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Mollusc collection and salt production: resource procurement and distribution in the Gulf of Fonseca

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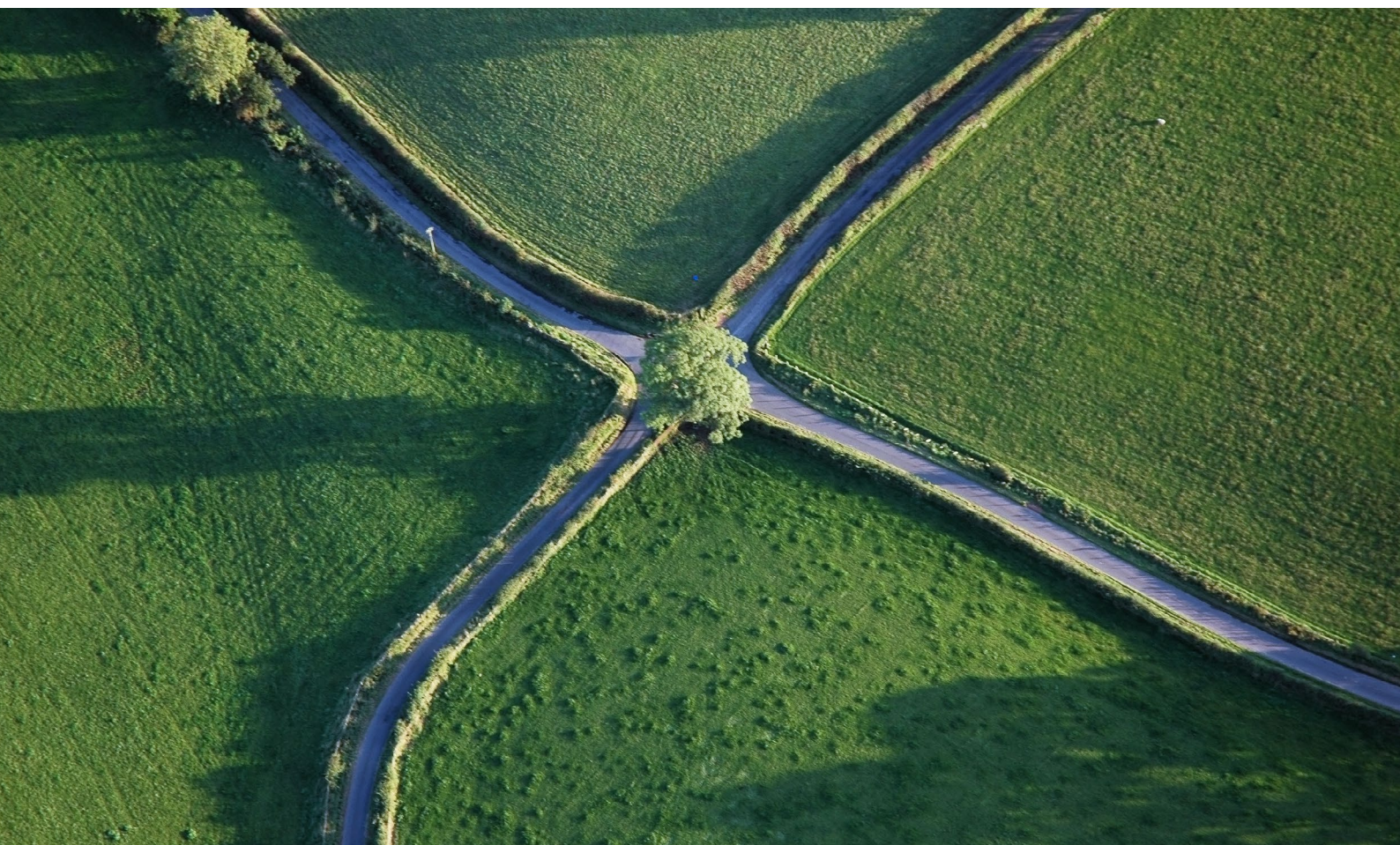
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II



