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AN OVERVIEW OF PERUVIAN ARCHAEOLOGY (1976–1986)

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NATIONALITY AND ARCHAEOLOGY IN PERU

Peruvian archaeology is an international field in which divergent schools of research coexist. The following is an overview of the various currents and accomplishments of research in Peruvian archaeology over the last decade (see also 138, 199, 279, 320, 336). Because of the different national traditions of archaeological practice in Peru, the situation is particularly complex. Most projects authorized by Peru's Instituto Nacional de Cultura are initiated by investigators from the United States, but the archaeology carried out in Peru has remained resistant to many of the theoretical trends in processual Anglo-American archaeology. Nomothetic laws and ecological and evolutionary "explanations" of culture change never generated the enthusiasm in Peru that they did in the United States. The alleged dichotomy between "scientific archaeology" and historical inquiry championed by Binford and others likewise found little support among archaeologists working in Peru.

As currently practiced, much of Peruvian archaeology has a distinctive character derived from its unique subject matter, particular intellectual history, political context, and the dominant figures who have shaped it. In his classification of regional archaeological traditions, Bruce Trigger (358) distinguished between the imperialist type of archaeology, characteristic of the contemporary United States and Britain, and the nationalistic type, widespread in the Third World. In Peru, as in Mexico, the foundations of autochthonous archaeology were nationalist, and this tradition continues to shape much of the archaeological research. Ever since the pioneering work of Julio C. Tello and Luis Valcarcel, Peruvian archaeology has been linked to history and sociocultural anthropology and, though rarely stated, one of its goals has been the forging of a shared national identity and the strengthening of patriotic

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sentiment. The prehispanic civilizations continue to provide a sense of national dignity and purpose, one often lacking in Peru's currently unfavorable economic and political circumstances. Archaeology is an inexhaustible source of symbols for everything from the political parties (e.g. the Chavin eagle of APRA) to soft drinks (e.g. Incakola, Chavinkola). As is not the case in the United States, archaeology has a special place among Peru's historical and social sciences since, as historian Pablo Macera (184) quipped, the Peruvian past without recourse to prehistory is little more than an account of a colonial factory.

Scholars from the United States have played an especially important role in shaping contemporary Peruvian archaeology. In fact, the generation of Peruvians currently in positions of authority in the archaeological community, particularly Duccio Bonavia, Rosa Fung, Luis Lumbreras, Ramiro Matos, and Rogger Ravines, were strongly influenced by North American specialists in Peruvian archaeology (368). When Tello died in 1947, an intellectual vacuum was left that was only partly filled by Rebeca Carrión Cachot and Jorge Muelle. During the following decades, scholars such as John Rowe, Richard Schaedel, Edward Lanning, and John Murra were responsible for many of the ideas that defined discourse within the field. Though representing distinctive and sometimes incompatible perspectives, these scholars were deeply committed to an archaeology integrated with history and ethnography. Their common academic orientation was combined with a profound personal involvement with Peru and its people. This is reflected in the long periods of time they spent there, their teaching and lecturing at Peruvian universities, and the availability of their articles in Peruvian scholarly journals. These US scholars internalized elements of the authochthonous tradition of Peruvian archaeology even as they were transforming it. As a result, their work may be known by a wider public in Peru than in the United States. Rowe and Murra have been awarded the Orden del Sol, the highest civilian award in Peru.

Three of the most influential centers of Peruvian archaeology have flourished at the University of California, Berkeley, the University of Texas, Austin, and Cornell. Scholars trained at these institutions tended to be less receptive to contemporary currents in mainstream US archaeology than other US archaeologists because they accepted many of the priorities of the nationalist Peruvianist tradition. Ironically, Peruvians working in archaeology were unusually receptive to new ideas from the United States, as can be seen in the experiments of Ravines in estimating labor costs at Garagay (273), the ecological analysis by Matos in Junin (196), and the use of lithic reduction studies by Bonavia (22) to reevaluate Lanning & Patterson's Preceramic sequence for the Central Coast. Betty Meggers and Clifford Evans at the

Smithsonian Institution, and Marcia Koth de Paredes at the Comisión Fulbright enabled younger Peruvians to carry out doctoral and postdoctoral research on Peruvian archaeology at US institutions, where they have been exposed to new trends in Anglo-American archaeology.

The close relationship between the US and Peruvian archaeological communities is reflected in the widespread use at US universities of Betty Megger's translation of Luis Guillermo Lumbreras's *The Peoples and Cultures of Ancient Peru,* which has gone through 6 printings in 13 years. During the same period, at least half of the archaeology articles in Peru's prestigious journal *Revista del Museo Nacional* were written by US scholars, and high school history textbooks in Peru mention the names and discoveries of foreign archaeologists (185). The local term for foreign scholars specializing in Peruvian archaeology and other aspects of Peruvian culture and history is *peruanistas* (i.e. Peruvianists).

I have taken the time to describe the Peruvian situation because it is so dissimilar from that in some other parts of Latin America. According to archaeologist Jose Lorenzo (173), for example, "Mexico has been turned into an academic battleground on which various US archaeologists, and archaeological trends, fight it out with more noise than justification." Mexican archaeologists are described as working independently of these currents, generally following an archaeological paradigm only peripherally related to that of their foreign colleagues. In contrast, the division of Peruvian archaeology into two hostile camps on the basis of nationality is inconceivable at this time (138, 199).

Nevertheless, the increasing impoverishment of Peruvian institutions charged with archaeological training and administration invariably engenders some conflict. The frustration of Peruvian investigators without access to research funds and the inherent differences between the short-term research needs of foreign scholars and the long-term administrative objectives of Peruvian cultural institutions are sources of friction that are unlikely to disappear no matter how similar or compatible the intellectual paradigms of the two archaeological communities.

