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ORIGINAL ARTICLE

CERRO VENTARRÓN – ARCHAEOLOGY, GEOGRAPHY, COSMOLOGY, AND CULTURAL LANDSCAPES DURING THE INITIAL FORMATIVE PERIOD IN CENTRAL ANDES, LAMBAYEQUE VALLEY, PERU

Cerro Ventarrón – Arqueologia, Geografia, Cosmologia e Paisagem Cultural durante o Formativo Inicial nos Andes

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Resumo
A costa norte do Peru é uma das áreas do continente americano onde o desenvolvimento tecnológico e cultural se desenvolveram precocemente. Conhecida pela arquitetura monumental associada a sistemas de irrigação artificial, a área foi marcada pelo rápido crescimento da agricultura e pela concentração de grandes populações. A área também é conhecida pela emergência de complexidade social e inovação tecnológica na produção de têxteis, cerâmica e metalurgia, bem como pelo enraizamento precoce de conceitos cosmológicos que estruturariam a vida nos Andes nos milênios seguintes. Entre as várias áreas irrigadas artificialmente da costa norte andina, o Vale de Lambayeque se destaca como um dos primeiros a ser ocupado permanentemente, com a construção de Huaca Ventarrón por volta de 4.200 anos A.P. O objetivo deste artigo é discutir as estruturas arqueológicas ainda no Formativo Inicial (pré-cerâmico) de Ventarrón como evidência da manifestação inicial da arquitetura pública que deriva da antiga conceituação andina da paisagem. Defendemos que as estruturas arqueológicas de Ventarrón funcionam como um sistema emaranhado de noções ontológicas de dimensões espaço-temporais cíclicas e/ou reversíveis, em que os marcos geográficos dispostos nesse ambiente motivaram e simbolizaram formas de organização social que podem ter servido de base à sua construção.

Palavras–chave: Andes; Paisagem; Formativo Inicial; Cerro Ventarrón; Arqueologia.

Abstract
The north coast of Peru is one of the most remotely developed areas of the American continent. Known for the remote appearance of monumental architecture associated with artificial irrigation systems, the area was marked by the rapid growth of agriculture and the concentration of large populations. The site is also known for the emergence of social

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complexity and technological innovation in producing textiles, ceramics and metallurgy and for the early rooting of cosmological concepts which would structure life in the Andes for the following millennia. Amongst the several artificially irrigated areas of the Andean north coast, Lambayeque Valley stands as one of the primary ones to be permanently occupied, with the erection of Huaca Ventarrón circa 4.200 years B.P. This article discusses Ventarrón's Initial Formative archaeological structures as evidence of the early manifestation of public architecture derived from ancient Andean landscape conceptualisation. We defend that Ventarrón's archaeological structures function as a system entangled with ontological notions of cyclical and/or reversible space-time dimensions, in which geographical marks motivated and symbolised forms of social organisation that may have provided the basis for their construction.

Keywords: Andes; Landscape; Initial Formative; Cerro Ventarrón; Archaeology.

1. INTRODUÇÃO

Inserted in a desert zone[1], the Lambayeque region on the north coast of Peru is recognised as one of South America's earliest highly developed areas in sociopolitical and cultural terms (Figure 1). In the history of the Central Andes, Lambayeque stands out for the remote appearance of monumental public architecture in the Initial Formative[2] period. A fundamental characteristic for understanding this complexification process is its correlation with the early development of irrigation systems, which enabled excellent agricultural efficiency in a region faced with environmental adversities (NETHERLY, 1984). For example, Dillehay (2008, p.122) cites the existence of artificial hydraulic channels from more than 6,000 years B.P. in the Zaña and Nhancoc valleys. Moreover, the area can also be highlighted for its widespread early technological development concerning cotton domestication and its impact on large-scale fishing and textile production, as well as complex iconography and metallurgy (MOSELEY, 1975, 2001; DILLEHAY *et al*., 2007; LUMBRERAS, 2008; BISCHOF, 2010; VEGA-CENTENO, 2017).

[1] The Humboldt Current is very close to the Peruvian coast and is responsible for the scarcity of rain in the region. According to Netherly (1984, p.235), the climate is stable up to a certain point and there is almost no vegetal coverage, except for the scarce woodlands located close to the riverbanks, especially that of Algarrobo (Carob), a regionally essential wood. It is a desert area, with oases represented by river valleys that come down from the highlands, sustained by rains on the western face or by melting ice. According to Netherly (1984, p.235): "The valleys of the North Coast of Peru should not be thought of as sterile, however. Even in their pristine state, they contained a regularly patterned series of econiches of economic interest to sedentary human populations. Beginning with the Guano islands and offshore fishing grounds, these included mollusk beds, inshore fishing spots, sea mammal rookeries, salt pans, areas of high water table where crops could be grown without irrigation, and zones of seasonal inundation adjacent to the river, which supported trees, such as willow, and canebrakes. The river itself provided fish and crayfish".

[2] Between 3,500 and 1,800/1,700 B.C, approximately (FUX, 2015). According to Makowski (2006), the term Initial Formative is more pertinent than that of Superior Archaic.

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According to Vega-Centeno (2005, p.37), the appearance of monumental architecture in the Central Andes, particularly on its northernmost face, is an important marker of processes of sociopolitical complexity, occurring even before the appearance of other relevant references, such as ceramic technology. However, the author highlights that studies on complexity have focused on specific aspects of architectonic design, by which the dimension of the buildings and inferences on the number of people necessary for their construction, as well as the energy expended, are the data used to discuss the appearance of such complexity and the different degrees of sociopolitical hierarchisation in the Initial Formative period. Such studies generally lack other essential archaeological information, such as data on domestic units or subsistence strategies. Moreover, the Initial Formative period (a period of almost two millennia) is usually treated synchronically, as a block, disregarding religious changes, continuities, reciprocity, rhythm, ideology, or local particularities over its many centuries, as previously indicated by Arcuri and Alva Meneses (2014, p.58):

> The interdisciplinary approximation of recent years has advanced together with the chronological refinement in relation to the recent proposal for Andean archaeology, especially in the debate on the Formative period that has been constructed since the 1990s (…) In perspective, this advance instigates us to think on the theme in distinct forms of exercise or constitution of power when we question the emergence of social complexity in the Initial Formative period". (ARCURI; ALVA MENESES, 2014, p. 58)

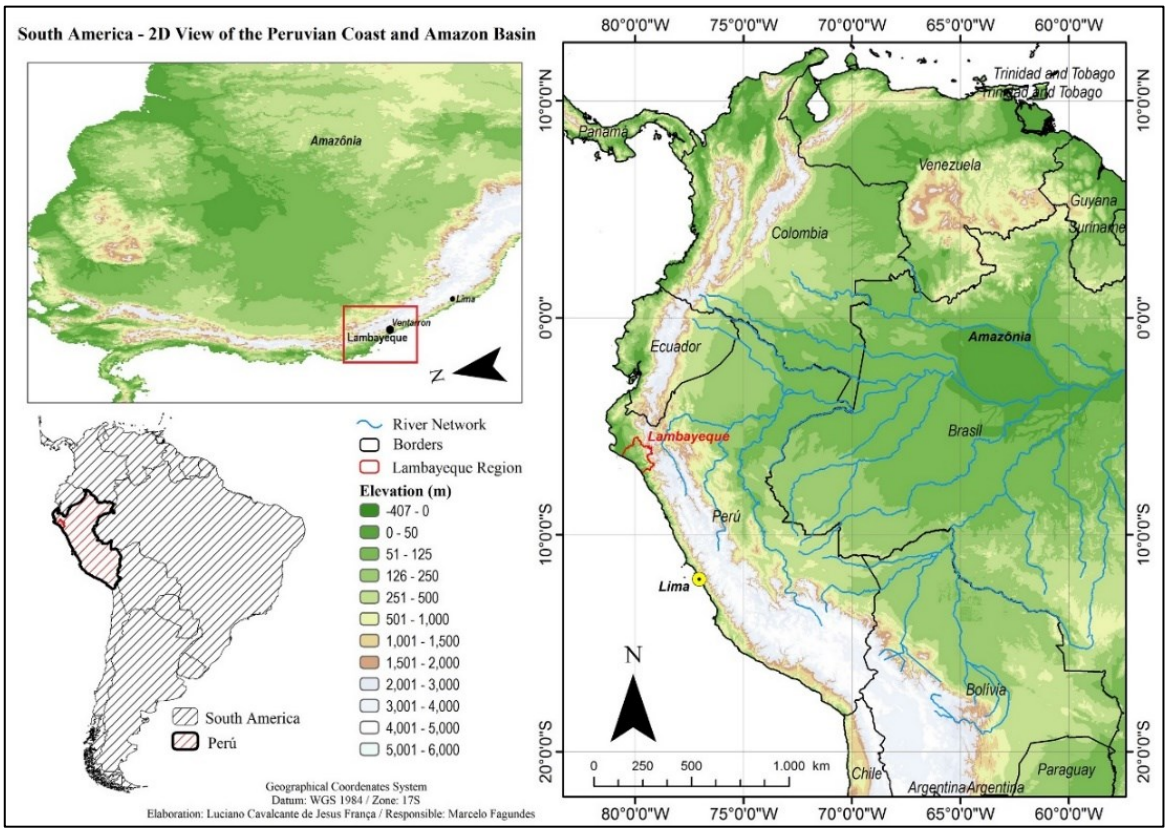

Figure 01 - Location map of the study area (FRANÇA, 2020).
Source: França, 2021.

