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## Pernil Alto: an agricultural village of the Middle Archaic Period in Southern Peru

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# 1 Introduction

The emergence of agriculture and settled life is one of the most important developments in the history of mankind. For hundreds of thousands of years humans were mobile foragers who lived off of hunting and collecting. But then, humans left this natural adaptation of being intelligent and skilled hunters and gatherers. In some areas of the world, humans began to settle down and produce food by using formerly wild species which they domesticated. This process became known as the “Neolithic revolution” (Childe 1934, 1936, 1942, 1951). It is now known that these developments were neither fast nor revolutionary, but rather long-lasting processes including advances as well as regresses (compare for example Anderson 1956; Bellwood 2005; Cowan/Watson 1992; Flannery 1973; Harris/Childe 1994; Harris 1996b; Smith 1998, among others). Today, these eventual achievements form the livelihood of the majority of mankind.

The developments leading to these achievements occurred in five to nine areas in the world from where they spread (Bellwood 2005; Diamond/Bellwood 2003; Flannery 1973; Harlan 1971; MacNeish 1992; Vavilov 1926). One of these areas was the Central Andes, the area between the south of Ecuador and the north of Chile, including the non-Amazonian areas of Peru and Ecuador. This area was described as a “non-center” (Harlan 1971). This somewhat misleading term expresses the idea that the process leading to the achievements did not occur within a closely defined area and was without a relatively clear sequence of consecutive steps. Rather, the general process was divided into a range of smaller, temporally and spatially separated developments occurring in a wider area which eventually intertwined.

These multifaceted developments in the Central Andes can be described in general (albeit somewhat simplistically) by two chronological, more or less identifiable, phases. The beginning of the older phase is marked by the identification of the first domesticated plants by about 9000 BP (Piperno 2011b). The end of the younger phase is identified by the first complex societies based on a marine-agricultural socioeconomic system as expressed in the monumental structures of the Central Peruvian coast occurring by 5000 BP (Haas et al. 2004b; Shady Solís 1997, 2000c; Shady Solís et al. 2000). This 9000/8000-5000 BP period was still preceramic and is

termed the Middle Archaic or Middle Preceramic Period. The previous Period (before 9000/8000 BP) is the Early Archaic or Early Preceramic Period, the following one (after 5000 BP) is the Late Archaic or Late Preceramic Period. More detailed information is given in Chapter 3.

Economic developments are, however, first identifiable on the coast of the Central Andes, whereas the highland area showed a different development from generalized hunting to specialized hunting to finally herding of domesticated animals by about 5500 BP (Lavallée 1990). Furthermore, the agricultural beginnings in the highlands, including such plants as potatoes or quinoa, were later than those on the coast. These two general developments later merged into a reciprocal pattern described as vertically complementary (Murra 1972) which characterized the later prehispanic economies.

Thus, for the moment it seems that complex societies based on a food producing economy first developed on the Central Peruvian coast. While it is proven that marine resources played an important role in the economy of these first complex societies, it has become clearer throughout the last years that the economy was not predominantly based on them as was assumed previously (Moseley 1975) but that agriculture played an important role in food production as well (Haas et al. 2013; Shady Solís 2006b; Bonavia 2013). The development of the use of marine resources leading to the marine part of this marine-agricultural economy is understood relatively well (Sandweiss 1996). Although projects investigating agricultural developments were carried out during the last decades with particularly good results (see Dillehay 2011c for results of a long-term project in Northern Peru), knowledge of the development of the agricultural part this economy is still unsatisfactory.

## 1.1 Objective

This work adds one additional puzzle piece to the understanding of the development of agriculture in the Central Andes which resulted in a marine-agricultural economy of the first complex societies. This study is concerned with the archaeological site of Pernil Alto in