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LOCAL VARIATIONS IN BURIAL PRACTICES
Catelijne I. Nater

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Sander E. I. Aerts

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Elena Cuijpers

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CONTENTS

Editorial Preface

*Dean Peeters, Mette B. Langbroek, Robin Nieuwenkamp,
Femke H. Reidsma, Roosmarie J.C. Vlaskamp*
‘ALLER ANFANG IST SCHWER’

2

Catelijne I. Nater

**PATTERNS IN THE DISTRIBUTION OF GRAVES IN THE
CENTRAL MEDIEVAL CEMETERY OF REUSEL, THE
NETHERLANDS**
LOCAL VARIATIONS IN BURIAL PRACTICES

5

Tom E. de Rijk

LIMINALITY ALONG THE LIMES
**A STUDY ON THE MATILO MASK, ITS DEPOSITIONAL CONTEXT
AND THE ASSOCIATED FINDS**

14

Sander E. I. Aerts

**DETECTING CULTURAL FORMATION PROCESSES THROUGH
ARTHROPOD ASSEMBLAGES**
A CONCEPTUAL MODEL FOR URBAN ARCHAEOLOGICAL WASTE-/CESSPITS

22

Marie M. Kolbenstetter

**MOLLUSC COLLECTION AND SALT-PRODUCTION
RESOURCE-PROCUREMENT AND DISTRIBUTION IN THE GULF OF
FONSECA**

29

Elena Cuijpers

THE ‘LIVELY’ STREETS OF CLASSICAL OLYNTHOS
A SPATIAL ANALYSIS OF URBAN LIFE ON THE NORTH HILL, 432 – 348 BCE

36

Thesis Overview

September 2015 - August 2016

43

MOLLUSC COLLECTION AND SALT PRODUCTION

RESOURCE PROCUREMENT AND DISTRIBUTION IN THE GULF OF FONSECA

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Abstract

Using case studies from El Salvador, Honduras and Nicaragua, this article discusses the collection of molluscs and the production of salt in the Gulf of Fonseca in the Late Classic and Early Postclassic. Based on the case studies, different models of procurement and redistribution are presented: specialized in-settlement production, centralized production and redistribution, and, finally, procurement and redistribution through seasonal mobility. These models are used to discuss the technical traditions associated with the foraging of resources, and furthermore used to present hypotheses on how the challenge was met in different localities. In this perspective, I explore the advantages of the Gulf region for economic activities. I also discuss the role of the environment for foraging techniques and distribution practices.

This article relates directly to other ethnoarchaeological and archaeological salt studies from neighbouring areas. Moreover, it aims to present compiled information from three countries to give a regional overview as a first step towards the documentation of the Gulf of Fonseca as an entity.

Keywords

Seasonality; Central America; sal cocida; procurement strategies; briquetage

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Introuction

Today, one rarely considers the origins of the salt they consume on a daily basis. Yet, in the past, salt extraction was a laborious activity and control over the best salt sources would have been highly valued (Andrews 1983). This phenomenon can be observed in the archaeological record throughout the world (i.e. Adshead 1992, 20; Baudez 1973; Burley *et al.* 2011; McKillop 2002, 1; Muller 1984). This article will focus on how the ethnic diversity of a small area such as the Gulf of Fonseca would have affected procurement and distribution of a valuable resource such as salt. In this research, I will associate salt production with the harvesting of molluscs; the presented case studies will demonstrate how the two are associated, not only through the areas in which they occur but also through the redistribution strategies associated with them. Lit-

tle is known about this area, but the archaeological record illustrates the importance of both activities in the everyday life of pre-Columbian populations, and ethnographies exemplify their continued importance for people living there in the present day. The primary social processes that will be discussed in relation to resource procurement are mobility and seasonality. These processes are intimately bound to the environmental conditions present within the Gulf of Fonseca. In fact, the Gulf region seems in all aspects to have been a prime location for settlement.

