

CHAN CHAN: A CASE STUDY OF URBAN CHANGE IN PERU

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Conceptualizing the history of Chan Chan, the imperial capital of Chimor, is understandably biased by the city's well preserved monumental architecture. Towering adobe walls spread from a six square kilometer urban nucleus to encompass more than twenty square kilometers of the lower Moche Valley. Because such a vast area is encompassed, monumental architecture has long dominated perceptions of the settlement. Yet the ruins that assault the visitor's eye and dominate maps and aerial photos of the metropolis are neither the remains of a formally planned city founded late in the Middle Horizon nor the last stage of elite architecture in a site that grew tell-like up to the Late Horizon abandonment. Rather, Chan Chan is an amalgam, both chronologically and socially. There is high standing architecture from many different periods of construction, and the vast majority of the urban populace resided in poorly preserved structures that command little visual attention. Thus, there is much about the city that neither meets the eye nor is encompassed by the monumental architecture.

Between 1968 and 1974, the Chan Chan-Moche Valley Project investigated both Monumental construction, associated with the elite, and small irregular agglutinated rooms (SIAR), which housed the urban lower class. The archaeological assemblages of SIAR are qualitatively and quantitatively very different from those of Monumental architecture, and excavations of the SIAR produced more artifacts and more assemblages that were deeply stratified than did excavations in elite structures, which were largely free of artifacts but datable on the basis of adobe construction. Therefore, the data base for one physical and social segment of Chan Chan is very different from that for the other segment. The following historical synthesis of the city is developed from the SIAR data base and, therefore, emphasizes the lower class perspective. In articulating the lower class with the elite, SIAR chronology is used to order the Monumental architecture, and with minor exceptions this ordering is consistent with dating based on adobe construction (Kolata, 1982).

Definitions and Social Components

The history of Chan Chan will be discussed in terms of the interactions of distinct groups of people within the city. A general model, which allows for both the structural definition of groups and a systemic view of their interrelationships, can be drawn from the work of Max Weber and Eugene A. Hammel.¹ This model emphasizes the role of four subsystems which distribute wealth, prestige, information, and authority,² resulting in the formation of classes, status groups, bureaus, and political factions. This model also emphasizes the developmental role of stresses within the social, economic, and political organization and views environment as providing selective pressures rather than creative input. While in theory the workings of the four subsystems are independent, Andean ethnohistory describes a congruent social structure;³ individuals in positions of authority are also wealthier, more prestigious, and have greater access to information. Thus, we can expect there to be overlap in the distributions of physical evidence for the different subsystems.

Architectural remains at Chan Chan reveal much about the composition and interrelations of the different groups at the site. Recent studies of the

architecture at Chan Chan as well as antecedent sites in the valley have classed structures into a number of major types with numerous variants. The four major classes of architecture (Monumental enclosures, Elite compounds, SIAR, and truncated pyramidal mounds) functioned respectively as palaces and seats of government, aristocratic residences and auxiliary administrative centers, proletarian residences and workshops, and religious centers.⁴

The classic variant of the Monumental enclosure is called a *ciudadela*, which is a large enclosure built as a unit. It has a single entrance, in the north, and is divided into northern, central, and southern sectors by walls; often a fourth sector is present on the east side of the enclosure. While the southern sector is not heavily built up, the other sectors are characterized by repetitive groups of structures and a formal plan. Each sector is entered through a large courtyard, which usually incorporates a symmetrically arranged set of benches along three walls. A ramp at the south end of the courtyard leads up to a raised area of smaller courts, each of which contains one or two U-shaped structures. There are often dedicatory burials under both the ramp and U-shaped structures. The floor of the U-shaped structure is elevated 10-20 cm. Mazelike passages provide access between the courts with U-shaped structures, as well as connecting these courts to large banks of storerooms. The storerooms are, again, often symmetrically arranged in rows within courts. A final feature of the classic *ciudadela* is the king's burial platform; this is located in its own court, usually in either the central or southern sector, and evidence indicates that large numbers of young women were sacrificed to accompany the king in death.

The classic *ciudadela* was the final stage of a long sequence of development of the Monumental enclosure. Earlier variants at Chan Chan are characterized by many of the same components but lack, especially, the tripartite division into sectors. Earlier variants are also distinguished by the plan of the burial platform and the type of U-shaped structures used.

The variation in U-shaped structures is of particular importance. The *audiencia* (fig. 18) typical of the *ciudadela*, has six symmetrically arranged niches. The *trocadero* (fig. 16), an earlier U-shaped structure, has three symmetrically arranged troughs. *Audiencia* and *trocadero* variants have differing numbers of niches or troughs, or niches and troughs of different shapes, or differing overall plans. Not all variation in U-shaped structures is chronological, and three different types (the *audiencia*, *auxilio*, and *arcón*) occur at the same time, although in different contexts. Instead of niches or troughs, the *arcón* has varying numbers of bins (figs. 21, 22), while the *auxilio* lacks all of these attributes.⁵

These architectural components are important because they tell us much about how wealth, prestige, and information were distributed and controlled in Chimú society. The distribution of wealth was based largely on two mechanisms: a labor tax and a redistributive economy. In many instances we can recognize the application of the labor tax by observing the organization of large construction projects, such as the building of canals, monumental enclosures, and sunken gardens. Patterns of redistribution can be traced by observing differences in storage patterns. The U-shaped structures are the architectural component most commonly associated with large construction projects and major storage facilities. The occupants of U-shaped structures, like Inca bureaucrats, controlled information by keeping track of people and things. Prestige is reflected architecturally by the size, symmetry, and elevation of structures.

Architecture is, of course, not the only class of evidence available.

Dedicatory burials have been mentioned above, and evidence related to specialized production, personal ornaments, and exotic imports will be presented as the social components of the city are discussed.

Social components

To illustrate how different groups can be recognized at Chan Chan from the architectural and artifactual patternings, it is useful to digress momentarily to a consideration of the city's terminal phase. The city, as a functioning entity just prior to the Inca conquest, is well understood, and provides an end point toward which developmental models must be directed.

The rural lower class resided outside of Chan Chan in villages characterized by small one-room houses with bulk storage facilities and little evidence for craft activity. This class has been best studied at the site of Cerro la Virgen (Keatinge, 1975). Bulk storage facilities consist of large urns and stone-lined pits set in the floors of individual houses, as well as a set of subterranean stone-lined rooms on the northeast edge of the site, which probably served as a community facility.

Inside Chan Chan there were two large groups, the nobility and the urban lower class, which can be broken down into subgroups. The nobility can be generally characterized by its association with Monumental and Elite architecture, *audiencias* as opposed to other types of U-shaped structures, and dedicatory or sacrificial human burials. Mainly because of the number of sacrificial burials accompanying the king's burial, the king would seem to be clearly distinguishable from all other nobles.

The urban lower class is much more complicated than the nobility. There are three major groups, each of which is distinguished from the nobility by the lack of dedicatory or sacrificial human burials, and from the rural lower class by their larger, better quality living quarters, special economic roles, and the presence of ear tubes (figs. 1-3). Throughout the areas occupied by the urban lower class, numerous small bins served primarily to store and organize the tools and materials needed for craft production, while ceramic jars and occasionally bins were used for food storage. The storage pattern can be generally characterized as highly compartmentalized and small scale; bulk storage facilities are lacking.

A small group, but probably the most prestigious of the urban lower class, can be considered retainers to the nobility. This group lived on artificially elevated platforms adjacent to Monumental enclosures. In other matters there is significant variation among the nine or ten distinct areas that represent this group. Some areas have communal kitchen facilities, while others seem to lack kitchens entirely, and still others have single family kitchens. Some areas have tools characteristic of fine quality metalworking, while others lack production evidence but exhibit elaborate architecture.

