ARTICLE

NODE "MATERIOLOGY AND VARIANTOLOGY: INVITATION TO DIALOGUE"

Weaving Waves. A platform on text, textile and technology

Lorenzo Sandoval

Artist, filmmaker and curator

Recommended citation

Abstract

Weaving Waves is a speculative platform to study shared genealogies between text, textiles and technology. Due to the nature of the research, this proposal is necessarily conceived as partial. The departing point is situated in the wave-shape that threads take in textile making, and how textiles have the capacity in many cultures of composing a non-phonetic system of inscription, and a de-centred place of enunciation. The non-linear entanglement of the warp and weft serves both as a metaphor for the composition of history, and also as a generative device about how narratives can be introduced. Authors such as Silvia Rivera Cusicanqui or Walter D. Mignolo have proved that textiles are a way of non-phonetic writing, and as such, they contain historical narrations and epistemologies divergent from the Western ones. Authors such as Gary Urton have shown how quipus (a textile device for writing from the Incas) are encoded with a binary code system. Also the Jacquard loom and its systems of punched cards to produce fabrics inspired early computational devices developed by Ada Lovelace and Charles Babbage. The thinking of Bonaventure Soh Bejeng Ndikung introduces elements for *disothering* within this enterprise. The tentative aim is to present a possible multidisciplinary research, which could be a project part of Siegfried Zielinski's speculative Institute of Southern Modernities.

Keywords

algorithms; binary coding; computation; cosmovision; deep time; disothering; fabric; media anarcheology; non-phonetic writing; photography; quipus; redistribution; textile; waves; weaving

Weaving Waves. *Una plataforma sobre texto, textil y tecnología*

Resumen

Weaving Waves *es una plataforma especulativa para estudiar genealogías compartidas entre texto, textiles y tecnología. Debido a la naturaleza de la investigación, esta propuesta se concibe necesariamente como parcial. El punto de partida está situado en la forma de onda que los hilos toman en la fabricación textil, y cómo los tejidos tienen la capacidad en muchas culturas de componer un sistema de inscripción no fonético y un lugar de enunciación descentrado. El entretejido no lineal de la urdimbre y la trama sirve tanto como metáfora para la composición de la historia, como también de dispositivo generativo sobre cómo se pueden introducir las narrativas. Autores como Silvia Rivera Cusicanqui o Walter D. Mignolo han demostrado que los tejidos son una forma de escribir sin fonética y, como tal, contienen narraciones históricas y epistemologías divergentes de las occidentales. Autores como Gary Urton han mostrado cómo el quipus (un dispositivo textil para escribir de origen inca) está codificado con un sistema de código binario. También el telar de jacquard y sus sistemas de tarjetas perforadas para producir tejidos inspiraron los primeros dispositivos informáticos desarrollados por Ada Lovelace y Charles Babbage. El pensamiento de Bonaventure Soh Bejeng Ndikung introduce elementos de* disothering *en esta empresa. El objetivo provisional es presentar una posible investigación multidisciplinaria, que podría ser un proyecto parte del especulativo Instituto de Modernidades del Sur de Siegfried Zielinski.*

Palabras clave

tecnología de los medios; epistemología de los medios; historial de los medios de tiempo profundo; ciencia del color; óptica

....

Introduction

Weaving Waves is a speculative proposal for Siegfried Zielinski's Institute for Southern Modernities, first presented at the Re:Place conference in Berlin in 2008. This project departs, at least partially, from the conceptual devices set in the text by the philosopher about that virtual institution included in the Variantology series.

Weaving Waves proposes an art project that develops through a platform to research the continuities between text, textiles and technology. The platform will unfold from the long-term research project and a future network of international contributors, combining organizations and collaborators. The proposal will use artistic tools to collect information and techniques from different practitioners and projects in order to explore the connections of text, textiles and technology, using the figure of the wave as a diffracting element. Producing interviews, video, photography, textiles, workshops and sculpture, the initiative will be recording the knowledge of the different collaborators.

The imagined output will be composed of different elements: an architectonic modular space for encounters and radio broadcasting, a video essay and a series of textile pieces made in collaboration. These materials will create a common ground that will work as the foundation of the platform. This platform is set through a series of encounters. With this network, the project will work in a double direction: the first is to trace a cartography of the colonial routes between cities. It will look at the movements of matters and people, the historical exploitation from the colonial enterprise, and the translation of techniques. The second

point is to share different tools from contemporary projects with the help of film, artworks and discussions. The platform will work as a way of sharing resources and knowledge.

The techniques employed to develop the platform are already a material reflection on the figure of the wave: radio and internet use waves for their propagation, and warp and weft in textiles are woven in a wave shape and, following the ideas below, inscribe textual compositions too. Waves work here then as a metaphor; both in its figurative way, and as well as also in its original meaning, considering them here as a literal carrier. Oceanic waves also constituted the surface that made possible the transport of the extracted matters extracted of the colonial program onwards until our very days.

