Clash between Worldviews through Images: Colonial Maps and Meso-American Codices in the Understanding of Cultural Difference

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Introduction

When European Enlightenment and the Renaissance thinking established the human reason and sciences as the vehicle par excellence to reach the absolute truth in the study of nature, human life, culture and art, they also located geometry as the scientific tool through which enlightened city models and systems of ideal architectural proportions could be created giving form to mathematically calculable aesthetics of a canon representing the only criteria to estimate the real beauty. The series of urban models developed in the 16th and 17th centuries changed the way to analyze, design and value the urban order establishing rules for the design of a modern city, founded on the visualization of the urban space from above, from God’s Eye and from the perspective of domination that found its representation in plans and maps making possible the mathematical measurement of areas, dimensions and distances. These renewed urban representations were better tools for the definition of the occupation and possession of urban land, creation of urban hierarchy and giving order to urban

1 With the Renaissance emerges the idea of the regulation of the urban form through an ideal geometry as the basis for an urban model corresponding to each specific type of a city. Later on, during the Baroque period, these geometrically regulated urban models converted to tools for the concentration of an absolute power and hegemonic supervision in which the law and order were the essential urban characteristics. Thus, the European colonial urban model suited perfectly to the territorial control of the cities in the New World founded by the Spanish colony.
functions. Thus maps and plans in hands of those with political power were converted to legal documents and means of regulation of people’s right to the city.

The work of post-colonial writers such as Appadurai, Mignolo and Bhabha, has introduced to the cultural field other forms of knowledge beyond the Western hegemonic one, demanding their recognition. Thus the post-colonial thinking has challenged the Eurocentric culture as the only sustainable form for the generation of valid knowledge demanding the eradication of the idea of the Western canon and scholarship as the only potentially sustainable and generative basis for knowledge production and that of the indigenous knowledge only as an interesting and exotic object of study of those without history located in a time before the present, beyond the canonical legitimating truth, as the idea of the Western colonialism created of itself as the only lawful writer of the history of those who supposedly could not possess the true knowledge. Related to this, the architectural and urban theory taught and followed worldwide, have excluded the idea of alternative centers of enunciation outside the Western cultural sphere rejecting local criteria of knowledge, meaning and aesthetics and their representations, evolved along with different cultural contexts that produced them; the cultural supremacy has belonged to the Western transcendent subject and not to the historical subject of the culturally different Other. There is no acknowledgement of the possible equalitarian existence of other loci of cultural enunciation besides the Western academic knowledge and understanding considering unthinkable the idea of learning from those whose life has been violently transformed by colonial legacies. Mignolo demands that it is urgent to revalue the knowledge of those Others, through thinking from their centers of enunciation in order to understand and recognize the colonial difference from the subaltern perspectives and their demands.

2 Mignolo 2003, 105.
3 Mignolo 2003, 111–112.
Mignolo highlights the importance to be able to distinguish the difference between the verb *gognosco* (to know, to recognize) and *epistemai* (to know, to be acquainted with), suggesting a different conceptualization of knowledge and knowing, as well as to distinguish the difference between *doxa* (knowledge guided by common sense, indispensable for the conceptualization of episteme as its exterior) and *episteme* (systematic knowledge guided by explicit logical rules; intellectual configuration of systematic knowledge). According to Ferrater Mora\(^5\) (1944)\(^6\) we should consider also the difference between *theory of knowledge* (knowledge in general) and *epistemology* (scientific knowledge). Thus, *gnosis* captures a wide range of forms of knowledge the philosophy and epistemology has contributed to cast away, among them doxa. Thus, what Mignolo calls *border thinking*, characterizes an emergent *gnoseology* displacing the hegemonic forms of knowledge with the cultural perspective of the subaltern and colonial Others to erase the colonial difference between the *hegemonic knower* and the *subaltern known*, between the knowledge of the Others and that of the *pure disciplinary subject* as a knower whose discourse should not be polluted by the gnosis of the border matters. In this sense, the Western epistemology has been considered the only legitimated way of submitting the hermeneutics of the Other\(^7\).

At this point, the demand for the expansion of the representational concept of knowledge and cognition mentioned by Rorty (1982)\(^8\) becomes essential\(^9\), with the argument of Bhabha that “the wider significance of the postmodern condition lies in the awareness that the epistemological ‘limits’ of those ethnocentric ideas are also the enunciative boundaries of a range of other dissonant, even dissentent histories and voices,”\(^10\) such as those of the colonized people,

\(^5\) Mignolo 2000, 9–12.
\(^6\) Here Mignolo is refering to J. Ferrater Mora, Diccionario de la filosofía (Mexico City 1944).
\(^7\) Mignolo 2000, 18.
\(^8\) Here Bhabha refers to R. Rorty, Consequences of Pragmatism. Essays 1972–1980 (Minnesota 1982).
\(^9\) Bhabha 2007, 22.
\(^10\) Bhabha 2007, 39.
and that “there is no given community or body of people whose inherent, radical historicity emits the right signs”\textsuperscript{11}. The emphasis on the construction of the colonial representation of the hegemonic political discourse is to contribute to the translation of the theory to establish a conceptual vigilance to avoid the rupture between the political or social truth or that of a stable hierarchy of political values. “Here the transformation’s value of change lies in the rearticulation, or translation, of elements that are neither the One nor the Other politics, but something else besides, which contests the terms and territories of both. We need a little less pietistic articulation of political principle; a little more of the principle of political negotiation”\textsuperscript{12}.