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Despite the decades of intensive studies on monumental architecture on Peru's north coast, very little is known about the circumstances in which it first appeared. According to Kaulicke (2010, p.188-189), the undertaking of large-scale construction work during the Initial Formative period still needs to be better understood since it is not known how supposedly self-sufficient societies could regulate a production surplus to make the necessary resources available for communal works and still guarantee subsistence production, especially at large complexes such as those in the Central Andes. Nevertheless, it is assumed that the strategy chosen for overcoming environmental impacts was communal life and the development of these large projects, which enabled (or encouraged) the appearance of social complexity and hierarchisation (DILLEHAY, 2008).

Thus, this article intends to go beyond recognising that monumental buildings and irrigation systems attest to early social complexity. We are interested in looking at the Initial Formative archaeological structures based on the assumption that the motivation and symbolic concerns related to possible forms of social organisation that provided the basis for their construction are unclear (SWENSON, 2017).

Since we lack sufficient information on elite funerary contexts of the Initial Formative, when compared to Late Formative and Middle Horizon, we suggest another perspective to look at Andean archaic monumental buildings based on the relationship with the social construct of the landscape (COSGROVE, 1984; SWENSON, 2017). Above all, we defend that there are many gaps in explaining the social complexification processes that resulted in the early manifestation of public architecture because studies generally focus their analyses on an evolutionary perspective. Such studies are based on a Western vision of the origins of centralised States (bureaucratic and coercive), urbanisation processes, and the idea of complexity as related to economic surplus, disregarding the ancient Andean regional and local particularities that drove communal life, sociopolitical organisation, and socioeconomic development (ARCURI, 2011, p.1).

Analysing data related to other coastal contexts of the Central Andes, we defend that Cerro Ventarrón, in the Lambayeque Valley, was an important centre in which the appearance of social complexity occurred while still in the Initial Formative period (KAULICKE, 2009, 2010; ALVA MENESES, 2008, 2012; VEGA-CENTENO, 2017; FAGUNDES; ARCURI, 2023). The abundance of marine resources and remote development agriculture enabled the fixation/settlement of large human contingents on the coast (MOSELEY, 1975). The demographic increase, the confrontation of climate change from the Mid-Holocene, control of the means of subsistence, and the impacts of these

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changes on the way of life and sociopolitical organisation from the end of the period, also known as the Archaic or Pre-Ceramic, demanded the establishment of new strategies, including within communal life. This process did not necessarily begin with urbanisation (cities) or rigid hierarchisation of social relationships (MOSELEY, 2001; GOLTE, 2009; KAULICKE, 2009, 2010; VEGA-CENTENO, 2017).

Our hypothesis for the study area, based on analyses of the Reque River valley, where Cerro Ventarrón is found, is that initially, there was a selection of pilgrimage destinations comprised of representative geographical markers concerning the understanding of the world. From these "chosen places" (mountains, rivers, dunes, rocks), the architecture of the *huacas* emerged as an ordering element (as would happen later with the ceramic ritual vessels or *huacos*), which was, to a certain extent, an aspect of interaction with the forces that governed life and the cosmos on a local scale, or, according to Gavazzi, "ceremonial architecture that emerges around the *huacas* to maintain the cosmic balance… reducing its norms to a visible dimensional scale" (GAVAZZI, 2012, p.24). At the same time, these elements would be responsible for attracting people, as they synthesise and strengthen the markers that are perceived and interpreted since, according to Le Breton (2016, p.26): "It is not the real that men perceive, but immediately a world of meanings".

To test these conjectures, a spatial outline was established, which, despite being relatively small (30 hectares), had undergone a long process of occupation, generating an immensity of archaeological remains from the Initial Formative period up to the Spanish invasion. In the analysed area, we prioritised only the western face of Cerro Ventarrón, focusing on the archaeological structures of the Initial Formative period.

Therefore, the main aim of this article is to address Ventarrón's Initial Formative archaeological structures through a conceptualisation of landscape as a palimpsest of dynamically constructed layers in which notions of cyclical and/or reversible space-time dimensions within Andean cosmologies were as entangled as they were fundamental to the early manifestation of public architecture. Suppose our perspective addressing Ventarrón's landscape as "a crystallisation of activities within a relational field" (INGOLD, 2011, p.47) is sustained. In that case, we may move closer to understanding the emergence of social complexity in the Lambayeque Valley beyond merely adaptive comprehension.

2. LANDSCAPE REGARDING ANALYTICAL CONCEPTS

Before analysing Ventarrón's archaeological structures, we should consider what it means to conduct Archaeology that intends to utilise the geographical concept of the

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landscape as a theoretical-methodological guide. This may be the principal question before beginning any investigation in this sense. Archaeological investigations have often stemmed from the assumption of dealing with, above all, methods of analysis for the comprehension of how humans establish themselves, appropriate, and humanise certain areas to the detriment of others, such that logic is found enabling them to live, based on ontologies, experiences of interaction with the environment, and processes of establishing places. For Archaeology, the task may be somewhat veiled.

The use of the concept of landscape is not new in archaeological research, be it in more incisive approaches to environmental issues or understanding it as a human construction (INGOLD, 1993; ZEDEÑO, 1997; ANSCHUETZ *et al*., 2001; MOORE, 2005; TILLEY; CAMERON-DAUM, 2017; SWENSON, 2017; FAGUNDES, 2021).

However, as a polysemic notion, it has been used in different approaches that often do not make its meaning clear: from the geological characteristics of a region to an entanglement of subjective interpretations, which, at one moment, impose an extremely passive character on the landscape, like a stage for the activities of different groups of people, and the next, as the total of long-standing landmarks, where subjective and indiscriminate interpretation of the long-standing text is down to the archaeologist. As such, the intention here is not to disqualify different approaches used in the concept but merely to demonstrate the amount of interpretations and focal points that archaeologists have validated regarding the concept.

Therefore, we begin from the assumption that the landscape is an active element in human relationships and its constitution occurs along different rhythms, constructions, and place histories, being structured in space-time. Each occupation interprets the previous and may or may not impose a new narrative according to its symbolic structures (of social and ideological practice and history) since time and space provide a basis and influence the constitution of places and, consequently, of the landscape. However, it should be remembered that these categories are not cast in stone. They are complex, specific phenomena and, therefore, managed according to different interests or worldviews of privileged places. They receive greater attention from human actions regarding cyclical and multidirectional time (as is the Andean case). Human activities are responsible for managing space-time and providing the landscape with a historical dynamic that brings temporality, ancestry, and different physiognomies in a complex interaction process, ruled, and interpreted/ reinterpreted through rituality (ZVELEBIL, 1997; FAGUNDES, 2021; FAGUNDES *et al*., 2021; FAGUNDES; ARCURI, 2023).

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Landscape cannot be understood as static, and it is not dynamic only in terms of time. As such, we are in agreement with Maciel (2001) in stating that landscape presents cultural singularities (social subjectivities and sensibilities), going beyond the "real" offered by nature (physiography) without being limited to the description/narration of its material characteristics, where shape and content are inseparable. Therefore, the landscape is also imagined, possibly of magical aspects or epic singularities. Despite being endowed with subjectivities, given the type and quality of archaeological records, significant inferences can be made on inter-relations between the environment, humans, and material culture, extending beyond evolutionist or functionalist analyses (FAGUNDES *et al*., 2021).

Landscape, as experienced today, is constituted by a sum of existences, which are not disconnected but represent life manifested over time; it materialises in distinct ways societies engage to maintain social equilibrium (and order). It is pertinent to question how the physical world is remodelled according to different meanings and, even more importantly, if this interpretation can be conducted archaeologically (MOORE, 2004, 2005). From the point of view defended here, it is also through landscapes that people conceive and transmit their ideas on life in all its dimensions.