Within Peru, the principle center of archaeological training is at the University of San Marcos, though other degree-granting programs exist elsewhere in Lima and the provinces. Fung, Lumbreras, and Matos have been the major forces in the San Marcos program for the last two decades. Lumbreras served as the Director of the Museo Nacional de Antropología y Arqueología from 1973 to 1979, and in his teaching and writing (177) he has advocated the use of historical materialism in archaeological analysis. This perspective was also explored in the influential essays of the late Emilio Choy (54). The interest in applying Marxist theory to prehistory in Peru preceded this trend in the United

States (100, 242, 244) and was part of a broader concern with Marxist theory in history and the social sciences in Peru, Chile, and Mexico. The continuing popularity of the Marxist paradigm among younger Peruvian archaeologists (72, 213, 215) has not produced the sharp rupture in archaeological practice that processual archaeology precipitated in the United States, since it builds upon the methods of culture history expounded by the older generation of archaeologists.

ECONOMICS, POLITICS, AND ARCHAEOLOGICAL TRENDS

Many significant archaeological trends over the last decade are the direct result of the changing economic and political realities of the Peruvian nation. Lima has quadrupled in size since 1961, and in the process has destroyed hundreds of sites. There is a growing awareness that steps must be taken to document the remaining ruins (201, 280). Only in rare cases has it been possible to conduct emergency excavations (97, 278, 283, 342) and preserve portions of the ruins as parks within the metropolitan environment. Some scholars have sought to partially offset this loss by studying unpublished reports and museum collections from destroyed sites in the Lima area (1, 25, 324).

The growth of provincial cities like Huaráz and Trujillo, as well as construction of roads, dams, canals, and other major public works projects, has demolished sites outside the capital. A well known case was the cutting of a highway through the center of Huari in 1974, but damage done to major sites like Conchapata or Pomakayan by government-sponsored housing is no less tragic. Even as I write, parts of the Paracas site of Chongos is being razed to build a model pig farm, and the site of Garagay is covered by a squatter settlement. The archaeological community in Peru usually lacks the political power to protect these sites (24, 26, 201), though its concern is manifested in newspapers and official protests. There are positive signs that a coherent government policy of cultural resource management may yet emerge, such as the government-sponsored valley surveys and the compiling of a comprehensive inventory of archaeological sites (281, 284).

The international ties underlying Peru's economic growth have a direct impact on archaeological investigation. The role of European companies in Peruvian economic development has created opportunities in Peruvian archaeology for a new generation of European scholars. The Gallito Ciego Reservoir Project, built by a West German engineering firm, helped finance excavations at endangered sites in the middle Jequetepeque Valley by German archaeologists whose previous training had been in Old World prehistory. Eventually, the Gallito Ciego Project will cover with water 645 known

archaeological sites, only a few of which have been intensively studied (144, 338); over 80% of these will probably be destroyed. The survey, maps, and excavations by Ravines in 1980 and 1981 provide the most comprehensive record of this loss (276).

The interest in Peruvian archaeology expressed by the German Prime Minister and his wife during their visit to Peru paralleled German-Peruvian collaborative fieldwork with financial support from the Volkswagen Foundation (45, 313). Continued activities by older Peruvianists like Trimborn (359, 361) and Bischof (21) and the renewed interest in Peru by younger German scholars resulted in a publication surge in German journals like *Indiana, Baessler Archiv,* and *Beiträge zur Allgemeinen und Vergleichenden Archäeologie* (12, 101, 114, 140, 142). The German archaeologists have brought with them the concern for stratigraphy and the sondage-style excavation techniques characteristic of the study of European prehistory. When applied in Peru, these have yielded some important results, including the horizontal exposure of perishable domestic architecture at Montegrande (344) and the dating of the Cerro Sechín stone sculptures (313). The German involvement in Peruvian archaeology extends to the training of Peruvian students in Germany and the financing and publication of archaeological research in Germany by Peruvians (5, 6, 312). The German government has also assisted in the establishment of the Museo Max Uhle, an archaeological museum in Casma.

Whereas extensive German support for Peruvian archaeological research has been relatively recent, the governments of France (27, 49, 50, 134, 162–165) and Japan (345–347) have consistently supported archaeological research as part of their foreign policy in Peru for the last two decades. Other countries, like Cuba (233, 343), Canada (353–356), Spain (2), and Poland (153, 390), have also sporadically sponsored archaeological investigations.

The UNESCO has had more impact on Peruvian archaeology than many individual nations. It responded to what was perceived as a threat to the Inca ruins in and around Cuzco from tourism and economic development with a long-term multimillion-dollar project in Peru directed by Sylvio Mutal. Studies of archaeological sites in the Cuzco region (PER 71/539) and training programs in excavation and conservation supplemented UNESCO work on the tourist infrastructure and conservation of the ruins in Cuzco. Despite the participation of an entire generation of Peruvian archaeologists in UNESCO-sponsored projects at Machu Picchu, Ollantaytambo, Pisac, Coricancha, Tambomachay, and other sites, few scholarly publications have been forthcoming.

Nevertheless, the UNESCO projects have fostered a pan-Andean vision of prehistory in which the archaeology of Peru is only one component. Modern borders are treated as recent arbitrary divisions that obscure the more basic

unity of prehispanic Andean development. The exchange links between distant areas, such as the spondylus trade, and discussions of maritime trade in ethnohistoric sources take on a new importance in this light. The clearest expression of this trend is found in two recent syntheses of Andean rather than Peruvian archaeology by Lumbreras and Ravines (176, 277) and the establishment in 1983 of the *Gaceta Arqueológica Andina* and *Revista Andina,* both of which publish articles on Andean prehistory. This recent literature has attempted to overcome the interpretive obstacles created for archaeology by the politics of often antagonistic modern nation states (36, 176, 225).

Despite the increasingly international atmosphere in Peruvian archaeology produced by UNESCO and the numerous foreign projects, local centers of archaeological research in Peru's major provincial cities have continued to prosper (14, 42, 102–104, 234, 369). In fact, universities in Cuzco, Ayacucho, Trujillo, and Arequipa currently grant more degrees in archaeology than the better-known San Marcos.

