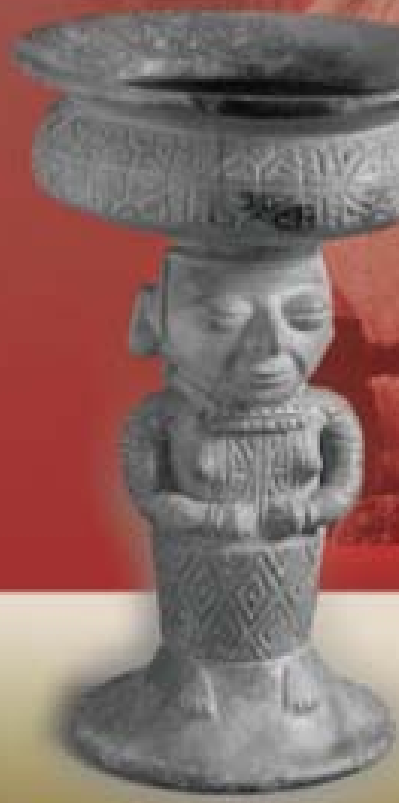
Handbook of South American Archaeology

Edited By

Helaine Silverman • William H. Isbell



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Cover images

Front cover (clockwise from lower left): Figure 22.2 from book: Ceramic female representation, Betancí style, Colombia. Fig 12.19 from book: Barracanoid ceramics from the lower Orinoco, a biomorphic head surmounted by a harpy eagle (ca. 900-500 BC). Fig 16.8 from book: Late Aristé polychrome funerary urn, Tour Reliquaire cave, Oyapock Bay, French Guiana

Spine: Fig 17.10 from book: Lip plug made of shell, Hertenrits Culture. The specimen is 4.7 cm high.

Background image: Figure 40.8 from book: Inca-style cloth, of the fine variety (kumpi), was produced by specialists, often women, and employed in events that displayed and conferred status. This example is one of the finest Inca tunics known. It is decorated all over with the tocapu motif. (Copyright: Dumbarton Oaks, Pre-Columbian Collection, Washington, DC; Object accession number PC.B.518; used with permission)

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Chapter 10

Early Fishing Societies in Western South America

DANIEL H. SANDWEISS

INTRODUCTION

Over the past decade, archaeologists have redefined the age and complexity of early fishing societies of the Pacific coast of South America, resulting in a paradigm shift for the entire New World driven primarily by Andean research. Like most breakthroughs, the new paradigm builds on deep roots in Andean archaeology, stretching back at least to the pioneering research of Junius Bird in northern Chile and northern Peru in the 1930s and 1940s, and continuing from the 1950s to the 1990s with the work of Frédéric Engel, Edward Lanning, Michael Moseley, James B. Richardson III, Agustín Llagostera, Robert Benfer, and others (see details below). Some, in particular Richardson and Llagostera, astutely recognized the true antiquity of Andean maritime adaptations from scattered and inconclusive data, and Richardson (1981) figured out why the data were so scant (particular sectors of ancient shorelines were inundated as sea level rose with deglaciation from 21,000-5800 cal yr BP; see Chapter 6 in this volume). His work has informed all subsequent research on this issue.

The simultaneous publication in 1998 of two Terminal Pleistocene, Paleoindian-age fishing sites in southern Peru demonstrated conclusively that fishing is very nearly as old in the New World as the presence of humans (Sandweiss et al. 1998; Keefer et al. 1998). Why is it important whether or not some of the first settlers of the New World knew how to fish? In a seminal review of the anthropology of fishing, James Acheson (1981: 277) wrote, "fishing poses some very unusual constraints and problems. Marine adaptations are one of the most extreme achieved by man". Among other factors that together contribute to the unique nature of such adaptations, Acheson noted human beings' lack of physiological adaptation to aquatic environments, physical and social risk, non-transferability of most terrestrial hunting technology, high degree of faunal diversity, periodic and unpredictable stock failure, low visibility of prey, and the problems of common property resources

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(Acheson 1981: 276–277). Given these distinct biological, technological, and social correlates of fishing, as archaeologists working in coastal zones, we should be concerned with tracking and analyzing maritime adaptations through time (see for instance Erlandson 2001). Nowhere is this more true than the coast of Peru and adjacent countries in western South America, one of the world's most productive marine ecosystems.