The aim of this proposal is to study the separation of nature and culture in Western epistemology, with one of the many consequences is the exclusion of difference. The study of the exclusion of difference in the genealogies of Western sciences and arts is a necessary step to understanding the processes of extraction that have been happening since the colonial program started, from the North to the South, and from the West to the East. The imposition of Western values and its apparatuses has brought the world to ecocide, enslavement and epistemicide, from the metropolis to the colonies, but also towards the erasure of inner diverse cultures in the different territories that compose colonialist countries.

In the following text, I will account for how *Weaving Waves* has been developing by introducing the different genealogies of which the project is simultaneously constructed. In that sense, the project is tak-

ing ideas from *the materiality of reading cultures*, proposed by Walter D. Mignolo, who proposed a different epistemology to the Western one through the text inscribed in textiles. I introduce some ideas from Gary Urton to expand on the binary system that quipus are codified in (one of the devices introduced by Mignolo as well), and include the thought of Silvia Rivera Cusicanqui. Her research on the *sociology of the image* is quite relevant for this project, with the introduction of how textiles and quipus are related to the notion of redistribution recording the cosmovision. Cusicanqui brings also Pablo González Casanova's *internal colonialism*, notion that is also presented in this text. I'm introducing some elements from the media *anarqueology* proposed by Siegfried Zielinski with his concept of *deep time of the media*, which allows us to track developments in technology beyond the progressive timelines that normally we would find in historiography, opening it to relational constellations instead. I close with the concept of *disothering* proposed by Bonaventure Soh Bejeng Ndikung, and *decentring*, following Ana Longoni's suggestion to rethink the irradiation points in art history.

These references become particularly important for the project. They incorporate ways of thinking about and practicing history telling, which ultimately is not new as such, but instead, they reflect on already existing epistemologies, which have systems of inscription, which produce continuities between different temporalities when analyzing technology. The positions that are approached here have in common a quite expanded notion of text, even thinking beyond writing as such, as artist Paola Torres Nuñez del Prado described in a recent conversation about her research artistic and written work on quipus and textiles,[1] proposing that we should not think about encoding as we understand writing from a Western perspective, but instead how textiles work as *memory storage*. The combination of these references proposes divergent genealogies of apparatuses that interweave models where inscription points towards redistribution instead of accumulation, and time is not understood as linear and consecutive. In that way, the different cases studied in this proposal differ from a neoliberal history of technology, which is founded on a model of extraction and necropolitics. It seems to be more important than ever to incorporate these divergent genealogies not only in our institutions but also in our understanding and telling of histories in all their possible ramifications and differences.

"Who is naming that object a book?" With that question, Walter D. Mignolo opens the second chapter of *The Darker Side of Renaissance* (Mignolo 2003). In this inquiry, the author challenges not only the idea of what a book is but also the limits of what a text is, and ultimately leads to question *who* can decide what the device *book* is.

The interrogation that Mignolo puts on the table is fundamental, in order to understand the hegemony of the book as one of the most common technologies of recording discourse in Western societies. The

development of the hegemonic conception of the book as the depository of universal knowledge and values came together with the expansion of the colonial project. Books – and the languages they carried during the colonial expansion – brought aside the local languages of the colonies and, consequently, their forms of inscription as valid systems to record and transmit history, scientific knowledge or literacy. These three elements (history, science and literature) have been inevitably linked to the notion of written text and, by extension, to the production of books and other written formats in Western epistemology. However, following Mignolo's analysis, cultures different from the Western also have their own inscription devices, although not always written in alphabetic languages.
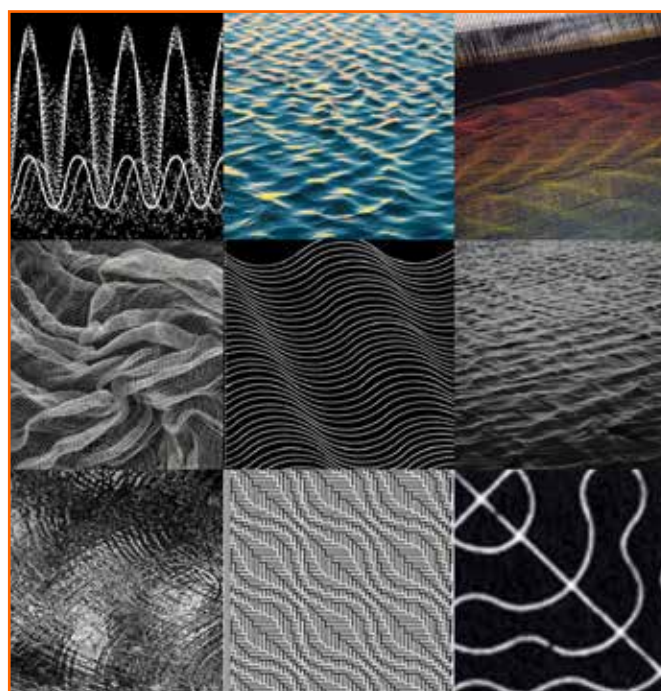

Figure 1. *Weaving Waves*. Digital Photomontage. Lorenzo Sandoval (2020)
Source: image courtesy of the author

Before continuing, and to clarify, nobody here doubts the powers and the need for books, but we are trying to understand the part they played in the colonial program. Mignolo analyses "the connections among the Renaissance philosophy of language, the idea of the book, and the warranty of truth grounded in writing. (...) People without letters were thought of as people without history, and oral narratives were looked at as incoherent and inconsistent" (Mignolo 2003). To put it boldly, the subject who enunciates the history from Europe and possesses the universal truth is white, male and hetero. This conception granted the moral foundations for the exploitative and extractivist models that

have sustained the basis of capitalism. One of the ways of questioning the conception provided by that supposedly universal subject is by analyzing the epistemological structures that facilitate its construction.

