Andean Past

Volume 3 Article 9

1992

Early Occupations and the Emergence of Fishermen on the Pacific Coast of South America

Agustin Llagostera
Universidad de Antofagasta, agustin.llagostera@uanto.cl

EARLY OCCUPATIONS AND THE EMERGENCE OF FISHERMEN ON THE PACIFIC COAST OF SOUTH AMERICA

Agustín Llagostera
Instituto de Investigaciones Arqueológicas y Museo de la Universidad Católica del Norte, Chile

Introduction

The archaeological literature for the Pacific coast of South America contains a considerable quantity of information of transcendental importance for understanding cultural development on the American continents. Sites dating around 10,000 B.P. prove that human groups subsisted on seafood from very early on (Chauchat 1978; Llagostera 1977, 1979; Richardson 1978; Sandweiss *et al.* 1989). An extraordinary coastal adaptation called the "Fishhook Culture" is documented for the North Coast of Chile (Bird 1943, 1946). There is a record of artificially prepared mummies which are turning out to be the oldest mummies in the world (Uhle 1922; Allison *et al.* 1984). Apparently complete sequences of development have been constructed for the Ancón-Chillón area (Lanning 1967; Moseley 1975). And, far from exhausting the relevant information, I would say that the majority of the archaeologists who have worked on the Peruvian littoral have been unable to refrain from mentioning the monumental architectural complexes which emerged on the North-Central Coast; these complexes have been considered as testimony to an unprecedented social complexity at this early moment in South American prehistory.

The problem is that these and other findings contributed by archaeological investigation appear as isolated data points on this long coastal belt. Until now, I know of no attempt to organize the existing information with an integrative vision. Without doubt, a structure must exist in all this development; the facts must be interrelated in some way by the common source of subsistence that is the sea and the easy communication route that are the beaches. In this article, I have attempted a spatial and temporal ordering of the Preceramic panorama, with reference to what today are the coasts of Ecuador, Peru, and Chile. Nevertheless, we must recognize that this macro-panorama is spattered with information gaps; the present work does not pretend to be complete, but rather is a working paper articulated by numerous hypotheses.

To put together this panorama, I have formulated a sequence of two stages: 1) Stage of Maritime Gatherers, and 2) Stage of Archaic Fishermen. The *Stage of Maritime Gatherers* coincides with what I have called the "first dimension" or "longitudinal dimension" in the economic conquest of the sea (Llagostera 1982). We are dealing here with maritime exploitation at the level of mollusk gathering and the capture of fish by traps in littoral pools, coves, and lagoons, without using hooks; these activities were complemented with the hunting of sea lions on the coast and terrestrial mammals in the *lomas* and Coastal Cordillera. These coastal colonizers still did not have a specialized tool kit for exploiting the open ocean, so they had to obtain the resources along the shore, especially in the intertidal zone. The *Stage of Archaic Fishermen* witnesses the conquest of a second maritime dimension, the "bathytudinal dimension". Here, the fishhook was the fundamental technological contribution that permitted access to the deep ichthyological resources. These first fishermen were users of a very homogenous culture wherever they expanded, carrying the shell fishhook as the most diagnostic element of their tool kit. At later moments, one notes a differentiation of groups along the coast: on a generalized sub-stratum, peculiarities were accentuated or a certain heterogeneity of traditions was produced. This situation coincides with a notable development in plant domestication (especially in the northern segment of the area under consideration) which, added to coast-interior relations, accentuated the mentioned differences.

I want to highlight the emergence and development of the Archaic fishermen, since there is no doubt that the incorporation of the fishhook was a revolutionary contribution to the subsistence and

ANDEAN PAST 3 (1992): 87-109.

demographic levels of the coastal populations. With our work at Quebrada las Conchas (a site predating the appearance of the fishhook), I have shown that in the lower levels the fish are very small; the frequency charts show a captured population consisting of immature specimens of reduced size. In the upper levels, the larger fish are accentuated, but always as juveniles. In analyzing the sequence of levels, in general the frequencies move towards an increase in the size of the captured population, but still remain below the predominant average sizes for the natural populations of each species. The slight increase in size observed in the stratigraphic sequence of this pre-fishhook site could be due to the incorporation of nets in the subsistence technology, or to an improved knowledge of local ecology and the behavior of the fish.

In the sites which housed fishhook-using populations, the size of the captured fish is much greater. No doubt, this increase resulted from the use of hooks for selective capture and the consequent conquest of the bathytudinal resources of the sea. The capture frequencies now coincide with the metric patterns for size range and distribution of the natural fish populations, clearly noting a selection for the mature individuals. It is evident that human groups now had access to the entire population of certain species, that is, immature, mature, and senile. The habitat of the adult specimens is the neritic zone: this zone and its fish which were always there, but only as a *potential* resource. The fishhook provided the means to activate this food resource, putting a new physical and energetic dimension within reach of man.

There is more and more evidence that human groups on the Andean coast exploited marine resources well before 6,000 B.P. Until recently, however, the oldest known sites dated to that time and were numerous, causing archaeologists to believe that man first approached the coast about 6,000 years ago. This error was not gratuitous; the truth is that it reflected a real phenomenon which has its explanation in two convergent facts. One, of a physical-geographic nature, is the stabilization of the Flandrian sea level, which permitted the preservation of shoreline only from that moment forward. But, perhaps the most important explanation has its base in the socio-cultural aspect: the improvement in the tool kit which favored, at this time, a true explosion in the coastal populations, as evidenced by the huge and extensive shell middens. Beginning at this time, the technical equipment necessary for maritime exploitation was produced, creating the fundamental infrastructure of coastal subsistence.

To approach more closely the materials available to the archaeologist, I have complemented this vision of the stages with *cultural complexes*, which I understand as a group of traditions that present some unity within a limited space and time (Llagostera 1989) (Figure 3). I define *tradition* as certain cultural phenomena represented by elements, expressions, or practices which manifest themselves as a recurring pattern, in representative forms and structures, converting themselves into collective cultural models and, in principle, organizers of the society. These principles or norms are transmitted from generation to generation, establishing a continuity in time and space. Consequently, a tradition can refer to a form of projectile point or fishhook, to the use of certain raw materials, to characteristic forms of preparing and burying the dead, to specific hunting, fishing, or gathering techniques, etc.

To list each one of the different complexes, I will use the type-site which identifies them and which, preferably, has the oldest date (Figures 1 and 2). When there are moderate changes in the basic traditions within a complex, that is, in those traditions which serve as the basis for formulating the complex, then I divide the complex into phases.

Stage of Maritime Gatherers

At the northern extreme of the South American Pacific coast, we find the most solid evidence in Ecuador. On the Santa Elena Peninsula, on one edge of the Las Vegas site, Stothert (1985: 618, Table 1) obtained three dates ranging between 10,840 and 10,100 B.P. Unfortunately, as she herself

indicates, "the cultural remains were insufficient to permit either a description of the early occupation or a distinction between the early remains and the preceramic materials found elsewhere in the site" (*ibid.*: 616). Nevertheless, she proposes this evidence as a pre-Las Vegas phase, keeping it separate from the more voluminous Las Vegas occupation associated with later dates. Stothert considers this last as the true Las Vegas occupation and distinguishes in it an early phase (10,000-8,000 B.P.) and a late phase (8,000-6,000 B.P.) (see also Stothert 1988).

The tool kit of what I will call the *Las Vegas Complex* is simple: pointed and spatulate bone objects, shell containers, pigments, chert flakes and chunks, and pebbles or cobbles showing only minor modifications. There are no lithic projectile points, even though something over half of the protein diet is represented by terrestrial animals (especially deer). Fish occupy a third of the diet, although there is no record of hooks; mangrove mollusks fill out the rest of the animal diet. The difference between the early and late phases seems to rest not so much on changes in the objects as in the incorporation of *Lagenaria* and primitive maize which, in the late phase, are added to a wide variety of wild plants utilized since the early phase of the Las Vegas Complex. In contrast to the early phase, for which no cemetery has been found, a burial site with 192 interments has been registered for the late phase (Stothert 1985, 1988).

In Peru, in the Talara region, Richardson (1978) located camp sites that permitted him to define the *Amotape Complex*, with dates between 11,200 and 8,125 B.P. The associated lithic industry at these sites includes denticulates, multiplenotched and pointed tools with steep edge angles clustering between 60-75 degrees, and flakes and cores (*ibid.*: 277). At other sites in the area, Richardson detected two preceramic complexes which continue the sequence: the *Siches Complex* (8,000-5,000 B.P.) and the *Honda Complex* (5,000-4,000 B.P.). The unifacial artifacts of the Amotape Complex continue in both of the later complexes, with the addition of cup-shaped mortars and grooved pebbles (possibly net weights); ground stone T-shaped axes and stone bowls are found only in Siches (*ibid.*: 282-283).

Sites of the Amotape and Siches Complexes (especially the latter) register an intensive use of mangrove resources. In contrast, sites of the Honda Complex contain marine resources but not those of the mangroves, which suggests that by this time the mangroves had retreated to the north. Evidence of *Lagenaria* has been registered in association with the Honda Complex.

Lanning (1967) establishes the Red Zone, Oquendo, Chivateros 1, and Chivateros 2 as the earliest Complexes in the Chillón Valley and Ancón desert. In the corresponding sites, there is no evidence for any kind of fishhook and, as the author states, a trait of all these early cultures is the absence of the pressure flaking technique; the artifacts of Chivateros and Oquendo, even the most finely finished specimens, were made by percussion flaking with cobble hammers. Although Lanning places these complexes between 14,000 and 9,000 B.P., Rick (1983) states that there is no conclusive evidence for dating these sites, nor for the seriation of the tools, nor for an evaluation of the form of adaptation. Chauchat (1978) considers as definitively proven the hypothesis that the sites of the so-called Chivateros Complex are quarries where preforms of Paiján points were prepared. Following this assumption, we will assume that the *Paiján Complex* corresponds to the earliest occupation of the Central and North Coasts of Peru, with dates between 12,795 and 8,000 B.P. (Ossa 1978; Chauchat 1988). The Paiján Complex would have extended spatially from Cupisnique in the north to the Chillón Valley near Lima.[1] Artifacts found at sites of this Complex include bifaces, workshop debris with hammers, classic Paiján points, denticulate tools, scrapers, perforators, pebble tools, and grinding stones. The burial pattern consists of flexed bodies lying on their sides.

---

[1] A recent review of Engel's collections from Pozo Santo on the Paracas Peninsula suggests that a variant of the Paiján culture may have existed in that region (Bonavia and Chauchat 1990).