The pillaging of Peru's archaeological sites for the world art market has received international attention and widespread condemnation, but it has not been stopped. Looters in the Jequetepeque and Zaña valleys brought to light an important new pottery style, known as Tembladera, which figures prominently in recent books and catalogues featuring ancient Peruvian art (158). Unfortunately, the cemetaries that produced it were completely destroyed before they could be studied by archaeologists (276). The 1983 bilateral agreement between the US and Peru that provides for the return of Peru's national patrimony, including Prehispanic artifacts, is one of the few indications of progress towards restraining these illegal activities (362).

Several discoveries by grave robbers may never be paralleled or equaled by authorized archaeological investigation. The begrudging acknowledgment of this situation by scholars justifies the recent studies of looted materials, like the cache of Moche metal artifacts from Loma Negra (131, 171, 321), the golden masks and goblets from the elite burials at Batán Grande (44), the painted Chavin style textiles from the Karwa cemetary (57, 65, 66), and the Cupisnique carved stone bowls and cups from Limoncarro (311). Also noteworthy is the belated publication or reanalysis of older collections stored in museums in Peru, Europe, and the United States (19, 90, 105, 141, 205–207, 295, 296, 322, 325).

The political situation in Peru has always played an important part in determining the number and location of projects. In the early 1970s, the administration of General Velasco Alvarado followed a nationalistic policy that produced an environment in which some archaeologists from the United States found it difficult or unpleasant to work; the expanded participation of US scholars in Ecuadorian archaeology at this time was partially in reaction to the Peruvian situation. When Velasco was removed from power and replaced

by General Morales Bermudez, an archaeological policy was instituted that encouraged the participation of foreign scholars, and the eight years that followed was a period of abundant archaeological activity. Between 1977 and 1983, an average of 23 projects were authorized annually by the INC; over two thirds of these were directed or codirected by foreign scholars.

Increased US participation in Peruvian archaeology led to the establishment of a Northeast Conference on Andean Archaeology and Ethnohistory in 1982. It supplemented the annual meeting of the Institute of Andean Studies in Berkeley, founded in 1960, and the Midwest Conference on Andean and Amazonian Archaeology and Ethnohistory, begun in 1972. The rising number of symposia on Peru presented each year at the SAA and the AAA also reflect this trend. In Peru, an analogous role has been played by the Congreso Peruano del Hombre y la Cultura Peruana held every four years. Dissemination of field research has also been facilitated by *Willay* (a bulletin begun in 1978 as *NORPARG*) and the publication of the papers from the NE Conference of Andean Archaeology and Ethnohistory (156, 314, 315).

The congenial atmosphere for foreign scholars working in Peru between 1975 and 1983 stood in stark contrast to the situation in Mexico and Colombia, where government regulations created major obstacles to archaeological research. Consequently, many US archaeologists interested in complex societies began to seek research opportunities in Peru, even if they had not studied at one of the traditional centers of graduate training in Peruvian archaeology. At the same time, Ramiro Matos at the University of San Marcos forged links with foreign archaeologists. One result of his efforts was that Jeffrey Parsons, Kent Flannery, and Joyce Marcus of the University of Michigan began to work in Peru as well as Mesoamerica, and send their graduate students to Peru for their doctoral research. In 1977 Timothy Earle, a graduate of the University of Michigan, began a long-term UCLA research project in the Upper Mantaro River valley; like Flannery and Parsons, his contact with Matos led him to select an area in Junin as the focus of attention. These scholars and their students have been primarily responsible for the introduction of concepts and methods associated with processual archaeology into Peru. Their involvement signals a new era in which archaeology was undertaken for purposes other than the understanding of Peruvian prehistory. For these investigators, Peru was a convenient laboratory in which the problems of general cultural evolution could be isolated and studied (86, 87, 240, 294, 385, 386).

During the 1970s and early 1980s, political stability made it possible to select project locations on purely academic criteria. Ambitious road-building projects brought an increasingly wide area within reach of motor vehicles, and the high Andes were no longer neglected for logistical reasons. In fact, over half of the authorized projects were centered in the Andean highlands.

Scholars began to fill in the major geographical and chronological gaps in Peruvian prehistory with investigations in Cajamarca (346, 347), Chota (139, 142, 214, 300), the upper Chicama (153), Otuzco, the headwaters of the Huaura drainage (153a), Huamachuco (68, 348, 349, 353, 356), the Callejón de Huaylas (37, 40, 41, 107, 108, 345), Huánuco (27, 255), Apurimac (109, 204), and Cuzco (209). It was even possible to extend research onto the eastern slopes and examine the frontier area in which highland and tropical forest peoples have competed for millennia (137, 286, 326).

When R. S. MacNeish (190–192) decided to extend his research on the origins of agriculture to Peru, he did not hesitate to select the Ayacucho valley as an ideal location despite its relative isolation and impoverishment. Similarly, William Isbell (128) considered it feasible to reinitiate large-scale archaeological research in Ayacucho in order to trace the origins of urbanism and the state with surface reconnaissance and excavation at Huari in 1974, 1977–1978, and 1979–1980. This favorable situation began to change in 1980 when the revolutionary movement Sendero Luminoso initiated its campaign of armed struggle to topple the democratically elected government. At first, the only area affected was Ayacucho, where the Huari Urban History Project came to a premature end. Gradually, violence by Sendero Luminoso, the Movimiento Tupac Amaru, and the Peruvian military forces spread through much of the highlands, discouraging the initiation of new projects there. Some foreign projects, such as those in Huamachuco, Junin, and Tanatamayo have continued despite the sporadic hostilities in these areas, and archaeology continues to be done in Ayacucho by Benavides, Gonzáles Carré, and other scholars at the INC and the Universidad Nacional de San Cristobal de Huamanga (103, 104, 265). Highland areas untroubled by guerilla activity, such as Cuzco and the Colca Valley, are still the focus of investigations by foreign and Peruvian projects (194), but work by foreigners in most of the highlands has decreased sharply.