To address the interconnections between mollusc harvesting, salt production, culture and environment, I will present the environmental setting within the Gulf area, I will provide information on the cultural landscape in the Gulf of Fonseca be-

tween 550 CE and the contact period. I will finally present three case studies from which procurement and redistribution models will be drawn. Those will in return be linked to different ecological surroundings. I will subsequently address diachronic changes observed in salt production and mollusc foraging in the region.

Background to the Research

Geographical and Environmental Setting

The Gulf of Fonseca is situated on the Pacific Coast of Central America (fig.2). This body of water is shared between three nations: El Salvador to the north, Honduras to the east and Nicaragua to the south. The Gulf is environmentally diverse. Aside from the numerous volcanic islands in the waterway, the Gulf’s littoral consists of two ecologically distinct zones. At the bottom of the mountains in El Salvador, an alluvial plain is traversed by several rivers. This plain then transitions into mangrove forests, home to a complex network of estuaries (Baudez 1973, 509). On the Nicaraguan side, the plain is dominated by a volcano, the Cosiguina. This diverse environment certainly offered advantages to dwellers; the naturally saline waters are rich in molluscs, and the volcanic activity produced fertile soils. The Gulf itself offers a natural harbour, and the numerous estuaries and rivers provide an inland connection.

Chronology

The chronology for the Gulf was established in 1966 by Claude Baudez and will be utilized within this paper (fig.1). It is based on Baudez’ survey, test pitting and excavation of 20 different sites in the Honduran portion of the Gulf, from which he was able to establish a ceramic sequence. Through the comparison of this sequence to other existant sequences in Honduras, along with carbon dating, this chronology was established. This is the only chronological framework available for the region of the Gulf of Fonseca.

Cultural Landscape

It has proven difficult for scholars to establish with certainty the date of arrival of individual groups in the Gulf of Fonseca, as in much of Lower Central America little research has been conducted and the obtained results are inconclusive to prove such migrations. Nonetheless, there is evidence of linguistic diversity at the time of conquest in the Gulf of Fonseca region (Brown 2013, 15; Gomez 2010, 13; Healy 1984, 116).

Periods Mesoamerica	Choluteca	Dates
Late Post-Classic	Malalaca	1500
		1400
		1300
Early Post-Classic	Amapala	1200
		1100
		1000
Late Classic	Fonseca	900
	San Lorenzo	800
		700
Early Classic	Chismuyo	600
		500
		400
		300

Figure 1. Chronology of the Gulf of Fonseca compared to Mesoamerican Chronology (after Baudez 1970, 221)

At time of contact, the presence of Lenca and Matagalpan speakers was recorded around eastern El Salvador and southern Honduras (Healy 1984:116), as reported by colonial sources. While Nahua speakers were also documented in the region at time of conquest, it is not possible with the available data to assert that their presence was due to a large migration.

There has been a long and still ongoing debate concerning the existence of migrations into the region during the Fonseca Phase. Based on tentative ethnolinguistic and archaeological evidence, it is believed that Oto-Manguean groups replaced the influence of the Lenca people around the Gulf in the as early as 800 CE (Chapman 1960; Martinez 1979; Healy 1980: 335-37 and 1984:116). It has also been proposed that Nahua speakers entered the region during a later migration wave from Central Mexico. The existence and date for this migration is also frequently contested, as the changes identified in the archaeological record cannot be linked with certainty to the arrival of new groups in the region (i.e. Constenla 1991, 1994; Lothrop 1926; Haberland 1986; Healy 1980, 20-21; Salgado 1996, 21; Niemel 2003, 16; Steinbrenner 2010, 80). They are believed to have coexisted alongside the Chorotega people in the Early Postclassic within the territory surrounding the Gulf of Fonseca.

If the Gulf was a linguistically heterogeneous region, how would this translate in the archaeological record? The following case studies will address this larger question through the lens of diversity in procurement methods in the Gulf region.