In this chapter, I briefly review the history of study and synthesize the current state of knowledge concerning early maritime adaptations in this region, and point to some implications of these new data. I limit my discussion to southern Ecuador, Peru, and northern Chile as this is where the majority of early coastal sites have been excavated. Sites of similar antiquity are as yet unknown elsewhere in the New World, with the exception of Daisy Cave on one of the Channel Islands of southern California (e.g., Erlandson et al. 1996). With the past decade of research in the Andes, we can now confirm the Richardson hypothesis about bias in the archaeological record of early fishing and thus help guide the search for more early maritime sites throughout the western Americas.

HISTORICAL REVIEW OF EARLY FISHING IN PERU AND NORTHERN CHILE

Charles Barrington Brown (1926) was the first to report preceramic sites on the coast of South America. However, it was not until the 1930s and 40s that American Museum of Natural History archaeologist Junius Bird really put the coastal preceramic on the map, with excavations in northern Chile (Bird 1943) and then in northern Peru at the Late Preceramic Peruvian site of Huaca Prieta (Bird et al. 1985; see Figure 10.1 for the location of this and other sites mentioned in this chapter). Although in both areas Bird found evidence for intensive fishing, most attention focused on his characterization of Huaca Prieta's inhabitants as America's first farmers (Bird 1948).

During the 1950s, Frédéric Engel began research on preceramic coastal archaeology in Peru. He, too, found evidence of marine resource utilization but chose to focus on other issues, in particular the use of the lomas (fog meadow) resource zone. Engel was the first to acquire radiocarbon dates from multiple coastal sites (e.g., Engel 1957, 1980).

Research into preceramic maritime adaptations began in earnest in the 1960s. On the central coast of Peru, at and around Ancón, Edward Lanning studied a series of preceramic sites and produced the first detailed sequence for the coastal preceramic epoch (Lanning 1963, 1967). Maritime adaptations played a role in his reconstruction of events: he found no significant use of marine resources before 5800 cal yr BP and an increasing importance of seafood thereafter. In his landmark text, *Peru Before the Incas*, Lanning (1967) used this sequence as a model for all of coastal Peru. Unfortunately, as Richardson (1981) pointed out fourteen years later, Lanning failed to take into account the possible effects of postglacial eustatic sea level rise on the preservation of archaeological sites. This phenomenon had been recognized long before the 1960s, and by that time the approximate chronology and magnitude were understood (for the current standard sea level curve see Fairbanks 1989). Because the continental shelf is relatively wide and shallow at Ancón, the shoreline there lay many kilometers to the west when people first arrived in the region about 13,000 cal yr BP. Consequently, most early maritime sites probably lay to the west of the modern shoreline, on the now-drowned coastal plain. The ocean only reached its modern position at about 6000 cal yr BP—the same time that Lanning first found evidence for marine resource use.

Figure 10.1. Map showing location of sites and places mentioned in the text. (Daniel Sandweiss)

Sites stand out on the desert coast of Peru and northern Chile. If Lanning had not found early maritime sites, then it was easy to think that none existed. Other archaeologists naturally followed Lanning's lead. Working in the same region in the late 1960s, Michael Moseley (1968, 1975) excavated Late Preceramic (ca. 5700-4000 cal yr BP) sites near Ancón. Confirming Lanning's observation that animal remains were predominately maritime, he placed these data in the broader context of the central coast Late Preceramic archaeological record. Noting that the first large coastal temples dated to this time and region, Moseley proposed the controversial "Maritime Foundations of Andean Civilization"

hypothesis—that seafood, not just agriculture, underwrote the first formation of Andean civilization.

