HAL
open science

Liminality, pilgrimages and sacred places in El Médano rock art from the Atacama Desert

Benjamin Ballester

To cite this version:

Benjamin Ballester. Liminality, pilgrimages and sacred places in El Médano rock art from the Atacama Desert. The petroglyphs and sacred place, pp.101-121, 2022, 979-11-975744-4-3. hal-03834593

HAL Id: hal-03834593

https://hal.science/hal-03834593v1

Submitted on 30 Oct 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

2021년 울산암각화박물관
국제학술대회 학술총서

암각화와 신성한 공간

The Petroglyph
and Sacred Place

울산광역시
ULSAN METROPOLITAN CITY

울산암각화박물관
ULSAN PETROGLYPH MUSEUM

비매품/무료

93620
9 791197 574443
ISBN 979-11-975744-4-3

암각화와 신성한 공간 The Petroglyph and Sacred Place

울산암각화박물관
ULSAN PETROGLYPH MUSEUM

발간등록번호 57-6310000-000741-01

2021년 울산암각화박물관
국제학술대회 학술총서

암각화와 신성한 공간

The Petroglyph
and Sacred Place

울산암각화박물관
ULSAN PETROGLYPH MUSEUM

표지문양(왼쪽부터)

울주 대곡리 반구대 암각화의 새끼 업은 고래, 러시아 신(新) 잘라부르가 4지구 암각화의 스키 타는 사람, 핀란드 아스투반살미 암채화의 무스, 칠레 엘 메다노 암각화의 라마, 호주 무루주가 암각화의 해양동물 고리

발간등록번호 57-6310000-000741-01

2021년 울산암각화박물관
국제학술대회 학술총서

암각화와 신성한 공간

The Petroglyph and Sacred Place

울산암각화박물관
ULSAN PETROGLYPH MUSEUM

2021년 울산암각화박물관 국제학술대회 학술총서

암각화와 신성한 공간

The Petroglyph and Sacred Place

총 괄	김경진
진 행	윤근영, 박준철
교정·교열	윤근영, 박준철, 박유리, 김시윤
발 행 처	울산암각화박물관 울산광역시 울주군 두동면 반구대안길 254 전화 052-229-4797 FAX 052-229-4799 www.ulsan.go.kr/bangudae
발 행 일	2022년 5월 31일
발간등록번호	57-6310000-000741-01
ISBN	979-11-975744-4-3

일러두기

1. 이 책은 2021년 울산암각화박물관 국제학술대회 '암각화와 신성한 공간'(2021년 12월 13일 및 14일 개최)에서 발표된 내용을 모아 펴낸 것이다.

2. 인명·지명 등의 고유명사는 가능한 한 우리말 발음으로 표기하고, 필요한 경우 원어를 병기하였다.

3. 이 책에 게재된 사진과 도면 등의 저작권은 명시된 소유자들에게 있으며, 이를 무단으로 복제하거나 다른 용도로 사용할 수 없다.

2021 Ulsan Petroglyph Museum
50th Anniversary International Symposium on Daegok-ri Petroglyphs Discovery

The Petroplyphs and Sacred Place

Publication

Ulsan Petroglyph Museum
254 Bangudae-angil, Dudong-myeon, Ulju-gun, Ulsan
TEL. +82-52-229-4797
FAX. +82-52-229-4799
www.ulsan.go.kr/bangudae

Publication Date

2022. 5. 31.

ISBN

979-11-975744-4-3

Notes to Readers

1. This book is an international academic journal specialized in petroglyphs, and contains a revised version of manuscripts from the Ulsan Petroglyph Museum's 2021 International Symposium 'The Petroglyphs and Sacred Place'(held on December 13th and 14th, 2021).

2. Proper nouns including personal names and place names are written as they are pronounced in Korean, and the original words are written in parallel if necessary.

3. The copyrights of photographs and drawings in the journal are owned by specified copyright holders, and reproduction of materials and use for other purposes without permission are prohibited.

집필진

강봉원
경주대학교 문화재학과 특임교수

전호태
울산대학교 역사문화학과 교수

벤하민 바예스테르
칠레 프레콜롬비노 예술박물관 수석 큐레이터

조 맥도널드
호주 웨스턴오스트레일리아대학교 암각화연구센터장

얀 마그네 예르데
노르웨이 문화유산연구소 연구교수

나데즈다 V. 로바노바
러시아 카렐리야연구센터 선임연구원

배기동
동아시아고고학연구소장, 한양대학교 문화인류학과 명예교수

임경희
국립고궁박물관 학예연구관

손호선
국립수산과학원 남해수산연구소 자원환경과장

CONTRIBUTORS

Bong W. Kang
Professor by special appointment, Department of Cultural Resources Studies, Gyeongju University, S. Korea

Ho-tae Jeon
Professor, Department of History and Culture, Ulsan University, S. Korea

Benjamín Ballester
Curator in Chief, Museo Chileno de Arte Precolombino, Chile

Jo McDonald
Director, Centre for Rock Art Research + Management,
University of Western Australia, Australia

Jan Magne Gjerde
Research Professor, NIKU(Norwegian Institute for Cultural Heritage Research), Norway

Nadezhda V. Lobanova
Senior Researcher, Karelian Research Centre, Russia

Kidong Bae
Director of the Institute of East Asian Archaeology,
Professor Emeritus of Hanyang University

Kyoung-hee Lim
Senior Researcher, National Palace Museum of Korea, S. Korea

Hawsun Sohn
Director, Fisheries Resources and Environment Research Division,
South Sea Fisheries Research Institute, National Institute of Fisheries Science, S. Korea

목차

011 반구대 및 천전리 암각화 : 편년 및 생업경제
강봉원

061 천전리 각석으로 본 신라인의 바위 신앙과 신성 공간
전호태

087 칠레 아타카마 사막의 엘 메다노 바위그림에 담긴 리미널리티, 순례와 성스러운 장소
벤하민 바예스테르

123 고래, 고래 사냥꾼, 고래 잔치 : 오스트레일리아 암각화의 관점에서
조 맥도널드

155 수렵-어로-채집 암각화와 성스러운 장소 : 페노스칸디아 지역을 중심으로
얀 마그네 예르데

173 오네가호 암각화의 신성한 공간
나데즈다 V. 로바노바

대중강연

209 세계유산으로서 반구대 암각화 : 지정을 위한 전략과 인류의 보편적 유산의 주체로서 자부심
배기동

241 세계유산이란 무엇인가
임경희

273 반구대 암각화 고래가 들려주는 이야기
손호선

CONTENTS

035 The Petroglyphs of Cheonjeon-ri and Bangudae in Korea : Focused on Chronologies and Subsistence Patterns
Bong W. Kang

073 Rock Worship and the Sacred Place of Silla Based on Cheonjeon-ri Petroglyphs
Ho-tae Jeon

101 Liminality, Pilgrimages and Sacred Places in El Médano Rock Art from the Atacama Desert
Benjamín Ballester

137 Whales, Whalers and Whale Feasts : A Matter of Perspective in Australian Rock Art
Jo McDonald

163 Hunter-fisher-gatherer Rock Art and Sacred Space : Cases from Fennoscandia
Jan Magne Gjerde

189 Sacred Space of Onega Lake Rock Art
Nadezhda V. Lobanova

Public Lectures

223 The Bangudae Petroglyphs as World Heritage - Esteemed National Treasure and Strategies for Inscription
Kidong Bae

255 What is World Heritage?
Kyoung-hee Lim

281 A Whale Tale Told by the Bangudae Petroglyphs
Hawsun Sohn

Liminality, Pilgrimages and Sacred Places in El Médano Rock Art from the Atacama Desert

Benjamín Ballester
Curator in Chief, Museo Chileno de Arte Precolombino

CONTENTS

I. Introduction
II. Living along the Atacama Desert coast before the European arrival
III. The rock art sites of El Médano: topics, representations, numbers and locations
IV. Off-shore pilgrimages and liminality in the absolute desert
V. Rock art as material mechanisms for liminal experiences
VI. Liminality, pilgrimages and sacred places : a few final words

Ⅰ. Introduction

El Médano rock art is one of the world's most fascinating visual expressions of past human–cetacean relationships. These paintings were created during pre–Columbian times by marine hunter–gatherers who lived on the shores of the Pacific Ocean along the coast of the Atacama Desert, in present–day northern Chile and directly within the west–central part of the South American continent. Although the expressions and motifs depicted in these paintings have been extensively studied, the reasons for their geographical location remain unknown, as most of them are located in ravines that are difficult to access, deep in the desert, several kilometers away from the sea and distanced from residential areas.