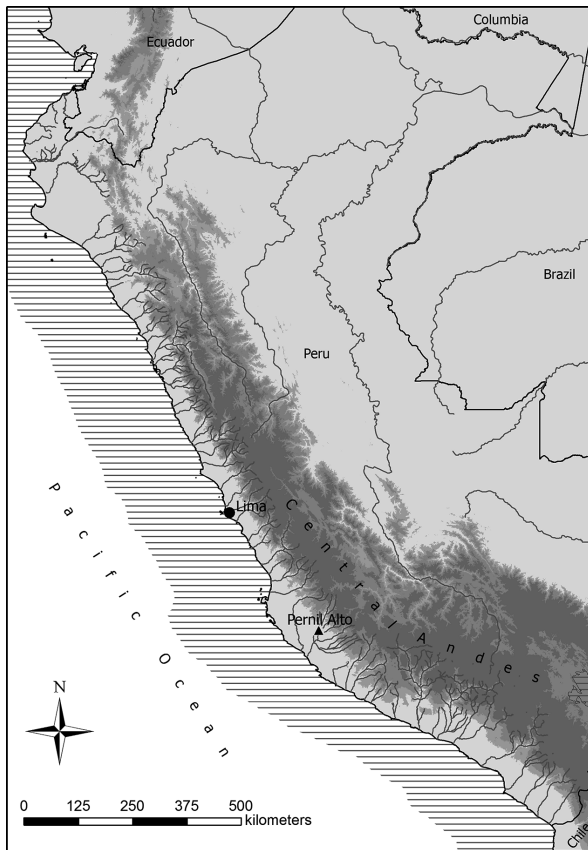


Figure 1: The location of Pernil Alto in the Central Andes. The location of Lima is given for reference.

the Rio Grande basin of Southern Peru (see Figure 1 for the location of the site)\*. This site dates to 5800 to 5000 BP and thus just before the beginnings of monumental architecture on the Central Peruvian coast. The site represents a stratified settlement consisting of 19 dwellings and 33 burials. Numerous artifacts, botanical and faunal remains give insights into the economy and its internal diachronic development. It thus offers the possibility to study a site and its economy before the marine-agricultural economy becomes ascertainable on the Central Peruvian coast, and is therefore helpful in understanding the developments leading up to it.

Furthermore, the location of the site Pernil Alto brings important new information for the understanding of the Middle Archaic Period. The vast majority of the sites known from this period are either located in the highlands in altitudes of above 2500 m, or more or less directly on the littoral of the Peruvian coast. Pernil Alto is, in contrast, located on the foothills of the Andes at a

distance of about 50 km to both the littoral and the highlands, and is thus located in between both areas. It therefore not only offers new insights into the economic developments of the Middle Archaic Period, but also the cultural developments and adaptation to ecosystems of that period outside the highland or littoral area.

In addition, the characteristics of the Middle Archaic Period are poorly known in the valleys of the Rio Ica and the Rio Grande in Southern Peru. Pernil Alto is located in the middle section of the Rio Grande and thus offers important insights into the local archaeological manifestation of this period in the area, including information about architecture, burial rites, and artifact typology.

The objective of this study is the Middle Archaic site of Pernil Alto and its relevance for the understanding of the Middle Archaic Period of Southern Peru and the economic developments leading to a marine-agricultural economy in the Late Archaic Period on the Central Peruvian coast.

## 1.2 Aim of research

The aim of the investigation is therefore (1) a detailed depiction of the material culture of the site including architecture, burials, artifacts, and botanical and faunal remains, in order to build a reference for possible further regional studies; (2) an internal analysis of the diachronic development of the site, especially regarding its economy, mobility and social aspects; (3) an analysis of the relevance of these developments for the general development of an emerging productive economic system.

As this study is concerned first of all with the results of a single site, and the knowledge of the process leading to the emergence of settled life and agriculture is based in the Central Andes on relatively few excavated sites, there will be no attempt made to formulate a general explanatory model or theory to explain the reasons for the development of agriculture. However, a brief possible descriptive model will be formulated which includes the results of this study. Due to the state of research, only descriptive models can be formulated at this moment. Furthermore, formulating explanations would require a completely different approach, and imply different research questions. Beyond that, even existing explanatory models—including in part large data sets—are still unsatisfactory. Douglas T. Price and Ofer Bar-Yosef (2011) discussed and briefly portrayed the

\* This is the published version of the dissertation thesis with the same title that was defended in 2016 at Kiel University, Germany,

and reflects the state of research of that year.

major explanations of the development of agriculture and concluded that:

*The simple fact is that we do not yet have a good grasp on the causes for the origins of agriculture. The how and the why of the Neolithic transition remain among the more intriguing questions in*

*human prehistory. There is yet no single accepted theory for the origins of agriculture—rather, there is a series of ideas and suggestions that do not quite resolve the question. At the same time, of course, the evidence we have is scanty and limited. A great deal more research and discussion needs to be done. (Price/Bar-Yosef 2011: S168).*