Positivism describes landscape in regard of its physiognomy, considering only the elements that compose it to differentiate one physical space from another. From a cognitive perspective, landscape is the result of human interaction, where values have a direct effect on the landscape, and where the landscape also affects values. By contrast, the Mesoamerican vision of landscape goes beyond the classic dichotomy between culture and environment. Hence, we can say that understanding landscape this way has two historical moments: one, inherited from pre-hispanic times, which conveys an act of respect towards nature, both individually and collectively; and another from colonization. Without any doubt, this way of viewing and interacting with landscape had been captured in historical documents, which are available for consultation. Nowadays, there is also knowledge of landscapes as a result of co-evolution between inherited Mesoamerican knowledge and knowledge generated by farmers. Against this background, this paper aims to describe some of the elements that create a distance between the interpretations of the landscape from a western perspective, from work by technicians and a Mesoamerican vision created by farmers. Considering these visions, comments are made that can serve as a reference of reflection to understand and address landscape as a unique space of coexistence, where dialogue of knowledge can be the meeting point to build and strengthen decision-making processes in accordance with the context and conditions of each place.

Keywords: landscape, knowledge, immeasurable, juxtaposition

1. Backgrounds

Different authors have been investigating people’s map-making capabilities, whether in societies without written language (Balodis & Pupedis, 1996), or in those that have a writing system, but are illiterate (Orlove, 1991 and 1993) or in advanced societies, where writing is a common communication tool (Wood, 1973). The topic of maps created by individuals from non-western societies retakes the point of discussion between cartographers and geographers of considering those maps only as isolated cases, autonomous objects that can be read in their own terms and, frequently, as a simple transcription of the knowledge and categorization that non-western individuals have in their minds (Orlove, 1993). However, such documents demonstrate that people from native cultures know different ways of observing, speaking and mapmaking (Pájaro, 2010b, 2011).

In this context, certain names are assigned to maps created by people from non-western societies. Balodis and Pupedis (1996) refer to “legitimate maps” and “derivative maps”; Orlove (1991 and 1993) mentions “vernacular”, “bureaucratic” and “official” maps, whereas Wood (1973) refers to “individual mind maps”, “consensual maps” and “unconventional maps”.

In this way, maps are instruments capturing, from different visions, knowledge about a society’s surroundings. Knowing the elements considered for mapmaking becomes transcendental, since it helps differentiating the perception and interaction between a given society and its environment. This topic will be covered in the present article.
2. The landscape from an environmental perspective

Two meanings of the concept *landscape* have been used. One refers to the image of a territory from a scenic point of view, whether perceived or drawn, regarding its essence. The second meaning defines the landscape as a set of geographic elements linked by relations of interdependence. However, both meanings coincide insofar landscape is considered a global vision of a part of the surface of the Earth. Hence, landscape can be defined as a homogeneous portion of the Earth’s surface consisting of e.g. rocks, water, air, plants, animals and humans, which, due to their physiognomy form a recognizable entity, differentiable from neighboring ones. In this effect, landscape refers to physiognomic aspects as well as to values, images and features linked to a territory (Zonneveld, 1989).

Each landscape is composed of different structural elements corresponding to portions of geographical space. Depending on the detail of analysis, the landscape’s elements will have different spatial extensions and degrees of homogeneity. Each landscape is composed of two main parts: (1) the geoform, which includes all aspects of the Earth’s surface, e.g. relief, shape, slope, etc.; (2) land-cover, which refers to all natural or cultural aspects that are a part of the Earth’s surface (fig. 1).

![Image of landscape as a composite of geoform and land-cover](from Zonneveld, 1989)

3. Landscape and human perception

Human perception is influenced by culture, and although the basic process of perception is for all people the same, its contents may change due to different perceptual inference habits. This assumption is sustained by social scientists since the 1960s, which in turn are supported by philosophical and sociological concepts, such as cultural relativism (e.g. Marshall et al., 1966), and cognitive theories (e.g. Nisbett & Miyamoto, 2005), demonstrating that culture shapes landscapes, but at the same time is framed by the landscape as well. Both aspects of this dynamic process (perception and its content) interact reciprocally under four basic principles (Nassauer, 1995; p. 229):
1. Human perception of landscape, cognition, and values directly affect the landscape, and are affected by the landscape.

2. Conventional cultural rules have a powerful influence on landscape patterns, regardless of whether the landscape is inhabited or not.

3. Cultural concepts related to nature are different from the scientific viewpoint and from their environmental function.