This text explores the problem concerning the geographical location of these visual expressions in relation to the general settlement pattern of human populations. It is proposed that rock art sites acted as material mechanisms to ensure the function of a pilgrimage system

from coastal residential spaces to the interior of the desert in search of raw materials and to establish exchange networks with other populations. Within the context of these pilgrimages, the paintings would have served as ritual installations for enduring liminal experiences, due to their umbral position inside ravines that were used as transit routes into the interior. The symbolic efficacy of these paintings in the context of pilgrimages would have been responsible for the sacralization of these rock art sites in coastal societies.

II. Living along the Atacama Desert coast before the European arrival

The archaeology of the Atacama Desert has shown that the preferred areas of human settlement in pre-Columbian times were generally concentrated in niches with abundant resources, such as the valleys, oases and ravines of the interior, as well as the Pacific Ocean coast (Figure 1). In some periods these privileged spaces were inhabited continuously over an unbroken timeline, while in others they were used only seasonally or sporadically within larger circuits of mobility (Núñez & Dillehay 1979). What is certain is that these niches or patches are unevenly distributed in the desert, distanced from each other by dozens of kilometers without the resources necessary for human life. This geographical and environmental scenario marked differences between the peoples settled in distinct places, but also promoted strategies of mobility and social interaction over long distances (Berenguer 2004; Gallardo et al. 2022; Pimentel 2012).

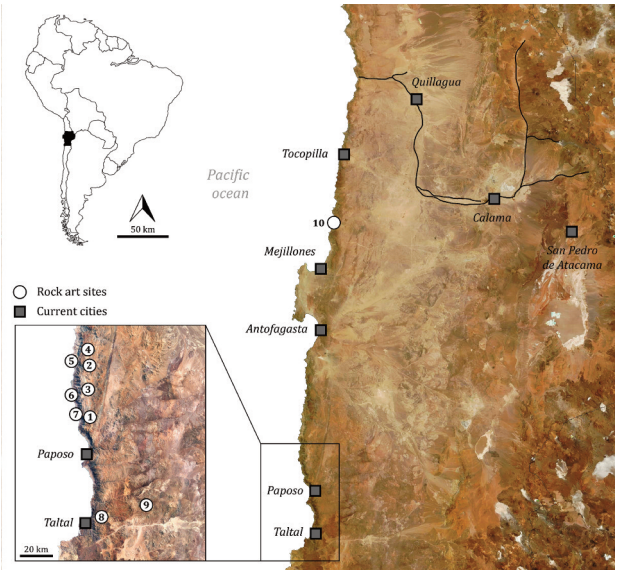

Figure 1. Map showing the location of the main rock art sites of El Médano

The littoral of this desert was one of the areas with the greatest

population concentration during the pre-Columbian past. This coastline can be metaphorically described as a hinge: an axis slightly inclined to the meridians that unites and at the same time separates two completely different worlds, the Pacific Ocean and the Atacama Desert. Thanks to the Humboldt Current and the coastal upwelling system, which constantly feed cold waters rich in nitrogen and phosphorus to the near-shore water mass, this coastline is one of the richest and most productive marine environments in the world (i.e. Alheit & Niquen 2004; Escribano et al. 2002; Marín et al. 1993; Morales & Lange 2004; Thiel et al. 2007). On land, and far from the sea, the environmental conditions are the opposite, as the Atacama Desert is one of the most arid and extreme environments on the planet, characterized by very low precipitation rates and reduced, sectorized and variable primary productivity (i.e. Clarke 2006; Marquet et al. 1998; McKay et al. 2003; Weischet 1975).

At the geomorphological level, the most outstanding feature of the coastline is a pronounced mega cliff that is part of a mountain range located along the entire coastal axis, with an average height of 700 masl, but reaching 2000 masl at the highest points a few kilometers from the shoreline (Figure 1) (Paskoff 1978/1979; Velozo & Sánchez 1991). Between the cliff and the sea lie three ancient marine abrasion terraces that form an open, slightly sloping plain, which does not exceed 2.5 kilometers in its widest section (Figure 2). To the east of this coastal range is the pampa, composed of vast, endless sandy plains and absolute desert, which extends at least as far as the foothills of the Andes (Figures 3 & 4).

Figure 2. Aerial photograph of the coastal platform of the Atacama Desert.
View towards the south in the sector of the mouth of the Loa River, Antofagasta.

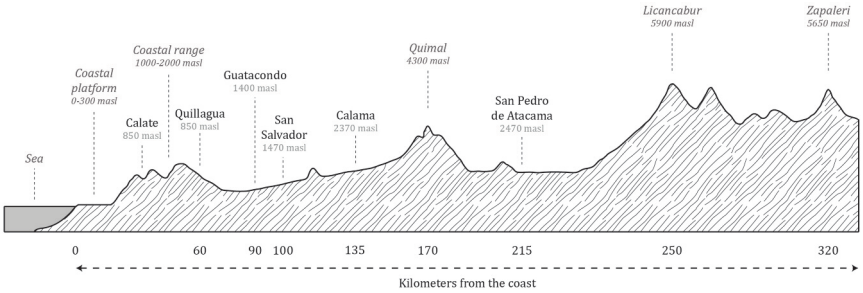

Figure 3. Diagram of the cross-sectional profile of the Atacama Desert, from the Pacific Ocean (left) to the Andes Mountains (right).

Figure 4. Photographs of different views of the coastal mountain range: (a) eastern part of the coastal mountain range, near the pampa; (b) view of the peak of the coastal mountain range, to the left the desert and to the right the mist covering the ocean; (c) the interior of the Izcuña ravine that crosses the coastal mountain range.

This coast has no rivers draining into the sea. From Quebrada de Tiliviche in Pisagua (19° 33'S) to Quebrada de Chañaral (26° 20'S), there are more than 800 linear kilometers of coastline with no rivers flowing into the ocean. The Loa River, practically located in the middle of this coastline, is the only river that flows into the sea, making it a privileged ecosystem (Gutiérrez et al. 1998; Marquet et al. 1998). Along this littoral, however, there are countless underground springs located at different points of the coastal platform and the coastal mountain range, fed by the filtration of mist from the cliffs and hills (Bravo 1980; Craig 1982; Herrera & Custodio 2014; Núñez & Varela 1967/1968).

Human life was concentrated on the coastal plain adjacent to the shoreline (Figure 2), usually associated with the springs and in bays sheltered from the winds. From here people had direct access to the rocky intertidal zones and the sea, where the richest sources of proteins in the whole region can be found. From the time of the first coastal settlement (12,000 cal BP) until the arrival of European outsiders (~1540 BC), it was on this platform that human communities established their residences and villages, as well as their cemeteries and many of their activity areas. It was here that the bulk of their daily, family and community life took place. It is also here that archaeology has identified the remains of their domestic shell middens, of their villages and habitational structures, their dense cemeteries and some of their task camps (i.e. Ballester et al. 2017; Berdichewsky 1965; Bird 1943; Bittmann 1984; Bittmann & Munizaga 1984; Boisset et al. 1969; Borie & Soto 2011; Gallardo et al. 2017a; Mostny 1964; Núñez 1971, 1984; Salazar et al. 2015; Spahni 1967).