A second, even smaller, group was probably only resident in the city part of the time. This group, which can be called "transport workers,"⁶ has been identified in only two areas of Chan Chan. Both of these areas are located near the center of the site, have communal kitchens, large rooms that may have served as corrals, other rooms with numerous benches, which may have been used as dormitories, and, most importantly, a small mound. The one such mound excavated was filled with sacrificed llamas accompanied by such exotic goods as *mishpingo* seeds and a military macaw (*Ara militaris*).⁷

By far the largest lower class group at the site was the residents of the *barrios*, or neighborhoods, which sprawl along the western and southern edges of Chan Chan. At least four *barrios* can be recognized, and these are characterized by single-family houses grouped into blocks, with workshops, Elite compounds, wells, and cemeteries interspersed. The predominant activity is craft production; metalworking is emphasized, but weaving, woodworking, and other minor crafts are also present.

The subsystem producing and redistributing wealth linked all the groups. The rural population comprised the food producers as well as the general labor pool for the *corvée* or *mit'a*. *Barrio* residents were the mass craft producers and this role is best documented in terms of metalworking; the *barrio* occupants apparently concentrated on beating ingots into sheet metal and transforming sheet metal into thousands of utilitarian items such as needles and tweezers. The retainers apparently produced little sheet metal, obtaining this from the *barrios*, but had tools suitable for raising up cups and other more complicated tasks. The nobility monitored producers, products, and raw materials, while the transport workers moved the latter two items.

The distribution network can be traced through a number of lines of evidence. No evidence for the smelting of ore has been found at Chan Chan, but copper ingots are relatively common; the *barrio* residents possessed both ingots and sheet metal, while retainers possessed only sheet metal. Scraps of metal are often found folded and tied into neat little bundles, and one *barrio* area apparently melted these scraps into new ingots. Unspun cotton is found only in the *barrios*, while bulk cotton yarn is found more generally. Unspun camelid fiber is rare, while bulk camelid fiber yarn is common. Bulk cotton yarn is most often found wound on spindles, while bulk camelid fiber yarn is most often found in skeins.

The types of storage facilities in different areas also help to trace the distribution network. The numerous sets of storerooms in the Monumental enclosures must represent the central node. Bulk storage facilities in rural settlements probably indicate infrequent interaction with the central node. Conversely, the small bins in *barrio* and retainer areas indicate frequent distributions from the central node. The transport areas are located among Elite compounds where breaking of bulk may have occurred.

Distinctions apparently related to prestige separate, rather than link, the groups. Rural residents have no special symbols relating to prestige. The urban lower class as a whole shares one symbol, the ear tube, but retainers are distinguished further by the elevated location of their living quarters, and transport workers by their little shrinelike mounds. Nobles are set apart by the perquisite of human dedicatory burials. In addition to these general group distinctions, there appears to be some ranking of individuals within groups. For example, there is some evidence, in terms of symmetry and scale of architecture, that specialists in metalworking ranked above weavers (J. Topic, 1977, pp. 113-114), and that people who worked in *audiencias* ranked above those who worked in *auxilios* (Andrews, 1975, p. 256).

Intertwined with the evidence for prestige and the distribution of wealth is the evidence for the distribution of information. During the terminal phase at Chan Chan, there were three types of U-shaped structures in use: the *audiencias*, *auxilios*, and *arcones*. Dedicatory burials are found only under *audiencias*, never under *arcones* or *auxilios* (figs. 5-22). Monumental enclosures have only

audiencias and *auxilios*, urban lower class areas have only *arcones*, the Elite compounds have all three types of structure, and rural villages have none (Andrews, 1975; Klymyshyn, 1976). *Arcones* in specialized metalworking areas tend to be symmetrical with only two bins (fig. 21), while in other situations, such as general purpose shops, communal kitchens, or where they monitor well use, *arcones* are multibinned and often asymmetrical (fig. 22). U-shaped structures thus reflect the status of the administrators who worked in them and represent a bureaucratic hierarchy. They also reflect the distribution of wealth and monitor information in terms of the flow of goods, water, and labor.

Estimates of the number of people within each of these groups during Chan Chan's final phase must be tentative. Schaedel (1972) estimates about thirty thousand rural inhabitants for the Moche Valley and somewhat more than half a million for the core of the Chimu empire. Topic has estimated the population of the urban lower class at about 30,000 (J. Topic, 1977, p. 38). This estimate, which takes into account the large amounts of space devoted to workshops, alleys, cemeteries, and wells, as well as the large average size of residential complexes in the SIAR (88.22 m²), should be considered reasonable within a possible range of 20,000-40,000 persons. Accepting the estimate of 30,000, the urban lower class can be broken down roughly into about 26,400 *barrio* residents, 3000 retainers attached to Monumental enclosures, and 600 transport workers. No recent figures have been offered for the number of nobles occupying the Monumental and Elite architecture, but all workers agree that the density in these types of architecture was low. A simple guess would be that these two types of architecture, during the final phase of Chan Chan's occupation, housed about 6000 persons, not all of whom would have been nobles.

Ceramic and Architectural Chronology

From the preceding material, it is perhaps obvious that absolute population growth as well as segregation into distinct groups will occur mainly within the urban lower class. Changes in information flow and administration will generally be most clearly reflected within the nobility.

Lower class architecture is relatively flimsy and the lower class, due to its social position, is much easier to evict from urban renewal areas than is the nobility. These factors have led to repeated episodes of construction, destruction, filling in, and reconstruction in the SIAR or lower class areas. This sequence of events, in turn, led to the evidence of early SIAR occupation being buried by as much as 4.25 m. of stratified deposits. As a result, SIAR chronology has had to be derived from stratigraphic analysis of ceramics. Fig. 4 summarizes vessel shape attributes through 5 phases, based on 17 widely scattered contexts throughout the city (J. Topic, 1977).⁸

Analytical units consisted of a stratum or strata of varying thickness and different depositional histories, which were sealed by the construction of a floor. At times, levels consist of several closely spaced floors with little fill between them, while at other times redeposited fill may occur in levels over 2 m. thick. Because of the constant redeposition of material throughout the site, early ceramic attributes may be stratified above late floors. Thus, in order to assure proper chronological placement, the ceramic analysis emphasized those stylistic attributes that represented additions to an already established assemblage.

The fifth, or final, phase is well known from a number of contexts and is

recognized by the addition of a number of rare attributes to the ceramic assemblage, including Olla 4, Plate 4, Spouts 2 and 3, pour spouts on plates, and pedestal bases. Jar 5 may be a new addition or it may be a rare earlier form that has been mixed in with later material. Phase 4 is defined simply by the appearance of the square stirrup. Phase 3 is best defined by the introduction of Urns 2 and 3, Plate 3, and incurving bowls, and these shapes tend gradually to supercede the Phase 2 functional counterparts. The Chaihuac collection is the only large pure example of Phase 2 and is characterized especially by the high proportion of Plate 1 and the first appearance of Olla 3.

Phase 1 has not been isolated stratigraphically, but there is good reason to assume its existence. It would contain all of the Phase 2 markers except Olla 3, and in addition would incorporate tripodal legs on Plate 1. There are two reasons to suggest the phase. First, tripod bowls occur in the same cemeteries as Red-White-Black ceramics but not in the same graves. Thus, they appear to be early but distinct from Red-White-Black (personal communication, Carol Mackey). Second, the distribution of tripods at Chan Chan is restricted to a few locations, where they occur in strata of redeposited material and are generally associated with other early markers.

Since the first two phases are poorly represented, it is useful to consider the deletion of traits from assemblages, using the distributional criteria above. The first attribute to be deleted is the tripodal base and this occurs at the end of Phase 1. Ring bases are deleted by the end of Phase 2. Judging from the ceramics at Milagro de San Jose, a rural administrative center (Keatinge, 1973), makers' marks outlast ring bases, but are deleted early in Phase 3. Jar 1 is probably deleted by the end of Phase 3. It is possible that round stirrups are actually deleted after Phase 3, but certainly they become much less popular than square stirrups. Less diagnostic, but still useful, is the ratio of Plate 3 to Plate 1; a high ratio indicates a placement late in Phase 3.

Unlike the SIAR, the Monumental and Elite architecture was apparently only rarely razed to make way for new construction. Thus, most examples of these types of architecture are still visible on the surface of the site. This fact, combined with a general scarcity of ceramic material within Monumental enclosures, has led to the construction of chronologies based on architectural attributes. Kent Day (1973; 1982) laid the groundwork for these studies with a general analysis of Monumental enclosures. His work was followed by studies of specific architectural features (Pozorski, ms.; Andrews, 1972; 1975; Conrad, 1974; 1982). More recently, Alan Kolata (1978; 1982) devised a sequence based on brick shapes, which is especially useful since it incorporates material on the truncated pyramidal mounds, as well as providing more recent information on U-shaped structures. Table 1 summarizes the distribution of a number of architectural attributes within Chan Chan.

