical' sphere of society with pre-Hispanic instruments that were sounded only by the movement of air through water, with no application of human breath, as it is the case with 'whistle bottles' from central and northern Andes (Pérez de Arce 2004; Valdivia 2021: personal communication).

All these examples may be interpreted as types of 'participant musical performance' (where there is no division between musician and public), different from the 'presentational musical performance' (where there is a spatial and social separation between musicians and the listeners) that is prevalent at present (Turino 2008; cf. Figure 10). Instead of thinking of Amerindian music as performed on stages, during exhibitions, competitions and urban carnivals (Mújica 2014), we need to see all our study objects as part of a vast, participative performance that includes the musician

Figure 10: Group of *mistisiku* (panpipe ensemble) walking through the streets of Puno (2008). Photo by the author.

as well as the hearer. If we consider the waterfall example as a sort of musical composition, which is activated by our movement, we can extend our field of study to include our own presence in the performative space.

5 Playing music as a form of social exchange between musicians and society

Understanding pre-Hispanic sounds and music requires perceiving many aspects that are difficult to define. If we consider the role of music in society in terms of a mutual fluid relation, we must define our understanding of 'music' as something that happens in 'time'. When we consider music as a phenomenon that 'develops in time', we are using two concepts that Amerindian languages (most of them, at least) lack: 'music' and 'time'. Many authors have discussed the term 'music' as a Eurocentric concept (Nettl 2001: 125; 2005: 17; Green 2003: 270; Szurmuk and Irvin 2009: 150–52; Castelblanco 2016: 48). Although we can find in every culture something that could be recognized as 'music', which is understood as a culturally organized sound, different from speech (Blacking 2006; Mansilla 2016), we must be careful not to apply this concept uncritically.

'Time' is another problematic concept for our study in America. According to Mendoza (2015: 182), the correct answer to the question "how is 'time' spelled in Aymara?" (*¿como se dice 'tiempo' en Aymara?*), is "it is not spelled" (*no se dice*). They have another concept, *pacha*, that we translate

approximately as "space-time" (Manga 1994). This raises a fundamental question: how can we interpret 'Amerindian music' without 'music' and without 'time' concepts? We can understand it more clearly if we understand the participative performance during which music happens. The music of a fiesta ritual is not a 'concert' that occurs as a programmed sequence of sound events in time, but in a constant flux of spacetime changes (changes in space, including acoustic features, changes in the position of instruments, musicians and hearers, changes in weather conditions, changes in other sound sources at the fair, or the priests with megaphones, changes in the occurrence of simultaneous sound events, as the chanting in some ritual groups, etc.). Musicians play while moving through the streets, the graveyard, the nearby hill, the church, their sound shaped by each environment. The events, environments, the weather, and many other unplanned factors are included in the final performance. Here, the concept of 'music' is a creative and collective process that emerges from the interaction between humans and non-humans. Music creates the experience of place and time as animated, as, for example, it is conceived in northern Potosi (Stobart 2018). This conception can perhaps be applied more universally in music cultures, and if we use it in the construction of meaning of music in the past, it changes our research perspective.

'Time' is a complex matter in South American countries.[5] We have a time division in our history that separates time into 'before Columbus' – a long forgotten and unfamiliar past, studied by archaeologists – and 'after Columbus' the familiar one studied by historians, in Spanish. This shapes our understanding of 'Amerindian music' as an unfamiliar and distant reality. People in many other parts of the world perceive a continuum between their present time and history. In order to introduce a similar continuum to the Amerindian sense of time, it is necessary to decolonize our thinking, a process that has been initiated in the last decades by many scholars (Sánchez and Huarancca 2018; Pérez de Arce 2018; Quispe 2008).

These three aspects – time as a flux, as part of *pacha*, and as separated from our distant past – shape our understanding of 'pre-Hispanic music'. We should take these aspects into account when studying a sound object or an iconographic depiction of a performance, regarding it as part of a more complex unit. In this way, a simplistic and limited analysis develops into a more sophisticated understanding of interrelated factors, thus enriching the methodology of our discipline. This aspect, which has been discussed at length in ethnographic approaches since Merriam (1964), finds here a new interpretation.

Over decades of investigating 'pre-Hispanic music', I have come across many testimonies that report experiences of altered states of consciousness when playing pre-Hispanic flutes. Playing those flutes means a combination of hyperventilation and perception of strong, complex sounds,

[5] In South America, we have a concept of "popular time" that is not necessarily akin with the "modern" one, being a sense of a relative time, in which an appointment to meet at 4:00p.m. can occur, for example, one hour later. This practice is not an exception, but a rule in less modernized regions of Chile, Bolivia and Peru, normally seen as a sign of "cultural primitivism" by politicians or businessmen. But for these regions it is an expression of a fluid time, linked with the events and rhythms of the present time, that will never be the same again. It is linked to the Andean *pacha* concept.

which can explain changes in the listener's and player's state of consciousness. As this modification happens in a subjective sphere, it is seldom shared, nor is it normally discussed as part of our work. However, since it is experienced by many researchers and musicians, neglecting it becomes a methodological problem. Once we are aware that a similar experience is common in many ritual flute orchestras (Mercado 1995–1996; Ávila 2012; Venegas 2013; Beaudet 1997), we should not hesitate to include this aspect as part of our study. The new trends in Andean and Amazonian ethnomusicology show that sound is understood to enable the communication between humans and non-humans as part of an ambiental multinaturalism (see Brabec de Mori 2022), which helps to integrate these experiences to our work.

I cannot offer any interpretation of time concept and alteration of consciousness in connection to our field of study. I think the relation of these is not merely methodological, but has to do with our role as archaeomusicologists in our society. We know our scientific duty, linked with our discipline's name. But the research we do is integrated into a greater discussion that is taking place in our society. The so-called *emergencia indígena* (Indian emergence, Bengoa 2015), including new political, social and intellectual changes, is bringing to light new questions about indigenous people. In this context, archaeomusicology has begun to serve many people, from artisans, musicians, and researchers to common people. This poses new challenges for our discipline, as there have also emerged many misconceptions, mistakes, inconsistencies that are legitimate in their own right, since they do not come from the academic environment and may thus contribute to the academic debate but they do not require this debate to provide answers. Finding my role in the face of these new social challenges has recently been of great importance to my work.

Bringing this reflection to a close, I hope this article contributes to a discussion of archaeomusicology focused on Amerindian (mainly South Andean) problems, which also are of interest in other parts of the world. In South America, we need to find local solutions to local problems, such as finding local terminology to replace European concepts. However, many problems arise from more profound differences, as is the case with concepts that are not named in indigenous languages; for instance, the 'tuning' system of flutes that for European ears sounds like a 'de-tuning' (Pérez de Arce 2021). Archaeological sciences need to invent new terminology to replace the old one that disappeared long ago. Science is also a reflection of our time. Today, our duty as archaeomusicologists is linked with society, and I feel my society, here in Chile and in the neighboring countries, is involved in certain discussions in which our findings can serve multiple purposes, with some of them being only remotely related with our field of study.

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