Their material culture shows, however, that their world exceeded the long, narrow coastal platform where they lived. Firstly, some of the objects they possessed were not manufactured on the coast but in inland valleys and oases, such as ceramics and textiles (except in the late period), cultivated vegetables, foreign animals and certain wooden and metal artefacts (i.e. Ballester & Gallardo 2011, 2017; Carrasco et al. 2017; Correa et al. 2018, 2019; Gallardo et al. 2017b; Labarca et al. 2017; Spahni 1967; Núñez 1985, 1987). Secondly, some of the objects that the littoral inhabitants themselves elaborated were also made from raw materials that are not native to the coastal platform or immediate to the coastline. This is the case, for example, of most of their bifacial lithic industry, such as knives and projectile points, for which they used a very particular type of rock, whose sources have been located in the interior of the desert, to the east of the coastal mountain range and at least as far as the foothills of the

Andes (Figure 3), at a distance of between 20 and 120 kilometers inland from the shoreline (i.e. Ballester & Crisóstomo 2017; Blanco 2017; Blanco et al. 2010; Borie et al. 2017; Mostny 1964; Núñez 1984; Peralta et al. 2010; Uhle 1917, 1917).

The harpoons they used to hunt at sea are an extraordinary example of this phenomenon (Ballester 2018a, 2020, 2021). Objects assembled from multiple parts, each made from a unique raw material: wood from trees and bushes, lithics from silica – rich rocks, bones from wild camelids, cactus spines, cotton fibers, animal sinews and leathers, mineral pigments, plant resins, copper metal and bones from marine mammals. The most interesting thing about these technical objects is that practically all the raw materials they are made of do not come from the sea – the environment where the harpoons are ultimately used – or from the coastal plain – the place where these people live – but from the interior desert, in some cases hundreds of kilometers to the east of their homes and the ocean.

As mentioned, the lithic workshops are located dozens of kilometers inland in the desert, sites that have been defined as logistical and task sites (i.e. Ballester & Crisostómo 2017; Blanco 2017; Blanco et al. 2010; Borie et al. 2017; Mostny 1964; Núñez 1984; Peralta et al. 2010; Uhle 1916, 1917). The sources of copper ores and iron oxides, used for pigment and metals, are mostly located in the coastal mountain range and the pampas, ranging from five to thirty kilometers to the east (Arce 1997[1930]; Guevara 1925; Mostny 1964; Salazar et al. 2010a, 2010b, 2011, 2013). For wood, on the other hand, mainly trees from the interior desert were exploited, and to a lesser degree bushes from the coastal mountain range (Grimberg et al. 2022). With regard to animal bones, a low proportion of marine mammals and a very high proportion of camelids were used, the latter being a terrestrial animal that circulates in the desert and only occasionally descends to the coastal platform (Ballester 2020). The cactus from which the thorns were obtained live above 600 masl in the coastal mountain range, at a distance of 5 to 20 kilometers from the coast. Cotton, finally, does not grow naturally on the coast of Antofagasta and is native rather to the mesothermal valleys further north (Arica) and south (Copiapó), as well as inland (Guatacondo and Tarapacá).

The types of archaeological sites that have been recorded on the coastal platform and inland (coastal range and pampas) are substantially different. On the coastal platform there are large shell middens, villages and camps with formal architecture, all of which are typical sites of a collective residential setting (Ballester et al. 2017; Bittmann 1984; Bird 1943; Boisset et

al. 1969; Larrain 1966; Núñez 1971; Salazar et al. 2015). Its cemeteries and burial sites are also found here, some of which may even contain more than 300 human graves (Gallardo et al. 2017a; Mostny 1964; Núñez 1971; Spahni 1967). In addition, there are innumerable task and camp sites of different types, such as small shell middens, rock shelters, hunting and butchering sites, and pedestrian transit routes, among many others (Berdichewsky 1965; Borie & Soto 2011; Castelleti 2007). In the coastal mountain range and the pampas, on the other hand, there is no record of collective domestic sites or cemeteries like those on the coastal platform. There is, however, a record of some isolated tombs associated with inland transit routes, as well as camelid hunting sites, lithic workshops, pigment, copper and gypsum mines, and minor rest camps (Ballester & Crisóstomo 2017; Blanco et al. 2017; Borie et al. 2017; Cases et al. 2008; Castellón & Ballester 2022; Larrain et al. 2005; Pimentel 2012; Pimentel & Ugarte 2017; Pimentel et al. 2011, 2017; Torres-Rouff et al. 2012).

This means that, although the daily life of these people took place largely within the coastal platform and by the sea, where their residences and cemeteries were located, and from where they obtained the food they consumed in greater abundance through fishing, hunting and marine gathering, their material world depended on a much wider territory that also included the interior desert, either to access the raw materials they used in their artefacts or to make contact with other peoples living in the valleys, ravines and eastern oases. The available evidence suggests that not the entire social collective went into the interior of the desert, but only specialized groups, as the camps were small and oriented towards very specific tasks. For a few of them, entering through the desert meant leaving their everyday spaces, their own immediate world full of resources and security, to enter into an arid and rugged environment, with few resources and which was full of insecurities. It was an interior in which other people did not necessarily live, and if there were any people, they were not part of the same social collective that resided on the coast, with all the uncertainties and dangers that this entailed.

Ⅲ. The rock art sites of El Médano: topics, representations, numbers and locations

One of the most impressive expressions of art made by those who inhabited the coast of the Atacama Desert during the pre-Columbian era is the El Médano rock art (i.e. Ballester 2018b, 2018c; Ballester & Gallardo 2016; Ballester & Ungemach 2020; Berenguer 2009; Castelleti 2020; Gallardo 2018; Gallardo et al. 2012; Mostny & Niemeyer 1983, 1984; Niemeyer 2010; Núñez & Contreras 2003, 2006, 2008). These are red-colored paintings based on iron oxides, which portray realistic, naturalistic and figurative images linked to the sea and oceanic practices, especially featuring aquatic animals, boats and marine hunting scenes with harpoons, although quadrupeds, anthropomorphs and geometric motifs also appear in smaller proportions (Figure 5).

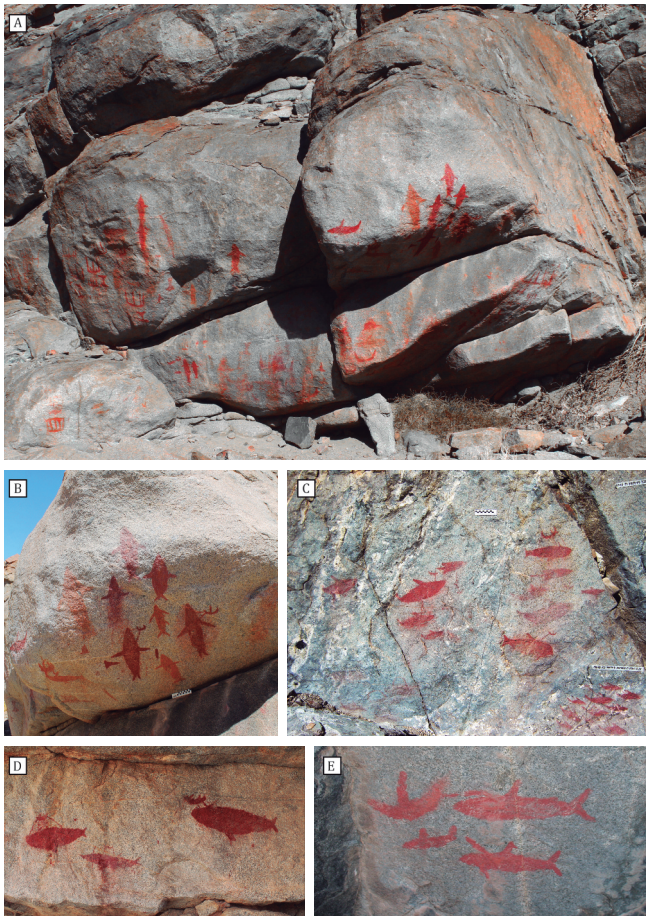

Figure 5. Multiple photographs of some of the El Médano rock art paintings, taken at the Izcuña and El Médano sites (photographs by Benjamín Ballester and Francisco Gallardo).