Growth

Chan Chan Phase 1 (fig. 23) followed soon after the abandonment of Galindo, a Moche V settlement at the valley neck. Mackey (ms.) has documented the continuity in ceramic attributes, and it is also possible to demonstrate continuities in architectural attributes. The remains so far discovered at Uhle and Tello appear to belong to complexes much more similar in form to the Galindo *cercaduras*⁹ than to the classic tripartite Chan Chan *ciudadela*. Although *cercaduras* and *ciudadelas* are related architectural types, with many of the same components, the *ciudadela* is characterized by a particular arrangement of these

components into three major sectors.

The *tablados* in the earliest sections of Tello constitute a more specific architectural continuity with Galindo. *Tablados* (small raised diases) represent one brief stage in the sequence of evolution of U-shaped structures, which extends from at least Moche IV to the classic *audiencias* at Chan Chan.¹⁰ During Phase 1, the U-shaped structures change from the *tablado* form to an elongated U with two bins or two niches. This evolution accelerates in Phase 2 to include a number of C-shaped and U-shaped variations (figs. 5-11; Table 1).

Continuities with Galindo are still visible in Phase 2 at Chan Chan (fig. 24). Chaihuac is analogous in form if not function to Galindo's Platform A (Bawden, 1982; Conrad, 1974). The ceramics from Chaihuac have clear precedents at Galindo (Mackey, ms.). Adobe pyramids, such as Huaca el Higo, Huaca Tacaynamo, and Huaca el Olvido, also continued to be built during Phases 1 and 2 (Kolata, 1978); the first two probably served as burial platforms.

In addition to the structures mentioned above, which are still visible on the surface of the site, further architectural evidence was found in Topic's stratigraphic cuts (J. Topic, 1977, pp. 292-315, 498-504). This evidence was interpreted as representing two large enclosures and numerous small structures now destroyed and buried by the debris of later phases. Of the larger scale architecture, Enclosure 1 may have been built as early as Phase 1, while Enclosure 2 was almost certainly built during Phase 3. Both of these enclosures were sampled by stratigraphic cuts, although their forms and areal extent remain unknown. In addition, some early bricks found incorporated in later walls just east of Tello and north of Chaihuac may indicate the presence of the Elite compound type in these areas (Kolata, 1978). No small domestic structures of Phases 1 and 2 were actually encountered in excavations but their presence is inferred from domestic ceramics encountered in fill. Ceramics diagnostic of Phases 1 and 2 have been found only in the southern part of the site in stratigraphic cuts just south of Tschudi and Huaca el Higo (J. Topic, 1977) and in fill in Wachaque Chico and Chaihuac Wachaque (personal communication, Thomas and Shelia Pozorski).

If the entire area represented by stippling in figs. 23 and 24 was occupied, and if this occupation was as densely agglutinated as the Phase 5 occupation, the population in Phases 1 and 2 could have been as many as 21,000 persons. The scarcity of Phase 1 and 2 ceramics, however, leads us to favor a much lower estimate of about 7000 persons, concentrated in the southeast corner of the site. While there is little evidence of population growth among the lower class during these phases, the population housed in Monumental and Elite architecture may have grown. The numbers offered in the captions to figs. 23 and 24 are, again, mere guesses based solely on the number of enclosures.

Phase 3 is characterized by major changes in the form of Chan Chan (figs. 25, 26). Both Laberinto and Gran Chimú have the classic tripartite *ciudadela* plan. The major boundaries of the site were established by the construction of the great north wall, by a north-south road running along the western wall of Laberinto, and by the rock and dirt fill mounds, Huaca Obispo and Huaca las Conchas. The fill for these last structures may have been derived from the beginnings of *wachaque* (sunken garden) construction. Lower class domestic architecture spread first to the area west of Laberinto, then to the area south of Laberinto. This spread of the lower class into new areas may have been simply a relocation related to both *wachaque* construction and the general shift of the center of the site northwards, or it may have resulted from an increase in the

number of lower class persons. The expansion of Monumental and Elite compounds, as well as the continued modification of existing structures, indicates population growth among the nobility.

Perhaps the major development during Phase 3 was the imposition of an overall plan to the site (fig. 26). This plan, which probably reflects the symbolic conception of the site and its population, involves a basic tripartite organization. A central ring of Monumental enclosures was established, flanked on the north and east by *huacas* and on the south and west by lower class domestic structures. One aspect of this ceremonial site plan was the preservation of a large open space located between the later *ciudadelas*, Bandelier and Velarde, from at least this time onward.

During Phases 4 and 5, Chan Chan gradually assumed its final form (figs. 27, 28). All the Monumental enclosures built during these phases have the classic *ciudadela* plan, and all have burial platforms that were incorporated into the original planning process (Conrad, 1974). Moreover, it is only during Phases 4 and 5 that *ciudadelas* appear to serve as power centers during the life span of only one king; all earlier enclosures have evidence of major modifications, which probably extended over the lifetimes of more than one king. Continued *wachaque* construction during Phase 4 buried Enclosure 1; the destruction of Enclosure 2 in Phase 5 may have coincided with the construction of Tschudi. Also during Phases 4 and 5, most of the existing Elite compounds were levelled and replaced with new buildings, still visible on the surface of the site. Huaca Toledo, a rock and dirt mound, and Huaca Dragon (Arco Iris), a burial platform exhibiting northern influence, were built during Phase 4 (Kolata, 1978; Conrad, 1974; Mackey, 1982).

All *barrios* were probably occupied by the end of Phase 4 but they, too, underwent renewal during Phase 5. In the *barrios*, this renewal was only partially completed and apparently was meant to include expansion along the western edge of the site. Intended expansion is indicated by stockpiles of building materials, a few partial walls, and cemetery enclosures located outside the habitation area. Renewal is indicated by a more rectilinear alley network, more even distribution of Elite compounds, and the presence of cemetery enclosures within habitation areas. A number of lines of evidence lead to cross dating this expansion and renewal specifically to the occupation of Tschudi (J. Topic, 1977). Renewal had only been completed in the area south of Laberinto, Rivero, and Tschudi at the time of abandonment.

The dating of the rooms-on-platforms, or retainer areas, is integral to the problem of social development. Since the Monumental enclosures were built sequentially but occupied continuously, and since the retainer areas were associated with these enclosures, we should expect the retainer areas to have been built sequentially and also to have been occupied continuously. Thus, the latest occupation in each area should date to Phase 5, while the platform construction should date to the same phase as the corresponding Monumental enclosure.

Only five of the ten rooms-on-platforms were tested. Final occupations in all five can be dated by ceramics and architecture to Phase 5. The platforms associated with Rivero and Laberinto incorporate ceramics from Phase 5 in the fill and could not have been constructed earlier than this phase. The platform associated with Squier could not have been constructed earlier than Phase 4, while that associated with Velarde was constructed after Phase 3. The fill of the platform associated with Bandelier was sterile.

Of the platforms tested, then, only the one associated with Laberinto is entirely out of line, dating much later than the enclosure. It is interesting that the presumed burial platform for Laberinto (Pozorski, ms.; Conrad, 1974; 1982) was also constructed much later than the enclosure. Both brick (Kolata, 1978) and ceramic chronologies agree on a Phase 4 date.

Extrapolating from the Laberinto situation, it can be postulated that both rooms-on-platforms and burial platforms incorporated into the plans of *ciudadelas* are Phase 4 and 5 traits. When these traits were lacking in earlier enclosures, they were added on during these phases. There is some locational evidence in support of the postulate in the extreme easterly positioning of the Uhle and Chaihuac rooms-on-platforms, which violates the ceremonial plan of the site, as well as in the Tello case, where the rooms-on-platforms complex blocks the entrance to the enclosure. Precise chronological placement of these features can only be determined by excavation.