4. Aspect of landscape communicate cultural values.

Several statements from Ittelson (1973) about the study of environmental perception, summarized in the following list (Sell et al., 1984; p. 71-72), define landscape and local culture of any rural community:

1. Landscape surrounds us. This helps us to move and explore, forcing the viewer to participate.

2. Landscapes are multimodal. This provides information received through multiple senses processed simultaneously.

3. Landscapes provide peripheral information. This information is received to and from the participant; it comes from the front, back, in- and outside the observer’s focus point.

4. Landscapes provide more information than we can use.

5. Landscapes provide opportunities for action, control, and manipulation. Perception of landscape always involves action.

6. Landscapes invite one to move ahead of the action. This provides symbolic meaning and motivational messages that can be moved ahead with the purpose of useful actions.

7. Landscape always is ambivalent, which are usually part of social activity, generating aesthetic and systemic features.

According to Merleau-Ponty (2008), understanding the landscape means to place the person into the center of the idea of space. Doing so allows considering the way in which humans relate to landscape, how they imbue it with meaning, and how their relationships with other people within this meaning is defined. Merleau-Ponty’s texts reminds us that rescuing the importance and the protagonist of humankind in the conception we have of space means tackling a set of complexities and indeterminacies, which scientific reason and its desire for reductionism cannot always account for with certainty (Lange, 2008).

In the present, like in no other time, it is imperative to redimension and recover the forgotten state of human beings in order to link human nature with other natures, and from there, the coexistence of men with other men. This would allow us to demonstrate a world completely inaccessible for rationalist thought and distant from scientific mechanism, and to rebuild a new scenario in which to include humanity (Andrés y Jiménez, 2011). In this regard, Alfredo López Austin (2016, p. 12-15) states the following:

“We frequently find that nature and culture are presented as conflicting concepts. This is not true. We are nature and we act within nature. We transform through our actions both naturally and socially, altering our natural niche and our social surroundings [...]. The actions of a society with good memories alter the world; an altered world and the heritage of transformative actions build the culture of such a society. The historical continuity of a culture, with its transformations and variants, is cultural tradition.”

In this sense, when observing a terrestrial landscape the historical records of activity of environmental factors such as wind, geological time, vegetation, weather, human and animal activity (Bockheim & Gennadiyev 2000), are obvious.
The impact of human activity on the landscape, particularly in rural societies, is defined through time due to the need to use environmental resources for agricultural, livestock, and forestry activities. Intervention is made to reach or reorganize a (more or less harmonic) interrelation between such activities and the environment: From this perspective we can speak of an agrarian landscape.

The landscape connects and identifies a geographic environment with social, cognitive and/or experiential meanings of a human community. Far from being a neutral scenario, landscape manifests itself as a paradigmatic and protagonistic backdrop within the dynamic development of human relationships and the nomadic journey called “identity”. It obtains a name and a value, precisely due to this story of quest, encounter and relations. As such, landscape is an important part of the “narrative identity” of a people (Barabas, 2003). Conceptualization and perception of the landscape – whether natural or constructed – as well as its use and connection to memory, have been subject of many recent investigations, both in anthropology (Low & Lawrence-Zúñiga, 2003), archeology (Shanks, 1992; Tillley, 1994) and in the hermeneutics of ceremonial architecture (Jones, 2000).

4. Mesoamerican vision of the landscape and its representation

Mesoamerican tradition (López Austin, 2016, p. 41) covers two periods: First, the Mesoamerican in a narrow sense, from the birth of agricultural sedentariness (2500 B.C.) to the end of indigenous thinking (1521 A.D.); second, the colonized societies from the beginning of evangelism to our times. These periods allow for a discussion of cultural heritage across various domains, including the perception of landscape.

The Mesoamerican vision of landscape is extraordinarily rich and complex, and it is still alive. However, documentation of cosmology, values and religious ideas, narratives with profound content, rituals and symbology of Mesoamerican tradition (still alive in native communities as a millenary cultural legacy) is still incomplete. In contrast with European prehistory, Mesoamerica (like Asia and Africa), provides a direct connection between past and present (Barabas 2003). Pre-colonial texts and images (particularly pictographic manuscripts) are a crucial testimony in this aspect (Jansen & Pérez Jiménez, 2008, p. 85).