The naturalistic and realistic character of these representations, together with the delicate technique with which some of them were painted, has allowed deep and accurate interpretations of the possible referents behind these images (i.e. Ballester et al. 2018, 2019; Berenguer 2009; Mostny & Niemeyer 1984; Niemeyer 1989; Núñez & Contreras 2008). In the case of animals, different species of dolphins and whales have been identified through various methods, along with porpoises, swordfish, sharks, turtles, otarides, cuttlefish and camelids. Hunting strategies have been interpreted on the basis of the relationship between the number of prey and boats, the number of sailors per raft, the number of harpoon lines and the parts of the animal's body to which they were attached.

The name of this rock art comes from the site where it was first recorded, the El Médano ravine, a place located 22 kilometers north of the town of Paposo and 120 kilometers south of the city of Antofagasta (Figure 1:1). Currently, more than a dozen sites with this kind of rock art are known in the region (Figure 1) (Ballester 2018c; Ballester et al. 2015; Monroy et al. 2016; Núñez & Contreras 2008). Most of them are concentrated around the towns of Paposo and Taltal, although the discovery of a painting located more than 250 kilometers to the north (Figure 1:10) has opened the question of whether their absence in other areas is not just a consequence of the lack of systematic surveys and searches for this type of site. Surely, over time, new sites of this type will continue to be discovered in the region as research projects and as desert explorations progress.

So far, there are three types of sites where this rock art has been recorded: rock shelters, narrow ravines and open-air lithic workshops. These three are distinguishable by several factors (Table 1), one of which is their location: the first of these are located on the coastal platform and often along the coastline; the second are located in ravines in the coastal mountain range, between 600 and 1300 masl, at a distance of between 5 and 13 kilometers inland from the coast; the third and last, with only one known case so far, is located in the desert pampa, 37 kilometers from the coast (Monroy et al. 2016).

Theis classification of sites is further differentiated by the concentration of paintings in each site (Table 1): the rock shelters generally exhibit only a few paintings (Ballester & San Francisco 2018), while in the ravines hundreds of motifs can be condensed – as an example, in the Izcuña site alone, 568 motifs were recorded (Ballester & Ungemach 2020)– ; the pampa site, on the other hand, has an intermediate amount of paintings (Monroy et al. 2016).

Likewise, the references depicted in the paintings differ in each type of site (Table 1): while in the ravines and the pampas the entire iconographic universe of this rock art is present, in the coastal rock shelters there are no scenes of marine hunting with rafts, with the exception of one motif.

Finally, the sites also offer dissimilar contextual associations (Table 1): the rock shelters have significant deposits linked to food consumption and the manufacture of artefacts related to domestic and task activities; the quebradas, on the other hand, although they are the largest sites, have no other evidence beyond the paintings, with no middens or refuse, structures or any other activity areas; the third type is a lithic workshop and corresponds to a task camp to exploit the local sources of the silica-rich rocks.

Type of site	Rock shelter	Narrow and steep ravine	Open air
Location	Coastal platform	coastal mountain range	Pampa
Distance from coast	0~1km	5~13km	37km
Altitude	0~100masl	600~1,300masl	1547masl
Number of paintings	+	+++	++
Motifs	Sea animals	Sea animals, hunting scenes, rafts, camelids, humans, geometrics	Sea animals, hunting scenes, rafts, camelids, humans, geometrics
Contexts	Domestic deposits and task activities	Exclusively rock art	Lithic workshops and task activities

Table 1. Achaeological elements and attributes that distinguish every type of site of El Médano rock art.

As can be seen, the distribution of this rock art exceeds the coastal platform where these groups carried out most of their daily and domestic life, where their villages, shell middens, habitations, cemeteries and other funerary spaces were located. In fact, so far none of these paintings have been recorded in a stable residential camp or village, and in the few cases in which there are paintings on the coastal platform they are found on small rock shelters. This rock art seems to respond, therefore, to the external geography, of non-residential spaces, which integrates the coastal mountain range and the desert pampa, territories where only task sites related to different productive activities (lithic, wood, pigments, water, animal hunting, etc.), transit routes, isolated tombs and small resting camps have been identified, but in no case collective residential camps or cemeteries as such.

Ⅳ. Off-shore pilgrimages and liminality in the absolute desert

Arnold van Gennep (2013) argues that people's lives are a succession of different social states, and their progression depends on a particular series of ceremonies that mark the passage from one particular situation to another equally particular situation: birth, puberty, adulthood, marriage, parenthood, change of class or social status, job specialization, and so on. These transformations of state also occur on a geographical scale, as crossing borders and boundaries is always accompanied by formalities of a political, legal, economic, symbolic and even magical order. Formalities that constitute, to a certain degree, rites of passage that allow for the correct transit from a state linked to one social space to another state connected to another social space. This last aspect considers that people are, to a large extent, a function of the space they occupy, and that, therefore, they will never be exactly the same at home or in their bedroom, as they are at work or at an academic conference, because these spaces embody their social realities (Tilley & Cameron-Daum 2017).

But not all physical movements are marked by the same rites of passage, and their nature and quantity depends on the contrast between the spaces crossed. Pilgrimages are emblematic in this sense, as they involve drastic transformations in people's lives as they move from their usual place of residence to distant and unfrequented spaces, which is the reason why they are often subject to powerful rites of passage. A Pilgrim is, according to dictionaries, a person who moves through strange lands, from one place to another in search of something or to resolve something, but also travelling, wandering or vagabonding. To peregrinate is to leave one state, spatially and socially determined, to enter another, also spatially and socially determined. It implies emigrating from the everyday, the habit, the one's own, the control, the known, the familiar, the security and the comfort, to move outside the margins of the previous situation, towards the periphery, where the unknown, loneliness, uncertainty, the unfamiliar, the strangeness and insecurity reign (Turner 1974). Every pilgrimage involves, therefore, a liminal experience, insofar as it implies crossing a limen or an umbral that separates two worlds, two states, two situations and two completely different social spaces.

Although pilgrimages are usually associated with religious motivations, the truth is that they can also respond to exclusively secular and profane factors -such as tourism or work-, as well as to objectives that mix multiple interests and reasons (Eade & Sallnow 2000; Magry

2008; Reader & Walter 1993). Pilgrimage may even be the consequence of a need to move or displace, without major or transcendental purposes. However, the consolidation of a pilgrim custom within a society often endows pilgrimage and its associated spaces with a sacred value, sacralizing the routes and their practices, as well as the final destination of these journeys (Turner 1974). Understood in this sense, pilgrimage can not only be promoted for sacred purposes, but also produce sacred situations, customs and places.