The increase in terrorism was paralleled by an overall economic decline and an increase in violent crime. By 1983 the combination of these factors resulted in a general decrease of fieldwork by foreigners and a corresponding increase in data analysis. The promulgation in September, 1985 of new regulations governing archaeology and their strict enforcement by the APRA party administration slowed field research still further. Most of the ongoing research focuses on the arid coastal valleys.

A view of archaeological research on the coast reveals a curious cyclical regularity. In the 1940s investigations focused on the north coast. Attention shifted in the 1950s to the south coast, and then to the central coast in the 1960s. Research came full circle in the 1970s when a host of major projects were established on the north coast, most notably the Chan Chan-Moche Valley Project (1969–1974), the Pampa Grande Project (1973, 1975), and the

Riego Antiguo Project (1976–1979). Though work in the north has continued at Batán Grande (329, 331), Pacatnamú (80) and Manchan (189, 211), interest in the 1980s has once again focused on the south coast, where new projects have been initiated in the valleys of Moquegua (376), Acarí, Nasca (338), Cañete (195), Pisco, Topará (389a), and Chincha (317).

SETTLEMENT AND ECONOMY IN ARCHAEOLOGICAL RESEARCH

Gordon Willey's settlement-pattern study of the Viru Valley put Peru at the archaeological forefront of studies in socioeconomic change. It was generally assumed that there was a fairly unambiguous relationship between site location and natural resources and that changes in the settlement patterns directly mirrored modifications in economic strategies and/or sociopolitical organization. The continued popularity of the settlement-pattern approach in Peru is attested to by archaeological surveys on the coast and in the highlands (7, 87, 96, 240, 268, 337). Many of these surveys adopted the systematic total-coverage procedures employed by Parsons and others in the Valley of Mexico, and there has been a consequent increase in the number of archaeological sites discovered. In the lower Santa Valley, for example, 1246 sites were documented (386). In order to facilitate meaningful inferences from the survey data, increasing attention has been paid to the details of the modern environment and to the distribution, quantity, and quality of the resources that might have been exploited by human populations in the past (119, 163, 164, 196). This work has drawn heavily upon the cultural ecology approach popular in US archaeology during the 1970s.

Some archaeologists working in Peru were justifiably skeptical about the reliability of economic inferences made almost solely on the basis of settlement data. West (380), for example, returned to the Viru Valley and illustrated how selective excavation and analysis of organic materials required the modification of some of the original conclusions about prehistoric economy and land use. Moseley (220) demonstrated the even more disturbing conclusion that archaeologically observed settlement patterns on the coast were sometimes as much the result of differential site destruction and burial as of changing patterns of prehistoric activity. Moreover, it was argued that, owing to coastal uplift and El Niño, topography has been going through a process of radical transformation throughout prehistory; consequently the economic potential of this area has changed through time (222, 230). Scientific documentation of fluctuations in temperature and rainfall during the Holocene in Peru are likewise inconsistent with the working assumption of environmental homeostasis (47, 350, 388) implied by the use of the modern environment in the reconstruction of extinct subsistence systems. Some scholars have taken

conclusions concerning environmental dynamism even further and argued that tectonic and climatic changes may be the proximate and even, perhaps, the ultimate causes of many major socioeconomic and political changes in Peruvian history (46, 95, 126, 222, 248, 253).

A sharp increase in the analysis of macrobotanical plant remains (56, 112, 250–252, 258, 259, 340, 365, 381) and faunal materials (4, 165, 208, 256, 259, 266, 282, 333, 334, 382, 387) during the last decade has permitted more direct inferences about prehistoric diet and subsistence than did settlement-pattern studies. Pollen extracted from coprolites, agricultural fields, and habitation sites also provides a useful complementary source of evidence about diet and economy (143, 377–379), as does stable carbon isotope analysis (113). In a few cases (112), settlement-pattern studies are integrated with excavations of local-level economic features and refuse analysis to provide a multifaceted view of prehistoric subsistence.

The diet of prehispanic Peruvian societies must ultimately be understood within the larger context of human health and nutrition (11, 30). Some of the most exciting recent work in Peru has focused on skeletal remains rather than the study of dietary residues. The aim of this research has been to isolate the health problems of these ancient populations and to determine the degree to which these were specific to particular regions, periods, or subsistence strategies (15, 16, 48). Osteological analysis has often disclosed the kinds of trauma, nutritional stress, and pathologies present in prehispanic Peru (371). Analysis of the soft tissue of dessicated human interments of the arid coastal region offers unusual opportunities to determine cause of death with some confidence. A study of Peruvian mummies, for example, revealed that a common cause of death in prehispanic times was respiratory disease. This would have been impossible to diagnose on the basis of skeletal material (3). Coprolite analysis has provided evidence of prehispanic parasite infestation as well as insights into early diet (241).

The success of the indigenous economic systems encountered by the Spanish in Peru is incomprehensible without understanding the technology and infrastructure upon which it was based (76). The reworking of the intermontane valleys with terracing and irrigation systems, and the transformation of coastal deserts into fertile oases using water tanks and dams, were central features of the Inca economy. Archaeologists have long presumed that the Incas accomplishments were based on earlier traditions. The last decade has witnessed a multitude of empirical studies of pre-Inca and Inca canal and terrace systems in both the coastal and intermontane valleys, as well as on the steep eastern slopes of the Andes (89, 93, 94, 154, 155, 194, 222, 223, 235, 239, 260). The rich inventory of prehispanic Andean agricultural technology also included raised fields (91, 172) in the highlands and sunken fields on the coast (151, 339). In many regions, the canal systems, terraces, and ridged

fields made it possible to cultivate at least 35% more land than at present. Whether this discrepancy is due to social, technological, economic, or environmental factors is a question that is of as much interest to the Peruvian government as to archaeologists.