While Moseley was digging on the central coast, Richardson (1969, 1973, 1978) was working on the far northern coast of Peru, near the oil port of Talara, where the continental shelf is extraordinarily narrow. In the late 1960s and early 1970s, he found Middle and even Early Preceramic Period sites that contained abundant evidence of marine resource use, especially shells of edible mollusks. One of these shells, from the Amotape campsites, produced a radiocarbon date of about 12,200 cal yr BP (Richardson 1978). During the Late Preceramic Period and more recent epochs, the Talara region was a relative backwater compared to the central coast of Peru; in the 1970s there was no reason to believe that this was not true in the Early Preceramic Period. Why, then, would the earliest Talareños take advantage of seafood while the innovative inhabitants of the central coast ignored this easy and abundant source of nutrition? It made no sense.

In 1981, Richardson published his answer to this question, as noted above: central coast-dwellers of the Early and Middle Preceramic Periods probably *were* using marine resources, but most sites containing evidence for this practice lay on distant shorelines now drowned by rising sea level. At issue is the preservation of whole sites and entire landscapes: where the continental shelf is narrow, as at Talara, the 60 m of sea level rise between 13,000 and 6000 cal yr BP (Early and Middle Preceramic Periods) caused relatively little horizontal displacement of the shoreline, while in areas of wider shelf such as the Ancón-Chillón area, the shoreline would have moved significant distances over this period and inundated many more sites.

As a test of this hypothesis, Richardson suggested that early maritime sites should be located on those parts of the coast—like Talara—where the shelf is narrow and the shoreline moved only a short horizontal distance as sea level rose. Appropriate areas of narrow shelf included the far northern Peruvian coast near Talara and the Peruvian coast from the Paracas Peninsula south through northern Chile. In the 1970s, Chilean archaeologist Agustín Llagostera (1977, 1979) excavated a shell midden site at La Chimba 13 (formerly called Quebrada de las Conchas) in northern Chile. His two original dates were almost 11,000 calendar years old. This site now fit into the emerging picture.

In 1983, Richardson and I began excavations at the large shell midden known as the Ring Site (Figure 10.2), in southern Peru not far north of the Chilean border (Sandweiss et al. 1989). There, we found a subsistence system in which all kinds of marine animals were exploited: fish, shellfish, sea urchins, sea mammals, and sea birds. There were almost no bones of land animals. The Ring Site people probably used plant foods, but no evidence survived. A shell from the bottom of the Ring Site yielded a date of 11,400 cal BP, but all the other dated materials, both shell and charcoal, had ages between about 9100 and 5850 calendar years ago.

Meanwhile, in southern Ecuador, a few hundred kilometers north of Talara, excavations by North American archaeologist Karen Stothert at the Las Vegas site had shown a mixed economy that included marine resources. Dates ranged from ca. 11,400-7500 cal BP; a pre-Vegas occupation dated between about 13,000 and 11,400 cal BP, but the scanty remains did not show what sort of food these people ate (Stothert 1985, 1988, 1992). More recently, analysis of microscopic plant remains (phytoliths) has shown that the early Las Vegas people cultivated cucurbits (squashes) (Piperno and Stothert 2003). At the same time, Claude Chauchat's work at sites of the Paiján culture of northern Peru showed people with an inland adaptation who were in contact with the shoreline as far back as 12,250 years ago (Chauchat et al. 1992). The Paiján sites are on the inland side of the modern coastal plain, and the shoreline 12,000 years ago was many kilometers further west. The Paiján people must have had stations near the ocean to exploit marine