The sites near Ancón which Lanning originally segregated as the Piedras Gordas Complex and which later were considered as very poor sites of the Luz Complex (Patterson and Lanning 1964), were reclassified by Chauchat (1988: 47) as camps of the Paiján Complex. In the Casma Valley, Malpass (1983) distinguishes an industry which he dates between 8,000 and 5,000 B.P., following Paiján and its Casma variant Mongoncillo. This industry has similarities with the artifacts from three sites near the *Lomas* de Lachay (Fung 1968), as well as with materials from the Arenal and Canario Complexes. The *Luz* and *Arenal Complexes* continue Lanning's sequence for the Ancón-Chillón area. The Luz Complex presents long-stemmed Paiján forms of projectile points and would be closely related to Arenal, although with a lower proportion of mortars and bifacial knife blades. Dates for the Luz Complex run between 7,300 and 6,600 B.P. (Patterson and Lanning 1964).

Canario, Corvina, and Encanto comprise later complexes for the *Lomas* de Ancón. Nevertheless, Rick (1983), after a comparative analysis of Lanning's five complexes, questions the individuality and the sequence of these units, concluding that it is much more logical to think that the spatial differences in the relative frequencies of tools results from functional rather than chronological differences between sites. He adds that, because there is little evidence to sustain the chronology inferred by Lanning, it is much easier to interpret the remains found in the different sites in terms of the resources found near the sites. In any case, and for my objectives, the evidence is conclusive in affirming that within the indicated chronological range, there existed in the area a cultural stage which sustained its economy by coastal gathering, including the resources of the shoreline.

Further south, finds include sites such as La Chira, at 8,765 B.P., Jaguay Canyons, at 10,200 B.P., and Campamento 96 of Paracas, with dates older than 8,000 B.P. (Engel 1981). The tool kit at these sites is extraordinarily simple, lacking elements--such as projectile points--which could assume a diagnostic character. The same occurs in the Ilo region, where excavations at the Ring Site, above the Playa del Palo, produced dates which range between 10,575 and 5,060 B.P. (Richardson 1986; Sandweiss *et al.* 1989). The lithic inventory at this site includes waste flakes, utilized flakes, retouched flakes, cobble cortex ends, and unifacial tools. Among the bone and shell artifacts are slightly curved, tubular objects flattened on one end and pointed on the other, which the investigators think are the hooks (barbs) of compound fishhooks (Sandweiss *et al.* 1989). However, it is striking that having found 8 of these hooks, no weight (shank) was found, which ought to exist if we are dealing with compound fishhooks. Following the criteria established previously, this last site serves to form the *Ring Complex*, in which I include the initial occupations of the sites listed at the beginning of this paragraph.

On the Chilean North Coast, Tiliviche 1b (Núñez and Moragas 1977-1978) has an occupation, dated at 9,130 B.P., with evidence of marine gathering. Although this site is located 40 km from the coast, the remains show the inhabitants to have been people who were operating in the littoral habitat, exploiting the resources of the intertidal zone. The contextual evidence for the early strata of this site (9,130-7,850 B.P.) is similar to that of the Ring Site; in consequence, I consider the initial occupation at Tiliviche 1b as a member of the Ring Complex. The Ring Complex would therefore extend, tentatively, throughout the South Coast of Peru and the North Coast of Chile.

Further south, near Antofagasta, is the Quebrada las Conchas site, with dates of 9,680 and 9,400 B.P. (Llagostera 1977, 1979). Geometric artifacts made of sandstone are the distinctive cultural feature of this site (see Llagostera 1979: 318, figure 3); they first appear in the stratigraphy in small quantities near the dated levels but reach their greatest frequency towards the surface of the site.[2] The occupation of the Quebrada las Conchas took place during the Holocene, at a time when the climatic

[2] These geometric sandstone artifacts are flat disks with a circular or polygonal circumference. The fact that they are made of material as crumbly as sandstone suggests that their function was not utilitarian, but rather ritual-symbolic (Llagostera 1977).

conditions were affected by a gradual increase in temperature, advancing towards its maximum oscillation. When this "thermal climax" was reached, the site was its final phase of human occupation. The reflection of this event is obvious in the paleoecological picture delineated by the bioindicators. Through the "local-extinct"[3] fish, I have recorded a sequence showing the progressive heating of the ocean: first to appear is the seabass ("ayanque") (*Cynoscion analis*) indicating already warm waters, followed by the golden sea bass ("corvina dorada") (*Micropogon altipinnis*) marking the precise moment of the thermal maximum.

The similarities in tool kit between Quebrada las Conchas and the so-called "Huentelauquén Culture" (Iribarren 1961) argue for a specific complex which I will designate as the *Huentelauquén Complex* and which would have extended practically from Antofagasta (Llagostera 1977) to the Limarí River (Bahamonde 1969). The cultural context is different from that of the Tiliviche-Ring Complex, despite being contemporary. Here, in addition to the typical geometric stones, stone points with cone-shaped stems are diagnostic of this complex.

On the Central Coast of Chile, the Huentelauquén Complex shows a strong development, with settlements concentrated close to the sea and associated with shell middens (*e.g.*, Bahía Obispito, El Teniente, and Huentelauquén). Together with the above-mentioned geometric stones, relatively large points with triangular forms, cone-shaped stems, and sometimes lateral wings appear. This stone point tradition shows a close relationship with that of the *Cárcamo Complex* located in the interior of the territory (Ampuero 1969). The large points of this type permitted Willey (1971) to place Huentelauquén in his Preceramic Period V, that is, between 6,150 and 4,450 B.P. Although it is true that this Complex, given its northern antecedents, would begin earlier than Willey's initial date, I think that the terminal date he proposes is acceptable. I also think that the large points would, effectively, represent the last phase of the Complex. While, in the northern latitudes, the Huentelauquén Complex was being replaced earlier by the advance of the fishermen from the north, on the extreme south of the Chilean Central Coast, this Complex survived until later times.

Although scarce, the information on early settlements still further south suggests that these populations were not linked to the Huentelauquén Complex. South of Valparaíso, at Punta Curaumilla, Ramirez (1989) reports a shell midden with preceramic and ceramic occupations. The earliest date available for this site, 8,790 B.P., appears to be associated with stemmed points different from those of Huentelauquén, and with numerous remains of sea lions. The later preceramic occupation is dated around 5,000 B.P. and has flat-based, triangular points and a greater emphasis on mollusk collection. On the island of Raqui-Tabul (Concepción), Campana and Seguel (1984) excavated a scallop (*Chlamys purpurata*) midden with human bones. Given what is known concerning the presence of this mollusk on the South Coast of Chile, these archaeological remains can be estimated to date to at least 8,500 B.P. Campana and Seguel (*ibid.*) also report points at Bellavista 1 which are similar to those of Caraumilla. These finds suggest the presence of a cultural unit in the extreme south which I would identify as the *Curaumilla Complex.*

Stage of Archaic Fishermen

It is only with the recovery of fishhooks that we can talk of true fishermen, those who are entering a new dimension of the maritime economy. The oldest record of fishhooks on the Pacific coast of South America comes from the Chilean North Coast: Camarones 14 at 7,420 B.P. (Schiappacasse and Niemeyer 1984) and Tiliviche 1b at 7,850 B.P. (Núñez and Moragas 1977-1978).

---

[3] I use "local-extinct" to refer to fish species that today are difficult to find at this latitude, but that at some time in the past were relatively abundant: *Cynoscion analis*, *Micropogon altipinnis*, *Ophioscion obscurus*, *Elattarchus archidium*, and *Paralabrax callaensis.*

I will use Camarones as the type site for the first complex which can be assigned to archaic fishermen.[4] The *Camarones Complex* would be defined contextually by what Bird (1946) called the "First Preceramic Period". One of the traditions indicative of this complex is the use of simple fishhooks made of mussel shell (*Choromytilus chorus*), to which are added compound fishhooks consisting of an elongated weight or shank (of stone, shell, or bone) tied to a hook or barb; harpoons with detachable heads and bone barbs for hunting sea mammals; stone points sharpened on both ends; and lava bowls; also bone tools and awls; stone rasps with uni- or bilaterally worked edges; scrapers, knives, and tools of stone chipped with crude percussion; cordage of vegetal fiber or, less often, camelid wool; textiles made with matting techniques and with netting techniques.

Camarones 14, Tiliviche 1b (intermediate stratigraphic zone), and also the deepest strata of the middens at Quiani and Punta Pichalo, all close to Arica, define a First Phase of the Camarones Complex. In this phase, the shell fishhooks have a circular outline (Figure 4a) and are associated with sandstone files and stone polishers. A Second Phase is present in the strata superposed over those of the First Phase in some of the mentioned sites and also at Caramucho 3 (Sanhueza 1980) and Camarones Sur (Rivera 1983). The basic change in the Second Phase relative to the First is the straight stem of the shell fishhooks (Figure 4b).

The funerary tradition associated with the Camarones Complex, as seen at the type site (Camarones 14), consists of the primary burial of adult and subadult individuals in an extended position and wrapped in a shroud of reeds and/or skins. A different tradition was established for the neonates and infants, with an elaborate and complex procedure for preparing the body before burial. This last form of mortuary preparation would be identified with what has been called the Chinchorro Culture, Tradition, or Phase,[5] but I am going to consider it only as a tradition within the Camarones Complex, because it refers only to the funerary practices.

Very well described by Uhle (1922) and analyzed in detail by Allison *et al.* (1984), this spectacular mummification technique is one of the most archaic ideological manifestations of the fishermen. It would be the oldest ritual through which man attempted to create a connection with the supernatural world using the human body itself. The predominance of infant versus adult bodies prepared with these techniques, as well as the use of clay or bone figurine mummies, of animals, and of birds to replace the human body, suggest that the objective was not originally a cult of the dead. These "ritual artifacts" must have formed part of a wider cultic conception; perhaps, as propitiatory symbols or messages to the natural and supernatural forces of the cosmic surroundings.

At Camarones 14, one of the four complex preparation mummies was dated at 7,000 B.P. At Morro 1 (Allison *et al.* 1984), four out of 35 mummies were dated, giving a range between 7,810 and 4,040 B.P.