Pohl and Byland (1990) mention that Mesoamerican cultures have been characterized as hierarchical systems of social organization under aristocratic control. Using its power, aristocracy dominated the perception of landscape. This point of view is recorded in the codices and other artistic documents (Mundy, 2000). For example, the mixtecs represented surrounding landscapes in accordance with their visibilty from a fixed position. From an initial position others continue in a sequence until the initial spot is arrived again. Pohl and Byland (1990) call this procedure a subjective perspective of landscape, and propose that the reader provide a list of places, imagining him/herself as an observer located in a fixed point from which she/he observes the surrounding landscape. As an observer, she/he can look left or right and look at the horizon, recognizing characteristics of the landscape. This procedure entails a sense of connection, a perception defined by the observer, that all the places listed occupy a place in the landscape, placing him/herself in the center of this vision (fig. 2). As mentioned by Merleau-Ponty (2008): “[...]understanding the landscape is placing the subject in the center of the idea of space […]. Consequently, man is the most important aspect in this vision of the landscape.”
Page 42 of the Codex Vindobonensis shows a sequence of hieroglyphs that starts and ends at a place called Yucuñudahui (fig. 3). This gives an example of the subjective vision of landscape among ancient mixtecs: “[...] the context of the codex suggests a direct relation with the subject of the foundation of estates, [...]” (Jansen & Pérez-Jiménez, 2008, p. 94). Accordant visions of landscape also existed in other cultures (e.g. the aztec culture) and still exist within peasant communities (Pájaro, 2010a).
Another example of non-western perception of landscape gives Codex Nutall, a Mixtec codex on genealogy, painted before the Spanish conquest and hence with no evidence of European influence (Miller, 1975). Page 36 of this codex (fig. 4) represents a schematic map of the Valley of Apoala, Oaxaca.

**Figure 4.** Schematic map of the Apoala Valley, Oaxaca (p. 36 of the Nutall codex: from Miller, 1975)

Figures 5 and 6 compare toponymical and geographic characteristics with a scheme of the Valley of Apoala, demonstrating how these representations are perfectly legible maps of the Apoala Valley, a southward-facing vision of this region (Mundy, 2000; 215).

**Figure 5.** Toponymic and geographic characteristics of page 36 of the Nutall codex (from Mundy, 1996, p. 103)
Jansen (1979) put geographic characteristics of the valley and town of Apoala into relation with place names and glyphs appearing on sheet 36 of the Codex Nutall, and found an exact match between reality and the set of elements represented in the codex. Accordingly, this sheet shows a schematic landscape of the geographic surroundings of Apoala (Hermann, 2008, p. 86-87). Evidence that sheet 36 of the Codex Nultall is a sketch of the Valley of Apoala can be found with Jansen (1979, p. 164):

"The proof of the identification of the Manojo de Plumas river’s hieroglyph as Apoala can be in Nutall page 36. There, we see the same hieroglyph together with other toponymic signs: The hieroglyph can be found together with another river (Río de la Hierba Anudada) inside a rectangular stone frame, which ends, on one side, in a snake’s head, and on the other side, shows a waterfall with a strange shape of hips and legs with a tree on top of it. Indeed, these elements are parts of Apoala’s natural surroundings: Two rivers meet in the valley: the Yutza tnoho and a river that comes from the rocks on the north side and is called Danama or (written out completely), Yutza ndua nama = River of the Cliff of Soap Herb. I believe the sign of tangled herbs in the codex represents this soap herb.

The waterfall is clearly the great Apoala waterfall where Yutza tnoho precipitates into the Yodo maa. For the hips and legs, I find only one explanation: that it represents the Cahua quina, which could be translated as Rock of the Woman in Labor, which is on the same cliff. On the other side, on the west end, where the valley begins, is the Yutza tnoho spring. It is called Yahui coo ma= Deep Cave of the Serpent. This cave almost certainly represents the serpent in Nutall page 36. Hence Nutall page turns out to be a sketch of the Valley of Apoala and the Manojo de Plumas River is confirmed to be Yutza tnoho [...]."

5. Western view of landscape

In modern western world, the predominant idea of landscapes has been a visual one. Hence, landscape is thought as something to be observed, perhaps at a distance, without becoming involved. This implies taking distance from nature. The origin of the categorical separation between culture and nature, and between humans from their environment can be traced back to the Enlightenment, when the world was conceived and captured as an image that could be apprehended by humanity. Consequently, many scholars still approach landscape in Cartesian terms, conceiving it as an inert spatial resource to be represented adequately in maps and aerial photographs (Thomas, 2010: 29-30).
Considering that a landscape is not only a physical entity, but a mesh of relationships between people and their natural environment (Thomas, 2010, p. 36), the concept of landscape is an organizing one in several ways: It is scenario of changes and the very medium for a diachronic expression. It can be a reference framework or rather a contingent, subjective, or even imagined construction (Siemens, 2010, p. 185). Even the Dictionary of Human Geography cannot provide a clear explication, defining landscape within several philosophical approaches rather a polysemic word (Gregory et al., 2009, p. 409-411).