One of the two "trading termini" was excavated. Klymyshyn's excavations in Unit AW, which lies between the two areas, may also relate to the trading terminus (Klymyshyn, 1976). In both AW and the excavated terminal, the earliest possible date is Phase 5.

The Inca conquest of the Chimu marks the end of Phase 5. Most of Chan Chan's inhabitants seem to have abandoned the site *en masse* but there were still a few scattered residents who remained (Day, 1973; T. Topic, ms.; J. Topic, 1977).

Development

If form follows function, then the form of a seat of power such as Chan Chan reflects the exercise of power. Through time, on the north coast, the general configuration of power changed from a structure dominated by sacred concerns to one dominated by secular concerns. Galindo, as described by Bawden (1982), provides a convenient transition to Chan Chan.

Galindo during Moche V is characterized by a basic bipartite organization with elite and lower class areas separated by a walled boundary.¹¹ An arc of administrative (*cercadura*) and religious (*huaca*) architecture tends to parallel the boundary and seems to be the mediating mechanism between the classes. The lower class domestic architecture contained no evidence of craft production and residents were probably agricultural laborers. Many elite residences are closely associated with the *cercaduras* and the nobility undoubtedly served as the administrative force. Only ceramic production has thus far been confirmed for Galindo and this was located on the outskirts of elite areas. Transport, using llamas as beasts of burden, was decentralized, with evidence occurring in several separate locations along the edge of the elite areas. *Cercaduras* control access between the sections of the site, including access to storage areas located outside the administrative architecture. The architectural form most closely associated with this control is the *tablado*. Administrative and religious architecture is locationally separate, but one compound, with a burial platform antecedent (Conrad, 1974; Bawden, 1982), located near the religious architecture, probably reflects the unity of the two aspects of power on the highest level.

With the transfer of power to Chan Chan, there was little immediate change in the distribution of prestige. There was still separation between religious and administrative aspects. The administrative architecture is *cercadura*-like and the earliest part of Tello is characterized by *tablados*. Huaca el Higo

and Huaca Tacaynamo probably functioned as the burial platforms of Phase 1 rulers, and the separation of administrative seat and mausoleum continues into Phase 2 when the Chaihuac burial platform is still housed in an independent compound. Throughout Phases 1 and 2, storage space within Monumental enclosures is limited and, as at Galindo, there may have been other storage areas located outside the administrative architecture. Although little is known about the early population of Chan Chan, both elite and lower classes probably shared many characteristics with their antecedent groups at Galindo.

There are two major differences between Galindo and early Chan Chan. The first difference is in the open, accessible position of Chan Chan. As Bawden has noted (1982), Galindo is located in an isolated and withdrawn position from an intervalley perspective. In the second place, little construction activity is known to have taken place during Moche V outside of Galindo itself. During Phases 1 and 2 at Chan Chan, however, massive irrigation projects were undertaken (Moseley and Deeds, 1982; Deeds and others, 1978). In addition to canals, the kings of Chimor ordered the building of massive fortresses and walls, first in the Moche Valley and later in the Chao Valley (Topic and Topic, 1978). The labor for these projects was made available by conquests at least to Farfan on the north edge of the Jequetepeque Valley (Kolata, 1978) and south to Chao.

Much of the labor extracted from conquered valleys was apparently invested in an attempt to increase agricultural production in the Moche Valley. Resources were extracted from at least the Chicama Valley in the form of water that was to flow through the La Cumbre canal. Much labor too was reinvested in further conquests and defensive works. The labor tax, as a state institution, is an old pattern on the north coast and dates back at least to the Early Intermediate Period, where its use is best documented by the construction technique of truncated pyramids such as the Huacas del Sol and de la Luna (Moseley, 1975b). It has not been possible, as yet, to document the use of state labor on other types of construction projects during the Early Intermediate Period. During the Middle Horizon and the early part of the Late Intermediate Period, however, there is a change in the archaeological record implying that much more labor was expended in fortifications and canals than in pyramid building, possibly reflecting a change in state investment strategy.

Coincidental with this development of investment strategy, there is an extension of the bureaucracy into rural areas. The creation of a series of administrative sites along canals during Phases 1 and 2 is the earliest evidence for the bureaucracy's involvement in rural construction (Keatinge, 1974; Keatinge and Day, 1973; Kolata, 1978). Since bureaucrats existed earlier (at Moche they undoubtedly controlled the building of the *huacas*, at Galindo they controlled access to important places), this is again a case of applying existing principles to new variables.

During Phase 3 more prestige symbols begin to accrue to the elite. Throughout the phase there is a gradual evolution of the idea of placing the burial platform within the *ciudadela*; in other words, the administrative and religious aspects, which were separated at Galindo, are gradually united in the palaces at Chan Chan, with the administrative aspect dominant. Likewise, by the end of the phase (Ciudadela Gran Chimú), bureaucrats are honored by dedicatory burials beneath their U-shaped structures.

The ability of the elite to appropriate these symbols was based on the success of their investment strategies during Phases 1 and 2. Phase 3 saw a

continuation of the same measures, now in the form of *wachaque* construction. However, toward the end of the phase, much labor was also invested in reorganizing the site into the tripartite plan discussed earlier. Throughout the phase there was also a centralization of storage space within the *ciudadela*. This measure effectively concentrated wealth in the hands of the ruler.

The centralization of storage space required a more effective centralization of the bureaucracy to control the distribution of wealth. During Phase 3, *ciudadelas* began to be organized also on a tripartite basis, with the front two sections devoted to storage and administration. The basic accounting structure was also reorganized, so that the multiplicity of forms of U-shaped structures characteristic of early Chan Chan was standardized in Gran Chimú to one single form, the *trocadero*. We suggest that this standardization in form represents a standardization in actual accounting methods.

During Phase 4, the elite gained few symbols of prestige. Most importantly, the principle of one king, one *ciudadela*, and its accompanying principle of split inheritance, was now certainly in force (Conrad, 1974; 1982; Kolata, 1978). Split inheritance allowed for the continuing unity of the state by designating a principle heir who inherited the office of kingship, while secondary heirs inherited the material wealth of the dead king. Elevated retainer areas were also established, indicating increased prestige for both the retainers and the king. The earliest dated ear tube comes from Huaca las Avispas, the Laberinto burial platform (Conrad, 1974), and probably belonged to a retainer.

The old patterns of labor taxation were still in force and, as at the end of Phase 3, were applied to site reorganization. The new ideas of split inheritance and retainers were extended to dead kings by constructing the Laberinto burial platform and some retainer areas for *ciudadelas* that were no longer power centers. A more fundamental development, however, is that the city changed from an administrator and consumer of wealth into a producer of wealth. It is most likely from Phase 4 that the basic craft orientation of the lower class dates. This orientation may have resulted from the mass importation of craftsmen from conquered regions, a conclusion based on the rather sudden appearance at Chan Chan of metalworking (in particular) about the end of Phase 3 or the beginning of Phase 4.

During Phase 5, all urban residents were full time employees of the state, requiring periodic distributions of goods from state storehouses. This status was probably also accorded the craftsmen during Phase 4. Certainly, however, there were developments in the bureaucracy that reflect higher rates of turnover in storage. It has been noted that, generally, the ratio of administrative structures to storerooms is five times higher in the north sector of *ciudadelas* than it is in the central sector (Moseley, 1975a). This situation, however, only developed during Phase 4. Thus, for example, the ratio in Laberinto is approximately 1:1, while in Bandelier it climbs to about 4:1 (J. Topic, 1977). This change in administrative practices probably reflects a linearization of bureaucratic functions (Flannery, 1972, pp. 410-418) brought about by the stress of having to cope with an urban population of a different quality. From the point of view of the bureaucracy, the environment had changed. There was now a new population segment, which supplied large quantities of small manufactured products and required frequent distributions of rural products. Linearization was the bureaucratic response to the increased rate of turnover.

The only new prestige symbols to appear in Phase 5 are the special

cemetery enclosures constructed for *barrio* residents. Reorganization of the site continued, however, and this also reflected increasing prestige for the new urban lower class. Retainer areas for old and new *ciudadelas* were built and these high status positions had to be filled by new recruits. Certainly by this time, too, urban residents were exempted from the labor tax, as separate housing on the outskirts of the city was built for temporary tax-paying residents. Much of the reorganization involved creating new housing and work space for the urban lower class, so that they benefitted directly from the labors of the rural lower class taxpayer.