PREHISPANIC ANDEAN TECHNOLOGY

The prosperity of prehispanic Peru stands in stark contrast to modern Peru. The aboriginal agricultural systems were only one aspect of the complex technological system responsible for the long-term success and stability of prehispanic society. A growing interest in the characteristics of Central Andean technology has brought forth two recent collection of articles (170, 274). To achieve their goal these articles draw upon a broad range of approaches, including ethnography, history, materials analysis, archaeology, and replicative experiments.

In Inca times, the storage of agricultural and other goods was nearly as critical as their production, according to the Spanish chroniclers. Archaeological studies of highland Inca storage systems (69, 86, 217) have verified the enormous scale of these facilities. At Huánuco Pampa, for example, there were of 480 buildings with a storage capacity of 39,700 cubic meters in which thousands of tons of potatoes, corn, and other goods were kept (219). Almost a thousand years earlier, large-scale storage of surplus was being practiced at Pampa Grande, a Moche V site on the far north coast of Peru (9). The studies of pre-Inca and Inca storage shed light on the context of storage within the nonmarket economies of prehistoric Peru, as well as documenting the specific storage techniques used. Inca administrators of storehouse complexes and other public facilities kept records with knotted and colored strings, known as *quipus*. Pre-Inca quipu-like instruments were recently shown to have been used in the Huari empire (58).

The construction and maintenance of prehispanic road systems facilitated the movement of goods and information in the rugged terrain of the Central Andes. A recent survey of the Inca network reveals at least 23,139 km of roads, and the complete network probably included approximately 40,000 km of roads (121). Naturally, many of these roads existed prior to the Inca conquest and were simply subsumed within the state network. Like quipus and government storage, large-scale road systems can now be documented for the Middle Horizon (323, 355).

Prehispanic Andean technology was fundamentally different from that of the Old World, in part because the technological choices made often expressed the deeper structures and values of these Andean societies (169). Most studies of Andean metallurgy and textiles have focused on reconstructing developmental histories of these technologies (57, 167) and in delineating

regional technological traditions (60, 168, 171, 303, 372). Much of this literature draws upon the detailed documentation of the processes used to create the artifacts recovered by archaeologists and looters (363). A good example of this kind of study is Heather Lechtman's discovery that the golden surface of many north coast metal artifacts was achieved by a sophisticated electrochemical replacement plating process (171). Less frequently, studies have sought to understand the productive processes by focusing on residues left at quarries (269) and workshops (166, 332) rather than on the laboratory analysis of the finished objects. With a few important exceptions (219, 328) the socioeconomic contexts of production emphasized in Murra's ethnohistoric research (226) have been overlooked.

ICONOGRAPHY AND IDEOLOGY

Interest in iconography has been renewed in the past decade by an increased awareness of the importance of ideology among anthropologically oriented archaeologists and by a growing appreciation of the pre-Columbian world by art historians (67, 107, 247, 321). As in the past, most research has focused on the art of the Moche because of its unusually rich naturalistic style, but the Chavin-related (43, 65, 66, 136, 159, 215, 280, 289, 297, 298, 311), Paracas (84, 85, 247), Recuay (12, 107, 288), and Chancay styles have also received attention.

Substantial progress has been made towards delineating the basic themes represented in Moche art, partially as a result of the creation of an archive of Moche iconography by Christopher Donnan (77). Detailed analyses have appeared of particular motifs, scenes, and individuals and their significance (17, 18, 31, 78, 82, 117). Though Moche art sheds an indirect light on daily life (42, 101, 130), it is currently viewed as representing mythology and ritual. Its interpretation has usually been attempted by a combination contextual analysis and analogy with Colonial accounts and modern ethnographic descriptions. In the last decade the structuralist interpretations of prehispanic ideology and archaeology by ethnographers and ethnohistorians has become increasingly influential in iconographic studies (124, 366, 367, 391). For example, Anne Marie Hocquenghem has attempted to go beyond the usual piecemeal interpretations of Moche art by creating a general structuralist model of prehispanic Peruvian ideology and ritual based largely on 16th century descriptions of highland Inca society. She has tried to use it to explicate Moche iconography (116), despite the considerable ecological and temporal divide between them. Lathrap has proposed even more imaginative cosmological models intended to be applicable to the prehispanic Central Andes, Mesoamerica, and beyond (160, 161). Finally, the encoding of political, as well as religious, ideology in Andean art and the use of this art in

the legitimization and application of coercive force have also begun to receive the attention they merit (64).

ADVANCES IN PERUVIAN PREHISTORY

The Preceramic

The final publication of the stratigraphy and stone tool assemblages of the Ayacucho Project (191, 192) is a landmark in Peruvian archaeology. Combined with smaller-scale studies of Junin (140, 163, 294) and Guitarrero Cave in the Callejón de Huaylas (179, 181), these results put the study of the Peruvian Preceramic on a much surer footing. Nonetheless, there is still little consensus on the date of the earliest settlement of Peru or the nature of the early hunter-gatherer societies in the highlands. MacNeish's claims for the pre–projectile point Pacaicasa and Ayacucho phases have not been widely accepted by other scholars. His model of a nomadic migratory round for the hunter-gatherers of Ayacucho likewise has plausible alternatives in the seasonal transhumant model put forward by Lynch (180) and the sedentary puna dwelling model presented by Rick (294).

Also still subject to debate are the dates when plants and animals were domesticated and what impact they had on Preceramic society. Though MacNeish and Lynch have both recovered small quantities of very early cultigens in highland caves (190), many questions remain unresolved because of their scarcity and the probability of postdepositional disturbances (254, 370).