Around 6,000 B.P., it appears that the Camarones Complex began to gain ground on the riverless, arid coast of the II Region of Chile. Bird (1943) excavated two sites very close to Taltal: Cerro Colorado and Punta Morada. These sites show the expansion that the stage of shell fishhook fishermen was achieving to the south. The tool kit is within the patterns that the same investigator described for the shell fishhook sites further north. Despite the similarities, there are also differences which Bird recognized; for example, the shell fishhook differs from the northern examples in that the stem is uniformly straighter and frequently longer. The double-pointed stone points, which are the most abundant, are cruder and thinner than those of Quiani. Absent are the spindle-shaped weights that

---

[4] Although Tiliviche 1b is older than Camarones 14, I will use the latter to name the complex given that, in contrast to Tiliviche's location 40 km from the coast, Camarones is situated right on the shoreline.

[5] Uhle (1922) called it "Aborigines de Arica" (Arica Aborigines).

are present in Quiani and Punta Pichalo, but the compound hooks associated with the shell fishhooks are found, as in the lower strata of both northern sites. As at other sites of the arid, riverless coast, a distinctive element at Cerro Colorado and Punta Morada is the stone file for sharpening and polishing the hooks; another characteristic tool from these sites is a type of thin, sandstone saw. These artefact types (file and saw) are absent further north, in the sites around Arica.

The radiocarbon date of 6,030 B.P. from Cobija (Bittmann 1984), close to that from Quiani, and the similarity of the contexts demonstrate a rapid expansion of the Camarones Complex as far as Cobija, near Tocopilla. But from there south, the contextual attributes show not only what could be secondary adaptive differences, but also diachronic differences. As far as Cobija we find what I have termed the First Phase of the Camarones Complex, characterized by the circular hook and, according to the dates from that site, ending around 5,400 B.P. to make way for the Second Phase of the Camarones Complex. This phase, with the straight-stemmed hook, begins in Abtao 1 (Mejillones Peninsula) at 5,350 B.P.; at Taltal, it must be somewhat later.

In addition to Cobija 13 (second occupation), Abtao 1 (first occupation), and the sites of Taltal, the Second Phase of the Camarones Complex is registered at Punta Blanca and Punta Guasilla (south of Tocopilla), Chacaya (80 km north of Antofagasta), Los Canastos (south of the Mejillones Peninsula), and Punta Grande (36 km north of Taltal). This inventory suggests that between 5,400 and 3,500 B.P., the entire region of the arid, riverless coast came to participate in the conquest of the bathitudinal dimension of the sea; basically, this took place through the expansion of the Second Phase of the Camarones Complex.

It is only with the arrival of the Camarones Complex that we can speak of specialized fishermen on the coasts of the III and IV Regions of Chile. At Puerto Guacolda, Iribarren (1969) reported a stone "puco" (semi-spherical vessel) and shell fishhooks. At Bahía Maldonado, in shellmound 3, there is a preceramic occupation prolific in shell fishhooks, in which it is possible to distinguish clearly the two phases that I postulate for the Camarones Complex (Kuzmanic and Cervellino, pers. comm.). We can estimate that the traditions of the fishermen were arriving in these latitudes around 4,500 B.P., moving down from the north, and that this area would have been the southern limit of the Stage of Archaic Fishermen.

Moving to what is now Peruvian territory, we have evidence of the Camarones Complex at Chilca, a site which Lanning (1967) includes in his Encanto Complex, with an estimated chronological range between 5,600 and 4,500 B.P. This site yielded simple shell fishhooks and compound fishhooks with bone barbs; associated with this complex are extended burials wrapped in vegetal fiber mats. The site perhaps most representative of the Camarones Complex is found at Ventanilla Bay: Pampa (Lanning 1967; Moseley 1975). A considerable number of shell fishhooks, weights, and net fragments were recovered there, but no projectile points. According to Moseley's (1968) description, there would be a close similarity between the Peruvian and Chilean fishhooks in terms of manufacture and morphology.[6]

The only reliable date for estimating the arrival of the Camarones Complex on the Peruvian Central Coast is that from the basal level at Pampa; this date, 4,450 B.P., indicates that the arrival

---

[6] Chronologically, the Paloma site would fall within the range under consideration (Quilter 1989), but the situation of the fishhooks is confusing. Three bone hooks (Figure 4e) were found in a small pit on the floor of one of the deepest dwellings; also, triangular pieces of shell with central holes have been found and can be interpreted as hook preforms. Nevertheless, it is strange that in the enormous volume of archaeological refuse removed from the site, not even fragments of shell or bone hooks were registered.

would have taken place approximately 3,000 years after the Complex began in northern Chile.[7] Lamentably, I do not know the stratigraphic details of the contexts excavated at other sites, which impedes me from defining phases and better characterizing the peculiarities of the Complex at these latitudes. Nevertheless, data such as Moseley's (1978) figure 9 suggest that on the Peruvian coast there might also have been the two phases previously defined for the Camarones Complex. This figure shows three straight-stemmed hooks and one of circular form, much smaller than the others.

With these data and as a hypothesis, I would venture to postulate two phases for the Camarones Complex on the Peruvian coast. A First Phase would be conditional on finding circular fishhooks in contexts which exclude straight-stemmed hooks; a Second Phase, with straight-stemmed hooks, can be recognized in the pre-cotton Preceramic Period with extended burials. The Second Phase would be represented by Playa Culebras (Engel 1957), perhaps by the lower levels at the Tank Site (Moseley 1975), by Banco Verde, with a date at 4,025 B.P. (*ibid.*), by Chilca, and also by Curayacu (Engel 1983).

The Yacht Club site (Lanning 1967) in Ancón Bay presents a new situation. There are shell fishhooks together with sandstone files and simple weights, associated here with flexed burials in which the bodies are wrapped in mats and cotton textiles. Lanning considers this site as a component of the Encanto Complex, but the presence of cotton indicates that the site must be later. I will use this location as the type-site to define the *Yacht Club Complex*, which would probably include the Colinas de Ancón (Muelle and Ravines 1973), those levels of the Tank Site that date to 3,620 B.P. (Moseley 1975), and the Salinas de Chao (Alva 1986), dated around 3,500 B.P. and containing complex architecture.

At Asia (Engel 1963), we again find the flexed burials with cotton textiles; but now, they are associated with another type of shell (and bone) fishhook whose lower aperture is ellipsoidal and not circular as before (Figure 4c). In the 5th level of Unit 1 at Asia, in addition to the fishhooks Engel found shell knives, stone weights with indentations and grooves, a possible bone harpoon head, coiled basketry, a possible stone pipe, gourd stoppers, and perforators for leather. The clear differentiation of this level and its attributes serves to define the *Asia Complex*, which according to the type-site would date to 3,175 B.P. and is associated with architectural structures of communal character.

To the north, Fung (1969) analyzes shell fishhooks found at Las Haldas, which given their ellipsoidal aperture would form part of the Asia Complex and would define its northern boundary. Some of the characteristics of the Río Seco de León site (Engel 1966) could be traits of this Complex, above all those which seem latest, such as flexed burials associated with conical and circular buildings. The Asia Complex appears to be the last complex of preceramic fishermen on the Central Coast of Peru.

Stepping back in time and also in space, we see that something new was discovered by Bird (1946) in the upper stratigraphy of Quiani, in which cactus thorn fishhooks (Figure 4d) begin to play a role. I consider this new episode as a new complex--the *Quiani Complex*--and identify it with Bird's "Second Preceramic Period". The principal characteristic of this Complex is the disappearance of the shell fishhook and its replacement with cactus thorn fishhooks. There are also stone front pieces, or heads, for fish harpoons. Many elements of the earlier Complex persist, although they can be modified; some of those mentioned earlier, while not exclusive to the Quiani Complex, do increase in popularity. Radiocarbon analysis for Quiani gives a date of 5,630 B.P. (Mostny 1964) for the beginnings of the Quiani Complex at that site, but it begins later as we move south.

---

[7] Engel (1983) places the shell fishhooks found at Asia, Culebras, Río Seco, and Curayacu within the Late Preceramic Period.

At this time, use of the intermediate quebradas of the Chilean north (*e.g.*, Tiliviche and Aragón) intensified. At Aragón 1 (P. Núñez and Zlater 1976), 32 km from the coast, shellfish remains were found in all levels; there was a great variety of species, but in small quantities. At the start of the occupation (8,660 B.P.), the greatest emphasis was on quebrada and pampa collecting, as shown by the *manos*, mortars, and plant remains. But beginning at 5,170 B.P. there was a strong increase in the consumption of fish, with proof of capture via cactus thorn fishhooks. The consumption of mollusks also increased at this time.

The greatest proliferation of the classic Chinchorro mummies is associated with the Quiani Complex. During the time span of this Complex, the complex mummification procedures were propagated, for neonates and infants as well as adults. At this time, the use of different substitutes for the human body (such as the figurine mummies) came into use.

In addition to the dates obtained by Allison *et al.* (1984, see above), Vera (1981) got dates of 5240 and 5010 for complex preparation mummies from Arica. L. Núñez (1969) took samples of sticks and vegetal fibers from the interior of the thoracic cavity of a body at Pisagua Viejo; these materials were dated at 5,220 and 4,880 B.P. This body formed part of a group of four adults and a child, all mummified with complex techniques. Mario Rivera dated a figurine mummy from Playa Miller 8 at 4,090 B.P. (in Núñez 1976). Five hundred years later, the Chinchorro funerary tradition had disappeared, to be survived only by some reminiscent traits such as the clay masks found at Quiani 7 and dated at 3,590 B.P. (Núñez 1976).

At Morro 1, there are two additional types of extended burials, some without evidence of internal or external treatment of the body and others dried internally with fire and covered with a layer of concreted sand. The first type dates between 4,200 and 3,790 B.P., while the second dates between 4,750 and 3,670 B.P.; in consequence, the two types were contemporary. Both types were recognized by Uhle, but he assigned a greater age to the untreated burials than to those with complex preparation, which he considered as a development out of the first type. The dates for the extended mummies without preparation and with simple preparation permit me to incorporate them into the Quiani Complex as another funerary tradition that was intensified, especially towards the end of that Complex.

Further south, at the mouth of the Loa River, the Quiani Complex does not appear with the same clarity as in the type site; its presence is later and shows a marked local evolution. Caleta Huelén 42 (Núñez *et al.* 1975) presents terminal and fragmentary characteristics of this Complex fused with traditions native to the arid, riverless coast. For this reason, and considering the structures which are unique to the zone, I prefer to recognize a *Huelén Complex.*

Only cactus thorn fishhooks are present in the middens of Caleta Huelén 42, demonstrating its relation to the Quiani Complex; also, remains of clay masks have been found on the faces of the burials as remains of the funerary tradition associated with that Complex. On the other hand, the Camarones Complex tradition of huts with stone bases has been incorporated, with the addition of burials sealed between seaweed-ash (cemented) clay floors, converting these enclosures into funerary structures as well as habitations. L. Núñez *et al.* (1975) postulate that when the "village pattern" was expanded, extended skeletons were placed in the interior of habitations; this would have happened around 3,780 B.P. Bittman (1984), in Cobija 13, found the remains of five individuals in one structure. Two of them were found in extended position on top of the basal shell midden and under the ash level; the bones of the other individuals were found without apparent order between or encrusted in the cemented levels.[8] I found something similar in Los Canastos (Mejillones Peninsula),

[8] Bittman (1984) proposes that the habitational structures began between 5,400 and 3,400 B.P. and that their development, which would include the cemented floor, took place between 3,400 and 3,000 B.P.

and Montenegro (1981) gives a date of 3,490 B.P. for a level with cemented floor structures at Punta Guasilla.