Against this background, we see different perspectives on one and the same landscape as a result of two intellectual traditions. It is currently possible to find documents of this vision of contrasting landscapes. Orlove (1991, 1993) offers an interesting and illustrating analysis of the way in which landscapes are observed, expressed through the creation of maps, both by peasants and technicians of governmental institutions (tab. 1). The author states that in many Latin American countries, governments have identified two types of maps: Official maps, considered as “true maps”, and those created by peasants, called “sketches”. Furthermore, Orlove (ibid.) states that the way in which the latter are named reflects a certain connotation of inferiority and perfectibility. He also uses the term “peasant map” to label maps created by people from rural areas, in contrast to “government or official maps”, arguing that such names transmit the differences inherent to each group.

**Table 1.** Contrasting visions of the same landscape (from Orlove, 1991, 1993)

<table>
<thead>
<tr>
<th>Peasant view</th>
<th>Government view</th>
</tr>
</thead>
<tbody>
<tr>
<td>The landscape is considered rural and able to subsist without external aid</td>
<td>The landscape is considered urbanized and linked to other regions</td>
</tr>
<tr>
<td>Not represented to scale</td>
<td>Represented to scale</td>
</tr>
<tr>
<td>No time sequencing in the creation of maps</td>
<td>The creation of maps places emphasis on a time sequence (they build a narrative)</td>
</tr>
<tr>
<td>Maps are created by different people</td>
<td>Maps created by technicians from a government office</td>
</tr>
<tr>
<td>Peasants are the direct and current observers of the maps</td>
<td>Government instances are the observers (by obligation) of the maps</td>
</tr>
<tr>
<td>The perspective of the area is like in a horizontal photograph (“with our feet on the ground”)</td>
<td>The perspective of the area is like in an aerial photograph (“from the air”)</td>
</tr>
<tr>
<td>Maps are examined in the cultural and political context of the communities</td>
<td>Maps are decontextualized from the cultural and political environment of the communities</td>
</tr>
<tr>
<td>Produced using information obtained directly with the locals: “face to face”</td>
<td>Produced indirectly. Information is obtained from different information sources</td>
</tr>
<tr>
<td>Produced by hand</td>
<td>Produced using graphic design techniques</td>
</tr>
<tr>
<td>Called sketches</td>
<td>Called maps</td>
</tr>
<tr>
<td>Result of the peasants’ way of thinking</td>
<td>Result of positivist epistemology</td>
</tr>
<tr>
<td>There are immeasurable groups of maps</td>
<td></td>
</tr>
</tbody>
</table>

**D. Pajaro & E. Tello Garcia: Landscape Juxtaposition From Immeasurable Visions**

This work is licensed under this Creative Commons License

www.meta-carto-semiotics.org
In Mexico there is evidence in historical files (fig. 7) confirming that peasants draw maps or sketches to attach them to documents for bureaucratic concerns (Orlove, 1991, 1993). These results match with those obtained by peasants when they create maps of their territories, based on the maps of cession of common lands (Pájaro, 2015).

Figure 7. Drawing attached to the request promoted on February 17th, 1944 by Manuel Medina Rojas, for the use of rainwater in the ejido (common lands) in San Salvador Atenco, Estado de México (Historic Water Archive [Archivo Histórico del Agua] - AHA), file 7758, box 861, p. 756 and 757.)
6. The juxtaposition of landscapes

Knowing these different visions of landscape helps us to better understand the representation of landscape from a Mesoamerican vision. It captures a series of historical and social processes from which the current local society understands its surroundings, and the way in which it relates to it regarding its use, exploitation, and transformation.

Such characteristics allow recognizing and representing knowledge graphically, a knowledge which otherwise only exists in the mind, without parameters for measuring, and responding to a specific way of thinking and lifestyle. Meanwhile, from a western viewpoint, maps are representations created to argue decision-making from a technical perspective and in a specific moment. However, both visions are not exclusive; rather, they can be juxtaposed in order to have a complementary vision of landscape.

This indicates an example of how peasants and technicians perceive landscape and how their drawings are juxtaposed to understand that each product communicates certain meaning as a result of different ways of thinking. Through careful analysis of the documents created for the construction of an irrigation canal, both by peasants and engineers specialized in irrigation, several aspects can be noticed that confirm many of the characteristics inherent to the contrasting perception of the landscape inherited from Mesoamerican tradition and from current peasant maps. In this example, peasants call their drawing a “sketch” (Figure 8), while technicians call it “maps” (fig. 9).