In terms of the distribution of wealth, the decreasing amounts of *ciudadela* storage space during Phases 4 and 5 indicate a changing pattern. With the new abundance of craft items, commodity flow patterns may change. The state may become the middleman in the exchange of manufactured goods for agricultural products. Thus, bulky agricultural products needed to be stored only for the urban population, while small craft products could be stored for rural residents. A comparison of urban and rural storage patterns supports this interpretation (J. Topic, 1977; 1982).

The change in distribution patterns, however, demands ever higher rates of storage turnover and the development of new information processing systems, as reflected in the shift from administration of storage in the north sector of a *ciudadela* to the administration of storage in the central sector. Thus, during early Phase 5 (Ciudadela Rivero), the ratio of north sector:central sector storage administration climbs to about 16:1. Reflecting the stress implicit in such a figure, the ratio in Tschudi drops again to about 4:1. This decrease is achieved by inventing the *auxilio* and by pushing much of the burden of administration out of the *ciudadela* into the newly expanded Elite compounds. Centralization is, thus, still maintained in the *ciudadela*, some bureaucrats outside the *ciudadela* are promoted to more demanding tasks, and some bureaucrats may be provided with assistants. Promotion extends all the way out into the *barrios*, where the *arcón* serves an administrative function for shops, wells, and some communal kitchens.

The administrative structure has been standardized as the *audiencia* since Ciudadela Bandelier. Assuming that this standardization of form reflects a long term standardization of accounting practices, we can imagine that a trained corps of interchangeable bureaucrats had evolved over two or three generations. The existence of such a corps would be a prerequisite for bureaucratic expansion at the upper levels. The *audiencia-auxilio* unit may also serve an educational function, transferring information about accounting practices in a master-apprentice form. Another factor that may have contributed to the smooth flow of information is that all intersite transportation facilities (trading termini) had been centralized by Phase 5.

Summary and Conclusions

Architectural and ceramic continuities between Chan Chan and Galindo argue for a late Middle Horizon foundation date for the city. From Galindo, Chan Chan inherited a largely secular bureaucracy and, from even earlier antecedents, it inherited a labor tax (Diagram 1).

The early kings of Chan Chan utilized these two institutions as the basis of their power. They consistently invested labor in programs of agrarian and territorial expansion. The role of the bureaucracy was extended to encompass rural

construction. Throughout Phases 1-3, these activities multiplied wealth. The kings maintained their position of power by centralizing that wealth within their palaces, by centralizing the bureaucracy within the palace, and by gradually uniting religious and administrative forms within the palace. These changes came about very slowly, but the impact can be appreciated by comparing Galindo to Ciudadela Gran Chimu. Gran Chimu dwarfs any Galindo *cercadura*, and the amount of storage space incorporated into Gran Chimu is beyond comparison (Kolata, 1978, fig. 37). The king had usurped the architectural form of the pyramidal platform mound to use as a private tomb, and he was accompanied in death by hundreds of human sacrifices (T. Pozorski, ms., pp. 102-103; Conrad, 1974, pp. 49, 50, 60, and appendixes).

The long period of time from Galindo to Gran Chimu is characterized by the increasing personal power of the king as exemplified by personal control of wealth, the flow of information, and accumulation of prestige symbols. Yet all of this control was accomplished by using institutions that date to or predate the Middle Horizon, with only minor modifications. The city was still an elite residential center, and the wealth of the elite was based on agrarian production. Most lower class residents were probably still farmers.

Gran Chimu, however, marked a turning point. The bureaucracy was the first area to reveal the new line of development. Its architectural forms, and probably its methods, became much more standardized, with less fluctuation from king to king. This change did not occur at the expense of the king, but rather the bureaucracy seems to have become professional. It now had its own prestige symbol, in the form of sacrificial burials beneath U-shaped structures. During Phases 4 and 5, the bureaucracy underwent rapid growth. This growth was accompanied by a proliferation of hierarchical levels within the bureaucracy, and each level was marked by a gradation of sizes and forms of U-shaped structures. Throughout this growth, the bureaucracy maintained centralization and the center of power was always the *ciudadela*.

While the expansion and professionalization of the bureaucracy is one example of progressive segregation of the population into functional units, most segregation occurred during Phases 4 and 5. This process was probably initiated by the importation of craftsmen from Lambayeque, where an urban craft focus can be traced at least to the Middle Horizon. The original importation set in motion a process of segregation in which the lower class was first set apart from the rural lower class by the symbol of ear tubes, then retainers were segregated from the general urban lower class by the symbol of elevated living quarters, and finally, the general urban lower class was divided into four indistinct but recognizable *barrios*, each of which had its own cemetery.

The influx of craftsmen into the city fed back into the system to help propel change. The creation of retainer areas, in themselves, served as one more symbol of the king's prestige, and the products of retainers supplied other symbols. Much of the expansion of the bureaucracy and its increasingly hierarchical orientation was a response to the need to supply the urban lower class and distribute its products; urban craftsmen were even recruited into the bureaucracy at lower levels. The same stress led to the centralization of transport workers within one area of the site.

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NOTES

¹We were introduced to this model by Hammel (1969) but also consulted Weber (1947; 1958).

²It is difficult to find direct evidence for political authority in the archaeological record. Because of the congruent social structure, we feel justified in considering authority as a residual category (see also Hammel, 1969, p. 3).

³We rely here and elsewhere in the paper on the summaries and interpretations of Rowe (1946; 1948), Rostworowski de Diez Canseco (1961), and Murra (1956; 1975). Rowe (1948) is the best source for Chimu ethnohistory and his analysis provides some justification for also drawing upon Inca ethnohistory. More general inspiration was derived from Rowe (1963; 1968).

⁴Moseley (1975a) provides a summary of major architectural variants. The primary sources are: for Monumental architecture generally, Day (1973; 1982) and Kolata (1978; 1982); for U-shaped structures, Andrews (ms.; 1975); for Elite compounds, Klymyshyn (1976; 1982); for SIAR, J. Topic (1977; 1982). Consult also Moseley and Mackey (1982) for detailed plans of Chan Chan.

⁵Good illustrations of how niches, troughs, and bins differ from one another can be found in Andrews (1975, figs. 11, 12, 13).

⁶This group has also been called "traders" (J. Topic, 1977; 1982). Neither term is suitable, however.

⁷Macaw identified by Dr. Raymond Paynter, Jr., Museum of Comparative Zoology, Harvard University.

⁸This sequence covers what Donnan and Mackey (1978) called Middle and Late Chimu. The ceramic chronology has been extended into the Middle Horizon, however.

⁹Bawden defines a *cercadura* as "a series of adjoining, internally divided rectangular compounds" (1982, p. 297).

¹⁰Kroeber (1930, pl. XXVII, 1); Andrews (1975); for a description of *tablados* see Bawden (1982, pp. 302-303).

¹¹A more recent survey and excavations on this wall (Topic and Topic, ms.) have shown that it was built as a fortification and maintained as a fortification for a considerable length of time. We would still accept, however, Bawden's interpretation (1982, p. 313) of the wall as serving also as a social boundary during the terminal occupation of Galindo.