So, how to confront Eurocentricity? There should not be universalization of meanings in the cultural and academic discourse of critical theory; to guarantee the institutional effectivity, the knowledge of cultural difference has to include the Other. Thus, the Otherness becomes an imaginary of a certain cultural space and conscience of human existence with a different form of knowledge that deconstructs the \textit{epistemological edge of the West}\textsuperscript{13}. Cultural diversity is an epistemological object in which culture is the container of empirical knowledge and cultural difference, and the location of its enunciation as \textit{knowledgeable and adequate} to the construction of systems of cultural identification. Problems emerge at the encounters of the significatory boundaries of cultures, and clashes between them detonate mis-readings of values or misappropriation of signs, giving space to the loss of meanings in the contestation and articulation of everyday life between communities and groups of people. In this sense, the re-lecture of pre-columbine codices as legitimate assemblages of spatial knowledge should be recognized on the same level as Western maps and plans. What makes the cultural difference problematic is the question of cultural authority and the attempt to dominate the Other in the name of \textit{cultural supremacy}. The cultural authority recognized as

\textsuperscript{11} Bhabha 2007, 41.
\textsuperscript{12} Bhabha 2007, 41.
\textsuperscript{13} Bhabha 2007, 45–46.
the referential truth at the moment of enunciation of the cultural difference in a cultural encounter, problematizes the division of the history and time to the past and the present, to the tradition and modernity when defining the cultural representation and its authoritative address\textsuperscript{14}.

The postcolonial criticism has introduced to cultural studies a radical re-thinking of knowledge and knowledge production, as well as of social identities authored and authorized by the Western colonial domination\textsuperscript{15} seeking for undoing the Eurocentric perspective of the world, the culture and the institutionalized hegemonic history and evidencing the way in which the colonial power has appropriated the Other as part of its dominating vision of historical past\textsuperscript{16}. In order to reach its goals, post-colonial critique needs to emerge from the interstices and fractures between institutionalized disciplines of knowledge production in order to have the potential to re-work the knowledge through subaltern analysis as a mode of critical scholarship in history and culture\textsuperscript{17}.

Thus, the present paper explores the encounter between the European and Mesoamerican conceptions of urban and architectural space through maps, urban plans and Mesoamerican codex, and the European territorial domination executed from the perspective of God’s Eye during the Spanish colonization of Mesoamerica, taking as an example the first colonial city maps of Puebla, Mexico, founded in 1531, and the interpretation\textsuperscript{18} of Codex Borgia\textsuperscript{19} created before the Spanish conquest and supposedly representing the precolumbine city

\textsuperscript{14} Bhabha 2007, 50.  
\textsuperscript{15} Prakash 1994, 1475.  
\textsuperscript{16} Prakash insists that the post-colonial critic can only reach its goals through transdisciplinary study of history and culture.  
\textsuperscript{17} Prakash, 1994, 1475–1476.  
\textsuperscript{18} The interpretation of Codex Borgia used as the basis for this paper is that presented by Ofelia Márquez Huitzil (2010) in her Ph.D. dissertation at the Universidad Nacional Autónoma de México of Mexico City (UNAM), and its Department of Anthropology.  
\textsuperscript{19} Codex Borgia, now preserved in the Vatican Museum, is from the Mixteca-Puebla or Cholula-Tlaxcala region, painted in the 15th century using a mixture of pigments and stucco applied on deer skin on square plates. Different codices of the so called Borgia Group of Codices are today preserved in various European Museums.
of Cholula and its surroundings in the Puebla region on the Central Plateau of Mexico. The urban and architectural perspective applied to the study of pictorial evidence described in this paper ponders also the right of the indigenous people to the colonial city in the canonical urban and architectural history inspired by the work of post-colonial writers such as Appadurai, Mignolo and Bhabha. These authors have been relevant to this paper also as detonators of the debate about the need of appropriation of the contemporary cultural field by other forms of knowledge beyond the Eurocentric cultural sphere arguing that all knowledge and understanding should be considered potentially sustainable and generative, not only that based on Eurocentric canon and scholarship\textsuperscript{20}. “[B]urden of the past […] burden of the present”\textsuperscript{21}, sustains Mignolo, pointing out spatial epistemic fractures or colonial difference based on the still persisting conviction that the colonized people are not only physically different, but inferior also because they are temporally different in need to be civilized, modernized and developed\textsuperscript{22}.

**History, subalterity and strategies of colonial domination of the Others**

Maps and architectural plans imposed European criteria and styles for the urban zoning, functional order, urban aesthetics and architectural beauty, meanwhile the non-European, considered non-historical, was seen as excessively ornamented without constructional logic or aesthetic values of their own. From thereon architectures of other cultures were analyzed with the Euro-centric criteria and suited by force to the great narrative of legitimized architectural history, thus ignoring that the latter represented the theoretical, aesthetic and functional framework canonized also and only at a particular historical time, Enlightenment, and geographical location, that of Western Europe\textsuperscript{23}. As Walter Mignolo points out, under these conditions, the

\begin{flushleft}
\textsuperscript{20} Mignolo 2003, 105–112.
\textsuperscript{21} Mignolo 2003, 104.
\textsuperscript{22} Mignolo 2003, 104–107.
\textsuperscript{23} Baydar 2004, 23–25.
\end{flushleft}
indigenous knowledge of Mesoamerica could not be accepted as part of the true, sustainable and generative knowledge of the European canon; it belonged to the people without history, located in a time before the present, before the colonialization. The dominant, legitimated discourse of the colonial power (maps and urban plans) is there to domesticate the local cultural and political agencies (use and signification of space) to be absorbed by the colonial culture and aesthetics. Thus, the colonization with Enlightenment as its primary ideological tool, manufactured a totalizing, dialectical master-narrative that negates the local pasts and in which the occupation of the public sphere is exclusive to the Euro-centric power.