Thinking with Mignolo, *Weaving Waves* departs from challenging the notion of what a text can be (and can do). The way that knowledge has been shaped, recorded, organized and transmitted is one of the elements to study, challenge and reformulate. Text is one of these apparatuses. In his work, Mignolo insists that understanding the past also means speaking the present. As he states: "if we were to use the term discourse to refer to oral interactions and reserve text for written ones, we would need to expand the latter term beyond alphabetic written documents to include all material sign inscriptions. By doing so we would honor the etymological meaning of text (weaving, textile), which began to lose its original meaning when alphabetic writing and the Renaissance celebration of the letter obscured the more generous medieval meaning" (Mignolo 2003). The examples that Mignolo introduces as some of the possible non-alphabetic written languages are the Andean quipus and textiles. He shows that in the materiality of these non-phonetic encodings inscribed in textiles and quipus, it is possible to find divergent genealogies of history, knowledge and literature.

The proto-Indo-European root *teks*, is the common root of *text*, *textile* and *technology*. Following Mignolo, textiles are a form of non-phonetic writing. Although the author focuses on Andean cultures, this form of inscription can be found in many places of the world. Textiles can be a departing point to rethink possible genealogies of knowledge production as well as technology. What is even more potent is that one of the ways that textiles can be considered as writing, beyond their pictographic qualities, is by their underpinning of a binary coding language. Following Mignolo, textiles are a technique of writing that, given their materiality and the technique they are fabricated with, are made in the form of waves. Waves are woven in weaves, conforming an epistemology to this technique.

While Mignolo and other scholars approached the question understanding quipus as non-phonetic inscription system (Mignolo 1995; Asher and Ahser 1997) Gary Urton has proposed how the Andean quipus were developed using binary codifications, a system very close to the one used in programming (Urton 2003).

Fatima Mernissi explored the relationship between notions of navigation, myth inscription in the art of making carpets and fabrics, and the use of the internet in Morocco (Mernissi 2005). These few examples underline the relationships between the words interwoven in the common root of *teks*: *text*, *textile* and *technology*. In historically rethinking the connections of those three terms, it is possible *to speak the present* from different standing points proposing divergent genealogies. Internet and digital processes also travel in waves, through frequencies expanding through the atmosphere or electricity. In textiles, code spreads literally in waves since the shape that the threads take is an undulant weft.

The relationship between textile and a binary coding system is, in fact, in the very basis of computation and, partially at least, of photography. In "Electricity made visible", Geoffrey Batchen accounts for the correspondence between Charles Babbage and Henry Fox Talbot and how both had been inspired by the Jacquard loom to develop their devices (Batchen 2006). The punched cards that were used to set the textile patterns of the industrial lace production were made in a binary fashion: the holes in the cards would give the zeros and ones necessary for Babbage's proto-computer, the Analytical Engine – the codification of which was planned together with Ada Lovelace. At the same time as his conversations with Babbage and inspired by them, Talbot would use the same binary logic for his technique: the negative and the positive, as a basis for photographic reproduction – his process was named *squiagraphy*, meaning shadow writing or drawing.[2]

The industrial fabrication of textiles, therefore, is at the core of early computation and photography, two technologies that are inseparable today, as we can see when we use our computers or cell phones. Trevor Paglen would go even further and state that images are mainly made for computers through the using of their meta-data or the feeding of artificial intelligence. These images are not for humans anymore because they are a constitutive part of the entanglement for controlling people by algorithmic means, as well as the modulation of their desire (Paglen 2016). Matteo Pasquinelli has been insisting on similar ideas, relating them as well with the history of algorithm-making, which he proposes that they are an ancient technology related to ritual practices (Pasquinelli 2019) and that "Machine intelligence is not anthropomorphic, but sociomorphic: it imitates and feeds on the condividual structures of society rather than the individual ones" (Pasquinelli 2016).

Going back to Batchen's mentioned text, he suggests that the way that screens work is in a similar fashion to how textiles offer their forms: pixels appear on the screen, shaping the image, as the many points appear in a textile to give our perception an impression of an image or a pattern (Batchen 2006). The genealogies of computation, image reproduction and textile are interwoven in waves with the media that shape the very basis of capitalism.[3]

The figure of the wave appears then not only as a carrier or as a metaphor, but also as the material strategy to operate within non-phonetic writing. Both parts of a fabric, the warp and the weft, when woven,

2. I have been working extensively about this topic in the long-term art and research project "Shadow Writing", which is composed on more than 14 chapters until date, exploring divergent genealogies of the relationships between computation, image production and textile fabrication. https://lorenzosandoval.net/filter/Shadow-Writing

