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Sea shells in the mountains and llamas on the coast: the economy of the Paracas Culture (800 to 200 BC) in Southern Peru

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1 INTRODUCTION

1.1 Research Design

Objects attributed to the Paracas culture (800 to 200 BC) in southern Peru are nowadays displayed in museums all over the world, attracting visitors and encouraging people to travel to Peru. Paracas objects are usually polychrome incised ceramics of high quality, large fancy textiles with geometric designs that were extremely carefully made, extravagant mummy bundles that have been preserved in the sandy hyper-arid environment of the coastal desert, and artificially deformed human skulls. These kind of exhibits stimulated ideas about the society of the Paracas people and were taken as a basis for defining this archaeological culture. The approach chosen in this work contrasts with former research designs and provides another perspective on the Paracas culture. The archaeological material analyzed in this book represents the sphere of the everyday life of Paracas people and was excavated in large quantities. In particular, these finds are obsidian artifacts, malacological remains, and camelid bones. Additionally, this material is confronted applying a methodology that was rather neglected for the Paracas culture so far: namely from its economy.

Studies on pre-Hispanic Andean economies concentrated principally on later periods such as the Inka times and could consult written sources from the early Colonial era. Some of these works were highly influential and their concepts have been applied for much earlier time phases, despite the fact that a similar body of data was not available. This situation is best epitomized by the partially opposed views developed by John Victor Murra (1956; 1964; 1967b; 1968; 1972b; 1975; 1976; 1978; 1985a; 1985b; 1995; 2002) and María Rostworowski de Díez Canseco (1960; 1970; 1975; 1977). Although the concept of verticality – durably linked to Murra – forms a theoretical ground line in the present project, verticality is not the only economic model which is considered. Additional theoretical background is mainly extracted from the concepts of circuit mobility, llama caravan transportation, transhumance, and market ideas. The theories are challenged by the concrete case study of the Late Paracas period (370 to 200 BC) in the northern Río Grande de Nasca drainage. This way, theory and original archaeological data are balanced.

This twofold research approach was made possible within the institutional scope of the long-term Palpa Archaeological Project of the German Archaeological Institute (DAI) and the DFG Research Training Group "Archaeology of Pre-Modern Economies" of the Universities of Bonn and Cologne. The Palpa Archaeological Project has been conducting interdisciplinary research in the Palpa region since 1996 and enabled the documentation of the pre-Columbian history over the last 10.000 years – from the Early Archaic time to the European conquest in 1532 – at the western Andean slope of the Palpa valleys (Andean Transect). More than 1.500 archaeological sites have been recorded in this study area, extending from the coastal desert on the Andean foothills at approximately 215 meters above sea level to the highland puna zone up to 4.455 meters above sea level.

Extensive and limited excavations were performed at selected sites. The largest portion of archaeological material included in this work is derived from three Paracas settlements where extensive excavations took place. These major sites are Jauranga (285 meters above sea level), Collanco (1.630 meters above sea level), and Cutamalla (3.300 meters above sea level). In addition, material data from eight minor sites with limited excavations was taken into account. Thus, the Palpa projects created a unique data set for investigating systematically the pre-Colonial economy and exchange in a concrete region. A comparable stock of archaeological information in the central Andes was hitherto not available. The archaeological data of the Palpa Archaeological Project is not only the material foundation for the reconstruction of the Late Paracas economic exchange system, it also serves for scrutinizing and testing established economic models used to explain the pre-Hispanic Andean past.

Further theoretical and methodological input came from the DFG Research Training Group "Archaeology of Pre-Modern Economies", in which all archaeological disciplines from the Universities of Bonn and Cologne are involved. This project aims to study economic performances of early societies from a cross-cultural point of view. Participating in this group enabled me to have a perspective beyond the Andes, while working about the Paracas culture. As it becomes clear in the first chapter of the next section, economic archaeology is a wide field that developed diverse methods and theories to analyze

all kinds of economic aspects. This book does not follow a single economic archaeological approach such as mining archaeology, but consults distinct lines of research. The interplay of the three fundamental sectors of economy – production, distribution, and consumption – within a broader sociopolitical setting including geography, demography, and religion constitutes the analytical guideline. In doing so, distribution and economic exchange are emphasized in this treatise.

The present work entails three case study levels concerning time and space. First, this work serves as a comparative archaeoeconomic study within the joint project "Archaeology of Pre-Modern Economies". Second, the project contributes to the comprehension of pre-Columbian Andean economies, their general conditions, and their parametric possibilities of adaption to changing circumstances. Third, this research is a case study for the economic system and exchange of the Paracas culture.