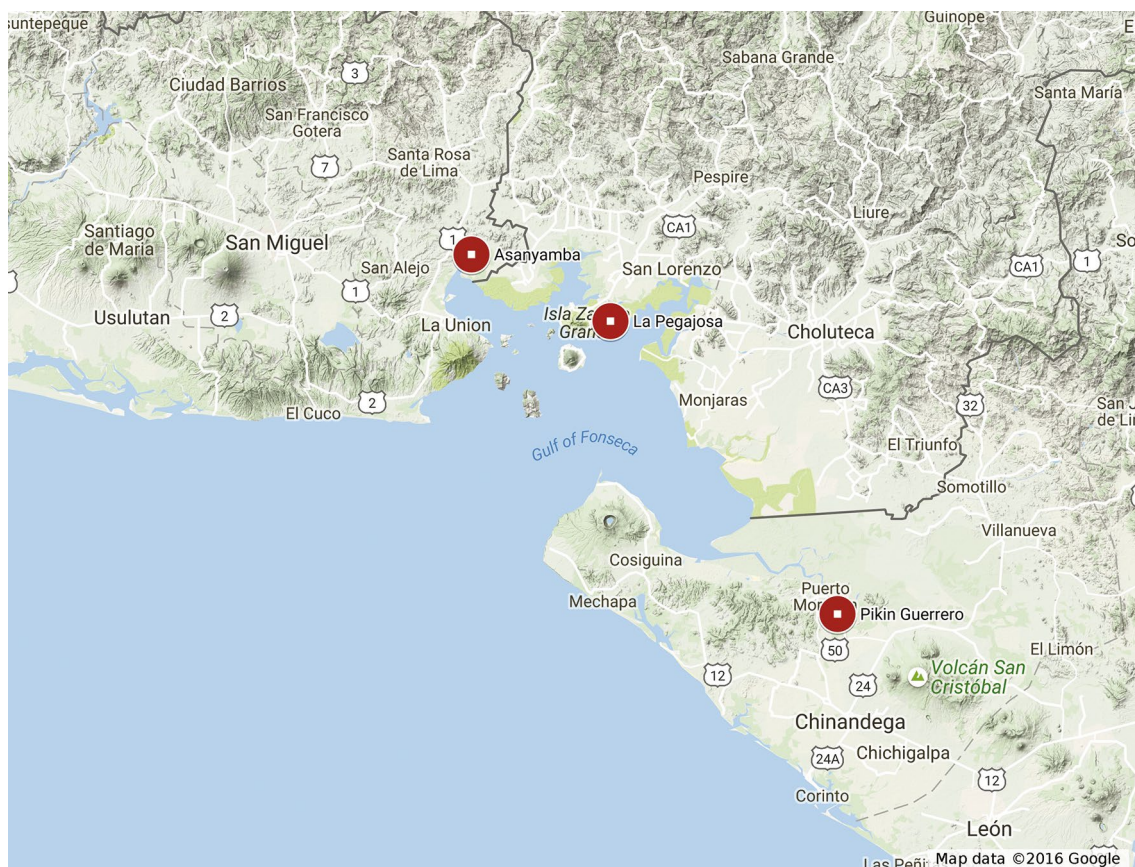


Figure 2. Map indicating the location of the three case study sites.

Case Studies

Nolasco, Camaronera and Píkin Guerrero, Nicaragua

The Nolasco, Camaronera and Píkin Guerrero sites are situated in the *departamento* de Chinandega in north-western Nicaragua. These sites are located close to the Estero Real. (Brown *et al.* unpublished, 163). Because of their proximity (less than 300 metres), I would argue they were once different parts of one single site. Some overlap in the ceramic material from Camaronera and Píkin Guerrero does support contemporaneity between both sites and points towards a middle to terminal classic occupation. Due to destruction of the sites, Píkin Guerrero is composed only by one large mound which appears as an island in the middle of a shrimp farm. Camaronera only yields remains from bulldozed mounds within the walls of a shrimp pond. More interestingly, the Nolasco site shows two mounds.