But there have been several simultaneous primary discourses. Edward Said speaks of overlapping theories and intertwined histories producing unstable conditions of dwelling in a place, a clash between ways of understanding the environment sheltering the human life and culture. The encountering worldviews and concepts of living create urban conditions where the dominant and the dominated, the center and the margin, the Self and the Other, here and there are in negotiation and where there is constant displacement, interaction and contestation between the two, situation that can clearly be seen in the demographic zoning of colonial cities in Mesoamerica.

Now, the edge question today in architectural and urban theory should be the representation of cultural difference and its historical, theoretical and aesthetic legitimation on the border thinking-basis. Baydar asks, “[t]o what extent architecture needs cultural identification for its universal legitimation?” and continues “[i]s it possible to speak of architecture outside of culture?” James Clifford has pointed out that culture emerged after 1800 reinforced the domain of human values and creations produced by them, hiding behind of

24 Mignolo 2000, 3.
29 Baydar refers here to Clifford’s The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art (Cambridge 1988).
it colonial agendas of fostering ethnic and racial hierarchies consolidating the power of colonial domination beyond the modern and post-modern times. Thus, the task of post-colonial thinking is to explore processes of hybridization, displacement, decentering and transculturation as potential forces to challenge the unified and hegemonic cultural categories privileging the Western world using as the basis the negation of the notion of culture as a stable system of reference.\textsuperscript{30}

Unfortunately and despite of advances in the critical work in cultural studies on the post-colonial basis, the idea of the Western architecture and city as a supreme cultural expression is still dominant although it has been demonstrated that the stability and the presumed universality of the values of the Western canon has been, among others, an excellent tool to repress the cultural differences of the Others leaving voids that the current architectural and urban discourse should fill up revealing the systems of inclusion and exclusion hidden behind the Eurocentric interpretation of history.\textsuperscript{31} The starting point in architectural and urban studies should be then the revaluation of those tools that have existed to discredit one worldview in order to favor another.

What has been and still is the real cultural, political and economic dimension of architectural universalism? And as such, what is its relation to the non-Western constructed context as the marker of its own conceptual limits? Those are very dangerous questions indeed, as they evidence how precarious the disciplinary premises and boundaries are, corroding the constitution of architecture as a complete, coherent and consistent field. Baydar mentions how European historical styles have been considered as the structural and constructive primacy, meanwhile the non-historical, non-Western architecture and city have been seen as excessively ornamented exotic works of creation without rational logic.\textsuperscript{32} As Baydar points out, “[w]hen

\textsuperscript{31} Baydar 2004, 20–21.
\textsuperscript{32} Baydar 2004, 22–23.
architectural difference is reduced to cultural difference, other architectures can restlessly be incorporated within the established boundaries of the discipline” excluding those that does not fit to the hegemonic model³³.

Western aesthetics of virtuosity has concentrated itself to the manipulation of energies and internal systems of its own through concepts such as contrast, harmony, resolution and balance bearing in its very body the criteria of quality and meaning; architecture is dedicated to the validation of itself through canonical rules the final goal of which is to achieve mastery in content, technique and feeling; it seeks to dominate by the individualistic cultural heroism³⁴. Through the tyranny of Western aesthetics transmitted through rules, techniques and methods of map making and architectural drawing, the non-western architecture and urban space has been transposed into an alien aesthetic system ruled by formal criteria of beauty, missing the fact that the reason for those spaces, constructions and their pictorial representations have been performative and not aesthetic in the Western sense. Thus, architecture of the Others and its representations have been appropriated, re-signified and isolated from its original context converting them to a dead thing and an primitive object of contemplation empty of its original power and local connection³⁵. Insertion of the architecture of the Others to the legitimized history striping it off its cultural context makes it a simple fetish appropriated by the Western culture. The effort of de-naturalization and de-territorialization of architecture and city from its context and its everyday life has its reason in its domestication as a convenient part of a history that insists in highlighting the supremacy of the Western culture³⁶.

The Enlightenment told us that the will to emancipate peoples and individuals, technical progress and recession of ignorance will liberate the Humanity and make possible the construction of better

³⁴ Ansaldua 1987, 16.
³⁵ Ansaldua 1987, 63.
³⁶ Mignolo 2003, 110–111.
societies. In architecture and construction of urban space, tools to achieve those ideals and goals were the scientific calculation through the use of geometry and mathematical precision of the environment to guarantee aesthetic experiences\textsuperscript{37}. Thus, the Western aesthetics speaks about \textit{formal beauty} and establishes how architecture and the urban space should be valued by its plastic form\textsuperscript{38}, ignoring that the real spatial experiences consist of relational sequences of spaces in time and inter-human experiences detonating alternative social structures and critical models to value human relations in them\textsuperscript{39}.

**Representation of spatio-temporal relations in the Mesoamerican codices**

Astronomy, observation of stars and of other celestial phenomena were the foundation of the precolonial cosmology, worldview and understanding of life and as such, the basic criteria for the form giving of objects, environment and their representations; the astronomical phenomena structured the precolonial life from the conception of time up to the habitable space. Important cities were represented in pre-columbine codices through symbology related to the local cosmovision frequently combined with historical references to local dynasties, as codices were legitimized by evidencing their origin in the city of their elaboration and by the inter-relation of the latter with other important cities surrounding it\textsuperscript{40}.