Moving to the Peruvian coast, Uhle notes the discovery of complex mummification in the Ilo region (Montell 1929). It appears that in the moment of maximum popularity of this funerary ritual, that is, during the Quiani Complex, this tradition reached as far north as Ilo. Fung (1969), referring to an illustration of Engel (1964), indicates that Paracas could belong to a tradition of cactus thorn fishhooks like that of Quiani. The Chilca huts studied by Donnan (1964), dated to 5,370 B.P., have extended burials (wrapped in reed mats and placed on the floor inside the habitations) associated with cactus thorn fishhooks. The Chilca case could be considered as a very localized complex, but in some way related to the Quiani Complex. "It is possible that this type of house was a unique form, constructed only in a limited area during the early period" (*ibid.*: 144). Engel (1983) dates cactus thorn fishhooks from Chilca at 5,700 B.P. (Pantano I) and 5,130 B.P. (Dunas), practically contemporary with Quiani, some 1,000 km to the south.

Abtao 1 has been a key site for clarifying the situation on the Antofagasta coast in the period following the above mentioned complexes. For this reason, I use this site as the basis for the *Abtao Complex*. The first occupation of the site fits into the Camarones Complex, but the second and third occupations have different characteristics, which I consider as two phases within the Abtao Complex. In addition to shell and cactus thorn fishhooks, the First Phase (the second occupation of Abtao 1) has bone hooks made on the same pattern as those of shell, that is, with a straight stem and sharpened point (Figure 4f). The stone points associated with this phase are tonsil-shaped. The Second Phase of the Abtao Complex begins at 3,500 B.P. and includes cactus thorn and bone fishhooks, now with a retaining head (Figure 4g). The Abtao Complex Phase Two compound fishhook has a hook made of bone which, unlike its predecessors, has a barb carved into the same piece of bone. In this Second Phase, shell definitely disappears as a material for fishhooks. Stone points have an elongated triangular form with concave, straight, or convex bases. A type of triangular blade which began in the preceding phase reaches its maximum frequency in the Second Phase.

The Abtao Complex has been recorded in Arica, on the flanks of the El Morro hill (Dauelsberg and Alvarez 1969), and on the Taltal coast at the Las Conchas site (Silva and Bahamonde 1969) and in a superficial stratum at Punta Grande. I think that the extended skeletons of de Capdeville's (1921) "Dolmenic Civilization" could also be assimilated to this Complex. This scholar located three cemeteries on Cerro Colorado in which the bodies were extended. According to his type description, the head and grave goods of the burial were protected by a large horizontal stone held up on either end by a vertical stone. Notable among the grave goods are barbed and stemmed, triangular projectile points, compound fishhooks with stone shank and shell hook, and the large stone blades that have come to be identified with the archaeology of Taltal.

On the Chilean Central Coast, we encounter a spatial-temporal boundary where the fishermen traditions of the north arrive with less force; in exchange, the hunter-gatherer archaism is strongly alive. This situation produces an amalgamation and interdigitation of traditions which, for now, is difficult to discern and understand. In Guanaqueros, Schiappacasse and Niemeyer (1964, 1968) were able to distinguish two well-defined occupations. The first, with a date of 3,760 B.P., serves as a base to configure the *Guanaqueros Complex*. Diagnostic elements of this Complex include: a variety of projectile points with a predominance of triangular forms and, also, the presence of stemmed points; small-barbed bone harpoons for fish; compound fishhooks with bone or stone weights and bone hooks. One shell hook was found in the excavation.

According to Schiappacasse and Niemeyer, the cemetery excavated by Iribarren (1956, 1969) at Guanaqueros pertains to the first occupation of the shell midden. The bodies were covered with red and green powder, as were the offerings; the skulls were protected by coverings of stone slabs. Both the presence of large lithic blades and bone and shell fishhooks in the grave goods and the extended position of some bodies are reminiscent of the Abtao complex.

Alaniz (1973) analyzed remains from La Herradura which could be considered later in the Guanaqueros Complex. There, a cemetery was recovered in which the bodies appear lying on their sides with the extremities flexed. Like Guanaqueros, stones protect the heads and, on occasion, line the back; red and black coloring impregnates the skeletons and the offerings; and accumulations of whole shells cover and surround the bodies. The grave goods were placed around the head and consist of wide-stemmed, triangular and egg-shaped stone points; there are also stemless points with convex, concave, or straight bases; compound fishhooks with stone shanks and bone hooks; harpoons for fish and others for sea lions. Previously, Iribarren (1960) had excavated another cemetery in La Herradura; although the characteristics were similar to those described by Alaniz, Iribarren's cemetery lacked stone boxes protecting the skulls, used green instead of black pigment, had a bone fishhook among the offerings, and had several extended burials.

The above data make me suspect that with more information, it would be possible to distinguish more than one phase within the Guanaqueros Complex. I agree with Schiappacasse and Niemeyer (1985) when they say that these manifestations ought to be considered as the last link in the cultural current coming from the arid north.

Simple bone fishhooks in Peru appear to be earlier than in the north of Chile. At La Paloma (Village 613) (Engel 1983; Benfer 1984), near Chilca, three fishhooks with an angular profile were found in Level 200, dated at 5,110 and 5,210 B.P. (Figure 4e). The problem is that these hooks cannot be considered representative within the voluminous excavation carried out at this site. Engel (1983) gives other reliable dates for Peruvian bone hooks: one, for Village 9a-V-10 in Culebras, is 3,240 B.P., and the other, for Village 12b-XI-1 in Asia, is 3,450 B.P.

Discussion

On the north coast of Pacific South America, early archaeological sites present a notable formal and functional unity in their material culture, a unity which can be seen as far as Central America. These sites pertain to what I call the Stage of Maritime Gatherers. The keynotes which characterize these groups are the utilization of stone tools to work wood, the lack of stone projectile points, and a subsistence system based on complementarity between terrestrial and marine resources. This homogeneity suggests that all of these preceramic manifestations formed part of a single tradition or culture (Lathrap 1970; Hurt 1977; Ranere 1980), which could have been derived from an earlier generalized tropical forest tradition developed in the Late Pleistocene as an adjustment to forest ecology at the time this part of America was occupied (Stothert 1985).

We are dealing with a subsistence economy of just the complexity or simplicity necessary for development in an environment of high natural productivity, one with few seasonal changes and one in which it is possible to subsist with virtually the same tools and techniques in both interior and coastal zones. Undoubtedly, in this ecology, the mangrove zones played a fundamental role as stable sources of protein supply. The mangroves provided invertebrates which could be collected simply, and fish which could be captured in traps, using the tides, without even needing nets or hooks. Thus, it is not strange that in the strategic environs of these places, sedentary populations managed to establish themselves, as the cemetery of Las Vegas demonstrates. Stothert (1985: 632) points out that "compared with the later inhabitants [Valdivians], the Vegans probably invested little labor in satisfying their needs and they did not undertake projects requiring major communal efforts as did later people."

This mangrove economy extended south as far as Talara, where it appears in the Amotape and Siches Complexes. In this regard, Richardson (1978) comments that if the Amotape hunters were hunting Late Pleistocene animals, the disappearance of these resources (10,000 B.P.) would have required a change in the subsistence patterns towards an increase in the dependence on littoral and mangrove resources. If so, and lacking major differences between the tool kits of the northern

complexes, then the same technology used in the north to hunt deer served in Talara to hunt Pleistocene animals--technology which simply left no traces in the archaeological record.

From another point of view, it is interesting to observe that when the mangroves retreated from Talara, the people of the Honda Complex sought their subsistence shellfishing in the intertidal zone, capturing fish, hunting marine mammals, and collecting wild plants, even obtaining cultivated plants (*Lagenaria*), without modifying the basic economy inherited from the Siches Complex. In other words, we are faced with a cultural system that interacted with such a variety of resources, with the sufficient efficiency and in environments of such biotic potential, that it was not necessary to change even when some of these natural resources suffered alterations.

South of Talara, we find an ecological frontier, within which the climate changes from rainy tropics to the extreme aridity which characterizes the coasts of Peru and Chile. Coincident with this new ecology, the Paiján Complex appears, with its dominant characteristic a settlement pattern of dispersed campsites, in contrast to the concentrated and hypothetically sedentary pattern of the northern complexes. A second differentiating characteristic is Paiján's better quality and more varied lithic industry, which includes the appearance of projectile points. Another peculiarity of Paiján is the transport of marine resources 40 or more km inland; this suggested to Wing (n.d.) that "it may reflect the scarcity of terrestrial resources forcing the Paiján people to travel the long distance to the sea for food." This idea is supported by the predominance of small animals among the food remains (land snails, lizards, rodents) and the near absence of larger animals. Faced with an arid environment with dispersed resources, man had to plan his activities within seasonal, transhumant circuits to exploit the resources offered by the sea and the *lomas* (and why not also the upper valleys?).

If it is true that the Paiján Complex or its derivatives extended south as far as the Chillón Valley, it is only in the southern Peruvian and northern Chilean valleys that we find another Complex, coinciding with the gradual disappearance of the *lomas*. The Ring-Tiliviche Complex apparently shows a greater maritime orientation than its northern contemporaries; for example, practically twice the number of fish species were identified for the Ring Site than for the Paiján sites (*cf.* Sandweiss *et al.* 1989 and Wing n.d.).[9] On entering the absolute desert coast (Atacama Desert), where valleys are absent, we enter the territory of the Huentelauquén Complex. It is interesting to observe that the northern parts of this complex (*e.g.*, Quebrada Las Conchas) show a greater dependence on marine resources, including fish. In contrast, with the reappearance of valleys to the south, the maritime dependence is minimized, being restricted only to shellfish collection. In the fertile, wooded territory that begins to the south of the Choapa River, the polyvalent culture of the Ecuadorian complexes is replicated to a certain degree. The similarity of the artifacts of the Curaumilla Complex with those of the interior sites speaks in favor of a cultural system appropriate for developing itself on the coast as well as inland. In contrast to the humid environments of Ecuador, in the extreme south stability for the human settlements pivoted around the lacustrine environments, a preference corroborated by the dense cemetery of Cuchipuy on the edge of the former Lake Tagua-Tagua (Kaltwasser *et al.* 1983). The richness and integration of the resources of these lakes were equal or greater than that of the shore: sufficient resources could be obtained in either zone with the same efficiency and technology. Thus, the coast and interior were competitive rather than complementary.