The ceramic material in Camaronera is finer, while at Píkin Guerrero the material appears to be primarily utilitarian. At Nolasco, however, the ceramic material that was recognizable on the surface was exclusively briquetage. Interestingly, the

mound with which this material was associated had a shell layer made of oyster shells. Locals confirmed that this mollusc most likely came from the Estero Real, which is only 2 kilometres away from this site, and most accessible by canoe through a network of streams. It is unclear if the mollusc layer observed in the mound is an architectural component or if the mound is in fact a shell midden. As the site still serves today as a natural harbour for fishermen's canoes, it is not unlikely that it might also have been used as such in the past.

Asanyamba, El Salvador

Asanyamba is a site situated on the coast of El Salvador, inside the Gulf of Fonseca, within the estuary of Chapernalito (Valdivieso 2006, 119). In its early descriptions, the site was referred to as a “puerto precolombino dedicado al comercio y productos del mar, especialmente sal” (Jorge Mejía, as cited in Valdivieso 2006, 119). It yielded a significant amount of lithic materials, ceramics and shell mounds with burials (Valdivieso 2006, 119). Due to modern agricultural activities, there are little more than 20 mounds observable (Valdivieso 2006, 119). Some of the structures incorporate a base of basalt; others consist almost exclusively of shells that were



Figure 3. Overview Picture of the Nolasco Site, Mounds on the left (Courtesy of the Proyecto Arqueológico Chinandega 2016).

commonly used within this region as building material (Valdivieso 2006, 122). Based on the ceramic material, it can be dated to the san Lorenzo and Fonseca Phase (550-1000 CE) (Amador, unpublished; Beaudry 1982; Valdivieso 2006, 120).

Numerous ceramics that could be associated with salt production were recovered (Beaudry 1982, 8). Asanyamba has therefore been identified as a major site for salt production (Valdivieso 2006, 121). Considering the quantity of shell found, it could be hypothesized that molluscs were also harvested in the vicinity as trade objects for export. The importance of the shell in regional cosmologies would have made them a valuable trade good, both for food consumption and for the associated symbolism (Valdivieso 2006). At the inland site of San Andres, in El Salvador, shells from the same species as those found in great number at Asanyamba were documented (Valdivieso 2006, 123), suggesting the possibility of a trade route beginning at Asanyamba and extending inland (Valdivieso 2006, 123).

La Pegajosa, Honduras

La Pegajosa is situated on the small volcanic island of Güegüensi, which in turn is located close to the Honduran mainland. The island is positioned in the general vicinity of two estuaries leading inland (Baudez 1973, 509). On the southeast end of

Güegüensi, a patch of land is seasonally flooded and becomes a 10 cm deep lagoon in the wet season. La Pegajosa is located on the edge of and extending into the lagoon where certain elevated parts form small islands (Baudez 1973, 509). Based on its ceramic material this site can be dated to the Amapala phase (1000-1200 CE).

One aspect of the site is particularly striking: an elevated stretch surrounded by small mangrove trees that is covered in shells (Baudez 1973, 509). Several shell middens can be found in the direct vicinity of the site. At the surface, numerous ceramic bowls of a type that has been associated with salt production have been found (Baudez 1973, 512). In the central section of the site, 36 trenches were discovered with traces of firing. It is argued by Baudez that, considering the maximum occupation of the site has been limited to 20 individuals and for only a few months per year, this plethora of trenches would have been excessive for culinary use (Baudez 1973, 511). The archaeological remains provide evidence for an extensive exploitation of salt in the method known as *sal cocida*, which consists of heating receptacles containing brine prior to recovering salt through evaporation (Baudez 1973, 515). This method produces so-called briquetage, a diagnostic ceramic debris associated with salt production (Robinson & McKillop 2014, 98). This salt pro-

duction in heavy quantities could be hypothesized to have been sold or transported to the settlement of origin of the seasonal workers, or to have been traded inland through the network of estuaries. The onsite association with molluscs suggests that both mollusc collecting and salt production were practiced at La Pegajosa.