What we can observe in the spatial descriptions of Codex Borgia, is their performative character that locates the human being as the sensible body and as the focus point of the spatial events integrating it to the space itself. As Turnbull describes it, “[f]rom a performative perspective, the making of [spatial] knowledge is simultaneously the making of space […] knowing is a form of travelling, of moving

\textsuperscript{37} Bourriaud 2008, 10–14.
\textsuperscript{38} Bourriaud 2008, 21–22.
\textsuperscript{39} Bourriaud 2008, 54.
\textsuperscript{40} Márquez Huiztil 2010, 228.
through space; and travelling, like knowledge, is also a form of narrative. Thus, in the creation of codices and their spatial descriptions the fundamental parts were the dynamics of their creation, human displacements and cognitive and corporal experiences produced by them, fused to activities, work and movements as the main references of a place. Now, codices are a kind of guides for the lecture of pre-columbine spaces that are themselves an ensemble of codes and as such a complex set of non-textual information that ruled the life of Mesoamerican people; to understand the life, the society, the nature and the divine forces, the city itself had to be read as a three dimensional guide to the worldview.

As Codex Borgia indicates, Mesoamerican spaces and objects comply with the principle of a spatial and cyclical commensurability observable in their geometrical and numerical system symbolizing the harmony of celestial cycles of the Earth. It is assumed that the Mesoamerican religious and political activities as well as tasks of the everyday life, were compendia based on the astronomical-religious conceptions that determined everything in individuals’ and communities’ life; every act, event and creation was defined by the celestial divinities represented by astronomical phenomena. Others suggest that stars and calendrical structures were used by the political and religious elite to dominate and control their people through possessing all the necessary knowledge to predict the celestial phenomena to come and thus to be able adequately conduct their people with the power emerged from that knowledge. Anyhow, Codex Borgia transmits clues how the astronomical-religious meanings should be interpreted in a constructed environment.

41 Turnbull 2007, 142.
42 Turnbull 2007, 142.
43 The linear time of the Western culture represents a strictly advancing temporal process without return that has its origin in the past and that, touching the present goes forward towards the future. For the Mesoamerican people, the time was circular as the repetitive events of the nature. Martínez del Sobral 2010, 57.
In this context, the Mesoamerican spaces and constructions as transmitters of knowledge through a code language and certain attributes to make evident the celestial order of its epiphanic relation of synchrony, resemblance and representation with the sense of consecration. These attributes were conferred, according to the type of space (or artwork) and its geographical location, urban order, orientation, design, proportions of massing, iconographic and epigraphic resources of expression and the corresponding metaphysical concept that permitted to fuse the architectural and urban creations with the nature.45

Fig. 1: Supposedly the representation of the Pyramid of Quetzalcoatl of Cholula, Puebla, in Codex Fejervary Mayer, belonging to the Borgia Group of Codices, conserved in the Merseyside County Museum of Liverpool, United Kingdom. Colors and human and non-human entities represented are related to the Mesoamerican cosmology and its life cycles. Student work sketch by Raúl Raúl Bravo Vázquez, 2014.

45 Martínez del Sobral 2010, 15–16.
We can observe in Codex Borgia how in the Mesoamerican environment connected to the nature, numbers defined the dimensions and proportions of architecture and urban space to generate a metaphysical connection with the universe. Thus, dimensions and proportions had nothing to do with aesthetics in the European sense; their function was a systematical incorporation of the temporalities of astral cycles to spatial measures, constituting the very own formal canon of Mesoamerican architecture. As a consequence, it is a mistake to analyze these spaces and edifications in terms of European canon and measure system, or study them based on the Western mechanized concept of functionality of an instrumented space represented in maps and plans, whereas their functionality is related to their form and location indispensable to the observation of celestial phenomena that ruled the Mesoamerican life. In the Western culture the size has been a direct manifestation of hierarchy meanwhile in Mesoamerican cultures it was not an important matter as an indicator of architectural and urban hierarchy; instead, the decisive factor was the number of horizontal proportional modules each of which with a particular meaning related to the local worldview as we can see in Codex Borgia. Instead, vertical dimensions were not based on modularity but on simple linear measures permitting the observation of celestial phenomena and their register on the forms of the edifications themselves. Thus, the Mesoamerican spaces, edifications and codices possess linguistic, astronomic, calendrical and symbolic meanings of the divine order of the nature and a register of periods of celestial bodies understood as divinities.46

The decodification of Mesoamerican edifications and spaces should not though only consider their numerical and geometrical contents and their metaphysical meaning, but also the iconography observing the type of stone and color used as well as the position and the number of symbols and other formal characteristics present in

46 Sometimes numbers of the serial of Fibonacci, for instance, can be found as indicators of harmonic dimensions of certain parts of spaces and edifications representing the nature and the idea of the process of creation of the universe by divine forces. Martínez del Sobral 2010, 47–51.
the edification or space. It is, for instance, interesting to observe how the performativity of the human body represented in the iconography is used as the representation of the cyclical time and the cosmogonic life cycles. Margarita Márquez Huitzil mentions how colors transmitted information paying a special attention to the combinations between the background color and that of the signs imprinted on it as the description of the context with which they are associated to.

Mesoamerican spaces managed a special concept for the balance between opposites; the example of this is the foundational interaction between the darkness and light which can be seen in the relation between figures and their backgrounds in the images of the codex; the figure does not have a leading role in the pictorial expressions as has been the case in the Western culture; it is understood as something that exists only because of its relation and absolute dependence of the background. The relation between the light and the darkness is conceptualized as a same kind of balanced duality: light could not exist without darkness as its opposite. In architecture and urban terms emptiness and spatial voids are not absences of meaning (or negative spaces of gestalt), but an indispensable condition for the existence of human and non-human bodies. Codices reveal also the importance of the limit between these two states of materiality through the use of black ink defining thus the form of a figure making it understandable and as such, the representation of the Mesoamerican divinity of Here and There and that of the benevolent balance between contrasting forces.