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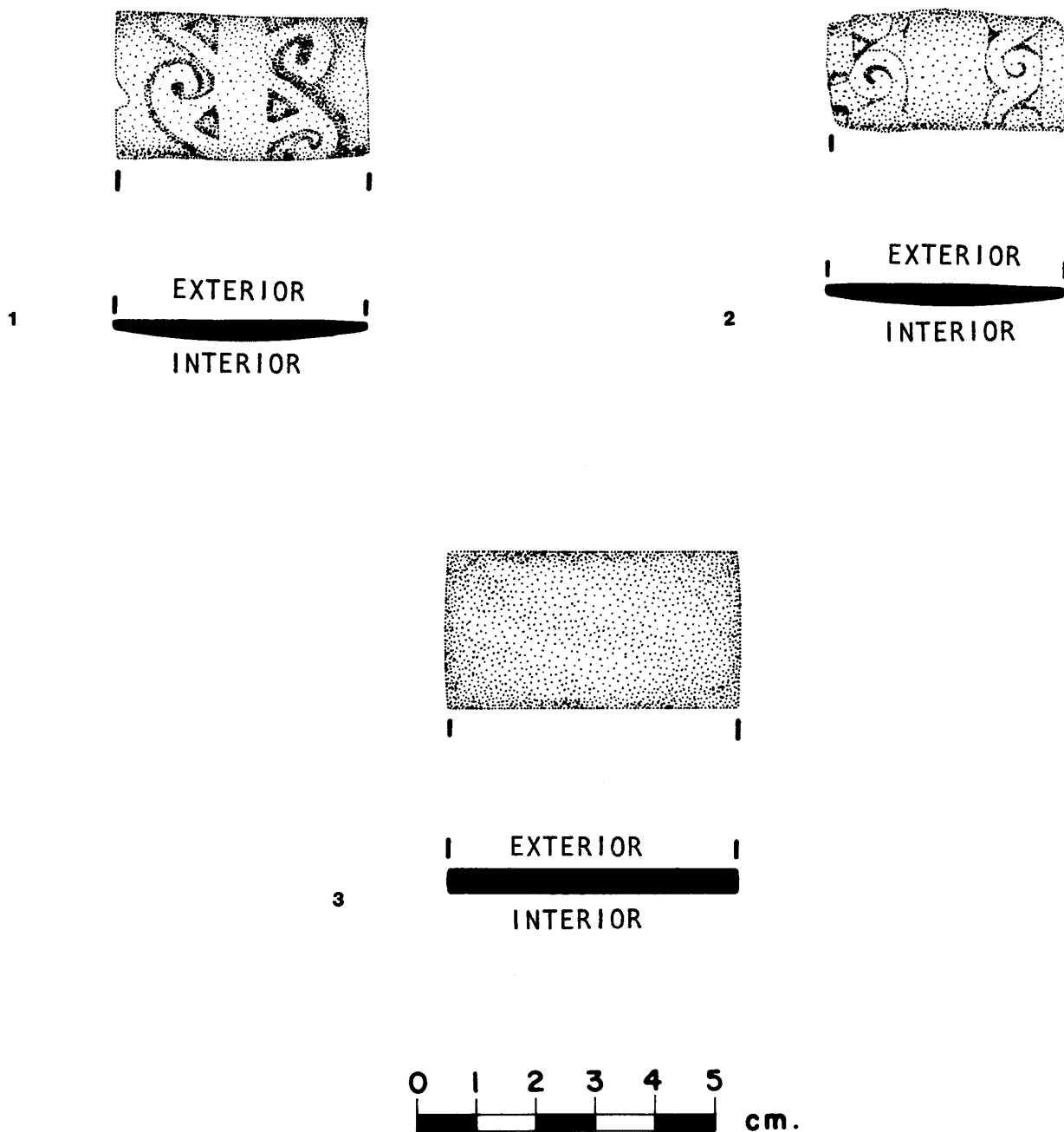
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Ear tubes; hollow wooden cylinders. Fig. 1, typical finished example, from Unit BJ, Complex 6, Floor B-II, inventory number 166a; fig. 2, typical finished example, from Unit BJ, Complex 6, Floor B-III, inventory number 174; fig. 3, unfinished example from woodworking shop, Unit BJ, Complex 3, Room 3, Bin 4, inventory number 139; note difference in cross section and lack of ornamentation. For excavation and inventory information see J. Topic (1977, Appendixes 1 and 4).

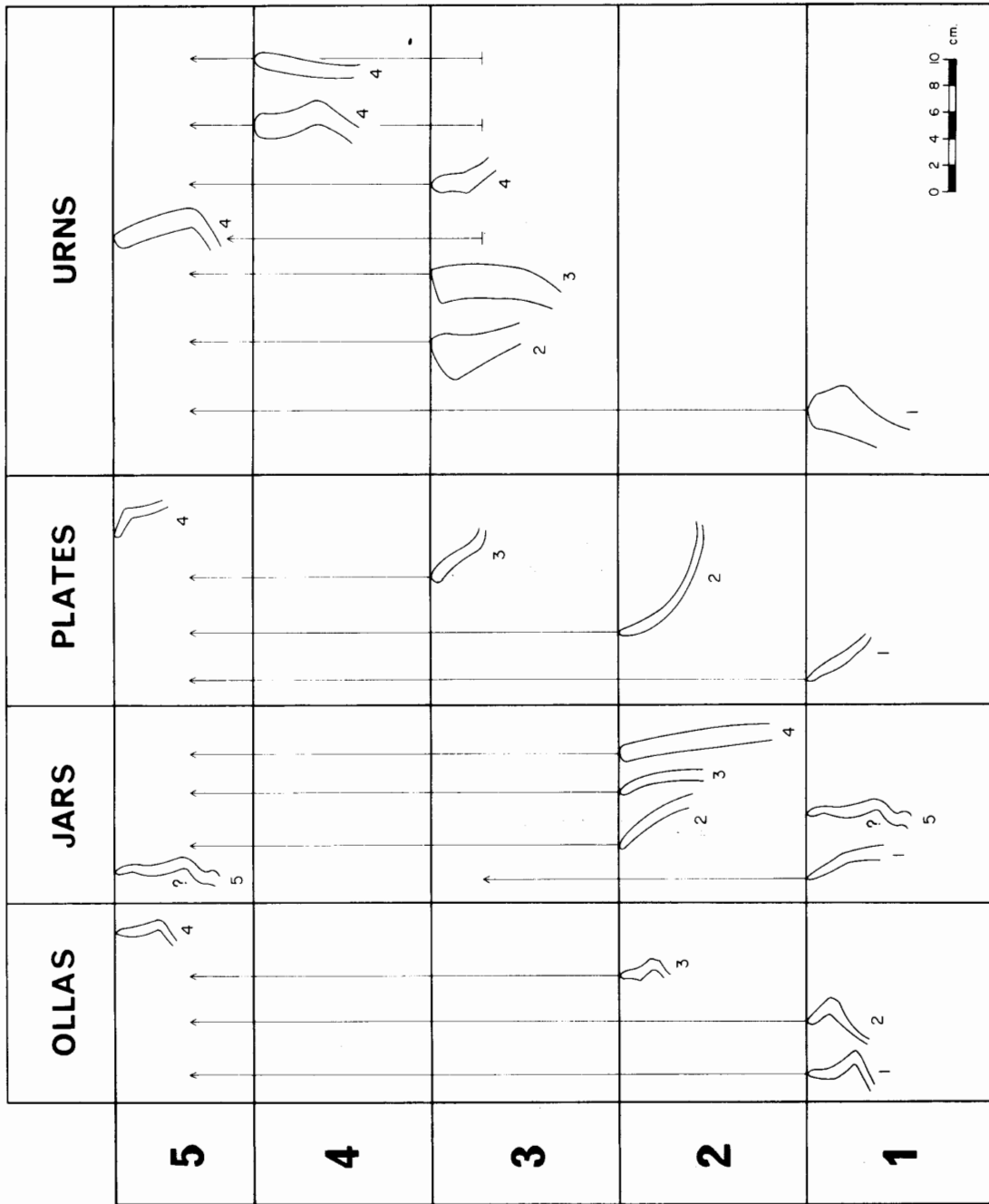


Fig. 4a, major ceramic diagnostics by phase and general shape category.