Discussion

The three sites offered as case studies present three different methods of resource procurement.

In the first case, a form of specialized area production is observable within a large settlement. The Nolasco site seems to correspond to an area of the settlement specialized in salt making and potentially connected to the mollusc foraging. A specialized task force could have travelled there daily, defining the site exclusively as an activity area. Since other sites with concentrations of briquetage have been identified in the vicinity of this site, it is quite unlikely that the salt production was aimed towards trade. It seems more likely that both the harvesting of *ostiones* and the salt production aimed to supply the settlement in order to make it self-sufficient.

For the second case, I considered a habitational centre of regional importance (Valdivieso 2006) that is also both a production and distribution centre. The evidence of simultaneous intense salt production and mollusc harvesting could point to a production for distribution further inland. This model is not unknown to Central American archaeology; salt works found around Wild Cane Cay in Belize seem to follow a similar organisation, where salt is produced in the bay area and distributed inland through canoe travel on small estuaries in the Late Classic (McKillop 2002, 2005). Sites following the same model of procurement and distribution can be found on the Honduran side of the Gulf, generally situated at the deltas of the estuaries (Baudez, unpublished manuscript).

The third case study presents a model of resource procurement and distribution through seasonal mobility. A group would travel from an inland settlement to the island seasonally to produce salt to later distribute inland. A distribution of the collected molluscs may also have occurred from La Pegajosa. It is possible to consider both activities as the work of specialized task groups, especially if this site was part of a particular group's seasonal round (Binford 1978; 1980). A similar site exhibiting traces of seasonal mobility for mollusc and salt foraging purposes is Porterillos, situated in the delta of an estuary in the Gulf of Fonseca. This site dates to the Malalaca

phase, but offers similar material culture to La Pegajosa (Cruz Castillo 2007).

Baudez (1973, 507-508) discusses how in the 1960s inhabitants of this area were still seasonally mobile. Fisherman families from San Lorenzo left the mainland with their canoes in November to establish a seasonal camp until March around areas notoriously rich in molluscs. Baudez (1973, 509) draws a comparison between this seasonal movement and the archaeological remains found at La Pegajosa. It could therefore be hypothesized that La Pegajosa was visited by a few families, since salt production and the mollusc collection can be realized by all members of a family.

Conclusion

It is interesting to see that in all cases, the sites of procurement and distribution are situated in the vicinity of the delta of estuaries and, generally speaking, in similar environments. It could be argued that distribution occurred inland by means of canoe travel on the estuaries, as was the case for the Belize salt works around Wild Cane Cay (McKillop 2002, 2005). This is further supported by salt being generally regarded as a precious trade good in the neighbouring Maya world (Andrews 1983; McKillop 2002, 1). Even in cases where distribution did not occur, the position of the sites indicates the importance of mobility within the region. This mobility was very likely associated to the procurement and trade of resources in some way.

An interesting aspect of the different models is that there is yet no archaeological evidence for the first two presented models of procurement to have been used later than the Fonseca phase, while seasonal camps exist in both the Fonseca Phase and the Amapala Phase. Because those seasonal camps are only known from Honduras, could it be that the environment on that side of the Gulf was less advantageous for year round salt production? Or was seasonality merely a necessity for acquiring salt for inland settlements? This would point towards a lack of trade between inland and coastal settlements in that part of the Gulf. Could this have been due to ethnolinguistic heterogeneity? Unfortunately, it is not possible to answer these questions at this stage of the research and within the limits of this dataset.

Further research within this area will be able to substantiate questions regarding site size and organization, the connection of coastal sites with inland sites, and the important question of chronology.