Andean thought responds to a broad process of the intellectual development of various societies that lived on different ecological grounds, responding to the challenges these landscapes would offer as a reality that could not, nor should not, be avoided but adopted for better control and management. Thus, this is how these conceptions appear; harmoniously integrating ecological grounds and various ecosystems. Within this sphere of thought would be the worldview (CAMPANA DELGADO, s/d, p.4).

In synthesis, the landscape is a cultural product where humans construct, perceive, and give meaning to various places (physical and imaginary) that take form in their lives. It stems from the principle that the landscape (landscapes) consists of layers formed over a long period (or longue-durée), in which people transform physical spaces into compositions that have intrinsic meanings to the way of life: relationships with nature, daily activities, political and socioeconomic relationships, values, symbolism, and rituality, among others. But the landscape is not passive; it interacts in this relation, where Humans establish landscape, and landscape establishes Humans.

When the landscape is understood as a construct, it brings valuable interpretive potential beyond its context of nature and its material manifestations. It is composed of human social relationships and is a symbolic expression that guarantees maintenance of the socio-political / religious-symbolic order and, therefore, cosmological order, which, as a

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shared symbol, communicates the necessary messages to its various interlocutors to guarantee the balance of life; remembering that the world, which is seen and felt, is the result of human praxis (INGOLD, 1993; HARRISON, 2018; SWENSON, 2014, 2017).

As Zvelebil (1997) highlighted, the landscape reflects the social use of the geographical space (by individuals and communities) over time, where the different activities of human life modify and culturalize its constitution.

Therefore, landscapes are created and modified by history; they are dynamic, interactive elements, always structured, understood, and signified / re-signified by their occupants. They are not static stages for life; they are in motion, being moulded by experiences and reactivated by inter-relations between the world and humans, in which cognitive aspects enable the landscape to be experienced, perceived, classified, and contextualised. Thus, the individual (or group) may confer meanings inherent to their historical context, in which continuity and/or changes are choices.

Interpretation of the long-term use of these places/structures is not an easy task, especially as it is in respect to the comprehension of cultural conducts from the past and has not accumulated enough information to carry out a concise review of how these societies were organised or how they interpreted the world, that is their regional landscape. In any case, there is the spatial logic of these indigenous people that can be read and construed as a narrative that is in agreement with their worldview and ontologies, many of which persist until today in the form of many other discourses (QUILTER; KOON, 2012; SWENSON, 2014, 2015).

Therefore, even though the material and ontological are at times difficult to disentangle, a focus on the materialities of place-making, as explored in this article, emphasises active technological interventions (practice) involving the conception, use, modification, and consumption of materialised entities-ranging from landscapes and buildings to artefacts and human bodies (…) Differences in such practices along with the corollary effects produced by the created material corpora may very well be shaped by distinct ontological orders. However, they could also be the product of varied political, technological, and ideological forces (SWENSON, 2014, p. 5)

In other words, socio-cosmologies are present in the structuring of the landscape, whereby structures/ compartments are here interpreted as our iconic minimal unit of analysis (sememes) and the synthesis between peoples' flow and these places – which, we defend, are manifest through their agencies and not contradictory to the semiotics approach (ARCURI, 2019, p.221) – is the landscape. Viewed as a construction (a construct) consisting

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of multiple layers of ideas, experiences, and materialisations, the landscape is liable to interpretation, as proposed by Cosgrove (1984). These layers, in turn, are interconnected between one occupation and another, given that some interpretations and symbolisms are present through archaeological marks and structures that are revisited, experienced, modified, and reinterpreted. These interpretations and re-interpretations were carried out over long periods and constitute, in the interim, a visual language (BROTHERSTON, 1992). It is not a narrative composed of disconnected texts since it connects to its predecessor as a system/structure; it functions more like a form of grammar. This is precisely why we insist on a holistic, systemic landscape analysis.

From this perspective, we have understood the landscape as materialisations and conceptions that operate life, consequently being able to be read and interpreted. It is the mark of human actions, their materialisations, ideas, intentions, and actions, to be replete in ontological explanations of the world. The landscape cannot indicate an external and finished world, independent of the beings that inhabit it, nor images or ideas about it. We produce them as much as they create us. The landscape is, therefore, always constructed by our multiple needs.

A landscape should not be seen exclusively as an environment or a geoenvironmental opportunity (or restrictions), as appropriations occur in various ways. There is a continual process that is mutual and inter-relational, in which beings establish and constitute landscapes, in interactions that structure and are structured, are culturally managed, and historically established in the relationships between the ordinary and the extraordinary, the physiographic and the mythological, of what is visible and invisible, and of the space-time relationship. Movement is stimulated (and limited) by these conceptions (MAUSS; BEUCHAT, 1979; INGOLD, 1993; ZEDEÑO, 1997; ZVELEBIL, 1997; POLITIS, 1996; ANSCHUETZ *et al*., 2001; MOORE, 2004, 2005; ZEDEÑO; BOWSER, 2009; CRUZ, 2012; JOHNSON, 2012; ACUTO, 2013; SWENSON, 2014, 2015; 2017; TILLEY, CAMERON-DAUM, 2017; FAGUNDES *et al*., 2021; FAGUNDES; ARCURI, 2023).

3. THE SITE – VENTARRÓN AND ITS PHYSIOGRAPHIC CHARACTERISTICS

The north coast of Peru is one of the areas with the most environmental stress on the planet (JENNINGS, 2008), where the desert is a striking environmental characteristic, squeezed onto a narrow strip between the mountain chain and the Pacific Ocean. Its continuity is interrupted by the Andean foothills that provide a slight inclination to the territory from East to West, from the mountain chain in the direction of the sea. Under normal

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conditions, the scarce rains condition the semi-desert and desert character of the coastal fringe, defining the climate as an Arid Subtropical Desert, influenced directly by the Humboldt Current, which acts as a regulator of meteorological phenomena in the region (NARREA; PÉREZ, 2013).

The north coast could be defined as a region of contrasts. While having one of the most fertile coastlines on the planet, supplying its inhabitants with an immense source of protein (MOSELEY, 1975), it also establishes a strip of desert that is inhospitable to human occupations if it weren't for the presence of freshwater cutting through the valleys and the human innovations optimising these resources through diverse technologies.

Notably, the Lambayeque Valley – and to a certain extent, the neighbouring valleys of Zaña and La Leche – appeared in this desert environment as a strategic region with a confluence of economic resources, both fluvial and marine and resources from mountain and jungle regions. The Pacific Ocean, the Upper Amazon, and the Marañon River are easily reached from the area. For this and other reasons, it is a region that should not be understood as "circumscribed" (CARNEIRO, 1970), as it presents characteristics of great biodiversity when compared to the southern-central valleys of the north coast, such as Jequetepeque, Chicama, or Moche (ARCURI, 2012; SWENSON, 2014; VEGA-CENTENO, 2017).

In this scenario, the Cerro Ventarrón and Collud-Zarpán Archaeological Complex are located in the district of Pomalca, to the east of the city of Chiclayo, central coordinates 6°48'19.68 "S/79°45'34.78" W (Huaca Ventarrón) (Figure 02). It is an important archaeological area in the Central Andes, intensely occupied since approximately 5,000 years B.P. It brings the marks of different establishments and the choices through which the distinct surrounding landscape was constructed and modelled, on which the physiographical markers and archaeological structures establish a narrative of how the sites were constituted. As pointed out by Campana: "The various human societies to occupy a sector of space to live, slowly organise the landscape they are given, making it more and more manageable and less adverse. Thus, it should be understood that all places with human occupation were, and are, the product of their effort and conception".

The Archaeological Complex is found on the alluvial plateau on the right bank of the Reque River, one of the branches of the Chancay River (Lower Lambayeque Valley). According to Alva Meneses (2008):

> The basin of the Chancay, Lambayeque, and Reque Rivers is one of the most ample and regular on the northern coast. It is limited to the north by the basin of the La

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> Leche River and in the south by that of the Zaña, both with less discharge. In the upper section of the valley, the Chancay river divides into three branches: the Reque, the Lambayeque, and the Taymi. The Reque branch is the principal river running through the left side of the valley. Its channel is deep and winding and in some sections the basin constitutes the southern limit of cultivatable land; on crossing the lower valley, it touches the southern slope of the Cerro Ventarrón before discharging into the sea, 20 kilometers below (ALVA MENESES, 2008, p.97).

As can be seen, it was precisely through the continuous flow of water that supplied the irrigation systems in these valleys (SHIMADA, 1994) that the coastal societies of this region could establish planned agriculture on a large scale. According to Alva Meneses (2008), the hydraulic engineering work established in the Reque Valley was the most complex and efficient in ancient Peru, irrigating 70% more land than currently.