As a result, pilgrimage is impregnated with deep symbolism and imagery that shape the ways in which geographical movements are conceived and carried out, giving a preponderant role in their achievement to rites of passage. Van Gennep (2013, p.45) classifies these rites of passage into three broad categories: "preliminary rites", for those aimed at the separation from the previous world, from one's own, everyday space; "liminal rites", which consider those that are performed during the very stage of margin, in crossing the boundary that separates the states; and, finally, "postliminary rites", in the case of those executed at the moment of incorporation into the new space and new social situation.

Given the particular geography of the Atacama Desert and the way in which it was occupied by humans in the pre-Columbian era, it is clear that some of the movements from the coastal platform to the interior desert may have taken the form of pilgrimages, since these were sporadic journeys carried out by a smaller fraction of the population, whose point of origin was their place of residence and their destination was the periphery or the margins of their territory. These pilgrimages to the interior of the desert, whether to access to raw materials or to engage in exchanges with other human groups, implied moving from a state and social space marked by a domestic, everyday, internal, familiar, secure and controlled situation, to another state and social space linked to situations of uncertainty, strangeness, unfamiliarity, insecurity and mystery. It represented leaving the coast and moving away from the sea, home and kinship, to explore remote lands where none of these existed. To go into the interior of the desert was then a liminal experience, as it constituted crossing an umbral to move from one state to another, from one space to another, from one reality to another.

V. Rock art as material mechanisms for liminal experiences

In order to initiate the pilgrimages from the littoral to the interior desert, it was necessary to first cross the coastal mountain range (Figure 3). This extensive mountain range constituted the western limits of the residential territory of these coastal collectives, a geomorphological landmark that was difficult to access and required a certain amount of organization and knowledge in order to be flanked. The ravines are, even today, the natural and simplest route to cross the coastal mountain range, thus avoiding the high peaks and steep cliffs (Figure 4). Considering these aspects, the coastal mountain range and the ravines that cross it could be defined as the threshold or the limen that separates the social space of the coastal platform from the social space of the pampa and the absolute desert.

It is in this place, paradoxically, where the largest amount of pre-Columbian paintings attributable to El Médano rock art is concentrated (Figure 5). Their location deserves special attention, as they are not condensed on the coastal platform where this population resided most of the time, much less next to their living camps (villages and shell middens) or where they buried their dead (cemeteries). Rather, they are concentrated in an area bordering their residential territory, just outside the sphere of their everyday and domestic life, at the exit or access gates to the absolute desert (Figure 6). This is a locational condition that is surely not accidental, but the consequence of a particular logic of production of these visual expressions, considering that the value of these paintings lies simultaneously in their allusion and their location: in the reference to the marine world but consciously displaced from the marine world, in the fact that it inscribes an emblematic oceanic activity precisely in the boundaries of their territory, but more importantly, in a place where this activity does not exist and can never exist in a natural way.

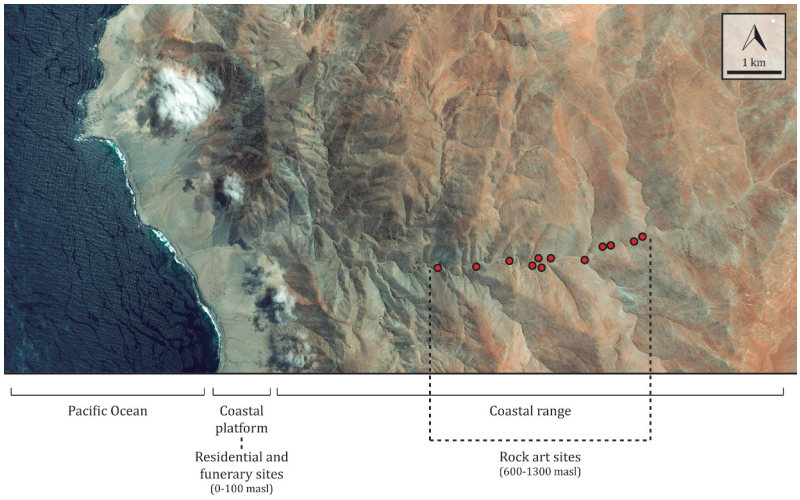

Figure 6. Aerial photograph of the coastline and the coastal mountain range of the Atacama Desert in the area of the Izcuña ravine. The red dots correspond to the points of concentration of paintings at the Izcuña archaeological site.

In this context, it does not seem unreasonable to propose that the El Médano rock art has functioned as a material mechanism to import the sea and its experiences into the desert, to transfer what is one's own to what is foreign, to embody the world of the unknown into a world of habit. A visual gesture that introduces symbols of everyday coastal life, such as the sea, its beings and its social practices, into the desert where none of this really exists. The purpose behind depicting these marine paintings in this particular place may have been to give an intimate sense of their personal existence to a liminal space, in order to transfer the oceanic everydayness and the intimate coastal scenery into a geographical environment that constitutes the external margin of their residential territory, the physical boundary that separates them from the absolute desert.

Through this singular material gesture, the liminal space is imbued with ontological certainty, in this case, to the coastal mountain range as an umbral to other social spaces located in the interior of the desert. The El Médano rock art, painted in the ravines of the coastal mountain range, would therefore function as a material mechanism that acts during the rites of passage as a way to overcome the transliminal experiences in the pilgrimages towards the absolute desert. Specifically, and returning to van Gennep's (2013) categories, these would be visual installations linked to the "liminal rites" that ensure the correct passage through the limen. If this interpretation is true, the expressions of this same rock art located in other

social spaces, such as the few rock shelters with paintings on the coast or the only known open-air site with paintings in a lithic workshop in the pampa, could also be material mechanisms of other kinds of rites of passage linked to these pilgrimages, in the first case, in what van Gennep (2013) defines as "preliminary rites" (of an anticipatory nature), and in the second, for "postliminary rites" (in the states or spaces of destination). This would explain the location of these unique paintings in three different social spaces as part of the same ritual sequence, all three cases operating as ritual devices during the pilgrimages towards the inner desert.

It was probably in the temporal and practical succession of these pilgrimages that these rock art sites were able to acquire a sacred character due to their positive functionality in order to carry out journeys between different social states and spaces in a safety and symbolically coherent form. The transformation of these paintings and their immediate spaces into sacred sites lies precisely in their symbolic efficacy in undertaking inland journeys to supply resources and establish exchanges with other peoples. Thus, rock art is sacralized as a ritual technology within the framework of liminal pilgrimages, as an intermediate or mediating space, as a crossing and umbral point.

Ⅵ. Liminality, pilgrimages and sacred places : a few final words

Although the research focus about the El Médano rock art as been, until now, addressed mainly towards the painting's referents –the marine creatures and practices–, the fact is that its geographical location and position in the settlement pattern of the people who created it has an enormous study potential for a better understanding of the role of this rock art in the coastal society of the Atacama Desert. The central theme and the location of the El Médano paintings are linked, anchored, bonded together; one responds to the other, as mutually dependent domains of the painting. The reference to the marine world –beings and practices– is explained by its location –umbral–, just as its location –periphery– is explained by its reference to the marine world –home and everyday life–.

Despite the fact that this reflection is no more than a simple hypothesis, it raises new perspectives and insights to understand the social value of these visual expressions. Unlike previous interpretations of El Médano, in this case their sites are not conceived as a destination

or a place to be reached, but rather as a mediating device or a symbolic mechanism inserted into a much broader machinery: the pilgrimage through the desert and the very political economy of this coastal people. Art is thus revealed in its purely social sense, immersed in a complex and enormous network of meanings.