In synthesis, we see that around 10,000 years ago, the coast of Pacific South America was occupied by people who subsisted through hunting and gathering. People, such as those of Vegas, Paiján, Huentelauquén, etc., hunted and gathered as much in the interior as on the coast, where they exploited what I have termed the "longitudinal dimension" of the littoral zone. With this situation, the Stage of Maritime Gatherers was consolidated. It is around 7000 years ago when the first fishermen

---

[9] The absence of marine mollusks in the Paiján sites could reflect the difficulty of transporting the shells, or it is possible that land snails replaced marine mollusks in the diet.

appear in the north of what today is Chile, people who--thanks to the fishhook--were able to exploit the "bathitudinal dimension", that is, the depths of the ocean. The sweep of fishhooks to the north and south speaks in favor of a primary nucleus in northern Chile out of which the Stage of Archaic Fishermen expanded and consolidated in both directions; records for Archaic Fishermen sites become later the farther one moves from the focal point in northern Chile. The fishhook, a revolutionary instrument which permitted man to obtain his food every day from the same rock without exhausting the resource base, was increasingly employed for its adaptive efficiency, innovating the lifeways of the coastal groups. The traditional form of hunting and gathering was displaced as groups with a true maritime adaptation were consolidated, groups which were firmly rooted in their coastal ecological niche.

Perhaps, the conditions of northern Chile were appropriate for the emergence of the fishermen: a relatively poor terrestrial environment and an extraordinarily rich maritime ecosystem which, added to the scarcity and restricted locations of fresh water, made use of the fishhook an optimal solution. With it, the ichthyological portion of the diet was notably augmented, saving the banks of mollusks from deterioration, especially in those areas around the water sources.[10] Moving southward, fresh water becomes an increasingly abundant and extensive resource, as do terrestrial protein (fauna) and carbohydrates (flora), such that hunting and gathering were more productive than fishing above a certain latitude. This situation is accentuated from the Choapa River south, where mollusks are more abundant than fish due to the lack of upwelling. Thus, on the Chilean coast south of the Choapa River it is no surprise to find not only evidence of fishermen but also strongholds of hunter-gatherers, who in many places continued until the recent past. Hunting and gathering was by far the most efficient lifeway in this ecology.

It is interesting to note how, in this frontier zone, after the Guanaqueros Complex (obviously fishermen), a return to collecting traditions took place, possibly with the addition of incipient cultivation. The second occupation of Guanqueros, with a date of 3,330 B.P., lacks hooks (Schiappacasse and Niemeyer 1968). In another case, the cemetery of Punta Teatinos (Schiappacasse and Niemeyer 1985), with similar dates and also lacking hooks, yielded burials with flexed bodies in a lateral position and with grinding tools used to cover the graves. At Quereo, with dates of 2,420 and 2,475 B.P., Núñez (1983) recognizes the presence of groups who appear more like gatherers than fishermen.

The maritime productivity of the Peruvian coast is not very different from that of Chile, so we can consider this factor as nearly constant. It is at the level of terrestrial ecology that we find truly notable differences, with evident advantages for the Peruvian sector. There, one finds numerous fertile valleys and, in the interfluves, the *lomas* vegetation zones which, though seasonal, also made a wide range of animals and plants available to coast dwellers. To this must be added the coastal lagoons and swamps and the greater availability of fresh water. In this comparatively prosperous setting, it is obvious that the dependence on the sea was not as absolute and necessary as it was for the inhabitants of the coastal desert further south. Also, the very sea offers advantageous oceanographic conditions (*e.g.*, less intense tides), adding easy access to the high productivity of the marine resources. I believe that this aggregate of conditions can explain Moseley's observation concerning the Peruvian technology: "If the maritime technology was conservative, it was also remarkably simple" (Moseley 1975: 54).

This conjunction of biomass with easily obtainable resources caused the hunter-gatherer traditions to be strongly rooted, slowing the advent of the fishermen's traditions. For the archaic levels of production, it was more profitable to collect than to fish; when I say "collect", I include the collection

---

[10] The restricted location of fresh water sources and the semisedentarism which this situation required lead to a rapid exhaustion of the shellfish around the water sources.

of fish with nets. Moseley (1978) writes that the floating nets used to capture small fish were the most productive component of the Preceramic economy and received progressively more emphasis through time. Punta Grande, with dates ranging from 4,605 to 3,760 B.P., lacks hooks but has nets (Moseley 1975); the same is true for Camino, dated at 4,440 B.P. (*ibid.*).

The Paloma site shows us the real panorama of the Peruvian Central Coast between 7,000 and 5,000 B.P. There is a predominance of maritime and terrestrial gathering groups which have achieved a very good adaptation, taking balanced advantage of the biotic parcels offered by the diverse ecology of the coast. But it is interesting to consider that in this site, around 5,000 B.P., the population had begun to suffer stress, apparently due to an environmental crisis. Based on the characteristics of the plant remains, Benfer (1984) infers a notable degradation of the *lomas*, which could have obliged the Palomans to make more intensive use of the shore. It is in precisely this level (at 5,000 B.P.) that the fishhooks were found. I suggest that this crisis and the concomitant stress incited the adoption of hook fishing by some collecting groups.

In consequence, the northern incursion of the fishermen managed to take root, but with less force than on the arid Chilean coast. As in the extreme south, in Peru it was again the hunting-gathering traditions which stopped the advance of the Archaic fishermen's traditions. The hunting-gathering adaptation was quite persistent in this zone, and it is only with the emergence of more sophisticated societies, beginning with the Yacht Club and Asia Complexes, that the fishermen were revitalized with new force and gained more northern territory.

Even if the progressive northward displacement of the shell fishhook tradition is clear from the coherence of the dates, the situations associated with the cactus thorn and bone hooks are less clear. In Peruvian territory, these fishhook types appear before the shell hooks, especially the cactus thorn hooks. This last type is recorded approximately 1000 years earlier than the earliest date for the shell fishhook in the same area. These facts argue in favor of a focus of fishermen on the Peruvian coast, which from early times possessed the cactus thorn tradition exclusively. This tradition moved south until it joined with the shell hook tradition that had been strongly developed in northern Chile.

Something similar to the displacement of the cactus thorn hook appears to have taken place with the simple bone fishhook, which also has earlier dates in Peru than in Chile. Nevertheless, the temporal difference between the appearance of bone hooks at either geographic extreme is not as great as in the previous case. Apparently, this would be explained by a more fluid diffusion, given that there was a denser population base when this artifact appeared and became popular.

In Ecuador, there are no preceramic fishhooks; these artifacts first appear in Early Formative Period (Valdivia) archaeological contexts.[11] These hooks have a circular form (Figure 4h-k), which differentiates them from contemporary hooks in Central Peru. This fact, plus the spatial hiatus of fishhook finds between Peru and Ecuador, suggests that the Ecuadorian hooks had a different genesis than the nucleus of Andean fishermen. I see a hunting and gathering Archaic so strong and efficient in these mangrove regions that it constituted a true barrier to the advance of the hook fishing traditions. Furthermore, the evolution of Ecuadorian fishhooks from the Formative Period through the Regional Developmental Period maintained an independent morphology from that of the neighboring areas to the south.

On the Ecuadorian and Peruvian North Coasts (*e.g.*, Las Vegas and Paiján), as well as in the extreme south of Chile (*e.g.*, Cuchipuy), from 9,000-8,000 B.P., the collecting groups buried their dead in a flexed and lateral position. Not knowing the funerary pattern of the wide area in between these two extremes, one might assume hypothetically that the early complexes which developed there

[11] However, it should be noted that Early Valdivia is contemporary with the Late Middle and Late Preceramic Periods in Peru.

practiced the same form of flexed interment, which would be characteristic of the oldest American Archaic. Around 7,500 B.P., the invasion of the fishermen began, represented initially by the Camarones Complex associated with a pattern of extended burials. This pattern would have been imposed on the flexed pattern, managing at a given time to dominate from Central Peru to Coquimbo, Chile. To the north and south of these boundaries, the flexed pattern survived without alteration into the Ceramic Periods. Within the area of the fishermen, the flexed pattern returned to supplant the extended pattern beginning around 3,500-3,000 B.P. The intromission of the flexed burial people in fishermen contexts coincides in the north with the introduction of cotton and in the south with the diffusion of cultigens. The development of horticulture rescued many of the collecting traditions; the horticulturists, being in the same line of cultural development as the collectors of wild plants, sustained the same pattern of flexed burials. To the degree that horticulture became popular to the south, it brought with it this pattern, amalgamating with the fishing population but making its funerary pattern prevail.

Without doubt, the burial pattern, linked as it is to the ideological plane, is perhaps the most conservation tradition within the cultural context of social groups. When a change in this pattern is detected archaeologically, it indicates transcendental changes in the interior of the society, ones which have begun to affect the ideology. Thus, the generalization of the flexed pattern mentioned above and observed towards the end of the coastal Archaic Period is reflecting the imposition of a horticultural idiosyncracy which was stronger than the corresponding tradition of the fishermen. At the level of subsistence, the heritages of the horticulturists and the fishermen were mixed, but the ideological bases were sustained by the horticultural tradition.

Maritime production contributed to the basic requirements (sedentary residence and high population density) needed to unchain a series of reactions leading to the structuring of complex societies. The Gaviota Phase (Moseley 1975) represents a climax moment in the history of the Peruvian coast, the achievement of the maximum socio-political complexity that could be built on the infrastructure of a maritime economy. Later, stronger socio-political systems could only be achieved with the control of the vulnerable network of relations that supports agriculture; it is for this reason that the large coastal centers were abandoned and political power was displaced towards the interior. This displacement was progressively emphasized as horticultural specialization increased, and, surely parallel to it, maritime specialization, with the conquest of the three dimensions of the sea. In this context, I find support in Moseley's (1975) observation that there seems to have been a close association between corporate authority and the development of irrigation canals; thus, we see a virtual abandonment of the coast by the bodies in authority and the choice of the interior of the valleys as the principal seats of power. During the Archaic and Formative Periods, many people continued to reside in the maritime settlements, and some even continued to build small platforms, as at Culebras. However, aside from Las Haldas, all of the great structures began to emerge inland. It is obvious, therefore, that the corporate authorities, at a given moment, were more interested in the interior than in the coast, finding there more effective mechanisms than the maritime ones to elevate political power to new levels of integration.