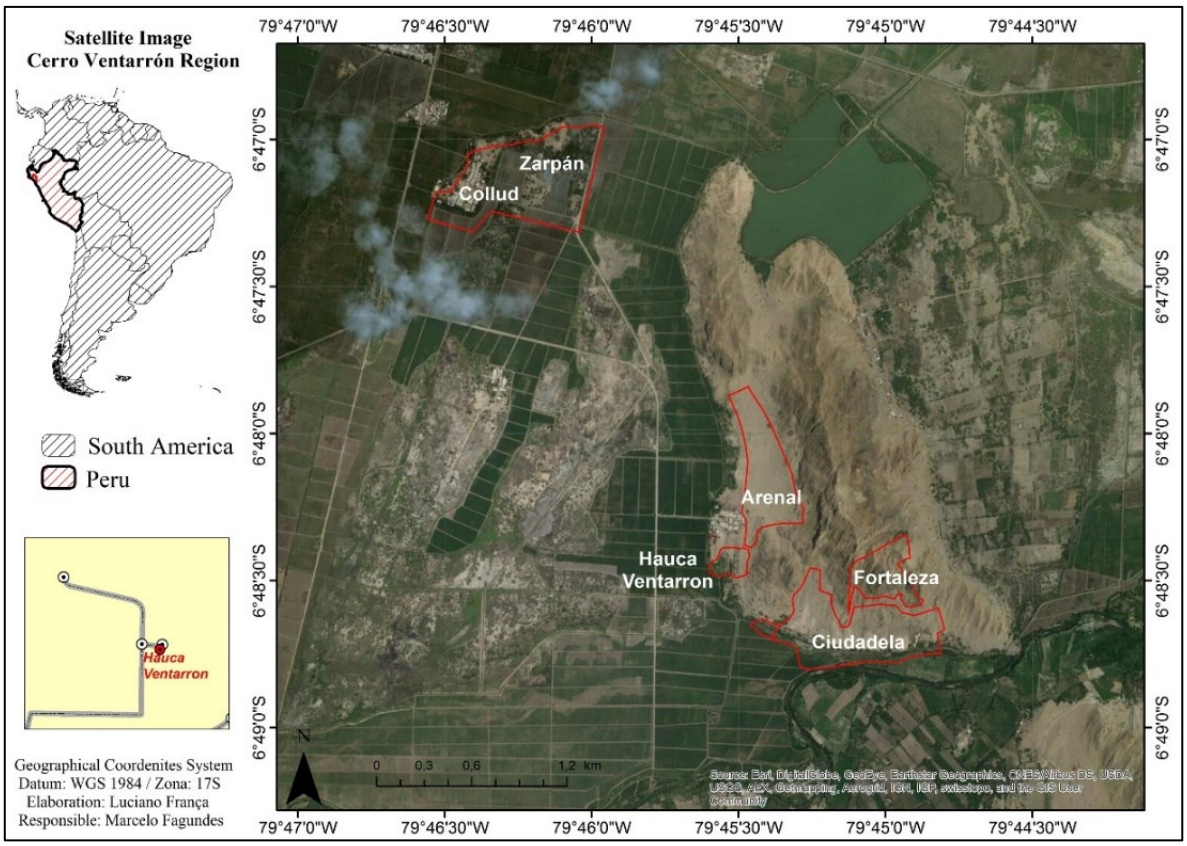

Figure 1 - Satellite image of the study area.
Source: França (2020)

Besides the Chancay River (and its branches), Cerro Ventarrón is another important regional marker. It is on residual relief with a maximum elevation of 228 m above sea level, found 22 km from the ocean, on the right bank of the Reque, stretching in a north-south direction, just like the Cordillera. Giant platforms, buildings, structures, and a variety of materials related to all pre-invasion archaeological cultures within the Andean-related chronology can be observed in its surroundings, in addition to data on contemporary

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occupations attesting to its maintenance as a sacred and topophilic regional landmark (Figure 3).

In this valley region, Ventarrón represents something beyond a physiographic landmark; it is a stand-out place in the lives of the people that occupied and occupied its surroundings. Given the low elevation of the surrounding land, it can be seen from long distances, cutting the valley from north to south, even giving a certain movement to the static landscape of the coast. This visibility of Cerro Ventarrón as a topophilic landmark of "entrance" to the first mountain, in addition to the archaeological structures, is one of the central concerns of the discussion (Figure 4).

Figure 03 - Community chapels built on the top of Huacas. (A) Chapel on the Huaca Collud; (B) Chapel on the Huaca Collud; (C) Cerro Ventarrón, with the chapel location highlighted; (D) Chapel on Cerro Ventarrón; (E) Highlighting of the Cerro Ventarrón chapel altar.
Source: Fagundes (2018).

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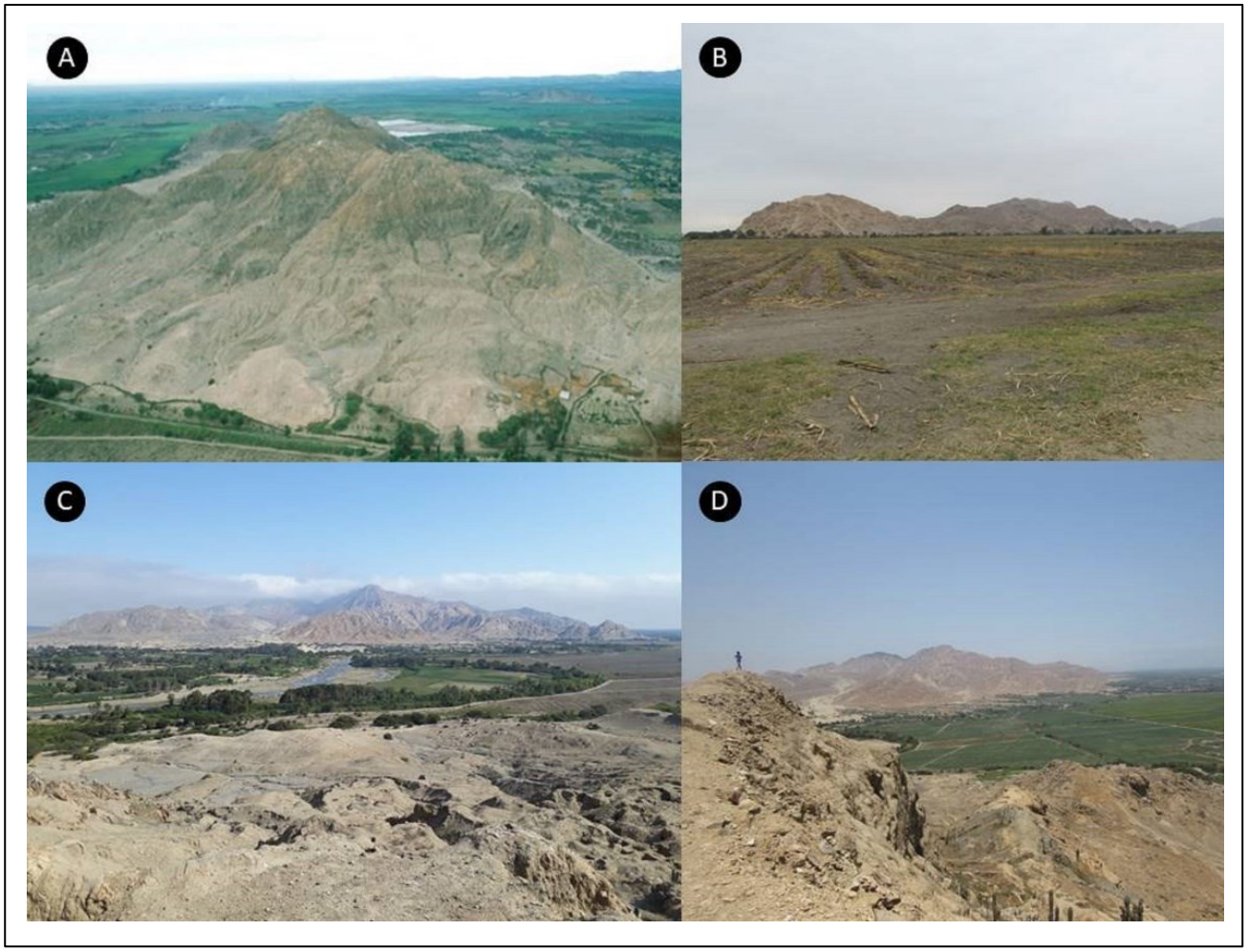

Figure 04 - General view of the local mountains: (A) Viewed South-North from Cerro Ventarrón; (B) Viewed West-East to Cerro Ventarrón; (C) Viewed North-South to Cerro Reque; (D) Viewed North-South to Cerro Reque from Cerro Ventarrón.
Source: (A) Alva Meneses, s/d; (B) Fagundes (2018); (C) Fagundes (2017); (D) Fagundes (2017).