The monograph pursues the goal of describing the principles of economic organization and exchange that operated during the Late Paracas period. Economy is an all-encompassing branch of human life, affecting living conditions and sustaining or subjugating cultural systems. Therefore, reconstructing the economic system of the Paracas culture bears the potential to deduce social and political components. The empirical data is organized by different excavated material groups which have properties making them suitable to assess economic exchange: obsidian artifacts, archaeomalacological material, and camelid skeletal remains. These objects are documented and analyzed in their archaeological contexts. Archaeobotanical finds, especially ancient agricultural products, could potentially be an appropriate material group for investigating exchange as well. Unfortunately, these kind of materials could not be integrated into this project as thoroughly as initially planned.

Most importantly, humid conditions at the three major archaeological sites – Jauranga, Collanco, and Cutamalla – did not allow the preservation of macrobotanical remains. Analyses of soil samples taken from several archaeological contexts in Collanco and Cutamalla, including agricultural terraces, did not provide usable results. For example, only undomesticated plants such as cactus (*Cactaceae*) and grasses (*Gramineae*) were identified by pollen analysis (Reindel et al. 2015). In order to overcome these difficulties, test excavations were conducted at the coastal site Cerro Paracas which is situated in a protected and arid environment in the Santa Cruz valley. Through these works, a considerable sample of botanical material and other organic remains like human and animal excrement (coprolites) were obtained. However, the analyses of macro- and microbotanical remains with determinations of crops could not be finished within the time limit of this dissertation research. The preliminary assessment of the macrobotanical material identified principally arable crops that are characteristic for the valley cultivation in the desert coast[1]. If this assessment is accurate, the macrobotanical finds would not be suitable for studying economic exchange beyond the local level anyway.

The outcomes of this project include the identification of both production and consumption places and illustrate the prevailing commodity flows during the Late Paracas period. Moreover, this work explores various economic models and determines which models, or rather which components of the models, were operating within our case study. This way, the resulting model of economic exchange of the Paracas culture integrates the empirical research on the excavated material from the Andean Transect and theoretical elements from a range of economic models. The new model is termed economic directness, characterizing the pre-Hispanic economic structures at the western slope of the Andes. The model of economic directness is composed of constant and adaptable elements. Constant elements include conditional factors such as ecological complementarity, long-distance exchange, and transportation by camelid caravans. Adaptable elements include direct access to resources and internal exchange, involving direct exchange. These adaptable components were enabled by a connected and even settlement during the Late Paracas phase with a population density that was never seen before in the Andean Transect study area. The role of the settlements within this system is exemplified by the major sites Jauranga, Collanco, and Cutamalla, each representing another ecological zone – coast, western yunga, and quechua respectively. So-called strategic sites such as Cutamalla are of prime importance for the economic organization. All sectors of the economy – production, distribution, and consumption – come together at this settlement.

This project incorporates the latest research data into the case study of the Late Paracas period in the Palpa valleys, providing new insights into the mechanisms of pre-Columbian Andean economies. The model of economic directness demonstrates the interaction of general economic conditions (constant parameters) and economic adaptions to sociopolitical and demographic

1 These preliminary results are presented in the chapter *Other Material Groups and Their Potential for Archaeoeconomic Investigations*.

changes (flexible parameters). This model could be representative for the economic organization at the western flank of the central Andes in pre-Colonial times. However, similar in-depth data from excavations along other valley systems is not available for serious comparisons and archaeological information relating to the eastern Andean slopes is even more insufficient.

1.2 Chapter Organization

The chapter organization demonstrates the deductive process and structure of this treatise. Theories on economy from several academic fields form the starting point. The hypothesis of the simultaneous utilization of various ecological zones and their resources by Paracas people is presented in the *Methodological Part*, where the case study is also discussed in detail. The *Results* section contains the observations on the archaeological material, thus testing the economic models. Subsequently, the *Discussion* reviews rejected and confirmed aspects of each model and develops the model of economic organization and exchange that was prevalent in Late Paracas times.

The *Theoretical Part* is the next step following this *Introduction*. This part serves as general background and is divided into four individual chapters. The first chapter – *An Archaeoeconomic Approach* – provides a straightforward introduction to economic archaeology along the sectors production, distribution, and consumption and explains the archaeoeconomic research design chosen in this work. *Geographical Foundations of the Central Andes* gives an overview of the Andean geography. The classification of the eight natural zones with their economic conditions after Javier Pulgar Vidal (1981 [1941]) is applied in this project. Defining ecological zones is required for modeling economic exchange in the case study. The chapter *The Andes as an Economic Area: Theoretical Models* deals with influential economic models for the Andean area. The range of models comprises verticality, circuit mobility, llama caravan transport, transhumance, landscape and environmental approaches, and market concepts. *Positioning the Paracas Culture in the Pre-Hispanic Andean Past* is dedicated to the history of research on the Paracas culture. This section addresses some difficulties derived from former studies which are called Paracas problems in this book. The Paracas problems include fundamental aspects for determining an archaeological culture such as territory, chronology, the role of ceramics, and sociopolitical organization.

