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Prehistoric Fortification Systems of Northern Peru[1]

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In June of 1977 we began an intensive survey of fortified sites in northern Peru. The literature on Peruvian prehistory contains many statements about the role of warfare in the development of indigenous civilizations and has formed the basis of some theoretical writings (Carneiro 1970). These interpretations are, however, based on very few data indeed. We felt that a much more realistic understanding of prehistoric militarism, its causes, and its effects could be gained if information were collected on the location, context, type, and date of all fortified sites in a 75×75-mi. test area of northern Peru. To this end, the first season's work concentrated in the Moche River drainage, an area reaching from the Pacific coast to the continental divide. The coastal part of the valley has already been well studied by the Moche Valley–Chan Chan Project, but above the 500-m contour level the valley is virtually unexplored. On the basis of the data from our survey of the valley and the information from the Virú Valley to the south (Willey 1953), two sequences for the development of fortifications—a highland sequence and a coastal sequence—can tentatively be proposed.

The earliest fortifications in the highland portion of the Moche watershed are tentatively dated to the early part of the Early Intermediate Period (500 B.C. to 0). The defenses from this era consist of "great" walls constructed of locally available fieldstone to heights of 1.5 to 2 m, running for distances as great as 10 km. The walls trace a sinuous course which more or less parallels the 3,500-m contour line and divide the lower valleys, where rainfall agriculture is possible, from the higher, frost-prone *jalca* (which was apparently not yet intensively utilized). They are provided at infrequent intervals with small watch stations consisting of one to two rooms on low terraces at locations with a good view across the *jalca*. The purpose of the wall/watch-station configurations was apparently to protect the scattered settlements of the valley from incursions by similar populations across the *jalca*.

In the later part of the Early Intermediate Period (0 to A.D. 500), the tendency is to agglutinate the population into large fortified settlements. These sites are built in defensible locations (e.g., on hilltops, along ridges, on the *jalca*) and are provided with one or more surrounding walls and occasionally ditches. Site layout, size, and patterning of the defenses vary greatly from site to site, but there is a clear preoccupation with defense.

No sites have yet been securely dated to the Middle Horizon (A.D. 500 to 1000), but the Late Intermediate Period (A.D. 1000 to 1476) witnesses a growing complexity in the political organization of the area. A balance of power is struck in the Upper Moche drainage, with large independent sites dominating smaller satellite communities. The three dominant sites identified to date control (*a*) the best route north from the upper valley, (*b*) the southern bank of the Upper Moche River, including an important mining area, and (*c*) the best route east across the continental divide. Trade sherds give some indication of the relations between the Upper Moche River groups and their neighbors. Chimu trade sherds (from the powerful coastal empire with its capital in the Moche Valley delta) are found throughout the area, but in small quantities, indicating very little Chimu penetration of its highland hinterland. Sherds of Cajamarca style, probably manufactured 90 km to the northeast, are found only on the north side of the valley; this distribution pattern may signify control of Cajamarca trade by the dominant site on the north side of the upper valley, Carpaico. Carpaico is the most impressive site on a fortified road which leads from the middle Moche Valley north to the *jalca*, and perhaps eventually to Cajamarca. Carpaico is typical of Late Intermediate Period fortifications in the area in that it defends nonsettlement features of the cultural landscape. Carpaico itself is defended by massive terraces, but finely cut stone architecture suggests that it functioned more as an elite population centre than as a defensive site. Associated with Carpaico, however, are three small hilltop fortresses which are strategically located along the walled road.

Probably dating to the Late Horizon (A.D. 1476–1532, the period of Inca hegemony) is a cluster of small habitation sites and extensive agricultural terraces covering over 5 km². This complex, called Rogoday, is located 2 km north of Carpaico along the road. Some aspects of the Rogoday settlement, such as the numbers of rooms and the general tomb type, indicate a continuity with the Carpaico tradition. Ceramic evidence indicates little or no temporal overlap between the two sites, while the extensive terrace system, the architectural style, and the scarcity of trade sherds represent a distinct discontinuity with Carpaico. From these types of evidence, it is argued that Rogoday represents a forced resettlement of the Carpaico elite by the Inca, probably designed to disrupt coast-highland trade; the local elite were compensated for the loss of trade revenues by the increase in agricultural production allowed by the terrace system.

The sequence through time in this part of the highlands thus shows several changes in emphasis in fortifications, mirroring changes in the economic base and in social organization. The small unagglutinated settlements of the early agriculturalists are defended communally by walling in the entire area under cultivation. Later, the population is concentrated into larger settlements, and these agglutinated sites themselves are defended. With the development of trade routes and hierarchical patterning of sites, defense of communications routes is emphasized; small habitation sites continue to be walled, but dominant sites are more specialized in function and usually contain a small walled fortification distinct from the habitation area. The Inca apparently assured control of the zone in their traditional way, by restructuring local economic patterns to be responsive to Cuzco rather than to previous power centers. Fortifications in the Upper Moche drainage thus demonstrate

[1] The fieldwork has been made possible through a grant from the Canada Council. We would like to also thank the Instituto Nacional de Cultura del Perú for allowing the survey.

increased sophistication through time, as proportionately less construction defends and controls ever larger territories and populations.