Given these physiographic 'qualities' of Ventarrón, we are following the description of Alva Meneses (2008) that this landmark presents geo-environmental, morphological, and implantation characteristics that the occupying populations appropriated according to what would be later understood as the Andean cosmology (SALOMON, 2018; GOSE, 2018). As emphasised by the author, distinguished characteristics of Cerro Ventarrón, such as its location between two rivers in an area of cultivatable soils and its form of a giant, flat-topped platform, in addition to its proximity to the ocean (and the facility of gathering marine resources) and visibility concerning the valley (especially its western face, highlighted by the sunrise over the mountains), stimulated demographic relationships that were attractive to indigenous occupations and guaranteed re-established structures for the continuity of such occupations (ALVA MENESES, 2008, p.98).

On these physiographic characteristics, López-Mesones (2013) defines that two principal geomorphological domains mark the Lambayeque region: (i) denuded relief,

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represented by alluvial plateaus, depressions, dunes and barchans (dunes with a convex appearance, produced by wind action that acts predominantly in a single direction) – the areas also counting on large reserves of underground waters, including Cayaltí-San Nicolas and the Mocupe-Lagunas plateaus; (ii) mountainous relief, characterised by mountains of varying altitudes and hills of medium elevation such as Ventarrón, with well-eroded forms and frequently exposed rocks.

Given these geomorphological conditions, the unique conjunction between mountains, rivers, and sea in this regional coastal desert environment and the particular physiography favoring astronomic observation made it a centre of attraction beyond questions of subsistence, being aligned with other human necessities. These intensified relationships of power, generating the increase in socio-political and religious complexity observed on the north coast from the Formative period. Remembering that this is a relationship of modification and reciprocity between the environment and the human being. In this perspective, this reciprocity and modification constitute the long-term landscape.

In addition to the desert climate, other climate instabilities, especially the *Niños*, also sensitively contributed to developing techniques enabling the necessary management for technical-cultural establishment and development, besides being responsible for socio-political and economic imbalances. As indicated in previous environmental and astronomic research (ORLOVE *et al*., 2000, p.68), it is apparent that in drought-prone Andean regions, the luminosity of the Pleiades star cluster decreases around winter solstices preceding El Niño events. Orlove *et al.* (2000) suggest this may have been an ancient forecasting method among Andean populations.

Choices were made concerning certain geo-environmental attributes and their intersections (and inter-relations) with the world idea of the group, related to origins; to places that provide referential orientation, alterity, and identity; to places of pilgrimage (related to ancestry or sanctity); or even to economic-productive spaces. However, the key to identification and legitimisation of these processes of “placemaking” is the integrated or connected rituals responsible for the activation and materialisation of the cosmography (ARCURI, 2019; SWENSON; WARNER, 2015; VEGA-CENTENO, 2017; GUZMÁN JUÁREZ, 2017; GIL GARCÍA; FERNÁNDEZ JUÁREZ, 2008).

Public architecture, especially, concentrates cosmological meaning in the design of its enclosures, in its functional inter-relation and its spatial organisation as a whole: a construction that is connected to and supported in space-time sacrality, conceived as

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reciprocal interdependence between cosmic cycles and social organisation, as a necessary element for survival and reproduction or regeneration (GUZMÁN JUÁREZ, 2017, p.02).

Under Le Breton (2016), we believe that the environment is a pretext, felt and reflected by humans giving it meaning through actions of symbolic legitimisation. These rituals are responsible for solidifying and guaranteeing the continuity of the beliefs of a given group, placemaking the environment that will make up the landscape. Sacred architecture plays a crucial role in synthesising the ritual cosmography, as symbolic juxtaposition and synthesis, above all, based on the rituals that create and reconfigure distinct relational fields and guarantee the maintenance of the cosmological order of continuity and reciprocity (BROTHERSTON, 1995; SWENSON; WARNER, 2015).

4. ARCHAEOLOGICAL STRUCTURES FROM THE INITIAL FORMATIVE PERIOD AT CERRO VENTARRÓN

The Cerro Ventarrón and Collud-Zarpán Archaeological Complex is composed of various archaeological structures from different periods and Andean cultures from the Initial Formative period up to Lambayeque and Chimú-Inca, from approximately the 9th up to the 14th or 15th century of the present Era. The various structures were constructed over time, and none were abandoned during this period, their positions changing concerning the different occupations. However, subsequent groups always revisited them in a process related to worshipping the past/remembrance through valuing ancestry (ALVA MENESES, 2012).

In the present article, structures from the Initial Formative period at Huaca Ventarrón and the platforms of the Arenal Complex are discussed. All are adobe constructions that inaugurated monumental architecture in the area, erected on the rocky foothill of Cerro Ventarrón around 4,200 years B.P. As we intend to demonstrate further, the architectural design and ritual symbolism observed in the archaeological structures and excavated materials of Huaca Ventarrón and Arenal sectors maintain clear links with broader geo-environmental characteristics and rooted Andean cosmologies. They synthesise aspects of the worldview and ontologies derived from the environmental and material agencies which, perhaps, charged and aggregated different regional identities around a “ground” that would be converted into a sacred place. This stemmed from the principle that physiographic aspects served as an attraction to communities that appropriated the spaces based on certain diagnostic features directly related to their worldview, from indigenous myths related to the appearance of life to the worshipping of the waters (SHERBONDY, 1992; BOELENS,

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2014), to sowing, but, mainly to the essence of the central mountain as the cosmological synthesis (ALVA MENESES, 2008). Ventarrón was perhaps chosen, like other sites, as a sacred place where communities connected and constantly reaffirmed their ancestry (FUCHS; PATAZSCHKE, 2015, p.85).

Among Peruvian coastal societies, archaeological and ethnographic data have more references concentrated on beings from the waters of the Pacific Ocean and other forces of the *hurin*, such as primordial generative entities. Yet, what is most noteworthy in these cases is the emphasis on the relationship between the *hanan* and *hurin* ambits, which never abandoned interaction with their complementary opposites (ARCURI, 2009). In Ventarrón, the dry, hard material of the *cerro*/mountain/earth meets the wet, fluid material of the spring waters that form the river (and discharge into the ocean). Thus, Huaca Ventarrón, raised on clay and implanted on the central rocks, features on the Lambayecan landscape as the axis mundi of the populations that constructed it and re-established it as a ritualised space in the cycles of life and death. As already mentioned, it was possibly the first great building erected in the area to aggregate and synthesise the world ideas of different ethnic groups.

Huaca Ventarrón is a temple constructed in adobe directly on a granite outcrop, occupying the rock's central section on the mountain's western face. The north and south portions were also appropriated for worship, with evidence of *pacchas* in the south (Figure 5A). As highlighted by Alva Meneses (2008), it begins from the prerogative that the mountain is the starting point for the sacralisation of the area by the first societies during the Initial Formative period. Like the Milky Way, Cerro Ventarrón stands in the north-south direction (Figure 5B), in a perpendicular alignment to the Reque River (east-west), following the Cordillera Andina and its descending river valleys, which run from the east to west, discharging into the ocean and diving into the *hurin* waters (ALVA MENESES, 2012, p.12). An analogy can be made to the sun's movement at sunset (a phenomenon easily observed from the centre of the Arenal sector) (Figure 5).

Moreover, the Huaca Ventarrón was constructed and structurally modified, over several centuries, in remodelling processes marked by ritual. These processes possibly account for the probable cycles and ruptures of the sociocultural dynamics, changes that may have occurred for both environmental and cultural reasons. As already seen, its structures relate to those of the Arenal, constructed in the same period, on the foothill of Cerro Ventarrón (around 500m away from Huaca), having been established in the same period as Huaca Ventarrón. According to Alva Meneses (2012), the four identified buildings are adobe structures, with well-defined enclosures constructed as a projection of the

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mountain, with various models whose forms established parallels with those of the Huaca (Figure 5C and 5D).