Now, to go just a little further, the experience of the desert pilgrimage must have endowed its pilgrims with a unique and exclusive body of knowledge, proper and distinctive, which marked a difference in wisdom between those who had travelled and those who hadn't. The liminal experience thus builds social structures and distinctions through the differential acquisition of symbolic and phenomenological capital as a consequence of the pilgrimage. It also creates a restricted audience for the visual expressions used as installations in liminal rites, and therefore turns these graphic productions into tools for social structuration.

Following some of the remarks made by Michel Foucault (2004 [1967]), the rock art sites of El Médano can be conceived simultaneously as two kinds of places: both as utopias and as heterotopias. They are utopias because they express the marine dreams and hopes of a people, success and productive hunting, capture and accomplishment in a place where it is impossible for this phenomenon to actually occur. But they are also heterotopias in the sense that they are not just dreams, they are not solely ideas, because they have been materialized on the rock of the ravines, actively participating in the liminal rites by which they reach the desert. These rock art sites are therefore mirrors that, on the one hand, reflect dreams and utopias, and on the other, imprint material realities and physical concretions of these ideas that directly influence the lives of these people.

The most interesting thing is that today, centuries after they were painted on the stones, these rock art sites continue to be regular places of pilgrimage from the main cities and populated centers of the region. Even visitors from the rest of Chile and other countries come week after week in search of the unknown or looking for new experiences to break up their daily lives. These archaeological sites have now become centers of tourist pilgrimage for cultural and heritage purposes, now with completely different motives to those they had during their pre-Columbian era. Society and people have changed, but these paintings continue to carry the quality of sacred sites, today with other values and meanings, while also in the framework of other kinds of pilgrimages.

References

Alheit, J. & M. Niquen 2004. Regime shifts in the Humboldt Current ecosystem. Progress in Oceanography 60:201–222.

Arce, I. 1997[1930]. Narraciones históricas de Antofagasta. Lama Industriales, Antofagasta.

Ballester, B. 2018a. Tecnología de arponaje en la costa del desierto de Atacama, norte de Chile. Estudios Atacameños 57: 65–95.

Ballester, B. 2018b. El Médano rock art style: Izcuña paintings and the marine hunter–gatherers of the Atacama Desert. Antiquity 92(361): 132–148.

Ballester, B. 2018c. Rock art, marine hunting and harpoon devices from the Atacama Desert coast, northern Chile. In Whale on the Rock II, edited by Sang–mog Lee, pp. 93–115. Ulsan Petroglyph Museum, Ulsan.

Ballester, B. 2020. Entre mer et désert: techniques, savoir–faire et design d'un type de harpon sur le littoral d'Atacama (nord du Chili). In Artisanat et savoir–faire: archéologie des techniques, edited by F. Bouché, L. Bouzaglou, A. Pinto & P. Sauvegeot. Collectión Archeó.doct, Éditions de la Sorbonne, Paris.

Ballester, B. 2021. Arpones precolombinos de Antofagasta. Acople de partes, collage de materiales, ensamblaje de seres y mosaico de paisajes. En Ensamblajes del pasado. Lugares, objetos y reflexiones, pp. 99–136, edited by D. Quiroz. Ediciones de la Subdirección de Investigación, Santiago.

Ballester, B. y Crisóstomo, M. 2017. Percutores líticos de la pampa del desierto de Atacama (norte de Chile): Tecnología, huellas de uso, decoración y talladores. Chungara, Revista de Antropología Chilena 49: 175–192.

Ballester, B. & F. Gallardo 2011. Prehistoric and historic networks on the Atacama Desert coast (northern Chile). Antiquity 85: 875–889.

Ballester, B. & F. Gallardo 2016. Painting a lost world. The red rock art of El Médano. Current World Archaeology 77: 36–38.

Ballester, B. & F. Gallardo 2017. Reflexiones sobre valor e intercambio de objetos en la costa de Atacama. Taltalia 10: 53–64.

San Francisco, A. & B. Ballester 2018. Antiguos aleros al norte de Paposo. Taltalia 11: 7–35.

Ballester, B. & C. Ungemach 2020. Un mar de formas: exploración de la variabilidad estilística del arte rupestre de El Médano desde el sitio de Izcuña, norte de Chile. Cuadernos de Arte Prehistórico, NE 1: 189–214.

Ballester, B., F. Gallardo & P. Aguilera 2015. Representaciones que navegan más allá de sus aguas: una pintura estilo El Médano a más de 250 km de su sitio homónimo . Boletín de la Sociedad Chilena de Arqueología, 45 : 81–94.

Ballester, B., E. Calás, C. Pelegrino, E. Vidal & P. Aguilera 2017. La vida en comunidad de los cazadores–pescadores marinos del desierto de Atacama (4000–2000 cal. a.C.). In Monumentos funerarios de la costa del desierto de Atacama. Los cazadores recolectores marinos y sus intercambios (500 a.C.–700 d.C.), edited by F. Gallardo, B. Ballester y N. Fuenzalida, pp. 183– 197. CIIR & SCHA, Santiago.

Ballester, B., R. Labarca & E. Calás 2018. Relaciones entre tortugas marinas y seres humanos en la costa de Atacama: dos ejemplos arqueológicos. Boletín del Museo Chileno de Arte Precolombino 23(2):143–162.

Ballester, B., J. Gibbons, D. Quiroz & J. Álvarez 2019. Aletas, colas, arpones, líneas, balsas y cazadores: Nuevas pinturas para nuevas miradas sobre el estilo de arte rupestre de El Médano (norte de Chile). In Actas del XX Congreso Nacional de Arqueología Chilena, pp. 87–106. Editorial Universidad de Concepción, Concepción.

Berenguer, J. 2004. Caravanas, interacción y cambio en el desierto de Atacama. Sirawi Ediciones, Santiago.

Berenguer, J. 2009. Las pinturas de El Médano, norte de Chile: 25 años después de Mostny y Niemeyer. Boletín del Museo Chileno de Arte Precolombino 14(2): 57–95.

Berdichewsky, B. 1965. Exploración arqueológica en la costa de la provincia de Antofagasta. Antropología 2:3–30.

Bird, J. 1943. Excavations in northern Chile. Anthropological Papers of the American Museum of Natural History 38(4): 173–318.

Bittmann, B. 1984. El Proyecto Cobija: investigaciones antropológicas en la costa del Desierto de Atacama. In Actas 44° Congreso Internacional de Americanistas, simposio Culturas Atacameñas, pp. 99–146. Manchester.

Bittmann, B. & J. Munizaga 1984. Evolución en poblaciones precolombinas de la costa norte de Chile. Chungara, Revista de Antropología Chilena 13: 129–142.

Blanco, J., M. De la Maza, M. & C. Rees 2010. Cazadores–recolectores costeros y el aprovisionamiento de recursos líticos. Perspectivas interpretativas de los eventos de talla en el desierto absoluto. Werkén 13: 45–68.

Blanco, J., I. Correa, C. Flores & G. Pimentel 2017. La extracción prehispánica de recursos minerales en el internodo Quillagua–Costa, desierto de Atacama. Estudios Atacameños 56: 77–102.

Boisset, G., A. Llagostera & E. Salas 1969. Excavaciones arqueológicas en Caleta Abtao. Antofagasta. In Actas del V Congreso Nacional de Arqueología, pp. 75–152. DIBAM, La Serena.

Borie, C. & C. Soto 2011. Prospecciones arqueológicas en la costa norte de Taltal. Taltalia 4: 85–101.

Borie, C., X. Power, S. Parra, H. Salinas, P. Rostan, P. Galarce, I. Peña & F. Traverso 2017. Tras la huella del sílice pampino: Nuevas metodologías para el rastreo de las áreas fuente de aprovisionamiento lítico en Taltal. Estudios Atacameños 56: 103–131.