47 For instance, the red color was related to the sun, white or yellow were symbols of the moon and black that of an eclipse, feathers were symbols of fire, black hematite as that of infra-world sun, green serpentine as synodical cycles of Venus, dark basalt represented the absence of light during an eclipse or new moon or infra-world as the place of shadows; jade symbolized the rebirth of plants in Spring as a representation of the life itself. Márquez Huitzil 2010, 131–319.
48 Márquez Huitzil 2010, 149–150.
50 Márquez Huitzil 2010, 229.
In the case of geometrical figures, there are also specific meanings related to the universe and cosmos. The square was conceptualized as the representation of a centric location of something important, as fire and prophesy, or the old quadrature of the Lord of Fire and of the Owner of the Time, of the Present, the Past and the Future and that representing the Knower of All Things. The radial forms were used in the iconography representing astral divinities, and by metonymy the structural elements of the Mesoamerican cosmos acquired a material body in the microcosmos of the codex configuring a new, differentiated and irreplaceable entity of it, beyond a simple representation of the nature, universe and its human and non-human beings\textsuperscript{51}.

\textbf{Fig. 2.} Representation of the Four Lords of the Existence in Codex Borgia. As mentioned in the text, colors have diverse meanings, as well as human figures’ masks or other elements represented, related to the cyclical time ruling the Mesoamerican life. Student work sketch Raúl Bravo Vázquez, 2014.

\textsuperscript{51} Márquez Huitzil 2010, 229.
The Mesoamerican astronomy was developed through methods of observation by simple eye using as references nearby architectural and topographic marks in order to be able to define positions and periods important to the definition of solar and celestial cycles, as mentioned before. These positions were defined ex-profeso\textsuperscript{52} and could be localized in the architecture of edifications, especially in their corners, on the top of sacred buildings and on the relevant places in the nature such as boulders and hilltops. The important point here is, how for the Mesoamerican people the nature was the producer of the foundational knowledge, meanwhile for the European colonizer, the nature at its own could not produce any knowledge; it had to be domesticated by the civilized man for that purpose. Edifications and urban spaces themselves were foundational transmitters of non-textual knowledge from generation to generation, not only as architectural objects and voids, but as spaces that had to be read through all sensorial organs: eyes, nose, ears, tongue and brain recognizing this as the only way the human being could entirely understand the world surrounding him\textsuperscript{53}. Thus, codices indicated the key points, positions and directions in the environment for the observation of the sky, performativities of human displacements, referential locations or natural or immaterial elements with a religious, ceremonial or cosmological meaning.

It is quite probable that the profound meaning of art, architecture and urban space was only known to an elite with sufficient knowledge to interpret numbers with astronomical and geographical meaning imprinted in codex or in the environment itself. Thus, the artisan who executed these works must have received from the wise a precise model with instructions and the basic unity of dimensions to be used. The definition of the characteristics of any work of art or architecture by the wise was crucial and of high importance, as they

\textsuperscript{52} This notion is founded on J. Soustelle, Los Mayas (1988), A.F. Aveni, Mapping the ritual landscape: debt payment to Tlaloc during the month of Atlacahualco, in: D. Carrazco (ed.), To Change Place: Aztec Ceremonial Landscapes (1991) and J. Galindo Trejo, La observación celeste en el pensamiento prehispánico, in Arqueología Mexicana 47/2001.

\textsuperscript{53} Márquez Huitzil 2010, 146.
included the divine codes that determined the life and the destiny of pre-columbine societies that also permitted the correct interpretation and precise lecture of calendrical, astronomical and religious information as well as that related to the natural, corporal and agricultural cycles\textsuperscript{54}. The pre-columbine people had their wise in a great esteem as deposits of wisdom and as scientific and astronomic knowers and those with the capacity to read different levels of codes through which this knowledge was imprinted to art, architecture and urban space and thus these non-textual deposits of knowledge were protected by the people themselves. It is assumed that nobody could eliminate the wise as protectors of the religion that guaranteed the union between the Heaven and the Earth; the wise as an instrument of communication with gods and those who knew and steered the destiny of people, were considered as the most valuable beings among people. An error in astronomic calculations could result fatal for the prediction of the future and due to this emerged a perfectionist spirit characterizing the Mesoamerican people before the brutal imposition of the Western culture. Codex Borgia for example evidences how the constructed environment represented in it was conceptualized through a dynamic geometry defined by a circle and its two perpendicular diameters to indicate the four cardinal directions of a horizontal plan of an edification. In a created three-dimensional space, a center point was added to this basic scheme besides the zenith and the nadir\textsuperscript{55} thus complementing the spatial division to seven parts. Through this division of the constructed space, when locating the position of stars and determining their movements in the sky through axis, the universe was made humanly understandable and thus a comprehensive basis for calendar making; Mesoamerican codices evidence the idea of the impossibility to study the nature without capturing and understanding interrelations between the time and

\textsuperscript{54} Martínez del Sobral 2010, 40–45.
\textsuperscript{55} Zenith is the astronomical point of intersection between the vertical axis of the space and the celestial sphere; it is the highest point in the sky, located above the head of the observer. The opposite point to zenith is nadir, just on the other end of the mentioned hypothetical axis, under the feet of the observer.
space that encloses the phenomena of life. In these terms it is possible to understand the clashing character of the encounter between the Western-renascent idea of the nature as a static phenomenon and as a resource to be domesticated and that of its time as a linear development and the Mesoamerican conception of the nature and the life constituted of cyclically repetitive phenomena immersed by a cyclical time and rules by the universal forces.