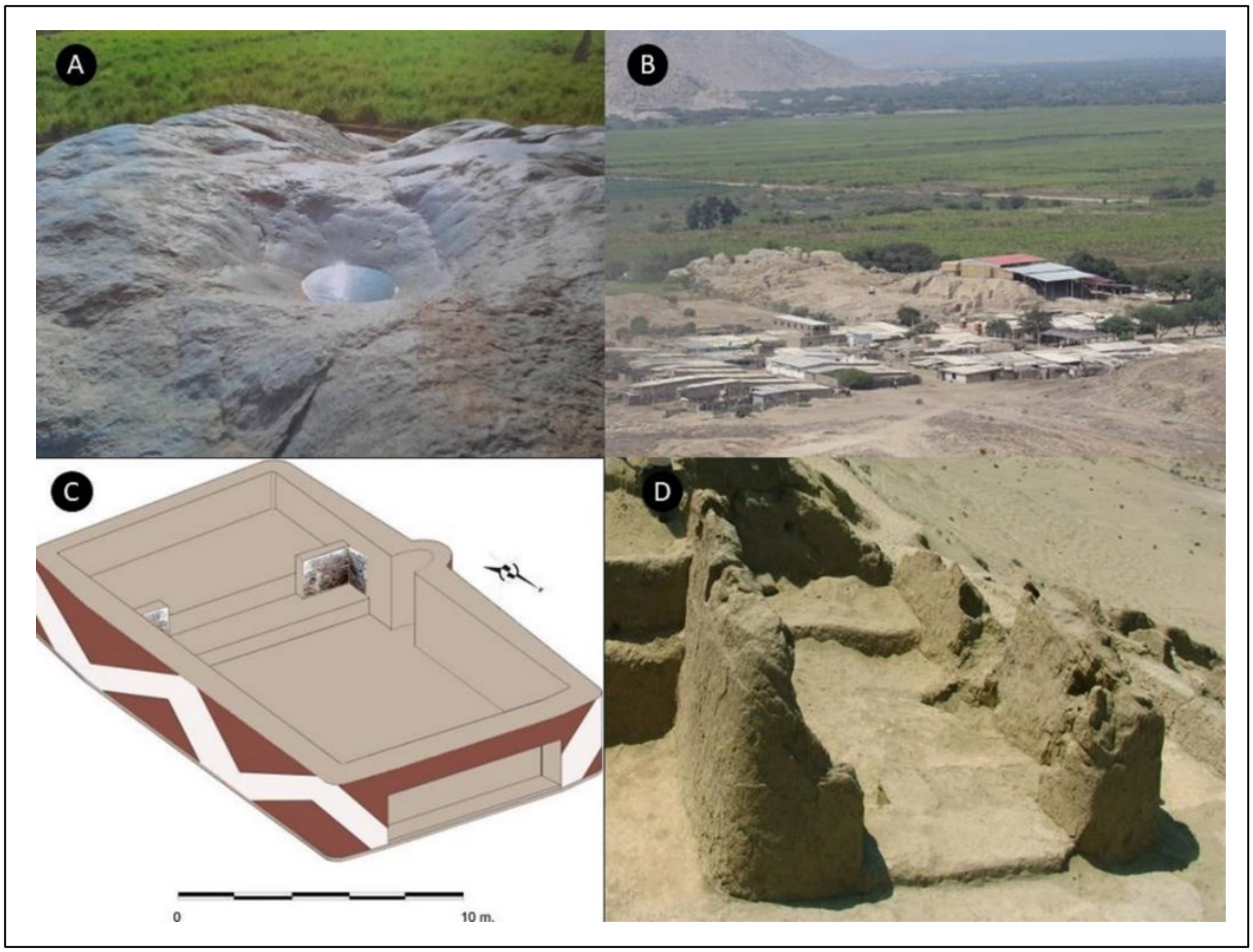

Figure 05 - Ventarrón Archaeological Complex: (A) Pacchas, southern face of the Huaca; (B) North-south direction of Huaca Ventarrón; (C) Representation of phase x, red and white temple, Huaca Ventarrón; (D) Structure of Arenal (miniature of the shape of the red and white temple of the second constructive phase of Huaca Ventarrón).
Source: (A) Alva Meneses (2012); (B) Fagundes (2019); (C) Source: Alva Meneses (2012). (D) Source: Alva Meneses (2012).

We begin with the hypothesis that the construction and consolidation of the buildings on the medium-high slope had the principal objective of visibility, the ritualised relationship with the landscape, and the attraction of different human groups that would regularly meet at Ventarrón. Based on the excavation of a trench, Arenal 01 was defined, being a system of staggered embankments culminating in an ample terrace. Arenal 02 consisted of 9 units on the highest part of the complex, marked by the construction of large supporting walls in the form of a platform over the sandbanks, one of the largest constructions of the period. Arenal 03 has a system of wide, low platforms whose shapes and construction techniques are similar to other sectors. Finally, Arenal 04, possibly the most important building of the

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period, was constructed on a medium-high slope, presenting high visibility to the western face of the valley (Figure 6A). It is an expansive system of terraces directed to the west, with a vast quadrangular enclosure, such as that of Huaca Ventarrón (ALVA MENESES, 2012). Based on this information, it can be observed that the Arenal 04 structures could be seen, precisely on the western face of Ventarrón, at the centre of this natural amphitheatre, which, according to our estimates, had a visual scope of over 2 km (Figure 6).

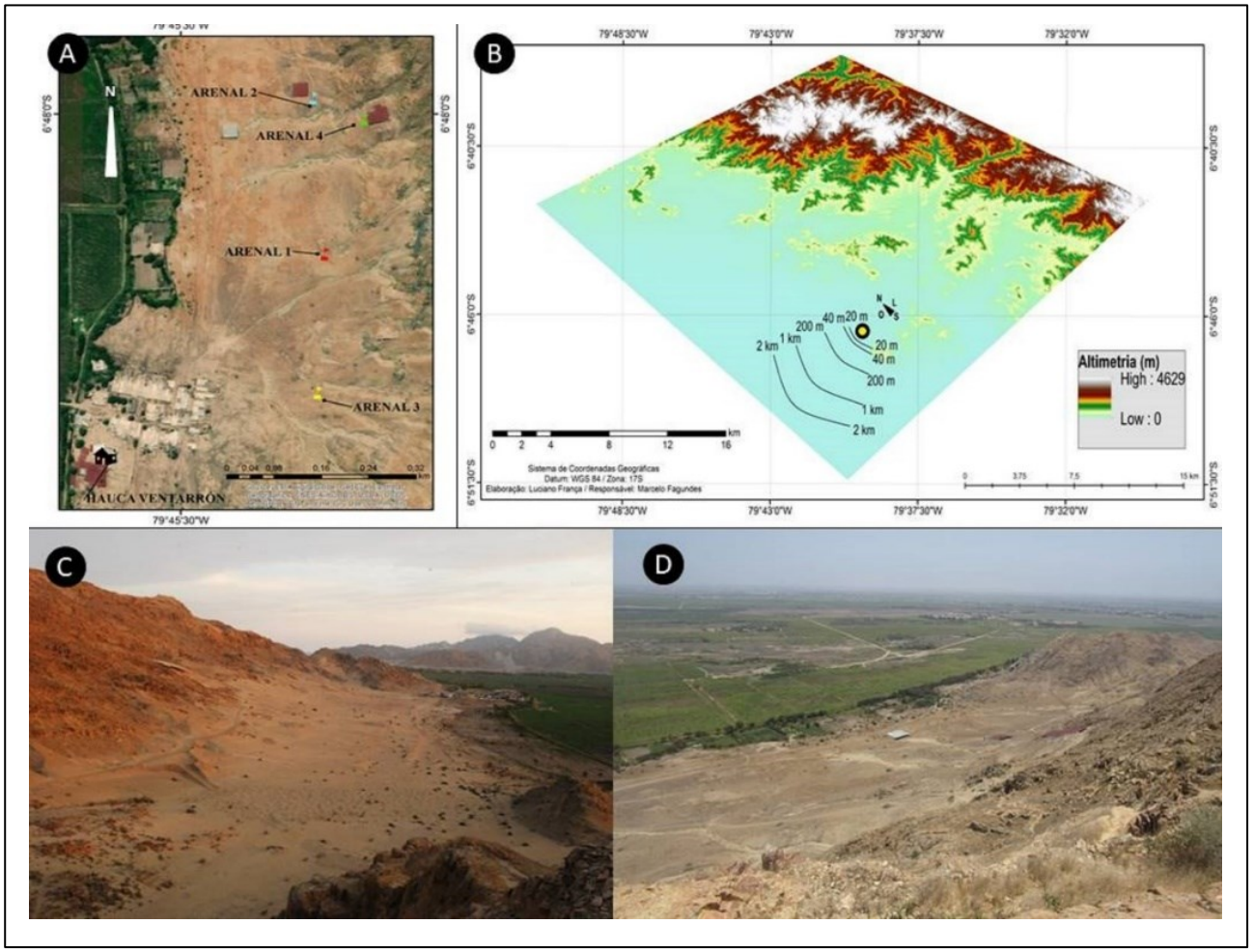

Figure 06 - Arenal sector: (A) Location of the structures in the Arenal sector; (B) Viewed east-west to the Lambayeque valley from Arenal 04; (C) Viewed north-south from the Arenal sector; (D) Viewed southeast-northwest from the Arenal sector from the peak of the mountain.
Source: (A) França (2020); (B) França (2020); (C) Alva Meneses (2012). (D) Fagundes (2017).