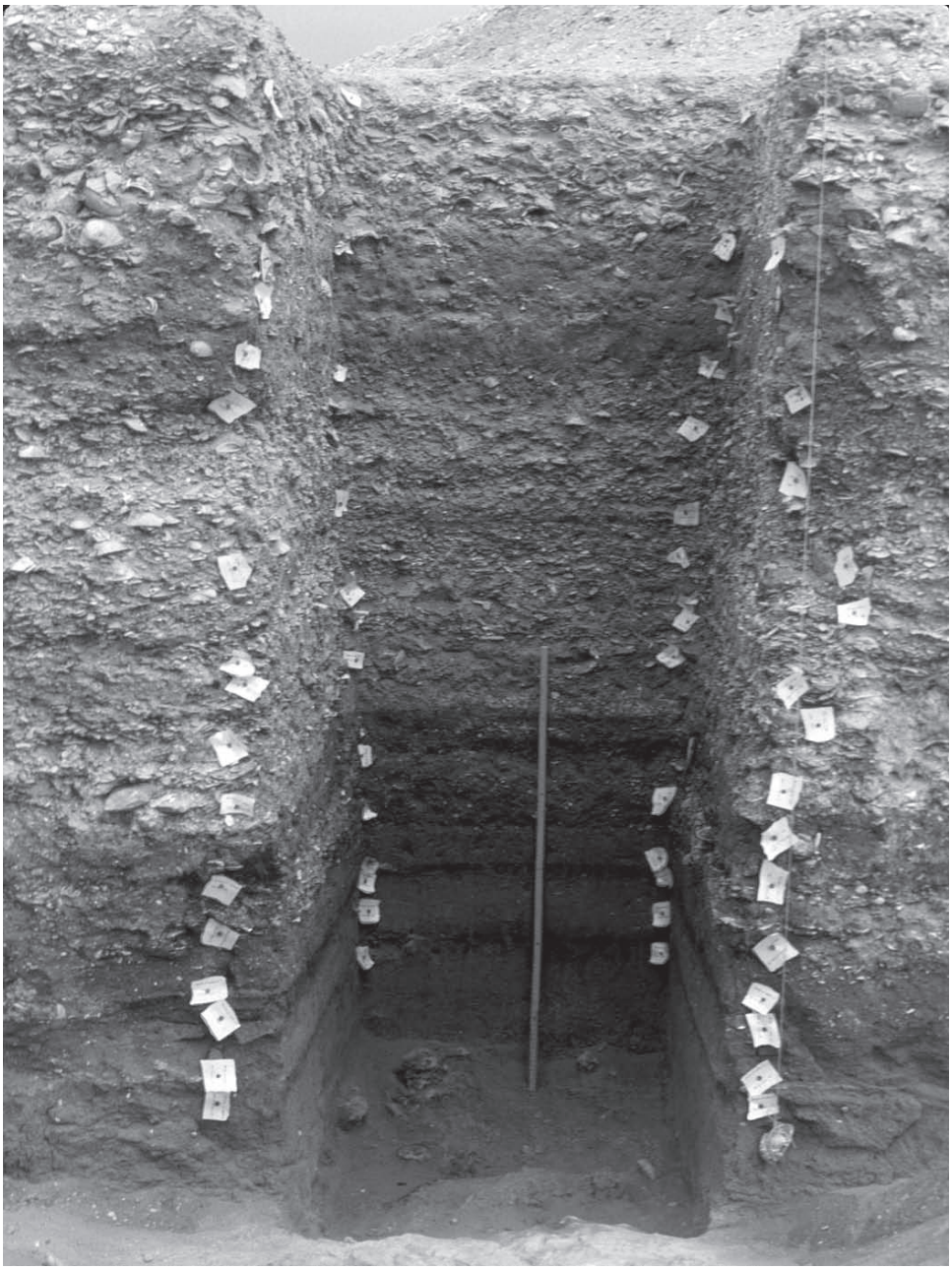

Figure 10.2. Profile of Pit C at the Ring Site, an Early to Middle Holocene shell midden near Ilo, Peru. (Daniel Sandweiss)

resources, but because of rising sea level the only evidence we have are a few fish bones and shells carried to their interior camps (Wing 1992; see also Dillehay et al. 2003). We cannot know whether there were separate coastal and interior groups who traded products or whether Paiján groups moved back and forth between beachfront and foothills.