The macrobotanical record is more complete from the coast where the preservation is better, but several thousand years separate the first documented appearance of most crops on the coast and the claims for their earliest use in the highlands (56, 250, 254). Though some have sought to explain this late introduction by population pressure (55), the point of origin and the chronology of diffusion of most cultigens remain largely hypothetical (159, 257). Even on the coast, the accepted dating of supposedly late cultigens (e.g. manioc, potatoes, and sweet potatoes) has recently been overturned by the application of new analytical techniques (365). The distinctiveness and numerous varieties of Peruvian maize have led some investigators to posit the Central Andes as a center of domestication (23), but most investigators now argue for an early diffusion of primitive maize to Peru from Mesoamerica (251). The large sample of maize excavated by Bonavia at Gavilanes and the other examples of Preceramic maize from the highlands (179, 190, 340) and the coast (23, 377) have been questioned on botanical and archaeological grounds (20, 370).

The dating of the domestication of the llama and the alpaca is equally

controversial because of the difficulty in distinguishing their remains from their wild relatives, the guanaco and vicuña (387). On the high grasslands in Junin, analysis of the camelid remains from Uchkumachay and Telarmachay suggests that the domestication of the alpaca and llama began between 4000 and 3500 BC (165, 256, 382). Yet in the adjacent intermontane river valleys, cervid and camelid hunting continued as an important supplement to farming during the Initial Period and even the Early Horizon (37, 208, 333, 387).

With the exception of the Paiján complex (49, 50, 83, 193, 237), the early Preceramic on the Peruvian coast has received comparatively little attention (72). It has only recently been appreciated that much of the early and middle Preceramic coastal plain is now under water (291–293) and that El Niño and other aspects of modern coastal climate may have been absent or somewhat different prior to 3000 BC (299, 316).

On the coast, the transition to sedentary villages during the Preceramic was well documented by the Paloma Project, which focused on the occupation of a village between 5700 and 3000 BC on the edge of the zone of seasonal fog vegetation *(lomas)*. The heavy use of ocean and river resources permitted the village to survive even when the lomas were not in bloom. Studies of the burial goods and skeletal material have provided an unusually clear picture of the demographic and health profile of this relatively egalitarian society (15, 16, 271). The hypothesis of Lanning and others that the lomas settlements were abandoned for the shoreline because of a change in climate has been challenged by data suggesting that the overutilization of lomas resources may have led to the degradation and dessication of this fragile zone (378).

The emergence of sedentary or semi-sedentary living on the coast at Paloma prior to the introduction of agricultural staples is consistent with the so-called Maritime Foundations of Andean Civilization hypothesis expounded by Moseley and others. They claim that the numerous late Preceramic platforms and plazas that dot the central and north central coast of Peru were constructed by littoral dwellers dependent primarily on Peru's unusually rich maritime resources and involved only secondarily in agricultural pursuits (5, 95, 118, 221, 258, 261). Not surprisingly, the hypothesis that societies without agricultural staples could be responsible for monuments like El Paraiso, which required over a million person-days of labor, has been met with considerable skepticism. Various alternatives, all involving food crops, have been offered (236, 285, 385). This debate is far from resolved, but the empirical data available suggest that many of the negative characterizations of the maritime resources were unjustified, particularly in light of evidence for the harvesting of anchovies as well as larger fish, mollusks, and sea mammals (45, 270, 271).

Research over the last decade has revealed that the emergence of early

complex societies on the coast during the late Preceramic is paralleled by the appearance of analogous societies along the western slopes and intermontane valleys of the adjacent highlands. This has been documented by the excavations at Huaricoto, Galgada, and Piruru and the surveys in the Tablachaca and Zaña rivers (27, 32, 37, 40, 41, 75, 108). Though varied in scale and organization, several of the highland sites display similar public architecture featuring central hearths in ritual chambers for the presentation of burnt offerings. This group of ceremonial architectures has been called the Kotosh Religious Tradition (40). The developments in the highlands and the coast during the late Preceramic were socially and economically interrelated, and explanatory models must take into account this interzonal interaction (38, 270).

The Initial Period (c. 1800–800 BC) and Early Horizon (c. 800 BC–0 AD)

Understanding of the Initial Period has been radically transformed by the archaeological studies of the last decade (38, 79). Over 20 centers with U-shaped platform mounds have been documented for the central coast, and another 30 major centers with truncated rectangular pyramids and sunken circular plazas on the north-central coast (5, 32, 79, 245, 262, 383). Other large centers have been uncovered on the north coast (59, 264, 331, 375). Some coastal centers, like Moxeke and Cerro Sechin, attributed by Tello to the Chavin culture, can now be shown to be older than classic Chavin civilization and to date to the Initial Period (33, 262, 312, 313).

The Chavin style drew its inspiration from elements and conventions widely used on the adobe sculpture and polychrome friezes that decorated the exteriors of these coastal Initial Period constructions (21, 38, 280). The excavation of impressive polychrome friezes at Garagay (283) and Huaca de los Reyes in the Caballo Muerto complex (264) has focused attention on the Initial Period art and required the modification of earlier assumptions (297) concerning the relation of early coastal and highland artistic traditions. Similarly, excavations at coastal centers have proven that the U-shaped pyramid complex, sunken circular and rectangular plazas, cylindrical columns, and other architectural elements once considered typical of the Chavin civilization were all known at a much earlier date (32, 245). A multitude of new local beliefs and conventions unrelated to Chavin, like the importance of the spider in early coastal iconography and the popularity of colonnaded halls in the architecture of the north coast, have also come to light (311).

Unfortunately, research at large Initial Period centers has usually been conducted on a small scale (98), sufficient only to establish temporal control and some basic cultural attributes, particularly ceramic style (106, 202). Furthermore, excavation at Initial Period sites lacking monumental architec-

ture is rare. There is little agreement about the nature of these societies; scholars have speculated that they were tribes, chiefdoms, or even states (110, 242, 262, 264). Some have tried to explain the building and organization of these complexes by analogy to later Andean features of the Inca and Colonial Quechua such as dual divisions, cargo organization, and mita labor (41, 95, 124, 229, 283). The abundant monumental architecture apparently served as the setting for religious ceremonies and as the focus of public life. Habitations have been found at large centers like Moxeke and small centers like Montegrande (344). The inland location of most of these centers has led investigators to presume that the societies in question were dependent on irrigation agriculture; the abundant marine foods recovered indicate the interdependency of small littoral communities and larger inland settlements (55, 242, 258).