The *Methodological Part* describes the procedures and approaches that underpin the study, comprising three chapters. In *Objectives and Purpose of Research*, the research problem and working assumption / hypothesis are explained in detail. Furthermore, the portrayed economic models of verticality, circuit mobility, llama caravan transport, transhumance, and market concepts are taken up by expounding the archaeological evidence one would expect to discover for their verification. *The Case Study of the Palpa Valleys* introduces the case study of the Late Paracas period in the Andean Transect. The chapter is composed of the research history of the Palpa Archaeological Project, the area of investigation, the established pre-Hispanic chronology, and the Paracas settlement patterns. Next, the archaeological sites where the considered material was excavated are presented, split up into major sites with extensive excavations (Jauranga, Collanco, and Cutamalla) and minor sites with restricted excavations (Pinchango Viejo, El Arenal, PAP-306, Mollake Chico, Suito Orqo, PAP-1080, PAP-1083, and Cerro Paracas). The *Methodology* chapter deals with basic aspects of procedure such as data acquisition, database design, and strategy of material recording. Specific methods immanent to the respective material group are covered in the corresponding material chapters.

The *Results* section offers the outcomes from the analyses performed on the three main material groups. Each chapter has a structure consisting of the research background for the archaeological material, the applied analytical techniques, the actual evaluations with interpretations, a discussion section, proposals for future investigations, and a summary of the most significant points. Along this line, it becomes clear that *Obsidian Artifacts* represent the key preferred lithic material for the production of stone tools and weapons. Geochemical provenance studies, quantification, artifact classification, and a cortex analysis on flakes reveal a substantial obsidian commodity flow from the Jichja Parco / Quispisisa source in the highland to the coast, thereby emphasizing the importance of the Cutamalla site in obsidian processing.

Excavated densities of mollusk remains and their relative abundances of species at coastal sites demonstrate that *Malacological Material* contributed to the subsistence of Paracas people in the chala zone. Although Pacific sea shells were still excavated at the ele-

vated sites Collanco and Cutamalla, sea shell densities are too low for reconstructing a genuine commodity flow directed from the coast to the highland. The last material chapter, *Camelid Bones and Strontium Isotope Analysis on Camelid Teeth*, forms a segment in the academic controversy surrounding pre-Colonial camelid husbandry on the Andean coast. High excavated densities of animal bones in Cutamalla, Collanco, and Jauranga stress the general economic relevance of South American camelids for Paracas people. The strontium isotope data and the camelid skeletal remains imply another significant commodity flow from the highlands to the coast. Camelid products and caravan transportation were the components of this commodity flow.

The *Discussion* section explains the results of the archaeological material analyses within the broader theoretical context. This part is organized in four chapters. The first one is *Other Material Groups and Their Potential for Archaeoeconomic Investigations*. Using the examples of botanical finds and ceramics, the chapter discusses the suitability of archaeological materials for economic investigations. Availability, consideration, inclusion, and exclusion of certain archaeological remains and consequences for interpretation are regarded. In doing so, the appropriateness of the material groups analyzed in this work for examining economic exchange is accentuated. Distribution patterns derived from the study of these material groups are described in *Resources and Riches: Economic Exchange in the Andean Transect*. Operating modes of exchange (Renfrew 1975; Renfrew & Bahn 2012; Shimada 1985b) such as direct access to resources and down-the-line exchange are also explored in this chapter.

The chapter *Can Economic Theories and the Archaeological Material be reconciled?* resumes the previously presented economic models and their archaeological expectations, scrutinizing their validity based on the archaeological evidence of the case study. This approach is consolidated in the next chapter by listing non-prevalent and prevalent aspects of each model. In *The Exchange System of Economic Directness*, the particular model of economic directness in the Andean Transect during the Late Paracas phase is reconstructed. Among the elements of this model are ecological complementarity, long-distance exchange, transportation by camelid caravans, coherent settlement on the western Andean slope, strategic sites, internal exchange, direct commodity access, direct exchange, down-the-line exchange, and supply and demand forces.

The *Conclusions* section summarizes the research outcomes of the case study of the Late Paracas period in northern Río Grande de Nasca drainage and the model of economic directness on the western slopes of the Andes. The twofold approach of assessing theoretical models and analyzing archaeological material is included. This part ends by compiling features for a future research program that could potentially refine the conclusions of this project and evaluate its integrity on a larger scale.