The function of pre-columbine codices in the determination of the human environment is easier to understand through the terms of hodology, meaning links between space, knowledge, performativity and cognition. In the context of hodology, performativity has two facets, that of meaning, understanding and knowledge production through embodied practices (gnosis), and that of structuring and shaping of the socio-cultural environment, its spaces and artifacts created by the co-production of knowledge: “the act of tracking, of moving through the environment, following a prey, and reading the signs, creates a complex of intellectual and cognitive connections”. As Peter Nabokov points out:

Another way such cosmograms guided human action was through their incorporation of what seemed to be one of the most fertile and widespread tropes in American Indian consciousness: the road, the trail, the path or the journey. Once again people often ‘lived their maps’ [...] through ritual actions such as pilgrimages through mythologized landscapes or ceremonial enactments. The performance of the practice is itself a map.

Codices, marked by performativities and transmitting cognitive connection and social interactions are deeply intertwined with stories and narratives, they are references of immediate and infinitive worlds, places and points among which people are born, growing up and old, and dying.

57 Turnbull 2007, 142.
58 Nabokov 1998, 256.
59 Turnbull 2007, 143.
The encounter of worldviews and the clash of cultures

The emergence of the hegemony of the text in the Western culture as the vehicle par excellence to reach the truth and the introduction of geometry as a tool to analyze images, especially maps and architectural drawings, worked also as a geo-political strategy of colonization of the appropriated territories in Mesoamerica from the 16th to the 18th century. A map or an urban or architectural plan in Europe had a scientifically precise function as a legal definition of a land occupation and property, seen from the God’s Eye, from above, making possible the exact measurement of areas, dimensions, property limits and distances. Who had a map, had the right to the land.

Fig.3: Sketch of the representation of the Valley of Cholula just after the Spanish conquest by an Indian artist. This image from San Esteban Atlatlahauc in Mixteca Alta, Oaxaca (with frontier with Puebla state), is a reproduction of the image published in 1914 by Antonio Peñafiel in his Ciudades Coloniales y Capitales de la Republica Mexicana. Also another drawing of the same image was published in 1931 by William Gates, meanwhile the original sheet has been lost. It can be clearly seen the process of transculturation in this image, as the method of representation obeys still pre-columbine codes (meaningful sites in the nature, trails of human displacements and the location of the observer in the middle of the presented space, observing it through a gyratory movement), but also colonial elements such as churches appearing in it. Student work sketch by Raúl Bravo Vázquez, 2014.
Further on, when research work of the Mesoamerican cities and architecture began, the researcher, as in the Western tradition, located him or herself at the so called *critical distance* to analyze and observe the object of study, in order to value its formal, functional and compositional beauty and reasonability, as if he or she would be working with classical Greek or Roman vestiges. The idea of the superiority of the Western criteria of architectural and urban aesthetics impacted the research work and education for long, pushing the non-European cultures and their works to the cultural periphery of the curious and exotic but not architecturally relevant. Asia, Africa and America were providers of information of strange cultures, but they had not capability to produce legitimated knowledge as their people could not occupy the position of hegemonic knowers or transcendental subjects. Colonization has been thus a continuous reinforcement of dependency between the West and the Others that has not been only economic, but also epistemic; it has been cultural, intellectual, scientific and technological in which the Others have not had the right to write their own history, as Mignolo points out, “since history (as a discipline) is a European Invention”\(^60\).

Having maps and urban plans as means of domination and as official documents of legal expropriation of indigenous lands by Spanish colonizers, the pre-columbine architectural and urban space could be replaced or displaced by the Western architectural concepts wiping off the local cosmological worldviews imprinted in edifications and constructed environments. With them, the domination of the Earth from the Gods Eye and its all extending geometry introduced the European way of thinking, that of universal formulas created to ordinate the world and to make it scientifically understandable substituting the Mesoamerican hodological way of representing and understanding of the environment. All the Western disciplines share the same kind of methods for the gathering and interpreting of information, and as for the consequent reasoning based on it. Thus,

\(^{60}\) Mignolo 2003, 107–110.
other categories of knowledge making as that of non-European people was not considered epistemically correct\textsuperscript{61} and by this argument the knowledge of the colonized Others was not considered valid for the modern progress and their sense of beauty condemned primitive and not adequate to be included in the sphere of Western aesthetics: “The beautiful, the sublime, and the pure reason have their point of origin [only] in the heart of Europe”\textsuperscript{62}. Following the same logic, with the arrival of the Spanish conquistadors to the New World, European urban and architectural models were implanted to Mesoamerica through maps and urban plans as means of discrediting the right to the land and to the hegemonic urban space of the native people. Maps and plans made possible the accurate system of ethnic and racial discrimination and the control of the relation between colonizers and colonized. Concepts of the Western urban planning have been based on the systemic knowledge (episteme) through which Eurocentric urban models from the Renaissance onwards have ordered and administrated the urban territory using an artificial space language and a geometrical urban form generating an institutionalized text of a city favoring the colonial elite.

Puebla, our case of interest, was founded on a place that the local indigenous people called Coetlaxcoapan or “a place where snakes changed their skin”\textsuperscript{63}, surrounded by volcanic structures that were divinities for the local population. The main reason for the foundation was to settle down a growing number of Spaniards roaming without occupation and place where to establish themselves and thus offering them a possibility to an economic sustainability and a social status as European colonizers.