By the end of the 1980s, archaeologists had excavated numerous Middle Preceramic maritime sites dating between about 9000 and 5000 years ago along the Peruvian and Chilean coasts. No longer was there any doubt that South American maritime adaptations were far earlier than Lanning and others had believed in the 1960s and 1970s. Still, none of the well-dated maritime occupations approached the time of the first settlement of South America. They had nothing to say about migration routes and could be classified as a peripheral development by those who saw the transition from terrestrial hunting and gathering to farming as the crucial transformation of Andean civilization. The early dates from Amotape and the Ring Site could be dismissed—shell is a difficult material to date—and neither date was supported by similar results from the same site (e.g., Lynch 1991). Even the dates then available from La Chimba 13 in northern Chile post-dated 11,400 cal yr BP and therefore are later than the initial settlement of the coast.

Below, I review the best-dated and studied early maritime sites from Peru and northern Chile. As will be apparent, there is no longer any question about the antiquity of aquatic adaptations in the region, but we are just beginning to understand the nature of this early coastal settlement and much remains to be done.

QUEBRADA JAGUAY

In 1970, as part of his program to explore the preceramic epoch of the Peruvian coast, Engel (1981) recorded a site on the banks of an ephemeral stream near Camaná in southern Peru. As part of this work, Engel made a sketch map of the site and dated charcoal from one of his three test pits at the site, Quebrada Jaguay 280 (QJ-280). In the early 1990s, Peruvian archaeologist and former Engel assistant Bernardino Ojeda called my attention to this date (ca. 11,800 cal yr BP) and recalled that the site contained abundant remains of shells and fish, a fact that we confirmed from Engel's open pits during a brief site visit in 1992 (Figure 10.3). In 1996, I began excavations at Quebrada Jaguay (Sandweiss et al. 1998, 1999) and continued with a second season in 1999. I also carried out a full cover survey in the area between Quebrada La Chira and the Camaná River, from the shoreline inland to about 750 masl. Working with a team of Peruvian, Canadian, and U.S. archaeologists and analysts, we determined that Quebrada Jaguay was a fishing site occupied between about 13,000 and 8300 cal yr BP, based on a suite of 41 charcoal dates (Sandweiss et al. 1998, in prep.). Distinctive assemblages and an additional 20 dates from sites recorded and tested during survey established the following local chronology (Sandweiss et al. 1998, 1999, in prep.):

Jaguay Phase, ca. 13,000-11,400 cal BP. Early Preceramic Period.
Machas Phase, ca. 10,600-8000 cal yr BP. Early Middle Preceramic Period.
Apparent hiatus, equivalent in time to the "archaeological silence" postulated for the Atacama region of northern Chile (Grosjean et al. 1997; Núñez et al. 2002).
Manos Phase, ca. 4000 cal yr BP. Late Preceramic Period.

Basal dates from the Jaguay Phase, found only at QJ-280, are as early as any well-established dates from anywhere on the Peruvian coast and may well represent the first settlement of the region. This phase clearly dates to the Terminal Pleistocene Epoch and is equivalent in age to the North America Paleoindian Period. During the Jaguay Phase, QJ-280 was a domestic center for fishermen who targeted drum fish (the corvina or sea bass family) and wedge clams (Sandweiss et al. 1998; McInnis 1999). These people built houses, apparently rectangular (Figure 10.4), and modified them frequently, perhaps when