3. If we consider that traditional textile techniques are often produced as components of ritual processes and we agree with Pasquinelli that the performativity in rituals is an algorithmic form, what kind of rituals is capitalism setting? Do these rituals compose a sacred, unchangeable reality in the collective consciousness of the asymmetrically interconnected world? The mathematics and narrative means inscribed in quipus and Andean textiles were part of a ritualistic redistributive logic. Would it be possible to include forms of redistribution in the algorithmic sociomorphologies to come that counteract the necro-extractivism we live in?

adopt the form of a wave. Waves are also how radio, internet, sound or any electronic system of inscribed communications are delivered. The representation of frequencies of sonic recording, the rendering of how Wi-Fi signals are distributed and even the shape in which textiles are made in the explanatory diagrams of a loom adopt the same form, which is the wave. Over all those types of waves, there are codifications, languages, rituals and algorithms inscribed. Modern looms, radios and early electronic apparatuses are formally connected through that form. As Aby Warburg challenged linearity in the history of art, in this proposal the wave becomes the *pathosformel* to connect text, textile and technology, aiming at producing a divergence on the perception of what can be considered a text and who has the right to write (and to read) history and what technologies can do so.

When looking at the timelines of these technologies (looms, computers and radios, among other inventions), it is noteworthy that more often than not their origins are usually placed mostly in North Europe: England, France or Germany. These assumptions deliberately ignore that many of the constituents of knowledge that allow them to unfold, as well as the material elements that made them possible, come from beyond European and Western borders. The way that history has been conceived as a linear progression, embedded in a notion of natural evolution that supposedly paves its way towards perfection and places the best possible resultant subject at the end of the chain, must be dismantled. Siegfried Zielinski states in relation to the linearity of history that "it is related to other basic assumptions, such as the history of political hegemony developing from the strictly hierarchical to strictly democratic organization of systems, the rationale of economic expediency, the absolute necessity for simple technical artifacts to develop into complex technological systems, or the continual perfecting of the illusionizing potential of media. In essence, such genealogies are comforting fables about a bright future, where everything that ever existed is subjugated to the notion of technology as a power to 'banish fear' and a 'universal driving force'" (Zielinsky 2011).

It is the alibi with how difference is erased, and structural racism, xenophobia and misogyny are supported, consciously and unconsciously, through historical constructions. In the project *The Potosi Principle*, the curators asked: "what would happen if we substituted Descartes' 'ego cogito' for Hernán Cortés' 'ego conquiro', or Kant's concept of pure reason for what Marx termed the principle of primitive accumulation? What if, instead of starting our account of the modern age in the England of the Industrial Revolution or the France of Napoleon III, we started it in vice-royal South America? The answers to these questions undoubtedly offer us an illegitimate view of history and a thorny, irreconcilable vision of modernity, that, nevertheless, sketches out a notably realistic history of the globalized world of today" (Borja-Villel, Hinderer, Creischer & Siekman 2010).

It is important to mention that the matters for, first, the imperial enrichment from the Renaissance along with all of modernity, and second,

for the Industrial Revolution to happen, with textile fabrication at its very core, were provided by the colonies. Cotton was one of the many materials that would not have been available in such an enormous amount at the time without the existence of enslaved people's work and land appropriation. As Kropotkin sharply pointed out, already by the end of 19th and early 20th century, most of the fortunes were made thanks to how modern machines were co-developed at the same time as the slave trade, women and children exploitation and the inhuman conditions of the proletarians (Kropotkin 1906): they are part of the same disciplinary apparatus together with war and its many other branches, as education and erasure of local cultures. Let us not forget that one of the most relevant industries of the time was the textile one. This entanglement was the one to facilitate Western society's development scientifically and socially, thanks to the extraction of knowledge, matters and people.

The binary coding system is actually present in any textile made in the whole world, not only in the European-produced ones from XVIII and onwards with the advent of the Jacquard loom. The punched cards are only one of the many ways of mechanizing the application of binary logic. Any loom does the very same as the one from Jacquard, only that the way that the codification happens is mediated differently. Basically, there are two options: the weft covers the warp, or not. That is the basis of binary coding that the Jacquard cards mediated with their holes. But of course, even being equivalents, there are differences as well. We should not forget that the point that will emerge as part of the image, and comparable to a pixel, is part of a thread and composes the textile image in an articulation made of waves. We can think here with Glissant: "that is to say that exclusion is the rule in binary practice (either/or), whereas poetics aims for the space of difference – not exclusion but, rather, where difference is realized in going beyond" (Glissant 2010). Perhaps, can the textile as an epistemological construction set another logic? One made through opacities and submarine continuities? Waves again give a possible figure for producing divergent epistemologies.

As mentioned earlier, Gary Urton proposed the way that the Incas were using this writing technology was to codify messages in a binary fashion. Following his work, the different possible combinations of pairs in the structure of quipus allow a setting of binary possibilities, having a system similar to the 8-bits in computers (Urton insists that in no way does he suggest that quipus are a direct precedent of computers). In early anthropological studies, it was believed that quipus were mainly used as a system for the accountability of herds. But, first, the Ashers (Asher & Asher 1997) and, then, Urton to a greater extent probed that the system is way more complex: rather than for accounting, it is an inscription device for astronomy or ritualistic performances – and, therefore, for myth-making: history, literacy and poetry.