References

Alaniz, Jaime
1973 Excavaciones arqueológicas en un conchal precerámico, La herradura, Provincia de Coquimbo, Chile. *Boletín* 15: 189-213. La Serena, Chile: Museo y Sociedad Arqueológica de La Serena.

Allison, M.J., G. Focacci, B. Arriaza, V. Standen, M. Rivera, and J.M. Lowenstein
1984 Chinchorro, momias de preparación complicada: métodos de momificación. *Chungará* 13: 155-173. Arica, Chile.

Alva, Walter
1986 Las Salinas de Chao: asentamiento temprano en el norte del Perú. *Materialen zur Allgemeinen und Vergleichenden Archäologie* 34. Munich: Verlag C.H. Beck.

Ampuero, Gonzalo
1969 Excavaciones en un alero rocoso del sector de Punta Colorado. *Rehue* 2: 27-46. Concepción, Chile.

Bahamonde, Raúl
1969 Contextos y secuencias culturales de la costa central de Chile. *Actas del V Congreso Nacional de Arqueología*, pp. 257-275. La Serena, Chile.

Benfer, Robert A.
1984 The Challenges and Rewards of Sedentism: The Preceramic Village of Paloma, Peru. In *Paleopathology at the Origins of Agriculture*, edited by Mark N. Cohen and George Armelagos, pp. 531-558. New York: Academic Press.

Bird, Junius
1943 Excavations in Northern Chile. *Anthropological Papers of the American Museum of Natural History* 38(4).
1946 The Cultural Sequence of the North Chilean Coast. In Handbook of South American Indians, Vol. 2, edited by Julian Steward, pp. 587-594. *Bureau of American Ethnology* 143. Washington, D.C.: Smithsonian Institution.

Bittman, Bente
1984 El Proyecto Cobija: investigaciones antropológicas en la costa del Desierto de Atacama (Chile). In *Simposio Culturas Atacameñas*, pp. 99-142. Antofagasta, Chile: XLVI Congreso Internacional de Americanistas, Universidad del Norte.

Bonavia, Duccio and Claude Chauchat
1990 Presencia del Paijanense en el desierto de Ica. *Bulletin de l'Institut Français d'Etudes Andines* 19: 399-412.

Campana, O. and Z. Seguel
1984 Los conchales prehistóricos de ostras de la Isla de Raqui-Tabul. *La Gaceta del Bío-Bío* 541: 12-14. Concepción, Chile.

Capdeville, Augusto
1921 Notas acerca de la arqueología de Taltal. *Boletín de la Academia Nacional de la Historia* 2(5). Quito, Ecuador.

Chauchat, Claude
1978 Recherches préhistoriques sur la cote nord du Pérou. *Bulletin de la Société Préhistorique Française* 75(8): 253-256.
1988 Early Hunter-Gatherers on the Peruvian Coast. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 41-66. Cambridge: Cambridge University Press.

Dauelsberg, P. and L. Alvarez
1969 Anzuelos confeccionados de hueso y en espinas de cactáceas, procedentes de Faldas del Morro de Arica. *Revista de la Universidad del Norte* 3(1): 67-78. Antofagasta, Chile.

Donnan, Christopher B.
1964 An Early House from Chilca, Peru. *American Antiquity* 30: 137-144.

Engel, Fréderic-André
1957 Early Sites on the Peruvian Coast. *Southwestern Journal of Anthropology* 13: 54-68.
1963 A Preceramic Settlement on the Central Coast of Peru: Asia, Unit 1. *Transactions of the American Philosophical Society*, New Series, 53(3).
1964 El préceramico sin algodón en la Costa del Perú. *XXXV Congreso Internacional de Americanistas* 3: 141-152. Mexico.
1966 *Paracas, cien siglos de cultura peruana*. Lima: Editorial Juan Mejía Baca.
1981 *Prehistoric Andean Ecology. Vol. 2: Man, Settlement and Environment in the Andes. The Deep South*. New York: Humanities Press for Hunter College.

(Engel, Frédéric-André)
1983 Notes on Pre-Columbian Fishhooks and Other Fishing Devices Used in the Cold Waters of Southern America. In *Prehistoric Andean Ecology. Man, Settlement and Environment in the Andes. Vol. 3: Stone Typology*, pp. 129-160. New York: Humanities Press for Hunter College.

Fung, Rosa
1968 Los antiguos pobladores del Perú: nuevos hallazgos arqueológicos. *Amaru* 8(4): 71-77. Lima, Peru.
1969 Los anzuelos de concha en las Aldas: un análisis comparativo. *Boletín del Seminario de Arqueología* 4: 29-43. Lima, Peru: Pontífica Universidad Católica.

Hurt, Wesley R.
1977 The Edge-Trimmed Tool Tradition of Northwest South America. *Anthropological Papers of the Museum of Anthropology* 61: 268-294. Ann Arbor: University of Michigan.

Iribarren, Jorge
1956 Investigaciones arqueológicos de Guanaqueros. *Boletín* 8: 10-22. La Serena, Chile: Museo y Sociedad Arqueológica de la Serena.
1960 Yacimientos de la cultura del anzuelo de concha en el litoral de Coquimbo y Atacama. *Boletín* 11: 8-14. La Serena, Chile: Museo y Sociedad Arqueológica de La Serena.
1961 La Cultura Huentelauquén y sus correlaciones. *Contribuciones Arqueológicas*. La Serena, Chile: Museo y Sociedad Arqueológica de La Serena.
1969 La cultura del anzuelo de concha. *Mesa Redonda de Ciencias Prehistóricas y Antropológicas* 2: 218-228. Lima, Peru: Pontífica Universidad Católica del Perú.

Kaltwasser, J.A., A. Medina, and J. Munizaga
1983 Estudio de once fechas de R.C. 14 relacionadas con el hombre de Cuchipuy. *Boletín de Prehistoria de Chile* 9: 9-13. Santiago: Universidad de Chile.

Lanning, Edward P.
1967 *Peru Before the Incas*. Englewood Cliffs, NJ: Prentice-Hall.

Lathrap, Donald W.
1970 *The Upper Amazon*. London: Thames and Hudson.

Llagostera, Agustín
1977 Ocupación humana en la costa norte de Chile asociada a peces local-extintos y a litos geométricos: 9680±160 A.P. *Actas del VII Congreso de Arqueología en Chile*, pp. 93-113. Santiago, Chile: Ediciones Kultrun.
1979 9700 Years of Maritime Subsistence on the Pacific: An Analysis by means of Bioindicators in the North of Chile. *American Antiquity* 44: 309-324.
1982 Tres dimensiones en la conquista prehistórica del mar: un aporte para el estudio de las Formaciones Pescadores de la costa sur andina. *Actas del VIII Congreso de Arqueología Chilena*, pp. 217-245. Santiago, Chile: Ediciones Kultrun.
1989 Caza y pesca marítima (9000 a 1000 a.C.). In *Culturas de Chile, Prehistoria: desde sus orígenes hasta los albores de Conquista*, pp. 57-79. Santiago, Chile: Ediciones Andrés Bello.

Malpass, Michael A.
1983 The Preceramic Occupation of the Casma Valley, Peru. In *Investigations of the Andean Past*, ed. by Daniel H. Sandweiss, pp. 1-20. Ithaca, NY: Cornell University Latin American Studies Program.

Montell, Gosta
1929 *Dress and Ornaments in Ancient Peru: Archaeological and Historical Studies*. Gothenburg, Sweden: Elanders Boktryckeri Aktiebolag.

Montenegro, Nancy
1981 *Sitio Punta Guasilla-1, un aporte a la arqueología del norte desértico de Chile*. Unpublished thesis for the title of Archaeologist, Universidad del Norte, Antofagasta, Chile.

Moseley, Michael E.
1968 Early Peruvian Fishhooks. *The Masterkey* 142(2): 104-110.
1975 *The Maritime Foundations of Andean Civilization.* Menlo Park, CA: Cummings.
1978 Pre-agricultural Coastal Civilizations in Peru. *Carolina Biology Reader* 90. Burlington, NC: Carolina Biological Supply Company.

Mostny, Grete
1964 Anzuelos de concha: 6,170±220 años. *Noticiario Mensual del Museo Nacional de Historia Natural* 98: 7-8. Santiago, Chile.

Muelle, Jorge C. y Rogger Ravines
1973 Los estratos precerámicos de Ancón. *Revista del Museo Nacional* 39: 49-70. Lima, Peru.

Núñez, Lautaro C.
1969 El complejo Chinchorro en Pisagua Viejo (Prov. de Tarapacá, Chile). Unpublished ms.
1976 Registro regional de fechas radiocarbónicas del norte de Chile. *Estudios Atacameños* 4: 74-123. San Pedro de Atacama, Chile.
1983 Paleoindio y arcaico en Chile: diversidad, secuencia y procesos. *Serie Monografías* 3. Mexico: Escuela Nacional de Antropología e Historia.

Núñez, Lautaro and C. Moragas
1977-78 Ocupación arcaica temprana en Tiliviche, norte de Chile (I Región). *Boletín* 16: 53-76. La Serena, Chile: Museo Arqueológico de La Serena.

Núñez, Lautaro, V. Zlatar, and P. Núñez
1975 *Caleta Huelén-42: una aldea temprana en el norte de Chile (Nota Preliminar).* Panamá: Universidad de Panamá.

Núñez, Lautaro and V. Zlatar
1976 Radiometría de Aragón-1 y su implicancia en el precerámico costero del norte de Chile. *Actas y Memorias del IV Congreso Nacional de Arqueología Argentina* 1a. Parte: 105-118. Mendoza, Argentina.

Ossa, Paul P.
1978 Paiján in Early Andean Prehistory: The Moche Valley Evidence. In Early Man in America from a Circum-Pacific Perspective, ed. by Alan L. Bryan, pp. 290-295. *Occasional Papers* 1. Alberta, Canada: University of Alberta.

Patterson, Thomas C. and Edward P. Lanning
1964 Changing Settlement Patterns on the Central Peruvian Coast. *Ñawpa Pacha* 2: 112-123.

Quilter, Jeffrey
1989 *Life and Death at Paloma: Society and Mortuary Practices in a Preceramic Peruvian Village.* Iowa City: University of Iowa Press.