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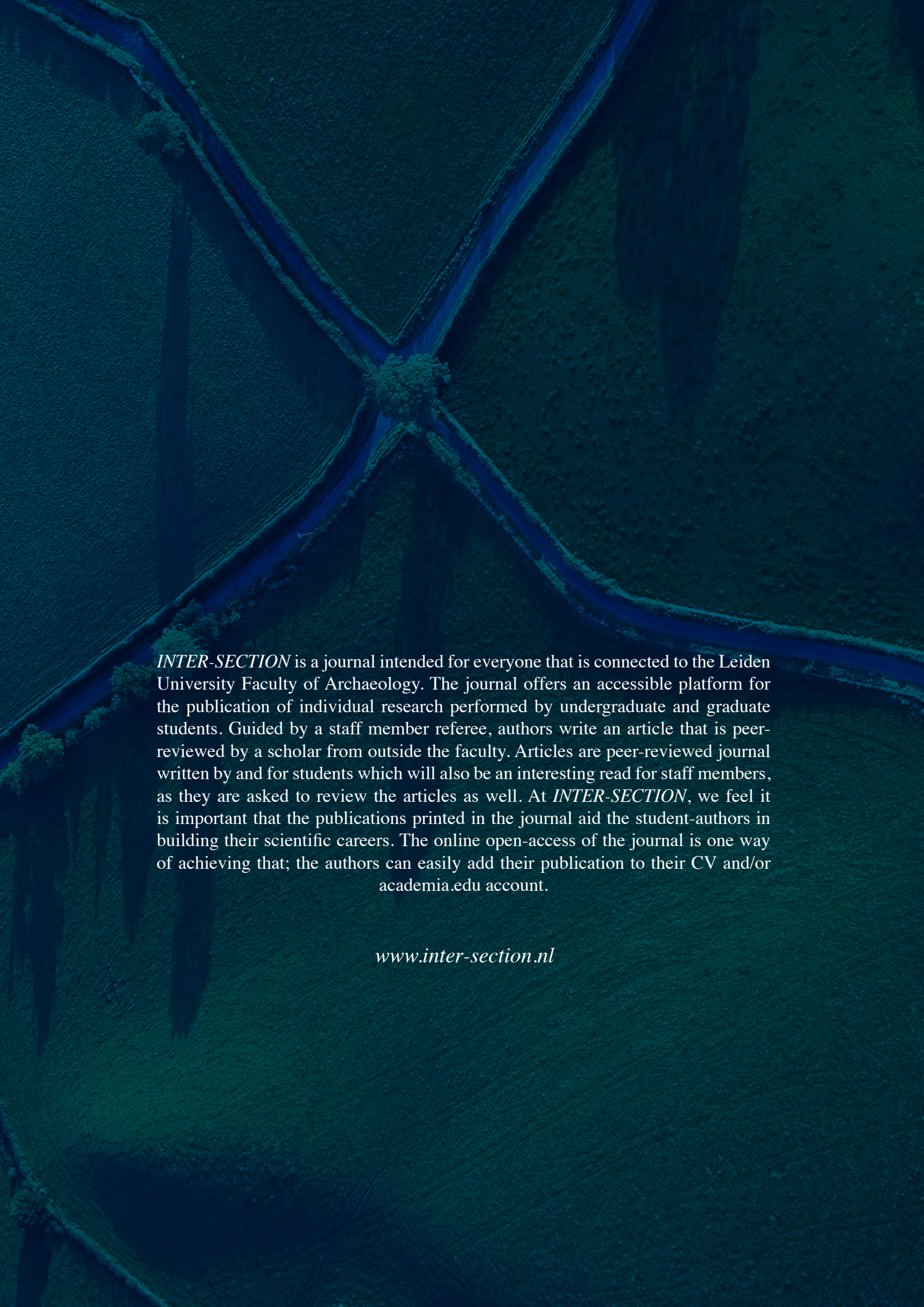
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An aerial photograph of a polder landscape, showing a central water intersection where four canals meet. The canals are filled with water and have earthen banks. The surrounding land is divided into rectangular plots, likely agricultural fields, with some trees scattered throughout. The overall scene is a typical example of Dutch water management infrastructure.

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II