Figure 10.3. Frédéric Engel's 1970 Pit A at Quebrada Jaguay (site QJ-280), seen in 1992. (Daniel Sandweiss)

returning after prolonged absences. Within the houses were hearths, food remains, and abundant lithic debitage but almost no finished tools. The vast majority of the lithics were local (Tanner 2001), but the inhabitants also brought obsidian from the highland Alca source some 165 km away in the adjacent highlands (Sandweiss et al. 1998; Burger et al. 1998). The Jaguay fishermen employed reeds, probably for building, used medicinal plants such as horsetail, and ate prickly pears (Sandweiss et al. 1998, 1999; A. Cano, personal communication; D. Piperno, personal communication). They may well have consumed other plants, but no evidence has survived. In short, the primary site function was domestic—shelter, food preparation and consumption, and tool making for use elsewhere.

Despite running basal dates on 17 of the more than 60 sites discovered during survey of the region, only QJ-280 falls in the Jaguay Phase. All the other sites are Machas or Manos Phase. Combined with the presence of highland obsidian and prickly pear cactus seeds (not likely to grow wild below 1,000 masl), the most parsimonious explanation for this pattern is that QJ-280 was a coastal base camp in a seasonal round that included other areas—certainly the adjacent highlands and possibly also the floor of the nearby Camaná and Ocoña rivers. Further work in the highlands near the Alca source may uncover contemporary sites that will help us assess this idea.

During the subsequent Machas Phase, sites spread across the landscape near Quebrada Jaguay, while exotic materials (obsidian, prickly pear) drop out and poorer grade lithics (sandstone from the quebrada bed adjacent to the site) become more frequent in the assemblage. These changes suggest that at the start of the Holocene (after 11,400 cal yr BP), the local population had settled in to the coastal landscape and no longer ranged into the highlands.

Figure 10.4. Postholes from a Terminal Pleistocene house at Quebrada Jaguay (site QJ-280), Sector II. 1999 excavation. Grid is 1 m. (Daniel Sandweiss)

QUEBRADA TACAHUAY

Some 230 km south of Quebrada Jaguay, Keefer et al. (1998) found Terminal Pleistocene archaeological deposits exposed in profiles along the Quebrada Tacahuay. Charcoal dates range from ~12,000 to 12,900 cal yr BP (deFrance et al. 2001; deFrance and Umire A. 2004). The excavations have produced a substantial vertebrate faunal assemblage emphasizing seabirds, with some fish and mollusks. The marine species are typical of the Peru Current today. No information is yet available on plant use. A substantial flood deposit overlies and seals the Terminal Pleistocene archaeological deposits, suggesting ENSO-like conditions shortly before 11,000 cal yr BP. Shortly after that event a reoccupation dated to the Pleistocene/Holocene transition includes birds, marine and terrestrial animals, reptiles, fish, and mollusks (deFrance and Umire A. 2004). In the Terminal Pleistocene/Paleoindian-age deposits, lithics are local, terrestrial fauna is absent, and although hearths are present, there is no evidence for structures like those at Quebrada Jaguay (deFrance et al. 2001; deFrance and Umire A. 2004). The excavators believe that the site was a "specialized coastal extraction station" (a logistical field camp, *sensu* Binford 1980) for processing seabirds.

COMPLEJO HUENTELAUQUEN

Llagostera's work at La Chimba 13 (also called Quebrada de las Conchas) offered one of the first examples of an Early Preceramic maritime site in the Andes, though the two dates available in his 1977 and 1979 publications were Early Holocene rather than Terminal Pleistocene and therefore slightly later than dates then available for highland sites. More

recently, Llagostera and colleagues (2000) have acquired additional dates for a total of 13, with a range of ca. 9500–11,700 cal yr BP (with one outlier at about 7800 cal yr BP).

At La Chimba 13, the vast majority of faunal remains are marine, principally fish and mollusks but also including sea mammals and seabirds. A small number of terrestrial animal remains were recovered, including camelid bones (Llagostera 1977, 1979; Llagostera et al. 1997, 2000).