The city maps of this period reveal how it was conceptualized as an exclusively Spanish settlement with urban grid of regular, rectangular urban blocks divided into eight lots of the same size following the renascent ideals of a modern city with a geometrically defined

\textsuperscript{61} Mignolo 2003, 185–180.
\textsuperscript{62} Mignolo 2003, 190–194.
\textsuperscript{63} Vélez Pliego 2011, 7.
urban order. Colonial maps and plans reveal how the two central blocks were occupied by the cathedral and the main urban square (Plaza Mayor) with the town hall on one side of it marking the political and administrative hierarchy. The central area of the city could only be occupied by the urban palaces of the leading Spanish families, meanwhile there is no trace of the indigenous habitants or of their settlements in them. This is an interesting omission as the Spanish colonizers obviously were not the material constructors of their city, but the tlaxcalteca, cholulteca and calpanteca Indians who lived in the nearby communities were brought to the site as the labor force. These people were pushed to live in the urban periphery, considering that their presence in the city was temporal and that they would leave the place when the construction work was finished.

![Diagram of the first urban establishment of the city of Puebla](image.png)

**Fig. 4**: A scheme of the first urban establishment of the city of Puebla. In the middle we can observe the San Francisco river dividing the urban area, on the left (dark grey) the Spanish city and on the right (light grey) the first, temporal Indian Settlements. Drawing by the author, 2014.

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64 In this administrative hierarchy, the social position of the family was reflected how near or far from the main square it had the right to construct its residence. The social hierarchy was clear also in the occupation of lots in each urban block; the most prominent families could occupy those situated in the corners. Each Spaniard interested in settling down in the new city had also the right to have a certain number of Indians at his service as labor force needed for different indispensable tasks.

65 Vélez Pliego 2011, 7; Cuenya 1984, 191.
The reality thus surprised the Spaniards and already in 1550, the city council had to permit the *naturals*\(^{66}\) to establish themselves permanently on the outskirts of the city, but constructing their houses apart from the Spanish city center and its urban grid, on the other side of the San Francisco-river\(^{67}\) as the socio-racial barrier between the colonizers and the colonized. This permission was quite necessary, as the Indian population was now needed to labor in Spaniards’ fields and as servants in their palaces. The Indian access to the Spanish city was controlled through the seven bridges constructed over the river to make possible the functional connection between the two river banks facilitating the regulated flow of labor force and products to and fro. In the beginning these new Indian settlements had no specific urban order as they were quite spontaneously established according to the emerging necessities and demographic growth and as such, their particular urban characteristics were not presented in the Spanish maps\(^{68}\). “The censored image marks the boundaries of permissible discourse and deliberate omissions discourage ‘the clarification of social alternatives’, making it ‘difficult for the dispossessed to locate the source of their unease, let alone remedy it’”. Harley highlights how these silences hide clear political undercurrences, as the deliberate omission of the naturals and their land possessions wiping off their right to the city and to their ancestral territories\(^{69}\).

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\(^{66}\) *Naturals* was the term used for Indians.

\(^{67}\) In the local language, *nahuatl*, this river was called Almoloya.

\(^{68}\) Cuenya 1984, 191.

\(^{69}\) Harley 1988, 136.
Fig. 5: Sketch of the urban plan of Puebla of 1698, according to the original of Cristóbal de Guadalajara (Archivo General de las Indias, Sevilla, Spain, and published by Fernando Chueca y Leopoldo Torres in Planos de ciudades iberoamericanas y filipinas existentes en el Archivo de las Indias, 1951). We can see the city divided in two parts by the river, as well as the location of the urban grid (grey) and Spaniards’ fields (green). We cannot though be sure if the extension of the Spanish city was that large as represented in this map. On the other hand, we can compare this map with the pre-columbine codex observing how the first have a clear mechanical and instrumental function. Student work by Raúl Bravo Vázquez, 2014.

When from the 17th century onwards, first catholic churches and parishes appeared on the Indian side of the San Francisco River, the European urban grid began to colonize parts of the side of the naturals of the river as maps of the period reveal. The city council ordered that now the construction of the Indian side of the river should obey the urban form established by the religious edifications marking the emerging socio-religious grip of the colonizing church of the Indian settlements. In the beginning the city council had not been too worried about the urban conditions in the areas inhabited by Indians but when the regular urban grid was extended, the emerged spontaneous

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urban structure was demolished\textsuperscript{71}. Thus, the European city model was colonizing not only the geographical space but also the epistemic one; it not only imposed a new urban order but with it, also a different conceptualization, understanding and use of the urban space. A short visit to the historical archives of the Municipality of Puebla reveals details about the legal force of maps as there are a great amount of inaccurate drawings of pieces of urban land the appropriation of which certain Spanish landlords claimed, with a recurrent argument that the \textit{site was unoccupied} as there was \textit{nothing there besides naturals}. A simple piece of paper elaborated by whichever Spaniard acquired thus a legal status against Indian people that hardly understood the idea of private property and even less its representation in a map.

\textbf{Fig. 6: Sketch according to the map of Puebla in the Orders of the Intendent of Manuel de Flon, drawn by Francisco de la Rosa in 1796. If we compare the land occupation in this map (blue) with that of 1698, we can observe that there had not been great changes in the size of the city which may suggest for instance, that the latter represented a desired situation or a future plan but not quite the reality of the moment. Student work by Raúl Bravo Vázquez, 2014.}

\textsuperscript{71} Vélez Pliego 2008, 14.
Maps were important here also in the sense of reports about the success of the colonizers sent to their king in Europe describing the advances of the appropriation of the colonized lands by the crown, although there always exists the doubt how true these descriptions were, as the crown had no opportunity to come and inspect the real situation in the New World. As Harley points out,

>[d]eliberate distortions of map content for political purposes can be traced throughout the history of maps, and the cartographer has never been an independent artist, craftsman, or technician [...] silences on maps-often becoming part of the wider cultural stereotypes—thus came to enshrine self-fulfilling prophesies about the geography of power\(^72\).