Studies of the Early Horizon continue to be dominated by models of a Chavin horizon that radically altered the cultures and patterns of interaction in central and northern Peru. This hypothesis had originally been based on the diffusion of art styles, but recent studies have documented revolutionary changes in textile and metallurgical technology (57, 167) coeval with and presumably the result of the Chavin phenomenon. Since many of the cloth and metal objects bear Chavin religious motifs, it is likely that their production had an ideological basis and goal. The unprecedented diffusion of a single pan-regional style appears to have been produced by the adoption of the Chavin religious cult by numerous societies of the coast and highlands that had previously had little contact. The ties forged in the ideological sphere provided the basis for expanded social and economic interaction, as reflected in an expansion in long-distance exchange and the adoption of common stylistic elements in local pottery assemblages (36, 39, 197).

The site of Chavín de Huántar (35, 174, 335) represents a rupture with the highland Kotosh Religious Tradition (40), and the architectural elements of the famous highland temple can now be traced to earlier coastal antecedents. They are no more local than the images of tropical forest animals decorating the public structures (135, 383). The economic and religious basis for the construction of the Chavin temple continues to fascinate scholars and generate new research (34, 35, 178, 208, 289). Constructed late in the Initial Period, the Chavín de Huántar temple flourished during the Early Horizon and its popularity was mirrored in the growth to over 40 hectares of the settlement surrounding it (35). In contrast, older coastal centers, like Garagay or Haldas, appear to have gone into decline or were abandoned completely (33). It is against this backdrop of foundering formative coastal traditions that the spread of the Chavin cult must be placed. The regional impact of the Chavin horizon was variable, ranging from strong (345) to virtually nonexistent (153, 153a, 390); the degree of influence does not appear to be a simple function of distance from Chavín de Huántar or any other center.

The distintegration of the Chavin interaction sphere led to proliferation of myriad distinctive cultural patterns (70, 84, 85, 238, 342, 373, 374). In many regions, redoubts and other fortifications appeared for the first time (183, 354, 386), and large nucleated centers lacking monumental architecture were established both in the highlands and coast (28).

The Early Intermediate Period (0–600 AD)

The cultures of the Early Intermediate Period were not the focus of many major field programs in the decade under consideration, perhaps because they were already relatively well known. Studies of the in situ development of urbanism on the north coast (13, 28, 357) and the apparent lack of true urbanism at the large site of Cahuachi (338) on the south coast did, nevertheless, constitute major advances, as did several stimulating examinations of the relations between the various Early Intermediate Period cultures (74, 246, 249, 276, 338, 355). Also noteworthy was the investigation of the Moche canal system and the impact of flooding and other environmental factors on it (223, 230).

On the south coast, the enigmatic desert markings of Nasca remain a subject of debate, with ethnographers and astronomers taking an active part (127, 290, 367). Archaeologists have now documented desert lines analogous to those of Nasca that were apparently created during the Preceramic (301), and large geoglyphs of naturalistic figures are now known from several valleys, including examples from Zaña that are believed to date to the Initial Period (6).

Some important advances have been made in the still poorly understood southern highlands. Building upon the improved understanding of the Early Horizon sequence for this region (115, 209, 305), a sculptural sequence was proposed that would link the Early Horizon style with Pucara and ultimately with Tiahuanaco (51, 53). Important evidence of ceramic styles and economic interaction was also produced by survey in this region and by new excavations at Pucara (224, 225).

Middle Horizon (c. 600 AD–c. 1000 AD)

Research on the Middle Horizon has been dominated by studies related to the origin and development of the expansive Huari state. Heavily influenced by the work of H. J. Wright and G. A. Johnson, scholars have viewed state organization as the critical locus of power in complex societies and information processing as the critical function of this institution. Previous work by Menzel and Lumbreras had pointed to parallels with the Inca state, but these discussions were based largely on analysis of pottery style and impressions drawn from site reconnaissance. Research over the last decade has emphasized systematic site survey, mapping, and extensive excavations.

The Huari Urban Prehistory Project was in the vanguard of this research,

providing a clearer vision of Huari, presumed to be the capital of this empire, and an idea of the complexity of this 500-hectare site (29, 128, 129, 341). Peruvian colleagues made discoveries of elite tombs (14), the main temple (103), and areas of craft production (265). According to the estimates of Isbell the maximum population of the city ranged between 20,650 and 34,000. One unexpected discovery was a cut-stone court built directly on bedrock. Resembling the sunken plaza of the Qalasasaya at Tiahuanaco (128), it raised questions once again concerning the role of Tiahuanaco in the rise of the Huari state (64, 210).

Additional studies outside of Huari shed light on the sustaining rural hinterland (125) and their administration by provincial state complexes (10, 52, 203, 384). These latter studies confirmed the powerful Huari presence at sites like Pikillacta and Azangaro while suggesting that state-controlled production at these centers may have been more important than previously realized. Evidence of ritual activity characteristic of the state religion were documented far from Huari (272, 348). Studies of tenuous outposts of Huari power in the south at Cerro Baúl in Moquegua (376) and the north in Huamachuco (356) helped to define the limits in extent and power of this polity.

Despite the mounting evidence of various kinds indicating that Huari was the urban capital of a large state (128, 129, 249), skepticism has increased about whether this polity was an empire as frequently claimed. Ruth Shady (325, 327) has argued that intensified economic interaction provides the best explanation for the appearance of Huari elements on the central coast. Similarly, the investigators of the Chan Chan-Moche Valley Project concluded that the north coast was never incorporated into Huari imperial expansion (13, 186), despite occasional finds of Huari ceramics (207), Huari stylistic influence on public art (188), and a sudden change in local burial customs at the beginning of the Middle Horizon (81). The development of urban forms and the introduction of architectural elements, like the large rectangular compounds, are now thought to be the result of internal north coast developments. The Huari-contemporary polities on the north coast provide evidence of sharp class divisions, extensive state storage, craft specialization, and other features characteristic of the subsequent Chimu empire (9, 111, 328, 334).