Other archaeological structures have been mapped on the medium-low slope, mounds associated with later occupations. Eight structures have been identified, of which two have been excavated, being associated with Moche occupations from the Medium Horizon (1st to the 9th century of our Era) (Figure 7A). Thus, in the Cerro Ventarrón and Collud-Zarpán archaeological complex, “continuity” clearly occurs from the projections of the Initial Formative period up to the Late Horizon, including the Moche occupation, which,

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presumably, was somehow connected to Sipán, located 30 km away in the Zaña Valley. The clearest examples are in the Ventarrón and Collud Huaca (temples). Huaca Ventarrón is characterised by some of the most ancient polychromed murals known on the American Continent, related to the long-lasting ritualistic hunt of cervids (deer) with nets (including colonial ethnographic data); the duality of red and white colours better known as a Moche cultural signature (which occurred 2 thousand years later) (Figure 7B); and the very remote presence of the Inca concept of Chakana (Figure 7C). Huaca Collud, in turn, pictures the "Chavinoid" creator-decapitator, an arachnid entity in a low-relief adobe decoration on its façade (Figure 7D). Both Huacas combine original elements of some of the most lasting symbolism in Andean cosmologies (ALVA MENESES, 2008; ARCURI, 2009, 2019; FAGUNDES; ARCURI, 2023).

Figure 07 - (A) Mound D associated with Mochica culture, Arenal sector; (B) Red and White panel, Huaca Ventarrón; (C) Structure in the shape of "chakana"; (D) Frieze mural detail with the arachnid entity, Huaca Collud.
Source: (A) Fagundes (2018); (B) Fagundes (2017); (C) Alva Meneses (2012); (D) Alva Meneses (2012).

Another important factor in our discussion is the architectural composition of the staggered and circular structures (*escalones* and *pozos hundidos*) occurring with

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implementation and N.W. – S.E. orientation patterns within early Formative sites featuring monumental architecture. Besides Ventarrón, these are the cases of Salinas de Chao, Alto Salavery, Sechín Bajo, El Paraíso, and Caral, as observed in figures 8A to 8D. As referred to in ethnographic data (MOOSELY, 1992, p.53 *apud* ARCURI, 2009, p.39), the NW-SE / NE-SW referential axes of the solstices were the structural and original basis of the Andean Ayllu's territorial configuration; a spatial and social organisation conceived as a projection, on the ground, of the apparent seesaw movement of the Milky Way when observed through elliptical oscillation.

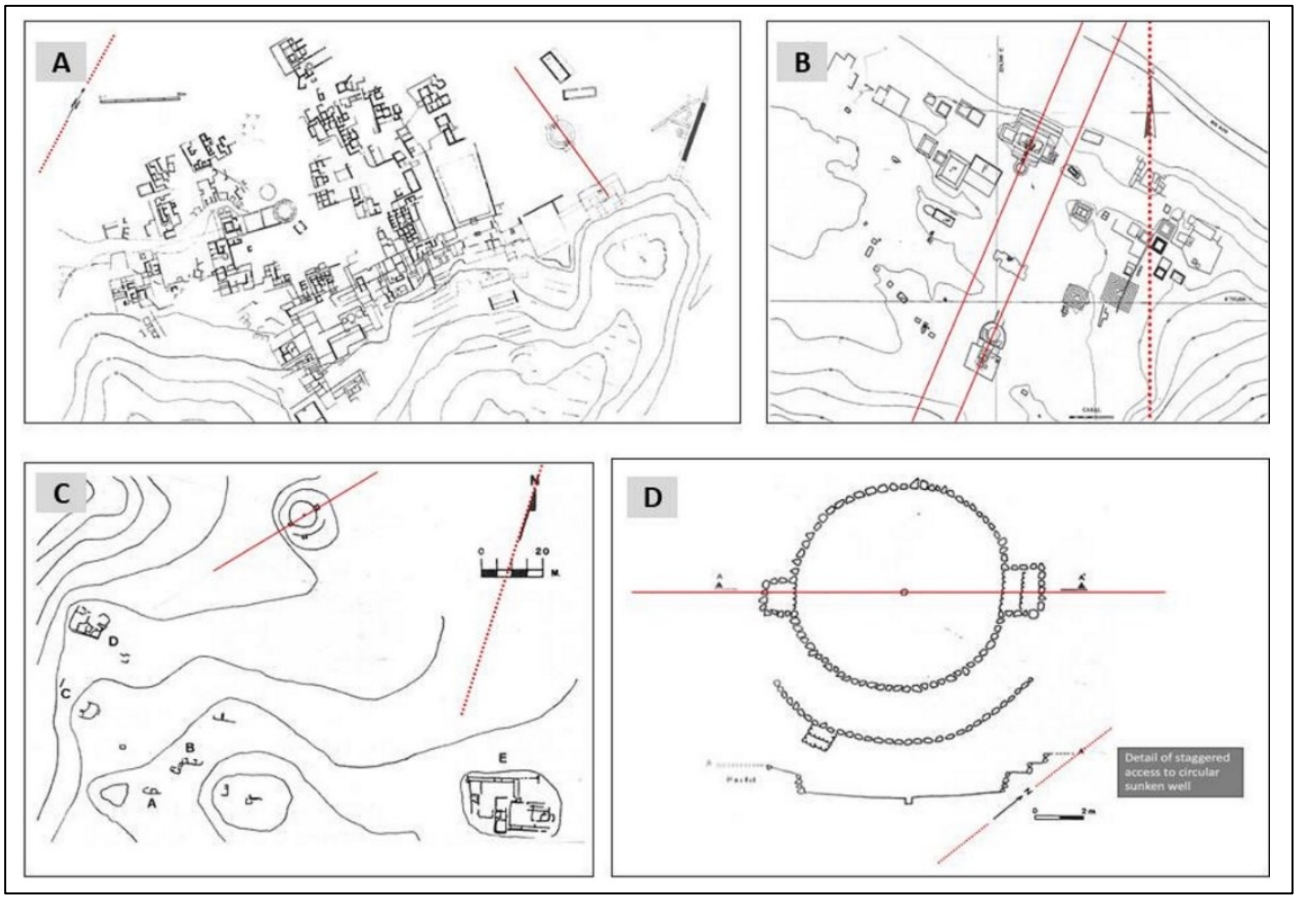

Figure 08 - NE-SW and NW-SE alignments of staggered structures and circular sunken wells of Initial Formative sites: Salinas de Chao (A), Caral (B), Alto Salaverry (C and D).
Source: Canziani (2017).

Thus, we infer that it is much more a process of relationships guaranteeing a flow of perceptions and conceptions, even as a legitimisation of ancestry and the present, since, as explained, the Andean space-time notion is much more complex than the linearity of binary-Cartesian thought (CRUZ, 2012). Continuity should be understood much more as an act of circulation/flow than a one-dimensional movement that the word itself leads us to believe.

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The rituals are key elements to this process since they enable the establishment of alternative material worlds.

These buildings are altars to heaven, places of reflection, visual connections and, above all, mystic connections in the sense of a relationship with the mysteries of the cosmos. They are altars constructed to seek the equilibrium of different events, to establish cyclical systems of regeneration, social commemorations or celebrations, rites of passage and union between opposites, complementary articulation of dualities and *Yanantin* symmetries and the *Tunkuy* meeting place of vital extremes between life and death, between the gods and nature, between the sacred and the profane, or between men and their architecture (GUZMÁN JUÁREZ, 2016, p.111).

Furthermore, the creation of places of prestige, sacred places or meeting places enabled ideological manipulation of the constructed landscape, from its projection (be it through temples, sectors established in the *huacas*, in the iconography, or through the execution of rituals associated with these spaces) to the appropriation of regional physiography characteristics, such as that which occurs with all these choices under the aegis of Cerro Ventarrón (ALVA MENESES, 2008, 2012).