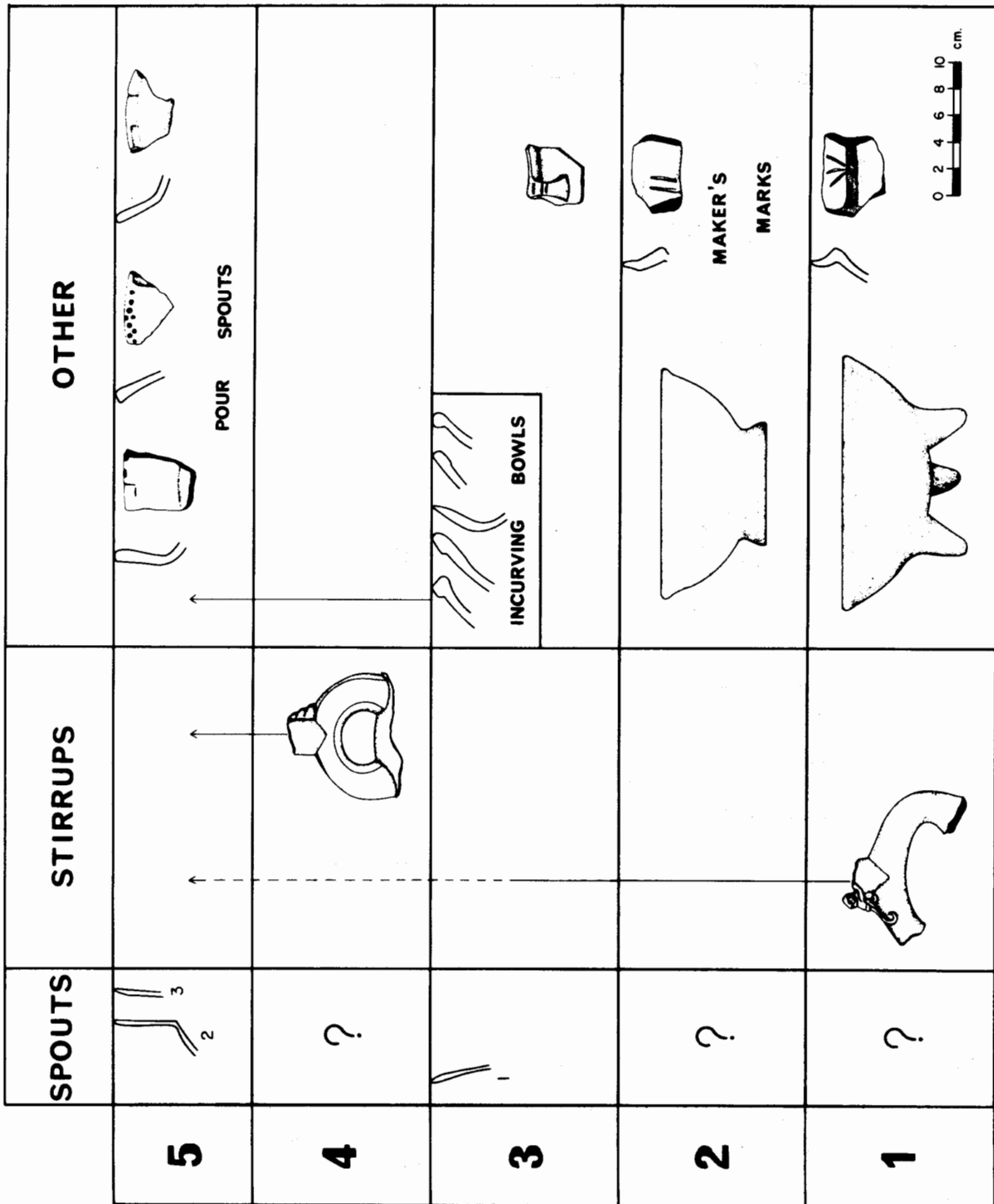
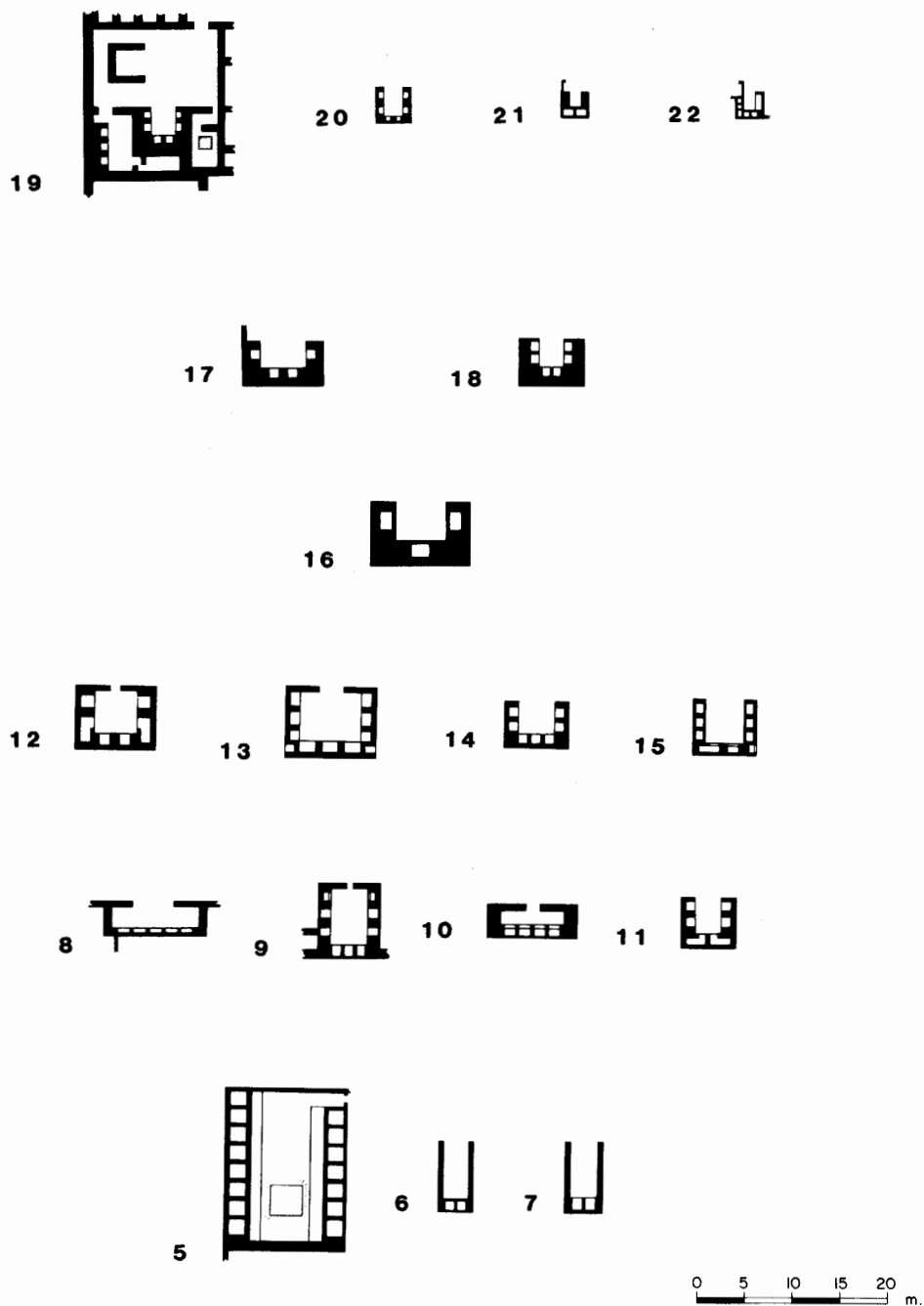


Fig. 4b, major ceramic diagnostics by phase and general shape category.



U-shaped structures. Fig. 5, Tello South; figs. 6, 7, Uhle Northeast; figs. 8, 9, Tello North; figs. 10, 11, Uhle South; fig. 12, Laberinto Central; figs. 13, 14, Tello Northeast; fig. 15, Uhle Northwest; fig. 16, Gran Chimú; fig. 17, Velarde; fig. 18, Bandelier; fig. 19, Tschudi; fig. 20, Elite compound; fig. 21, *Barrio* shop; fig. 22, *Barrio* well. Figs. 5, 8, 13, and 14 redrawn from Moseley and Mackey (1974); figs. 6, 7, 9, and 10 redrawn from Kolata (1978); figs. 11, 12, 16, 19, and 20 redrawn from Andrews (1975); figs. 21 and 22 redrawn from J. Topic (1977).