The records kept by quipus provided accountability for a system of redistribution, and not just for accumulation. Quipus and textiles, with their function of date storing and memory device, were part of a system of commoning that the councils called *Ayllus* managed collectively. This

system of governance is still today at work in some of the Andes in Bolivia and Peru.[4] Commoning, thus, comes in waves.[5]

It is not only quipus that follows a binary logic; textile fabrication does as well. During my research in the Pre-Columbian Textile Amano Museum in Lima, conservator Doris Robles pointed out in an interview we had, that depending the shape of the direction in which the fibers would be folded (in *S* or *Z*, which, again, are directions of waves), the textile would show the social class of the owner. In that way, it is possible to understand that not only quipus but also textiles followed a binary coding system in their making in Inca society, as Robles indicated. She also explained the different relations that the textile would present when introducing different social hierarchies appearing in a textile with many individuals depicted, which was the way to introduce the narration of the life of a king, for instance. In other cases, she described the relationships between the symbols in the textiles like astronomic time cycles and their usage in, for example, agriculture and other societal activities. These facts inscribed in quipus and fabrics indicate sophisticated narratives that one can find in those textile devices. In these examples, we can see how the connections between text, textile and technology are the foundations for divergent genealogies and epistemologies.

In *Sociología de la imagen*, Silvia Rivera Cusicanqui (2015) presents her method of analysis of images, which gave her the foundations for the Taller de Historia Oral Andina (Andean Oral History Workshop). Her analysis is, among others, about the book *El primer nueva crónica y buen gobierno*[6] (*The First New Chronicle and Good Government*), written around 1615 by Felipe Guamán Poma de Ayala, who could write and read both in Spanish and Quechua, and was moreover familiar with reading quipus. Her account of the book narrates how Guamán de Poma wrote at two levels. The first level is a long alphabetic written letter that was addressed to the Spanish King; the first half tells the history of the Incas; the other half is a critique of the merciless Spanish rule, trying Guamán de Poma to improve indigenous people conditions. The second level introduced by Cusicanqui is about the drawings that are spread throughout the book. Her technique of analysis was the *sociology of the image*. According to Cusicanqui, Guamán de Poma directed those drawings not to the king but to other possible readers who were not necessarily familiar with alphabetic writing. The drawings included many elements of the Andean society, and they stand for other ways of living: the high social position of the weaver women, the organization of the cities or the relation of shamans with the readings of the quipus. In one of the vignettes, a shaman holding a quipu is presented as *an astronomer and a poet who knows*.

In her book, Rivera Cusicanqui introduces a range of narratives that are supposedly abstract for the untrained eye presented in tex-

tiles. Cusicanqui explains how a dynamic cosmovision is inscribed in the ritual fabrics known as taris that are shaped by three strips: one area in the middle and two other ones shaping a binary opposition: the top and bottom. These three elements would eventually become four. Cusicanqui relates this cosmovision contained in the fabric with the Aymara proverb: "taqikunas pänipuniw akapachanxa (everything in the universe is in pairs)", and she completes: "However, these pairs are opposites and face each other in a sort of middle ground."[7]

In terms of the relations between the Aymara culture and the epistemology inscribed in the textiles, it is worth reading her thoughts about that middle ground: "Human action can then be seen at the same time as the cause and the result of the non-static way in which opposition is handled in the Aymara worldview. This is where a fourth pacha emerges, the *khä pacha*. The world of the not-yet-existent, of the unknown, is born as a kind of potentiality in permanent displacement, which faces a perpetual disjunction: everything can be ruined and human action can culminate in a catastrophe, or it can redeem the world of the existing and become an act of liberation and completion. The disjunction implicit in the abysmal naturality of *khä pacha* is, therefore, an ever-present danger, which is perceived in the social sphere as a risk of dissolution and stagnation, but also as a possibility of renewal and realization of the full human potential; the good being of people and the world as a whole (suma qamaña)".[8] In these textiles, time is not linear and politics are still open possibilities for the imagination. The wave constitutes an image for histories that are permanently dialectical and dynamic, a position that aligns with the polysemic nature of the ideas of Warburg a few lines above.

The ayllus system previously described as a system of commoning, that is strongly related to principles of anarchism (movement with which Cusicanqui is affiliated to), is part of this conception of the world where the *buen vivir* (good living) is a necessary element of being in that world, a way to struggle against accumulation and extractivism. The epistemology written into textiles, described earlier by Cusicanqui, offers tools to rethink the time to come out of the neoliberal necropolitic logic we are subsumed in. In *The Problem of Land*, José Carlos Mariategui states "that the best document left by the Inca civilization is surely its art. Soon after, he writes that In Inca society there was no theft because there was no property or, if you like, because there was a socialist organization of property" (Mariategui 1928). Is it possible to consider that, as in the case of other cultural artifacts, the textiles and quipus inscribe a socialist system of redistribution?