Relating to the past is a political strategy since power and negotiation/alliances go together (MAUSS, 2016). It is also a way of 'managing time' through materialities and immaterialities, within which a natural discourse is established on a given reality, whereby ontologies are constructed and recognised, such that people understand, explain, and perpetuate their worlds in lasting processes maintaining the cosmic order. In the Andes, the past and present interact, whereby the past (ancestry) is disposed of power that nourishes the maintenance of life in the present and future reproducibility.

The temporal dimension, which is inseparable from the spatial, is ritualised and reflected in the understanding of the world, in processes of "placemaking" (and the consequent symbolisation of the environment). In such processes, the conception of the ontologically materialised monumental architecture itself is given, experienced and, above all, re-signified in acts of modification and reconstruction of certain buildings or spaces. These cycles go through various processes of renovation that recapture or "(re)presentify" primordial time, (re)activating a place, since disjunction cannot be permitted (GILLESPIE, 1996 *apud* ARCURI, 2011, p.25), nor can the irreversibility of crossing space-time frontiers and consequently, the transit between cosmic planes (GOLTE, 2009; ARCURI, 2011, 2019; SOARES, 2021; FAGUNDES; ARCURI, 2023).

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Thus, constructing/reconstructing the buildings should not be considered abandonment, rupture, or re-appropriation. In contrast, it is supposed to be a form of continuity based on renovation (or rebirth), especially regarding the cyclical manner of understanding life / the world. Places are reactivated through actions related to memory (activated in the present) and empowered through different rituals, given that maintenance of the cosmic order and balance and maintenance of movement, and their ancestry are both within the bastions of worldview, like the cyclical thought related to life itself (QUILTER; KOON, 2012).

Here, thinking about “cultural continuity” could be a pitfall. Alternatively, we have seen these processes from the idea of cultural resilience (FAGUNDES; ARCURI, 2023), that is, the capacity of societies from the Andean world to mould themselves to changes (*pachacuti*), establishing a fluidity in relationships with other socio-cosmic agents, whatever the order of the relationships (GOLTE, 2009). Here resides the fact that this resilience is materialised in and from sacred places (SWENSON; WARNER, 2015; ARCURI, 2019).

5. DISCUSSION AND CONSIDERATIONS

To understand the archaeology of Cerro Ventarrón is to consider the Andean socio-worldview and, above all, how these different peoples organised the world and, therefore, life. The cyclical manner of perceiving the space-time-materiality dynamic is essential in structuring the sites and, consequently, the landscape. As such, the architecture, as well as the socio-spatial organisation of the archaeological structures of different types, was a fundamental piece in this process, here being considered as a synthesis of this thought, in which the space was decisive for this long-term establishment at Ventarrón.

The local physiography was responsible for transmitting a vastness of decisive messages for the occupation of this area: (i) the mountain and its north-south direction, with the sun rising in the east and moving west and, therefore, over the mountain; (ii) the east-west orientation of the river, which descends the valley, literally fertilising the land in the direction of the ocean, a primary place for creation (*Hurin*); (iii) a meeting point between the mountain and water, thus conducive to worship and ritualisation as axis mundi; (iv) the existence of the granite outcrop (mother-rock) precisely in the eastern section of the mountain, serving as a physical and conceptual foundation for construction of the Huaca; and (vi) the location of the mountain half-way between the coast and the mountain range, among others.

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Finally, the choice of implantation was not random; the architecture arises from a meticulous process of recognising signs in an area we can define as replete with geographical markers. We believe that Cerro Ventarrón rose as a ceremonial centre, a site attracting human groups from the valley, having the principal characteristic of regional physiography acting on the synthesis of the worldview (LEONE, 2005; MAKOWSKI, 2006; ALVA MENESES, 2008; VEGA-CENTENO, 2017, p.97; FAGUNDES; ARCURI, 2023).

Alva Meneses (2012, p.14-15), in turn, states that the monumental architecture appears in the Initial Formative period as an ideological discourse from reverence to the worship of the mountain and the water regarding the centrality of the sacred space, enabling places to be established in conformity with a landscape that could be taken in both physical and symbolic terms and, from there, orientating people in respect to notions of space-time, following the various worlds constituting the cosmos. Thus, for the authors, sacred architecture has a unifying power. Here, we believe that it unifies, synthesises, and makes relationships comprehensible since humans establish themselves, live, and move around landscapes that consist of something beyond the visible, which establishes these humans, providing them with reference, alterity, and orientation.

In any event, we begin from the assumption that Huaca Ventarrón and the surrounding structures (Arenal) are a synthesis. It becomes a narrative constructed over time, a way of ordering ideas on and for the world. A way of making relationships comprehensible, inclusively, as a means of organising space, transforming it into landscape. Architecture cooperates sensitively to synthesise the world, from ideas on how things are and how they came to be as they are. It softens the river, the mountain, the winds, and the ocean. It justifies and values human actions. However, through imbalance, when fluidity is not evident (for example, catastrophes, or even a phenomenon such as the *Niños*), the apparent abandonment of the Huaca for a lapse in time seems to be a turnaround.

From this idea, this ordering is necessary given regional environmental issues (especially the climatic instability) and the necessity to understand the cycles as coherent to life, which Kaulicke (2009, p.12) calls Naturalised Architecture.

The cycles mark birth and death, in which time and space (materiality) present interrelated phenomena established as a unit, that is, a new synthesis. Thus, monumental architecture expresses and orders these conceptions. Its appearance on the mountain's western face, still in the Initial Formative period, may be associated with many questions that need to be understood, especially regarding the processes of socio-political complexity. However, from the point of view presented in this article, it appears as a movement of

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understanding, signification, and establishment of places that provide meaning to the landscape and the alignment between worlds (concrete or imagined), creating conditions for the continuity of occupations, which with each movement (in time), end up providing new meanings to the act of establishing the layers so well described by Cosgrove (1984), whereby humans establish a code or marker.

The geographical markers and the places are constituted as entities, which, like humans, are born, grow and die, an issue directly related to the animistic thought of the Andes. They are persistent places, as in the ways of Sarah Schlanger (1992), but remember that, from our point of view, persistence goes beyond materiality; it is also linked to perceptions and projections (FAGUNDES; ARCURI, 2023).

These cycles (renovation), according to Alva and Alva Meneses (2012, p.14-15), are marked by the appearance and collapse of ceremonial centres, in which at each moment of torrential rain (the *Niños*), the adobe architecture is damaged (its death), giving rise to a new stage (birth) with its restoration. Collapse, destruction, and tragedy are not the most coherent words to define these events, which are seen as vital cycles. Moreover, renovation may be linked to festive dates of the Andean calendar to rites of passage, which are specific events responsible for grouping people.

As Makowski (2006) has discussed for other important sites from the Initial Formative period, we have understood Ventarrón as a place that, given its physiographic dimensions, was used as a space for gatherings, for the pilgrimage of different groups that occupied the region for the execution of rituals, for festivities and even for encounters that guaranteed the perpetuation of memory, common ancestry, and alliances.

The complicit manner of construction - of ceremonial and monumental space for a community or an alliance of various communities - its maintenance, and occasional extensions constitute, in this context, a mechanism of materialisation of memory on the ritual bonds of kinship established through this means, periodically legitimised through shared rituals. This class of kinship probably determined marital alliances, guaranteeing, to a great extent, permanent exchanges of certain products and raw materials, rites of passage through foreign territory and, occasionally, cultivation in areas controlled by another confederate community (MAKOWSKI, 2006, p.187).

Therefore, we believe that Cerro Ventarrón took on the character of a centre of pilgrimage, of communion between different groups, responsible for reactivating fundamental precepts of the regional cosmography, proven by the various indicators of the presence of complementary dualities, be it in the architectonic design or the iconography

(ALVA MENESES, 2008; VEGA-CENTENO, 2017; FAGUNDES *et al*., 2019). The physiographic characteristics, in addition to the architectonic characteristics that structure this centre in Ventarrón, guaranteed the continual succession of distinct occupations, establishing, re-using, reinterpreting, and creating new places, which Schlanger defined as persistent places (SCHLANGER, 1992). From the union of these places, we have the landscape of Cerro Ventarrón, composed of distinct geographical markers and archaeological structures, paths, and histories that established narratives that are still present in the occupations on the north coast (FAGUNDES *et al*., 2019; FAGUNDES; ARCURI, 2023).

The early foundation of the monumental architecture of Huaca Ventarrón, directly related to the geographical markers, seems to mark a turning point in social conceptions of the world. It appears (and declines) at times in which new strategies must have been demanded for the synthesis and understanding of the relationships between the environment – humans – humans, from a multi-naturalist conception, where nature would gain greater control, to a new phase where the human presence is fundamental to the process of equilibrium.

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