Bravo, R. 1980. Estudio de la costa de Cobija: el factor geomorfológico y la existencia de agua. In Cobija: proyecto de investigaciones interdisciplinarias en la costa centro sur andina, edited by B. Bittmann, pp. 31–47. Universidad del Norte, Antofagasta.

Carrasco, C., I. Correa, C. Belmar, B. Ballester & F. Gallardo 2017. Cocinando relaciones interculturales: residuos adheridos en vasijas cerámicas de grupos cazadores recolectores marinos del desierto de Atacama (Período Formativo, norte de Chile). Estudios Atacameños 55: 85–108.

Cases, B., C. Rees, G. Pimentel, R. Labarca & D. Leiva 2008. Sugerencias desde un contexto funerario en un "espacio vacío" del desierto de Atacama. Boletín del Museo Chileno de Arte Precolombino 13(1): 51–70.

Castelleti J. 2007. Patrón de asentamiento y uso de recursos a través de la secuencia ocupacional prehispánica en la costa de Taltal. Master dissertation, Universidad Católica del Norte, Antofagasta.

Castelleti, J. 2020. Whale strandings or hunting and the making of El Médano style paintings in the Atacama desert coast in Chile. Cuadernos de Arte Prehistórico NE 1: 215–255.

Castellón, C. & B. Ballester 2022. Noticias tardías de un antiguo empampado. *Praxis Arqueólogica* 3(1): 1–10, in press.

Clarke, J. 2006. Antiquity of aridity in the Chilean Atacama Desert. Geomorphology 73: 101–114.

Correa, I., C. Carrasco, B. Ballester & F. Gallardo 2018. Efectos colaterales de la transición al Formativo: una nueva culinaria entre los cazadores–recolectores marinos del desierto de Atacama. Chungara, Revista de Antropología Chilena 50(1): 87–106.

Correa, I. F. Gallardo, M. Uribe, E. Echeñique, F. Blanco, S. Flewett, S. Boulanger & M. Clascock 2019. Pottery from Funerary Mounds along the Arid Atacama Desert Coast, Chile. In Ceramics of the indigenous cultures of South America. Studies of production and exchange through compositional análisis, edited by M. Glascock, H. Neff & K. Vaugh, pp. 147–160. University of New Mexico Press, Albuquerque.

Craig, A. 1982. Ambiente costero del norte de Chile. Chungara, Revista de Antropología Chilena 9:4–20.

Eade, J. & M. Sallnow 2000. Contesting the sacred. The Anthropology of Christian Pilgrimage. University of Illinois Press, Chicago.

Escribano, R., V. Marín, P. Hidalgo & G. Olivares 2002. Physical–biological interactions in the pelagic ecosystem of the nearshore zone of the northern Humboldt Current System. In The oceanography and ecology of the nearshore and bays in Chile, edited by J. Castilla & J. Lagier, pp. 145–175. Ediciones Universidad Católica de Chile, Santiago.

Foucault, M. 2004[1967]. Des espaces autres. Empan 2(54): 12–19.

Gallardo, F. 2018. Estilos de arte rupestre e interacción social en el desierto de Atacama (norte de Chile). Mundo de Antes 12(1): 13–78.

Gallardo, F., G. Cabello, G. Pimentel, M. Sepúlveda & L. Cornejo 2012. Flujos de información visual, interacción social y pinturas rupestres en el desierto de Atacama (norte de Chile). Estudios Atacameños 43: 35–52.

Gallardo, F., B. Ballester & N. Fuenzalida 2017a. Monumentos funerarios de la costa del desierto de Atacama. Los cazadores–recolectores marinos y sus intercambios (500 a. C.–700 d. C.). CIIR – SCHA, Santiago.

Gallardo, F., I. Correa, F. Blanco & G. Pimentel 2017b. Consumption consumes: Circulation, exchange, and value of San Pedro de Atacama black polished ceramics. Latin American Antiquity 28(2): 252–268.

Gallardo, F., E. Vidal, B. Ballester, J. Blanco & G. Pimentel 2022. Desert Travels: Making place through movement in the Atacama Desert (ca. 1000 BC—500 AD). *Journal of the Royal Anthropological Institute*, 28(1): 152–177.

Gennep, A. van 2013. Los ritos de paso. Editorial Alianza, Madrid.

Grimberg, D., M. Figueroa, B. Ballester & V. Varas 2021. Árboles para la caza marina. Aprovisionamiento forestal y tecnología de la madera en los arpones del litoral de Antofagasta, norte de Chile. Chungara, Revista de Antropología Chilena, in press.

Guevara, T. 1925. Historia del Chile, Chile Prehispánico. Universidad de Chile, Santiago.

Gutiérrez, J., F. López–Cortés & P. Marquet 1998. Vegetation in an altitudinal gradient along the Río Loa in the Atacama Desert of northern Chile. Journal of Arid Environments 40: 383–399.

Herrera, C. & E. Custodio 2014. Origin of waters from small springs located at the northern coast of Chile, in the vicinity of Antofagasta. Andean Geology 41(2): 314–341.

Labarca, R., E. Calás, F. Gallardo, B. Ballester & A. Prieto 2015. Chaetophractus vellerosus Gray 1865 (Xenarthra, Dasypodidae) en un cementerio de túmulos de la desembocadura del río Loa (Región de Antofagasta, Chile): evidencias de conexiones con el altiplano andino, Periodo Formativo Tardío (300 a.C – 500 d.C.). Estudios Atacameños 50: 47–58.

Larraín, H. 1966. Contribución al estudio de una tipología de la cerámica encontrada en conchales de la provincia de Antofagasta. Anales de la Universidad del Norte (5): 83–128.

Larrain, H., E. Sagredo, P. Cereceda, L. Pérez & M. Navarro 2005. Archaeological and geographical evidence of guanaco hunting (Lama guanicoe Müller 1776) by marine hunters and gatherers at the fog–oasis of Alto Patache, south of Iquique. In 2nd Southern Deserts Conference: Human – Environment Interactions in Southern Hemisphere Deserts: Past. Present, and Future. Arica, Chile.

Magry, P. 2008. Shrines and pilgrimage in the modern world. New itineraries into the sacred. Amsterdam University Press, Amsterdam.

Marín, V., L. Rodríguez, L. Vallejo, J. Fuenteseca & E. Oyarce 1993. Efectos de la surgencia costera sobre la productividad primaria primaveral de la bahía de Mejillones del Sur (Antofagasta, Chile). Revista Chilena de Historia Natural 66: 479–491.

Marquet, P., F. Bozinovic, G. Bradshaw, C. Cornelius, H. González, J. Gutierres, H. Hajek, J. Lagos, F. López–Cortez, L. Núñez, E. Rosello, C. Santoro, H. Samaniego, V. Standen, J. Torres–Mura & F. Jaksic. 1998. Los ecosistemas del

desierto de Atacama y área andina adyacente en el norte de Chile. Revista Chilena de Historia Natural 71: 593–617.

McKay, C., E. Friedmann, B. Gómez–Silva, L. Cáceres–Villanueva, D. Andersen & R. Landheim 2003. Temperature and moisture conditions for life in the extreme arid region of the Atacama Desert: four years of observations including the El Niño of 1997–1998. Astrobiology 3(2): 393–406.

Monroy, I., C. Borie, A. Troncoso, X. Power, S. Parra, P. Galarce & M. Pino 2016. Navegantes del desierto. Un nuevo sitio con arte rupestre estilo El Médano en la depresión intermedia de Taltal. Taltalia 9: 27–47.

Morales, C. & C. Lange. 2004. Oceanographic studies in the Humboldt current system off Chile: an introduction. Deep–Sea Research II(51): 2345–2348.