This highland sequence can be compared with that from the narrow coastal strip, where habitation concentrates in the irrigable floodplains of rivers descending rapidly from the Andes. Willey's (1953) settlement-pattern survey of the Virú Valley showed a similar increase in the sophistication of fortifications. Early defenses of the Early Intermediate Period consisted of places of refuge in which the residents of small agglutinated villages sought protection. Later in that period, the Gallinazo people evidently unified the valley politically, and fortifications were constructed which defended the valley as a whole. Defensive constructions were subsequently deemphasized as the small valley was incorporated into a series of political units whose boundaries lay far to the north and south; the narrow valley neck leading into the highlands continued to be intermittently fortified, however. In contrast to the highland sequence, the Virú Valley sequence has "great" walls appearing only during the Middle Horizon and early part of the Late Intermediate Period.

The most interesting results of our survey of coastal defenses pertain to an early phase of the Late Intermediate Period, when the Chimu were beginning their political expansion out of the Moche Valley. Two fortresses were built in the Moche Valley and a third in the Chao Valley. All of these are impressive, well-designed structures, and ceramic evidence indicates rapid construction; curiously, the lack of refuse indicates that none was occupied for any length of time, and a habitation area adjacent to the Chao fortress was never completed.

The two Moche Valley fortresses ocntrolled access up and down the valley at a point 15 km inland where flanking chains of hills form a neck only 1 km wide. The two forts, one on each side of the valley, stand at the apex of the wide alluvial plain which fans out toward the ocean. Paralleling the sides of the alluvial fan are two "great" walls. These walls cannot be associated directly with the fortresses, but together they all serve to isolate the rich, irrigated lower valley from the middle valley at the apex and the stretches of desert between the Moche Valley and the Chicama and Virú Valleys to the north and south. Independent dating of the northern "great" wall (C. Beck, personal communication) indicates a very rough contemporaneity with the fortresses, as well as with the other "great" walls in the Virú Valley.

The reasons for the occurrence of "great" walls in the highlands and on the coast during quite different temporal and developmental stages is not yet understood and forms one of a number of problems that the project will investigate in future seasons.

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New Evidence on the Use of Microliths from the Lake Turkana Basin, East Africa[1]

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Microlithic technologies, which emphasize small geometrically shaped tools, are characteristic of early Holocene cultures in Africa, but there is now a growing body of data demonstrating that they are considerably older than was previously believed. For example, Matupi Cave in Zaïre (Van Noten 1977) has yielded evidence of microlithic technology dated to about 40,000 years ago. Other sites containing microliths have been dated to about 18,000 years ago in Zambia (Miller 1971) and approximately 15,000 years ago in the Lake Victoria region (Van Noten 1971). This new evidence indicates that microliths are at least as old in sub-Saharan Africa as in any other part of the world.

Microliths are generally thought to demonstrate increased reliance on composite tools in which bladelets and various geometrically shaped stone implements were hafted in series along the edge of a bone or wooden shaft. The bow and arrow may have been one of the most significant inventions reflecting microlithic technology. Escaping prey could not easily dislodge the barbed arrow tips, and the resulting blood spoor could be followed by hunters.

While there is direct evidence that microliths were used to tip arrows in ancient Egypt (Clark, Phillips, and Staley 1976), the situation concerning the function of microliths is less clear in Africa south of the Sahara. In East Africa, Leakey (1931) found a series of microliths lying in a position suggestive of hafting into a wooden or bone shaft that had since disintegrated. Because data confirming that some microliths were used as composite arrow or spear points are rare, the following information is of interest.

The site of Lopoy, situated near the Turkwel River delta west of Lake Turkana (Robbins 1976), has as one of its major components a hunting and butchering camp radiocarbon-dated to about A.D. 850 (1,100 ± 80 B.P. [UCLA 2124H]). This component was unusually rich in well-made microliths, which were being eroded out of the deposits and lay scattered among the fragmentary remains of zebra, bovids, and other animals no longer found in the immediate area. Because of the large number of microliths (up to 15 per square meter of surface area), the site was ideal for following up on Leakey's suggestion. A 2 × 4-meter area was chosen at random to examine the question of whether the microliths occurred in significant clusters. The area contained 76 microliths, most classified as crescents or lunates. It was divided into 50-cm-square cells, allowing for at least 1 microlith to occur in each cell. The implements were then recorded with reference to x and y coordinates, and chi-square analysis, employing the computer program CROSSTABS, was used to determine if the distribution was random (Nie et al. 1975). The results demonstrated that the distribution was not random with a level of significance of .0389. This evidence lends support to Leakey's early conclusions. Despite the nonrandom distribution of these microliths, however, the data from Lopoy do not prove that the implements served as projectile heads.

More direct evidence concerning the use of microliths was obtained from the Lothagam Late Stone Age fishing settlement, located near the Kerio River delta west of Lake Turkana (Robbins 1974, Lynch and Robbins 1977). Two recently obtained radiocarbon dates indicate that Lothagam dates to between 6,000 and 7,000 years ago (charcoal sample from upper excavation, 6,300 ± 800 B.P. [UCLA 2124A], and shell sample

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