The reasons for the breakup of the Huari empire have not been seriously pursued, though some interesting ideas have been presented (8, 126). The ensuing political reorganization during the late Middle Horizon has, for the first time, been examined in detail outside of the south coast. Progress has been particularly noteworthy on the north coast (207), with important excavations at Chan Chan, Pacatnamú (80, 114, 364), and Batán Grande. It has been argued that Chimu culture began to develop by the latter part of the Middle Horizon, directly following the Moche V developments in the Moche valley (81, 187, 223). It has also been demonstrated that a polity character-

ized by the Lambayeque or Sicán culture was established in the Lambayeque and La Leche valleys by the late Middle Horizon and continued through the early Late Intermediate Period until its conquest by the Chimu empire. Much new information has come to light on the role of the Sicán culture in metallurgical production and its strong exchange links with Ecuadorian cultures (44, 329–332).

Late Intermediate Period (c. 1000–1476 AD) and Late Horizon (1476–1534 AD)

For many decades, the Late Intermediate Period and Late Horizon received comparatively little attention from archaeologists because of the availability of historic accounts of the Incas and the groups they conquered. This situation changed over the last decade for several reasons. As evident in the preceding pages, there has been a growing interest in sociopolitical organization, and it began to be appreciated that the fragmentary ethnohistorical evidence could provide varied models of regional prehispanic organization that could be tested, revised, and broadened using archaeological methods (216, 226, 227, 302). Second, late prehispanic remains are more compatible with currently favored archaeological methods such as settlement survey and broad horizontal excavations than are older remains, though the pottery is often far less attractive. Finally, the idealized view of Tawantinsuyu came under fire; basic questions were raised about the nature of the Inca empire and the degree to which it transformed the social, political, and economic patterns outside of Cuzco (92, 218, 226, 302). The renewed interest in later Andean prehistory reflects the influence of the continuing ethnohistorical research of Murra (226, 227), Rostworowski (302), Rowe (306–308), and Zuidema (391) on a new generation of archaeologists.

The publication of the conclusions reached by the Chan Chan-Moche Valley Project (223, 275) provides an almost ethnographic vision of life in this complex urban center, whose nucleated core covers an area of some 6 km^2. Chan Chan was divided into social classes, each with distinct patterns of residence, production, consumption, and burial (63, 71, 149, 150, 263, 352). Although hampered by the absence of an accepted relative chronology, an attempt has been made to trace the growth and decline of Chan Chan and relate these changes to climatic disasters and military expansion to the north and south (152, 222). Excavations at Chimu provincial administrative centers helped shed light on the pre-Inca patterns of imperial management of conquered territories (145, 189, 211). New archaeological evidence for state involvement in expanding large-scale canal networks and in colonizing new agricultural land (89, 145, 154) has been tempered by new ethnohistorical evidence of local-level management of most north coast irrigation systems in Chimu times (228).

Effective combination of systematic regional survey, selective excavation,

and documentary research has also begun to provide a vivid image of Late Intermediate Period society in the central highlands (87, 239, 240).

In Huanuco (219) and Junin (163, 164), differences in Late Intermediate Period ceramic style, architecture, population density, site hierarchy, and use of public architecture have been related to ecological and ethnic divisions. The Mantaro Valley area, associated with the Huanca ethnic group in historical records, shows evidence of social and political hierarchy, although at no point does it approach that of the Chimu empire. Considerable chronological control has been achieved in the Mantaro Valley, and it appears that there was a significant population increase toward the end of the Late Intermediate Period, accompanied by a shift in settlement locations from low-lying sites to defensible ridges and hilltops (87, 112).

In the southern highlands, Ann Kendall's study of Late Intermediate Period sites in the Urubamba drainage has reinforced earlier evidence that the Killke materials are the direct antecedent for classic Inca culture. The Killke settlement pattern is comprised of small sites not unlike those in the central highlands (102, 146, 147). Surprisingly, the Late Intermediate Period occupation of the Cuzco basin remains poorly understood, although some useful studies of the ceramics and individual sites have appeared (102, 146, 148, 231). As a consequence, recent discussions of the rise of the Inca state have made little use of archaeological evidence (175, 244, 318).

The kingdoms surrounding Lake Titicaca have also received considerably more attention (120, 132, 133, 225, 309). Centers covering up to 150 hectares have been documented, and there are well defined site hierarchies in the region. The larger centers feature monumental architecture and elaborate tomb constructions (120, 120a, 310). The discovery of a large cache of gold at Sillustani illustrates the highly stratified nature of these Titicaca Basin groups (309).

The incorporation of pre-Inca polities into Tawantinsuyu and the transformation of local and regional economic systems as a consequence of this conquest have been studied by numerous investigators (73, 112, 133, 206, 219, 243). The pattern that emerges is characterized by considerable variability reflecting economic and historical differences between valleys and the considerable flexibility of Inca administrative mechanisms (207, 218). Detailed studies of individual Inca centers likewise reveal strong regional diversity (61, 92, 104, 122, 153, 195, 219, 345). These case studies have been complemented by specialized studies on the nature of the Inca economy, particularly in regard to the role of exchange (157, 216, 303), state storage (69, 86, 157, 217), and agriculture (88, 93). The ideological basis of state power is increasingly viewed as critical (62, 306), and the material symbols of Inca hegemony, particularly the architecture, have continued to interest scholars (99, 121, 122, 147, 212, 308).

CONCLUSION

Although substantial progress has been made towards a better understanding of Peruvian prehistory over the last decade, the field is still in its infancy. The participation of an increased number of investigators representing diverse schools of world archaeology and the establishment of new channels of communication between scholars are positive signs for the future. On the other hand, the increasingly violent and unstable political situation in Peru is a negative factor whose long-term impact cannot be predicted.

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