Lastly, Cusicanqui introduces the notion of internal colonialism, which is particularly interesting in terms of how Western literacy and text have displaced local cultures. The notion of *internal colonialism*, largely

---

4. Op. Cit. It is important to mention that Urton in no way suggests that the quipus are a direct precedent of today's computation.
5. This is a *detournement* from a line from ADNAN, Etel. *Sea and Fog*. New York: Nightboat Books, 2012. I got to know about the poem through Casavecchia (2023).
6. http://www5.kb.dk/permalink/2006/poma/info/es/frontpage.htm
7. Op. cit. "taqi- kunas pänipuniw akapachanxa (todo en el universo es par)". Sin embargo, estos pares son opuestos y se enfrentan en una suerte de tierra del medio.
8. Op. cit.

developed by González Casanova (Casanova 1969/ Casanova 2003), refers to the process by which local powers would assimilate and mimic the ways of doing of the colonizers, implementing in the countries that became independent process of extraction and exploitation based on racism and separation. If we think in terms of erasing local cultures, one would say that the very same logic has expanded towards every single land, of course still with brutal asymmetries and the preservation of privileges in the North. Internal colonialism can be expanded to also include notions of *globalized internal colonization*. Even though each territory must be analyzed within its own particularities, class struggle is far from disappeared. The class in power always tends (at least in official nationalistic narratives) to erase the cultures from below, in a process that we can define as *endocolonialism*: for instance, in the South Europe, and particularly in Spain, Portugal and Italy the traces of the Muslim culture have been systematically hidden in the historical narratives. The Muslim presence in the peninsulas was always described as an invasion, unlike the Roman presence, the ruins of which were always a matter of pride. But even with the willingness of deletion, the traces remained in the irrigation systems, food recipes, the toponyms of many cities and towns, architecture, ceramics, language and, of course, in the patterns one can find in the practice of traditional weaving in rural areas. This is a very specific (although massive) example for thinking about how the colonial logic does not only go from the metropolis towards the colonies, but also acts within the very core of the societies of the colonizers.

There are many other examples related to the erasure of difference and processes of knowledge extraction, for instance, the example that Silvia Federici has explained very well in her essential *Caliban and the Witch* (Federici 2009). Here, she introduces the relationships between the reorganization of gender and labour following the process of original accumulation: "I have placed at the center of my analysis of primitive accumulation the witch-hunts of the 16th and 17th centuries, arguing that the persecution of the witches, in Europe as in the New World, was as important as colonization and the expropriation of the European peasantry from its land were for the development of capitalism" (Federici 2009). Women have traditionally practiced the knowledge inscribed in weaving, and it comes as no surprise that this knowledge has been considered a minor art or craft that has always been rendered secondary when it comes to its inclusion in the history of art.

The *position of enunciation* becomes unavoidable in this project. As a subject, I am white and European, so it should be acknowledged that I am speaking from a position of privilege. How can we establish a series of connections between the colonial processes and the history of the struggle in the Western territories? And, am I in this relation even allowed to develop work on these topics, or am I practicing a process of extraction myself? These are questions that must be inspected inevitably and continuously, as well, throughout this project.

This project is a series of reflections to the above questions. It is also the reason why this proposal will develop as a collaborative platform. The centre would eventually be distributed and multiplied. The proposal is to support the generation of diverse places of encounter from where more practitioners can meet and, when desired, from where to speak from and/or with. It would be useful to think along the notion of *dis-othering* presented by Bonaventure Soh Bejeng Ndikung: "dis-othering starts with the recognition of the acts and processes of othering. With the revelation of the undercurrents that feed, justify, enable, and maintain acts and processes of othering. It is within, and upon, this awareness and consciousness of and towards these acts and processes of othering that one might be able to build resistance and protect oneself both from being othered and from the urge to other. How can we generate such a community without producing otherness?" (Soh Bejeng Ndikung 2018)

Ana Longoni proposes a questioning of the history of art that places the large western cities of the metropolis as the exclusive centres of irradiation of the artistic avant-garde. The irradiation is itself another figure of wave-making, taking meeting ripples as an image for possible divergent epistemologies. This same practice of decentralization can be applied to the so-called minor arts within the same points of irradiation; to question not only the relations of exploitation between colony and metropolis, but to include questions of gender, race and class. "With the term off-center I intend to allude to that which is displaced from the center but also to a center that is no longer recognized as such, missed, disconcerted, that is off-axis. (...) The challenge (and the provocation) lies in reversing the usual flow (tracing the repercussions of the center on the periphery) in order to think about the reverse movement: What is it about the center that is peripheral or off-center?" (Longoni, 2007). Can one consider the question of decentring in the production of divergent genealogies in the context between text, textile and technology, which in turn would offer the basis for more permeable epistemologies?

For now, we can finish off with one last thought from Zielinski: "To think in deep time dimensions joins a possible past to a possible future. Just as I do not understand history as a collection of given facts, but as a reality that is perpetually co-produced by historians, I do not believe that the future will automatically be the perpetuation of contemporary conditions and relations" (Zielinsky 2011).

Conclusions

The figure of the wave is a scientific, poetic and political one. The wave is polysemic in its own nature.