Llagostera and his colleagues (2000) have now dated several other sites from the same Huentelauquén cultural complex to which they assign La Chimba 13. Two of these sites (El Obispo and Los Medanos 2) have Terminal Pleistocene dates associated with the remains of mollusks, fish, seabirds, and small numbers of marine and terrestrial mammals. Other sites of the Huentelauquén complex are located further south, date to the Early Holocene, and have a larger terrestrial presence among the faunal remains.

The Terminal Pleistocene dates from the northern Huentelauquén Complex sites overlap with the early occupations at Quebradas Jaguay and Tacahuay and extend the geographic extremes of known early maritime adaptations from far northern Peru to northern Chile.

CONCLUSION

What can we learn from this growing but still spotty record of Terminal Pleistocene, maritime-adapted sites in western South America? The sites show that a model of late discovery of the ocean resources can no longer be sustained; people knew how to exploit the sea when they first arrived in western South America, or shortly thereafter. Beyond that, the new data touch on three, interrelated questions: 1) What was the migration route or routes into and through western South America? 2) What was the subsistence adaptation of these early South Americans? And 3) What was the social organization of these people?

When Quebrada Jaguay and Quebrada Tacahuay were first reported in 1998, many commentators (e.g., Gruhn 2000) saw them as proof of the long-suspected coastal migration route through the Americas (Fladmark 1979). Certainly, these sites demonstrate the presence of people in the right places with appropriate adaptations to support this hypothesis. However, we are far from demonstrating that a coastal route was actually used. Although the Amotape Campsites, the Ring Site, and Quebrada Tacahuay lack any evidence of contact with the Andean mountain region, obsidian from Quebrada Jaguay shows a definite connection to the highlands, where people must have gone on forays even if they had not yet settled the higher elevations. Coastal, highland, or parallel migration routes all remain possible—we have far too few sites to connect the dots, nor have we developed a proven means of assessing relationships between inhabitants of different early sites, whether they be on the coast or in the highlands. The known early maritime sites contain few finished artifacts and no human skeletal remains to compare, leaving for the moment only lithic debitage as human-modified material that might show cultural relationships. Ben Tanner (2001) has established a protocol for technological analysis of such collections and applied it to samples from Quebrada Jaguay and Quebrada Tacahuay. However, we need many more assemblages collected and analyzed in the same way before the database is large enough to interpret intersite connections.

In assessing early subsistence systems, we are on firmer ground. The old model of big-game hunting as the exclusive Paleoindian economic strategy has fallen by the wayside. The growing archaeological record for Terminal Pleistocene subsistence also includes

fishing, small game hunting (Roosevelt et al. 1996), and increasing evidence of plant use and even manipulation (Piperno and Stothert 2003). Indeed, as Tom Dillehay (1999: 207) has indicated, many Paleoindian-age Terminal Pleistocene sites reflect a diet once thought typical of the Archaic Period.

Terminal Pleistocene sites of the Peruvian and northern Chilean coasts are too few and too incompletely excavated to offer any firm conclusions about organization. Further, sea level change adds a complicating factor to the settlement record. In the Paiján region, for instance, we know that people had contact with the coast and harvested marine organisms, but the shoreline of that time now lies many kilometers offshore along with any sites dedicated to maritime fishing and gathering. Did the same group move between shoreline and coastal plain, or were there separate groups who traded? In the south, we have a probable base camp at Quebrada Jaguay and a probable logistical camp at Quebrada Tacahuay, but given the distance between them, it is unlikely that they belonged to the same settlement system. The maritime-adapted sites of the Huentelauquén Complex in northern Chile are also far apart. The Early Holocene components of these sites share some specific artifacts that suggest they were part of a single group (Llagostera et al. 2000), but that cannot be established for the Terminal Pleistocene components.

The last several decades of research on early coastal sites of western South America have shown us where to look for maritime-adapted sites. There is every reason to believe that many more such sites will come to light in the next decades and will lead us closer to understanding the first inhabitants of the region.

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