Ramirez, José M.
1989 Estudio interdisciplinario de un conchal de 8000 años en Valparaíso: Punta Curaumilla-1. *Boletín* 19. Viña del Mar, Chile: Museo Sociedad Fonck.

Ranere, Anthony J.
1980 Preceramic Shelters in the Talamanca Range. In Adaptive Radiations in Prehistoric Panama, ed. by Olga F. Linares and Anthony J. Ranere, pp. 16-43. *Peabody Museum Monographs* 5. Cambridge, MA: Harvard University.

Richardson, James B. III
1978 Early Man on the Peruvian North Coast, Early Maritime Exploitation and the Pleistocene and Holocene Environment. In Early Man in American from a Circum-Pacific Perspective, ed. by Alan L. Bryan, pp. 274-289. *Occasional Papers* 1. Alberta, Canada: University of Alberta.
1986 Maritime before Maritime: 8,500 B.C. Evidence for Maritime Economies in Southern Peru. Paper presented at the 51st Annual Meeting of the Society for American Archaeology, New Orleans.

Rick, John W.

1983 *Cronología, clima y subsistencia en el precerámico peruano.* Lima: Instituto Andino de Estudios Arqueológicos (INDEA).

Rivera, Mario

1983 Cuatro fechados radiocarbónicos para sitios arqueológicos del litoral norte de Chile. *Nuestro Norte Revista del Instituto Profesional de Iquique*, 5-11. Iquique, Chile.

Sandweiss, Daniel H., James B. Richardson III, Elizabeth J. Reitz, Jeffrey T. Hsu, and Robert A. Feldman

1989 Early Maritime Adaptations in the Andes: Preliminary Studies at the Ring Site, Peru. In Ecology, Settlement and History in the Osmore Drainage, Peru, ed. by D.S. Rice, C. Stanish, and P.R. Scarr, pp. 35-84. *BAR International Series* 545(i).

Sanhueza, Julio A.

1980 *Asentamiento precerámico en la costa desértica de interfluvio: Caramucho 3 (Provincia de Iquique-I Región-Norte de Chile).* Unpublished thesis for the title of Archaeologist, Universidad del Norte, Antofagasta, Chile.

Schiappacasse, Virgilio and Hans Niemeyer

1964 Excavaciones de un conchal en el pueblo de Guanaqueros (Provincia de Coquimbo). In *Arqueología de Chile Central y Areas Vecinas*, Tercer Congreso Internacional de Arqueología Chilena, pp. 235-262. Santiago, Chile.

1968 Noticia y comentario de dos fechas radiocarbónicas para un sitio arqueológico en Guanaqueros, Provincia de Coquimbo. *Noticiario Mensual del Museo Nacional de Historia Natural* 13(147): 3-6. Santiago, Chile.

1984 Descripción y análisis interpretativo de un sitio arcaico temprano en la Quebrada de Camarones. *Publicaciones Ocasionales* 41. Santiago, Chile: Museo Nacional de Historia Natural.

1985 El Arcaico en el norte semiárido de Chile: un comentario. Paper presented at the X Congreso Nacional de Arqueología Chilena.

Silva, J.E. and D.R. Bahamonde

1969 Investigaciones arqueológicas en Taltal. *Rehue* 2: 7-25. Concepción, Chile.

Stothert, Karen R.

1985 The Preceramic Las Vegas Culture of Coastal Ecuador. *American Antiquity* 50: 613-637.

1988 La prehistoria temprana de la Peninsula de Santa Elena, Ecuador: Cultura Las Vegas. With contributions by T. Chase, D. Piperno, D.H. Ubelaker, and E. Wing. *Miscelánea Antropológica Ecuatoriana, Serie Monográfica* 10. Guayaquil, Ecuador: Museos del Banco Central del Ecuador.

Uhle, Max

1922 *Fundamentos étnicos y arqueología de Arica y Tacna.* Quito, Ecuador: Sociedad Ecuatoriana de Estudios Históricos.

Vera, Jaime

1981 Momias chinchorro de preparación complicada del Museo de Historia Natural de Valparaíso: 3290 y 3060 A.C. *Anales del Museo de Valparaíso* 14: 5-17. Valparaíso, Chile.

Willey, Gordon

1971 *An Introduction to American Archaeology, Volume 2: South America.* Englewood Cliffs, NJ: Prentice-Hall.

Wing, Elizabeth S.

n.d. Method Employed in the "Identification and Analysis of the Vertebrate Remains Associated with Sites of the Paiján Culture. Unpublished ms. in the possession of the author.

This article was translated by Daniel H. Sandweiss.

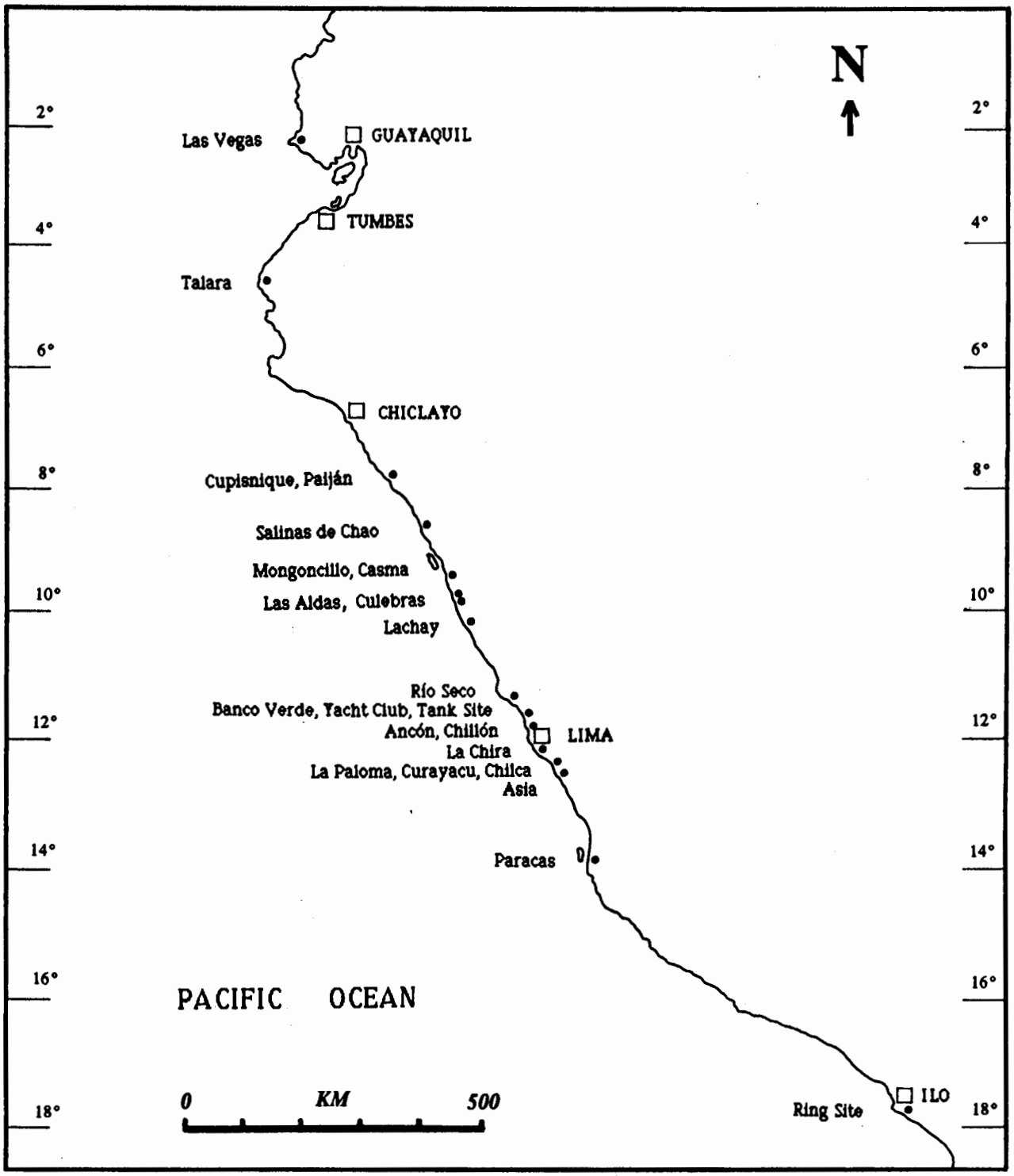

Figure 1. Archaeological sites and modern towns mentioned in the text for Ecuador and Peru.