Firstly, it speaks about the ocean waves, used for the colonial routes and all the exploitation chains. Many of the textile systems, and other technological devices travel along those routes.

Secondly, it speaks about the text we can find in textiles. The ways that the warp goes through in a wave shape in textile making compose a non-phonetic system of writing, a de-centred place of enunciation and an inclusive telling of history. As we have seen with the authors

above, textiles and quipus are a way of non-phonetic mnemotechnic inscription, and as such, they contain historical narrations and epistemologies divergent from the Western one.

Thirdly, it speaks about how to distribute messages using the spectrum of radios and Wi-Fi signals: how any means of electromagnetic communication travels is by the physical properties of the waves.

The wave here is understood in all of its polysemic possibilities: it is the rendering of the movement of water in the sea, the slow formation of mountain chains, the drawings that the sand offers in the desert or in a cymatic plate, the shape of the ripples of fabric under the wind or the fibers that compose that same fabric, the surface of the skin, the elevations of vinyl when magnified, the frequency of the guitar strings when played... Waves are, by definition, a device that travels through time and space, connecting different temporalities and questioning the ordering of the layers of time that reclaim different readings.

Weaving Waves conceives this speculative platform as a web that brings a series of histories, people and locations in contact with each other. With that sense of connectivity, it departs from the figure of fabric, in both a metaphorical and a literal way. The connections present themselves even etymologically: *teks* is the common root for *text*, *textile* and *technology*. By bringing back these roots, we can perhaps keep challenging the present conditions.

References

Ardalan, Nader and Laleh Bakhtiar. *El sentido de la unidad. La tradición Sufí en la arquitectura persa*. Madrid: Siruela, 2007.

Asher, Marcia and Robert Asher. *Mathematics of the Incas: Code of the Quipu*. Dover: Dover Public. Inc, 1997.

Batchen, Geoffrey. "Electricity Made Visible". In: Hui Kyong Chun, Wendy & Keenan, Thomas (eds.). *New Media/Old Media*. London: Routledge, 2006.

Belting, Hans. "Afterthoughts on Alhazen's Visual Theory and Its Presence in the Pictorial Theory of Western Perspective". In: Siegfried & Fürlus, Eckhard (eds.). *Variantology 5. Neapolitan Affairs*. Köln: Verlag der Buchhandlung Walther König, 2011.

Borja-Villel, Manuel / Hinderer, Max Jorge, Alice Creischer and Andreas Siekman. *The Potosí Principle How shall we sing the Lord's song in a strange land?* Exhibition dossier. Madrid: Museo Reina Sofía, 2010. https://www.museoreinasofia.es/sites/default/files/notas-de-prensa/2010-010-dossier-002.pdf

Casavecchia, Barbara. *Thus Waves Come in Pairs Thinking with the Mediterraneans. A conversation between Etel Adnan and Simone Fattal*. London: Sterbeng Press, 2023.

Didi-Huberman, Georges. *La Imagen Superviviente: Historia del Arte y Tiempo de los Fantasmas Según aby Warburg*. Madrid: Abada editores, 2013.

El-Bizri, Nader. "By Way of an Overture: Classical Optics and Renaissance Pictorial Arts". In: Nader El-Bizri (ed.). *Recto verso*. Ashgate, 2014. https://www.academia.edu/35891442/By_Way_of_an_Overture_Classical_Optics_and_Renaissance_Pictorial_Arts

Federici, Silvia. *Caliban and the Witch*. New York: Autonomedia, 2009.

Glissant, Édouard. Poetics of Relation. Michigan: The University of Michigan Press, 2010.

González Casanova, Pablo. "Colonialismo Interno (una redefinición)". *Revista Rebeldía*, no. 12: (2003, October). http://www.revistarebeldia.org/revistas/012/art06.html

Guamán De Poma Ayala, Felipe. *El primer nueva crónica y buen gobierno*. http://www5.kb.dk/permalink/2006/poma/info/es/frontpage.htm

Guardans, Ramón. "A Brief Note on the anwā Texts of the Late Tenth Century". In: Zielinski, Siegfried & Fürlus, Eckhard (eds.). *Variantology 4. On Deep Time Relations of Arts, Sciences and Technologies In the Arabic-Islamic World and Beyond*, (Köln: Verlag der Buchhandlung Walther König), 2011

Hill Bone, Elisabeth and Water D. Mignolo (eds.). *Writing Without Words: Alternative Literacies in Mesoamerica and the Andes*. Durham: Duke University Press, 1994. DOI: https://doi.org/10.1515/9780822379263

Kropotkin, Piotr. *The Conquer of Bread*. Originally published in 1906. https://theanarchistlibrary.org/library/petr-kropotkin-the-conquest-of-bread

Lefebvre, Henry. *Rhythmanalysis: Space, Time and Everyday Life*. New York: Continuum, 2004.

Link, David. "Scrambling T-R-U-T-H Rotating Letters as a Form of Thought". In: ZIELINSKI, Siegfried & FÜRLUS, Eckhard (eds.). *Variantology 4. On Deep Time Relations of Arts, Sciences and Technologies In the Arabic-Islamic World and Beyond*. Köln: Verlag der Buchhandlung Walther König, 2011.