Mostny, G. 1964. Arqueología de Taltal: epistolario de Augusto Capdeville con Max Uhle y otros. Fondo Histórico y Bibliográfico José Toribio Medina, Santiago.

Mostny, G. & H. Niemeyer 1983. Arte rupestre chileno. Ministerio de Educación, Departamento de Extensión Cultural, Santiago.

Mostny, G. & H. Niemeyer 1984. Arte rupestre en El Médano, II Región. Creces 9(5): 2–5.

Niemeyer, H. 1989. Los canastos para pescar en Quebrada El Médano. Museos 5: 2.

Niemeyer, H. 2010. Crónica de un descubrimiento. Las pinturas rupestres de El Médano, Taltal. Museo Chileno de Arte Precolombino, Santiago.

Núñez, L. 1971. Secuencia y cambio en los asentamientos humanos de la desembocadura del Río Loa, en el Norte de Chile. Boletín de la Universidad de Chile 112: 2–25.

Núñez, L. 1984. Secuencia de asentamientos prehistóricos del área de Taltal. Futuro 8: 28–76.

Núñez L. 1985. Tráfico de complementariedad de recursos entre las tierras altas y el Pacífico en el área Centro–Sur Andina. Unpublished PhD dissertation, University of Tokyo, Tokio.

Núñez, L. 1987. Tráfico de metales en el área centro sur Andina: Factos y expectativas. Cuadernos del Instituto Nacional de Antropología 12: 73–105.

Núñez L. & T. Dillehay 1979. Movilidad Giratoria, Armonía Social y Desarrollo en los Andes Meridionales: Patrones de Tráfico e Interacción Económica. Ensayo. Universidad Católica del Norte, Antofagasta.

Núñez, L. & J. Varela 1967/1968. Sobre los recursos de agua y el poblamiento prehispánico de la costa del Norte Grande de Chile. Estudios Arqueológicos 3/4: 7–41.

Núñez, P. & R. Contreras 2003. Pinturas prehispánicas de Taltal. Impresión Ercilla S.R.L., Antofagasta.

Núñez, P. & R. Contreras 2006. El arte rupestre de Taltal, norte de Chile. In Actas del V Congreso Chileno de Antropología, pp. 348– 357. Colegio de Antropólogos de Chile, San Felipe.

Núñez, P. & R. Contreras 2008. El arte rupestre de Taltal, Norte de Chile. Taltalia 1: 77–85.

Paskoff, R. 1978/1979. Sobre la evolución geomorfológica del gran acantilado costero del Norte Grande de Chile. Norte Grande 6: 7–22.

Pimentel G. 2012. Redes viales prehispánicas en el desierto de Atacama. Viajeros, Movilidad e Intercambio. PhD dissertation, Universidad Católica del Norte y Universidad de Tarapacá.

Pimentel G. & M. Ugarte 2017. La agencia costera en la Pampa del desierto de Atacama.In Monumentos funerarios de la costa del desierto de Atacama. Los cazadores–recolectores marinos y sus intercambios (500 A.C.–700 D.C.), edited by F. Gallardo, B. Ballester & N. Fuenzalida, pp. 25–38. ICIIS & SCHA, Santiago.

Pimentel, G., C. Rees, P. Souza & L. Arancibia 2011. Viajeros costeros y caravaneros. Dos estrategias de movilidad en el Período Formativo del Desierto de Atacama, Chile. In En Ruta. Arqueología, Historia y Etnografía del Tráfico Sur Andino, edited by Núñez L. & A. Nielsen, pp. 43–81. Encuentro Grupo Editor, Córdoba.

Pimentel, G., M. Ugarte, J. Blanco, C. Torres-Rouff & W. Pestle 2017. Calate. De lugar desnudo a laboratorio arqueológico de la movilidad y el tráfico intercultural prehispánico en el desierto de Atacama (ca. 7000 AP-550 AP). Estudios Atacameños 56: 23-58.

Reader, I. & T. Walter 1993. Pilgrimages in popular culture. Macmillan, Basingstoke.

Salazar, D., V. Castro, J. Michelow, H. Salinas, V. Figueroa & B. Mille 2010a. Minería y metalurgia en la costa de la región de Antofagasta, extremo norte de Chile. Boletín del Museo Chileno de Arte Precolombino 15: 9-23.

Salazar, D., V. Figueroa, B. Mille, D. Morata & H. Salinas 2010b. Metalurgia prehispánica en las sociedades costeras del norte de Chile (quebrada Mamilla, Tocopilla). Estudios Atacameños 40: 23-42.

Salazar, D., D. Jackson, J. Guendon, H. Salinas, D. Morata, V. Figueroa, G. Manríquez & V. Castro 2011. Early Evidence (ca. 12.000 B.P.) for Iron Oxide Mining on the Pacific Coast of South America. Current Anthropology 52(3): 463-475.

Salazar, D., H. Salinas, J.L. Guendon, D. Jackson & V. Figueroa 2013. Hunter-Gatherer-Fisher Mining during the Archaic Period y Coastal Northern Chile. In Mining and quarrying in the ancient Andes, edited by N. Tripcevich & K. Vaughn, pp. 137-156. Springer, London.

Salazar, D., V. Figueroa, P. Andrade, H. Salinas, X. Power, S. Rebolledo, S. Parra, H. Orellana & J. Urrea 2015. Cronología y organización económica de las poblaciones arcaicas de la costa de Taltal. Estudios Atacameños 50: 7-46.

Spahni, J. C. 1967. Recherches archéologiques a l'embouchure du Rio Loa (Côte du Pacifique – Chili). Journal de la Société des Américanistes 56(1): 181–239.

Thiel, M., E. Macaya, E. Acuña, W. Arntz, H. Bastias, K. Brokordt, P. Camus, J. Castilla, L. Castro, M. Cortés, C. Dumont, R. Escribano, M. Fernandez, J. Gajardo, C. Gaymer, I. Gomez, A. González, H. González, P. Haye, J. Illanes, J. Iriarte, D. Lancellotti, G. Luna-Jorquera, C. Luxoro, P. Manriquez, V. Marín, P. Muñoz, S. Navarrete, E. Perez, E. Poulin, J. Sellanes, H. Sepúlveda, W. Stotz, F. Tala, A. Thomas, C. Vargas, J. Vasquez & J. Vega. 2007. The Humboldt Current System of Northern and Central Chile: oceanographic processes, ecological interactions and socioeconomic feedback. Oceanogr. Mar. Biol. Ann. Rev. 45: 195-344.

Tilley, C. & K. Cameron-Daum 2017. An anthropology of landscapes: the extraordinary in the ordinary. UCL PRess, London.

Torres-Rouff, C., G. Pimentel & M. Ugarte 2012. ¿Quiénes viajaban? Investigando la muerte de viajeros prehispánicos en el desierto de Atacama (ca. 800 AC-1536 DC). Estudios Atacameños 43: 167-186.

Turner, V. 1974. Pilgrimages as social processes. In Dramas, fields, and metaphors. Symbolic action in humain society, edited by V. Turner, pp. 166-230. Cornell University Press, Ithaca.

Uhle, M. 1916. Sobre la Estación Paleolítica de Taltal. Revista Chilena de Historia y Geografía 20(24): 47-66.

Uhle, M. 1917. Sobre la estación Paleolítica de Taltal. Publicaciones del Museo de Etnología y Antropología 1: 31-50.

Velozo, L. & M. Sánchez. 1991. Características geomorfológicas. Área litoral: Iquique – Caleta Molle. Norte Grande 18: 3-8.

Weischet, W. 1975. Las condiciones climáticas del desierto de Atacama como desierto extremo de la tierra. Norte Grande 1(3/4): 363-373.