As we have seen, maps have never been innocent, but part of a wider political strategy of powerful groups and individuals; they represent a language of power and as a teleological discourse they have enforced, reproduced, reinforced and stereotyped the systems of power through practical actions of boundary making and preservation of the colonial law and order. They hide behind their seemingly innocent colors and lines rules of subliminal geographies, legal invisibilities and hierarchies of power\(^73\). Maps and urban plans are the reflection of the Western worldview in which the object of study is seen from the all dominating God’s Eye and thus possessed; they evidence how the colonization wiped off the Mesoamerican way of representing the space through the human and corporeal inter-relationality of the body, its senses and movements, and their relation to the nature and the universe.

\(^72\) Harley 1988, 135–136.

\(^73\) Harley 1988, 141.
Fig. 7: Sketch of the map elaborated by Miguel Ponce de León in 1856. As we can observe, the river continues as the barrier between the hegemonic city center and the districts now occupied by mestizo descendants result of the mestizaje between the Indian population and the European origin people. The blue color indicates the occupied blocks and the yellow one the planned extension of the urban territory. Student work by Raúl Bravo Vázquez, 2014.

Conclusion

What do codices and maps tell us about the relation between the knowledge production of the colonized and the colonizers? As well as the natural resources were acquired by the Europeans through the exploitation of their colonies to be processed in Europe constructing thus the foundations for its prosperity. In the same sense, the Others from the colonized continents provided a contact with new cultures that were transformed by the Eurocentric vision to objects of study belonging to some distant, sub-developed past that could not produce valid knowledge; “the knowledge produced in the regions that
were either colonized or that remained outside the scope of colonial expansion was only considered relevant in and for those regions\textsuperscript{74}. Thus, the colonized people could not occupy a place among the legitimized knowers as they were only subaltern known, as Mignolo has pointed out. There is an incompatibility of ontologies and perspectives between mapping in the Western tradition and Mesoamerican knowledge imprinted on codices, those of the Western tradition of science and the local Mesoamerican knowledge\textsuperscript{75} and of episteme and gnosis represented in them. The International Council of Scientific Unions (ICSU) claims that local based information, as that represented in codices, cannot be subject to a rational evaluation, unification and assemblage and it cannot be moved from its site of production and relocated in a central archive or database\textsuperscript{76}; as such it is different in kind from the rational, objective, universal, tested and evaluated knowledge that the institutionalized science produces. Thus, local cultures and their pictorial representations such as codices are only exotic aesthetic objects of contemplation and not containers of meaningful knowledge and thus legally subjects to be colonized by the Western culture as representations of communal practices, performativities and spiritual experiences without legal or political values.

Maps and urban plans in Mesoamerica permitted Spaniards to establish discriminating urban orders that divided territories through spatio-racial barriers, giving foundation to systems of social inclusion and exclusion that still are marking modern Mexican cities such as Puebla\textsuperscript{77}. In the encounter between the colonizers and the colonized, maps and urban plans were tools of the appropriation of indigenous lands by the Spaniards legalizing the colonial landlords as true owners of vast territories, erasing the right of the Mesoamerican people to

\textsuperscript{74} Mignolo 2003, 109.
\textsuperscript{75} Turnbull 2007, 140.
\textsuperscript{76} Turnbull 2007, 141.
\textsuperscript{77} The originally Indian districts of the colonial Puebla became afterwards the poorest areas of the city and the initial socio-racial barrier of the San Francisco-river continued dividing the city but now as a socio-economical limit separating the Spanish families from the emerging mestizo working class.
the land. We can easily imagine, how the local people used to understand their codices as descriptions of the interrelation between the environment, the human body and its performativities, hardly could understand how a map as an image had such a legal force to push them out from their traditional lands and how it could determine something so strange and abstract as measurable dimensions of individual land property.

Meanwhile the Mesoamerican codices were narratives of the kinesthetic, corporeal and sensorial relation between the environment and human being in terms of hodology, maps and plans are technical instruments of domination without a human presence in them, nor that of universal forces; nature is present only as a reference of some location or as topographic information without further meaning. As such, codices are representations of expanding experiences and performativities having the body and the human eye level as the central point. A map or a plan is represented without the corporeal experience of the space, with the intention to domesticate a territory through a dominating vision from above.

Finally, Turnbull argues that “[a]ll knowledge traditions, including science, are assemblages of local knowledges. The salient differences between them lie in the ways in which they deploy social strategies and technical devices to move and assemble these knowledges, thereby creating their own knowledge spaces through linking people, practices and places.”78 There is not an only universal way of understanding our environment, as we can see in the case of codices and maps; we can neither claim that one representational strategy is more valid than the other—they simply are responses to the local conditions and ambitions. What we certainly should consider more seriously is to study how different people have constructed and still construct their understandings of the environment, why and which have been or are the consequences of it and, what kind of knowledges have been produced by it.
Our Western worldview has been profoundly shaped by maps and by the socio-technological system of scientific orthodoxy they represent. The emergence of post-colonial researchers have detonated performative and disruptive turns that need to be taken into account in the interpretation of pictorial narratives of non-western architecture and environments in order to recover once lost knowledges imprinted in them. One of the most important things codices may suggest us, is that knowledge is performative, it is also non-textual and non-scientific. Following the ideas of Turnbull: “[g]iven that there are multiple varieties of spatiality and emergent mapping and that the task, in most arenas, is to find ways in which to understand complex interactions between widely variable components on different scales […]”\(^{79}\). The answer to this challenge could be the adoption of new, emergent ways of mapping of the human environment able to hold a dialogical tension between the standard representations of a space and multiple ways of human performativity\(^{80}\). Maybe knowledge for long forgotten, imprinted on pictorial narratives of the Others such as codices, can be re-discovered recovering the concepts of the multidimensional construction of a more hodological habitable space.

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