Longoni, Ana. "Otros inicios del conceptualismo (argentino y latinoamericano)". https://visuales4.wordpress.com/wp-content/uploads/2011/08/11-longoni1.pdf

Mariategui, José Carlos. *7 Ensayos de Interpretación de la Realidad Peruana*. Lima: Biblioteca Amauta, 1928. https://www.marxists.org/espanol/mariateg/1928/7ensayos/index.htm

Mernissi, Fátima. *El hilo de Penélope*. Barcelona: Lumen, 2005.

Mignolo, Walter D. *The Darker Side of the Renaissance*. Michigan: The University of Michigan Press, 2003. DOI: https://doi.org/10.3998/mpub.8739

Paglen, Trevor. *Invisible Images (Your Pictures Are Looking at You). The New Inquiry*, (2016). https://thenewinquiry.com/invisible-images-your-pictures-are-looking-at-you/

Pasquinelli, Matteo. "Three Thousand Years of Algorithmic Rituals: The Emergence of AI from the Computation of Space". *E-flux Journal*, no. 101, (2019, June). https://www.e-flux.com/journal/101/273221/three-thousand-years-of-algorithmic-rituals-the-emergence-of-ai-from-the-computation-of-space/

Pasquinelli, Matteo. "Abnormal Encephalization in the Age of Machine Learning". *E-flux Journal*, no. 75, (2016, September).https://www.e-flux.com/journal/75/67133/abnormal-encephalization-in-the-age-of-machine-learning/

Pasquinelli, Matteo. *The Eye of the Master. A Social History of Artificial Intelligence*. London: Verso Books, 2023.

Preciado, Paul. "Etimologías". From *Un Apartamento en Uran*o. Barcelona: Anagrama, 2019.

Rivera Cusicanqui, Silvia. *Sociología de la imagen. Miradas chi'xi desde la historia andina*. Buenos Aires: Tinta Limón ediciones, 2015.

Serres, Michel. *El contrato natural*. Valencia: Pretextos, 1991.

Salah, Ruba Mohammad. *Transformations in Architectural Aesthetics: From Ornament to Materiality*. University of Jordan, 2009.

Saliba, George. "Blurred Edges—At the Intersection of Science, Culture, and Art". In: Siegfried & FÜRLUS, Eckhard (eds.). *Variantology 4. On Deep Time Relations of Arts, Sciences and Technologies In the Arabic-Islamic World and Beyond*. Köln: Verlag der Buchhandlung Walther König, 2011.

Salomon, Frank. *The Cord Keepers, Khipus and Cultural Life in a Peruvian Village*. Durham: Duke University Press, 2004. DOI: https://doi.org/10.2307/j.ctv11hpp2t

Soh Bejeng Ndikung, Bonaventure. *Dis-othering as method: Leh Zo A Me Ke Nde Za. SAVVY Contemporary – The Laboratory of Form Ideas.* https://savvy-contemporary.com/site/assets/files/4099/handout_geographiesofimagination.pdf

Soh Bejeng Ndikung, Bonaventure. *In a Moment or Two We Will Find the Tone*. Berlin: Archive Books, 2021a.

Soh Bejeng Ndikung, Bonaventure. *The Delusions of Care*. Berlin: Archive Books, 2021b.

Soh Bejeng Ndikung, Bonaventure, Elena AGUDIO, Marius BABIAS and Storm JANSE VAN RENSBURG. *Giving Contours to Shadow*s. Berlin: SAVVY Contemporary Books/ Verlag der Buchhandlung Walther König, 2015.

Torres Nuñez Del Prado, Paola. "The Sonified Textiles within the Text(il)ura Performance: Cross-cultural Tangible Interfaces as Phenomenological Artifacts". *Research catalogue*, (2022). https://www.researchcatalogue.net/view/1288475/1288474.

Urton, Gary. *Signs of the Inka Khipu. Binary Coding in the Andean Knotted-String Records*. Austin: University of Texas Press, 2003.

Zielinski, Siegfried. "Towards an Institute of Southern Modernities". In: ZIELINSKI, Siegfried & FÜRLUS, Eckhard (eds.). *Variantology 5. Neapolitan Affairs*. Köln: Verlag der Buchhandlung Walther König, 2011.

Zielinski, Siegfried. *Deep Time of the Media. Toward an Archaeology of Hearing and Seeing by Technical Means*. Cambridge/Massachusetts: The MIT Press, 2006.

CV

Lorenzo Sandoval
Artist, filmmaker and curator
lorenzorsandoval@gmail.com

Works as an artist, filmmaker and curator. He was part of *Canine Wisdom for the Barking Dog* at Dak'art 2018. He was part of the Miracle Workers Collective representing Finland at the Venice Biennale 2019 and showed *Shadow Writing (Algorithm/Quipu)* at Gotheborg Biennale the same year. He presented *Shadow Writing (Fábrica Colectiva)* at IVAM Alcoi also in 2019. In 2021, he produced *Industria* with Tono Vízcaino for IVAM. Sandoval currently works on his film project *That summer of '22*.

www.lorenzosandoval.net
http://theinstituteforendoticresearch.org