![Figure 8. Drawing of the works for irrigation: Peasants’ view](image-url)
7. The sketch

The drawing by peasants is done on a piece of bond paper and is called a *sketch*. The combination represents an irrigation canal with an approximate length of one kilometer, which would be built under the initiative of the peasants. It was drawn by hand in May, 1995. It is not to scale. It is a vision of the whole construction-to-be. The image of the main canal and the perspective of the landscape would correspond to a horizontal photograph, as if the observer would be in front of the construction "with our feet on the ground". The general location of the construction is shown in the central square of the drawing, where it is highlighted that the cardinal orientation shows north towards the right side of the page. It is worth clarifying that north, for the construction only, is indicated in the top left corner of the page; such characteristics confirm the unconventional orientation used in this drawing. The general location of the site in regard to the nearest town is detailed. It is possible to deduce that the flow of water will be from north to south.
There is a reference to the surface to be irrigated in terms of the number of plots (51) and their specific location is given with the local names of four points: Santa Rosa, El Corral Viejo, La Soledad, and La Galera. It also illustrates types of structures to control water distribution, known locally as siphons. Moreover, there is a drawing of a taller siphon, which in turn represents the lowest point the canal will run through. Pipes made of concrete represent the most important construction phase. Specifications for this are included.

8. Maps

Technical documents are called “maps”. They were created in November and December, 1993, i.e. before the drawing made by the peasants, by a team of specialists in agricultural irrigation, assigned by the authority of the ejido. No peasants participated in these maps. The documents refer to the same landscape considered by the peasants, in a sequence of three stages identified as: 1 of 3: general map; 2 of 3: topographic profiles of the stretches the canal will cover in the terrain, and 3 of 3: joints, siphons and shapes. These documents are made with graphic design techniques on opaque drawing paper. As suggested by Orlove (1991, 1993), the maps created by technicians are a narrative or a sequence of actions to be taken.

This document only includes maps 1 to 3, which is the general vision of the canal network in a “from the air” perspective, as if it were an aerial photograph, and where the total distance of the irrigation canals is divided into seven legs. Detailed information is presented on the distances in meters for each leg, as well as the basic trigonometric data to draw them. Leg II is the counterpart of the peasant drawing, with a distance of 1423.5 meters. The scale is 1:2000. North is indicated in the top middle section of the page.

Though not presented here, map 2 of 3 shows the topographic profiles of the terrain the canal will cross. This map is read from left to right presenting a vertical and horizontal scale, contrasting widely with the peasants’ drawing.

Finally, map 3 of 3, which is not included here either, presents information and architectural detail for the construction of the siphons, which technicians call “uniting monuments.”

9. A succinct discussion

To sum up, both visions of one and the same landscape can be juxtaposed. Consequently, we have immeasurable documents, which can coexist without affecting each other. Hence, it is possible to verify many of the characteristics inherent to each document (see tab. 1) supporting the following proposal: peasants and technicians observe landscapes in different ways.

Perhaps due to technicians’ perspective of landscape as a geological and biophysical unit, rather than a territory, peasants observe their surroundings in the way they do. Consequently, territories are tangible areas within a particular landscape, but also the physical areas where peasants organize themselves and shape strategies to influence and control the access to natural resources (Maccall 2016, p. 68; Barabas, 2003), as well as a movement to defend their territory and the rights of native peoples (Pájaro, 2002, 2006).
The concept of territory, which is obviously more specific than the concept of landscape, is in tune with the valuation of conceptual and social formations related to the indigenous and peasant communities, such as those that translate the terms “community”, “locality”, “subalternity” and “sustainability” (Barrera-Bassols et al., 2012; Boege, 2003; Pájaro & Tello, 2014; Tello et al., 2011; Toledo & Barrera-Bassols, 2008), or “high-intensity democracy” (Toledo, 2015), given that those “small groups” have a critical and important effect on the history of communities worldwide (Mills, 1967) and locally (Zibechi, 2015).

With the example presented, there is a sample of nature-culture-relations, which allows us to speak of a set of dialectic relations, involving not only local communities, but also, in broad terms, government structures. A better understanding of human conduct in general (Dove, 1992) and peasants’ conduct in particular is thus crucial.

Finally, from a cartographic perspective it is possible to establish a comparison between two conceptual units: one, composed of the terms drawing-ejido- territory, attributable to the peasant vision, and another regarding technicians, which includes the terms map-landscape. These patterns of comparison lead invariably to the conclusion that peasants and farmers have different ways of observing landscape, both regarding its meaning and its content.

References


Toledo, V. M. 2015. La democracia comienza en los territorios. Periódico La jornada; sección opinión. Martes 12 de mayo de 2015.


*Article history:*
Received July 14, 2017
Accepted January 9, 2018