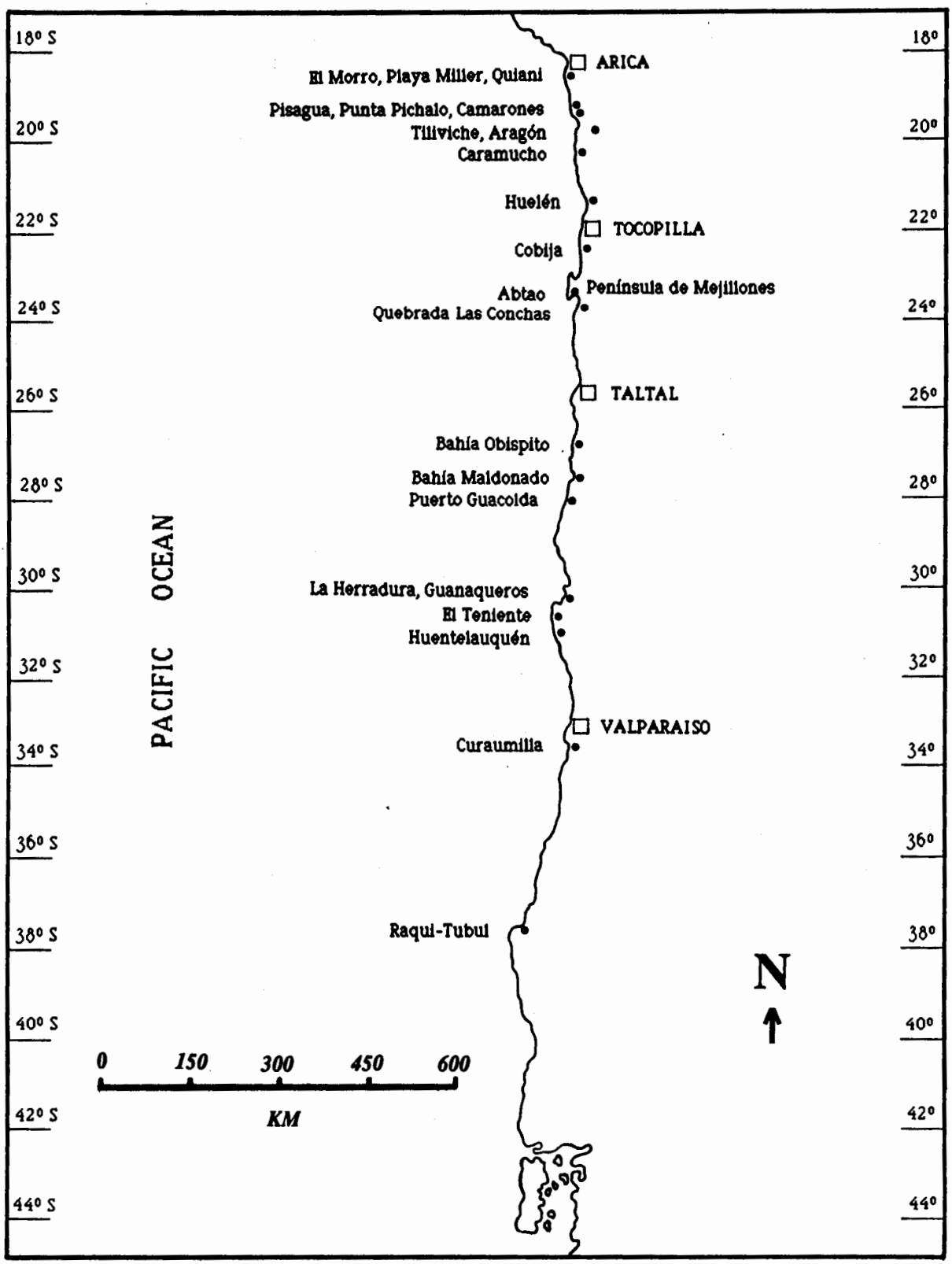

Figure 2. Archaeological sites, modern towns, and geographical features mentioned in the text for Chile.

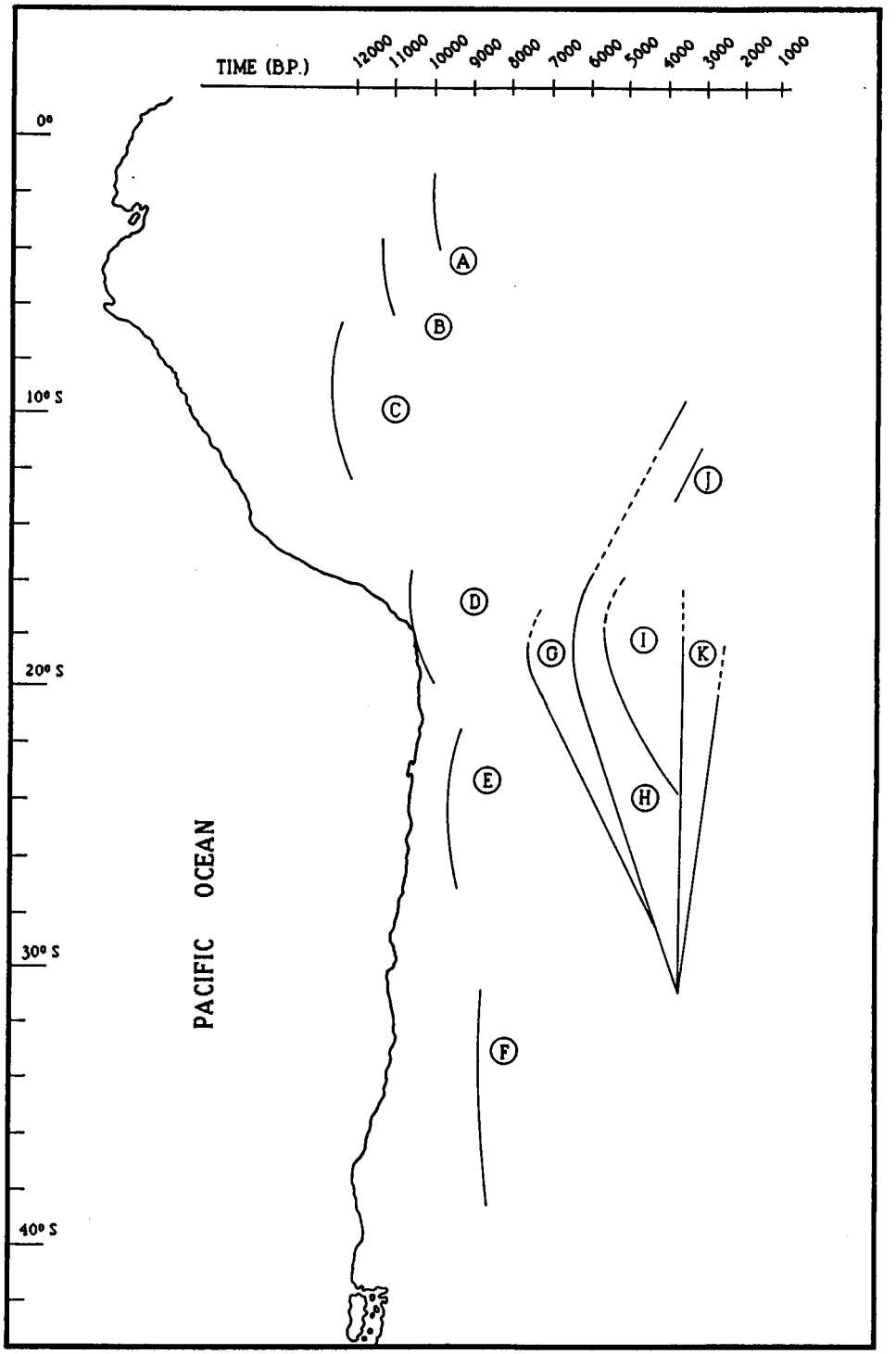

Figure 3. Spatial and temporal distribution of the coastal complexes (see discussion in text). The vertical axis is space (latitude), with the coastline shown for reference. The horizontal axis for the lines representing the spread of complexes is time, not space. Key: A - Las Vegas Complex; B - Amotape Complex; C - Paiján Complex; D - Ring-Tiliviche Complex; E - Huentelauquén Complex; F - Curaumilla Complex; G - Camarones Complex (Phase 1); H - Camarones Complex (Phase 2); I - Quiani Complex; J - Yacht Club and Asia Complexes; K - Abtao Complex.

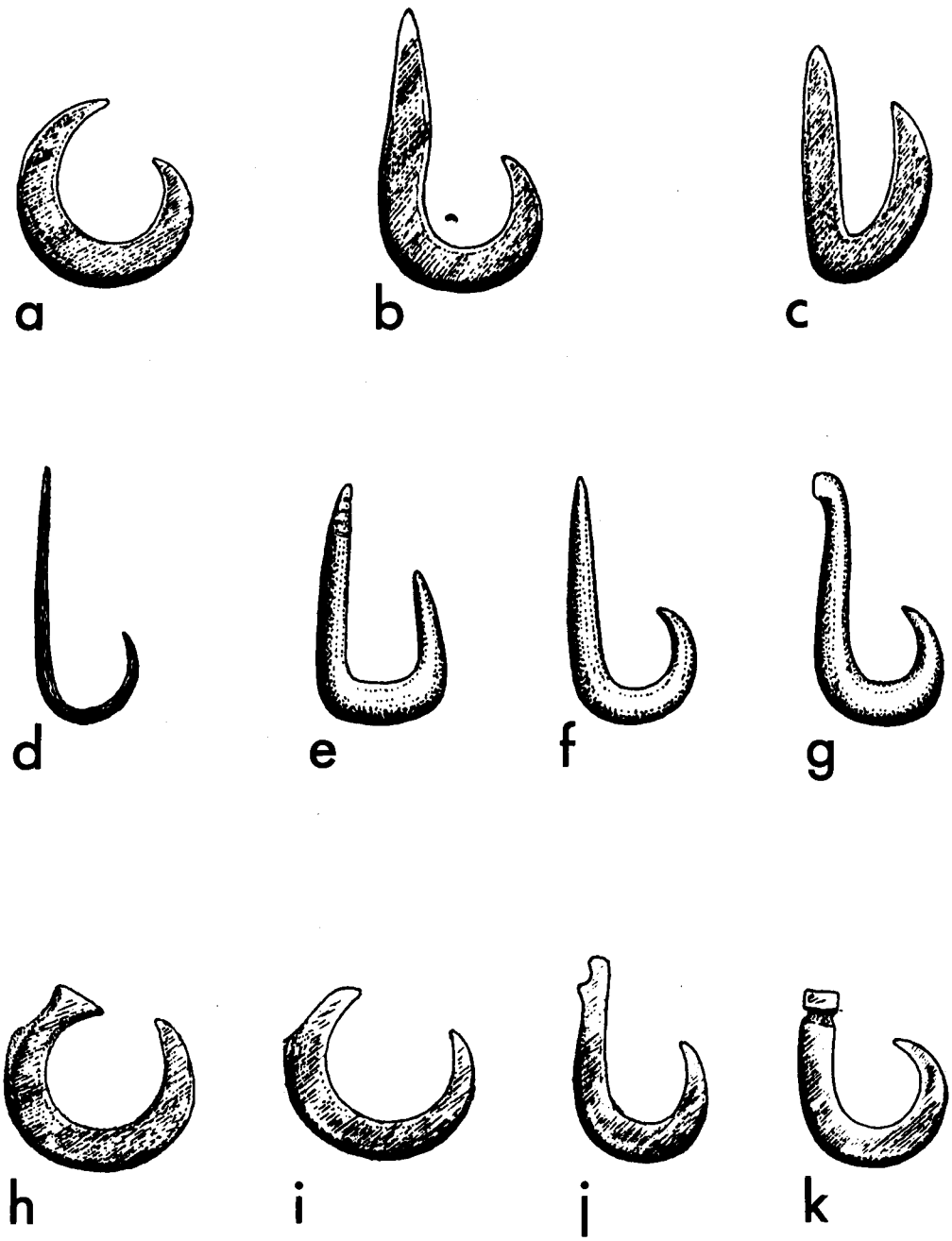

Figure 4. Fishhook types associated with the archaeological complexes. Key: a - Camarones Complex (Phase 1), shell; b - Camarones Complex (Phase 2) and Yacht Club Complexes, shell; c - Asia Complex, shell; d - Quiani Complex and Huelén Complex, cactus thorn; e - Paloma site, bone; f - Abtao Complex (Phase 1), bone; g - Abtao Complex (Phase 2), bone; h, i, j, k - Ecuadorian shell hook forms.