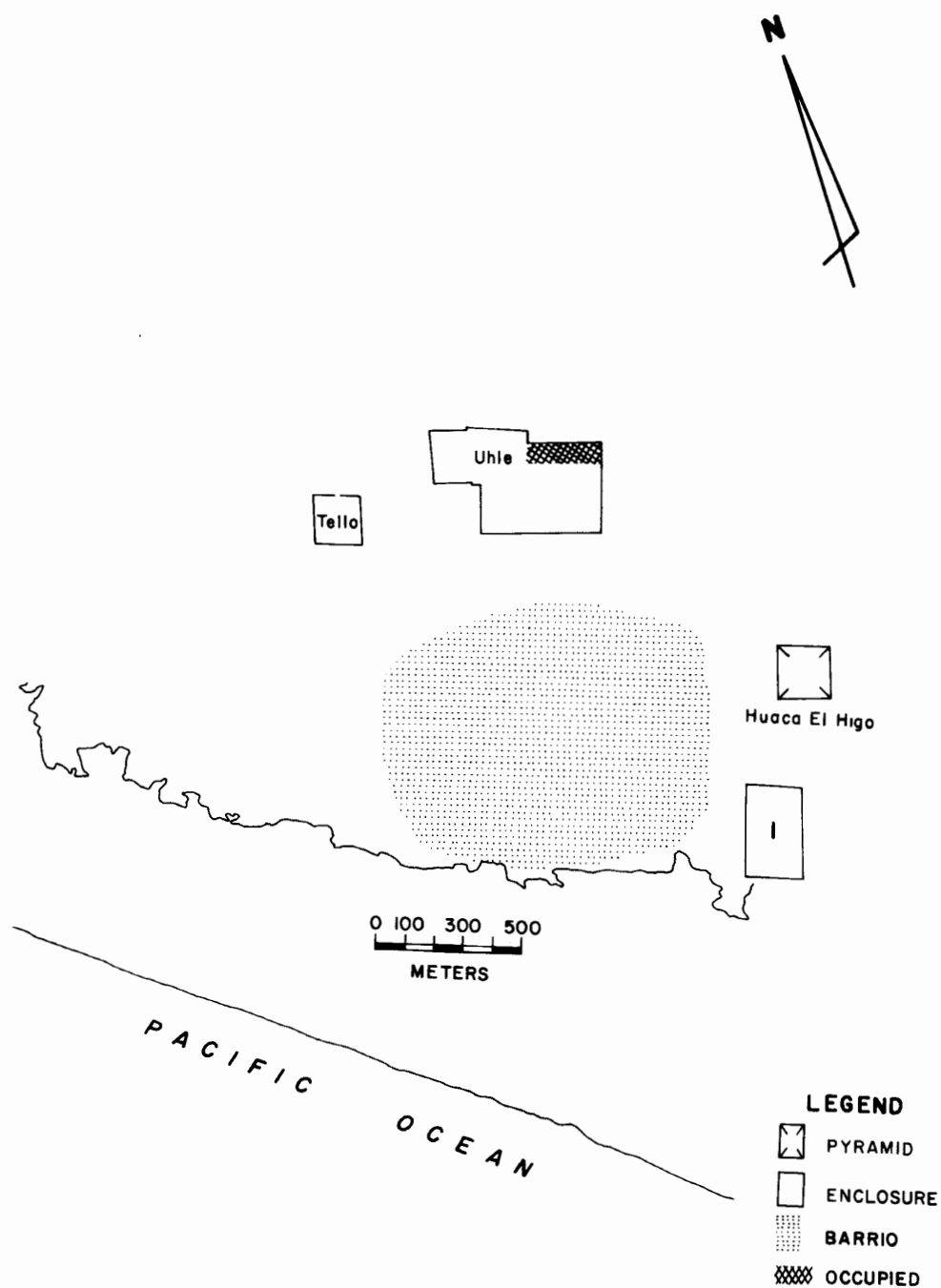


Fig. 23, Chan Chan during Phase 1. Although the outer wall of Uhle was completed, the occupation was concentrated in only the northeast section. Likewise, although the entire *barrio* may have been occupied (stippling), it is more likely that occupation was concentrated in the eastern third. Estimated populations: *Barrio*, 7000; Monumental and Elite(?) compounds, 900.

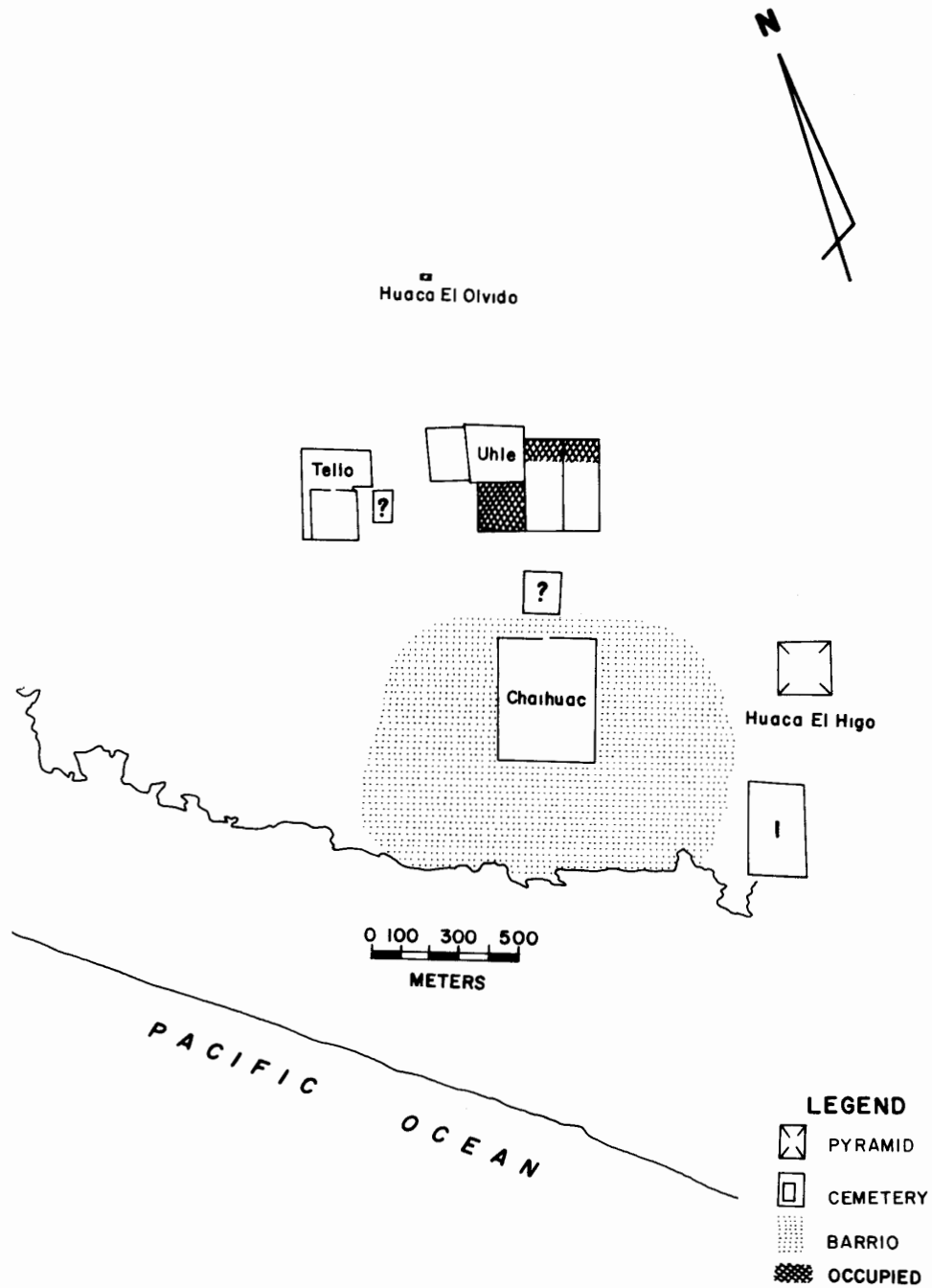


Fig. 24, Chan Chan during Phase 2. Two sections of Uhle are now occupied. Although the entire stippled area may have been occupied, occupation of the *barrio* was probably concentrated to the east and south of Chaihuac. Estimated populations: *Barrio*, 15,300; Monumental and Elite compounds, 1200.

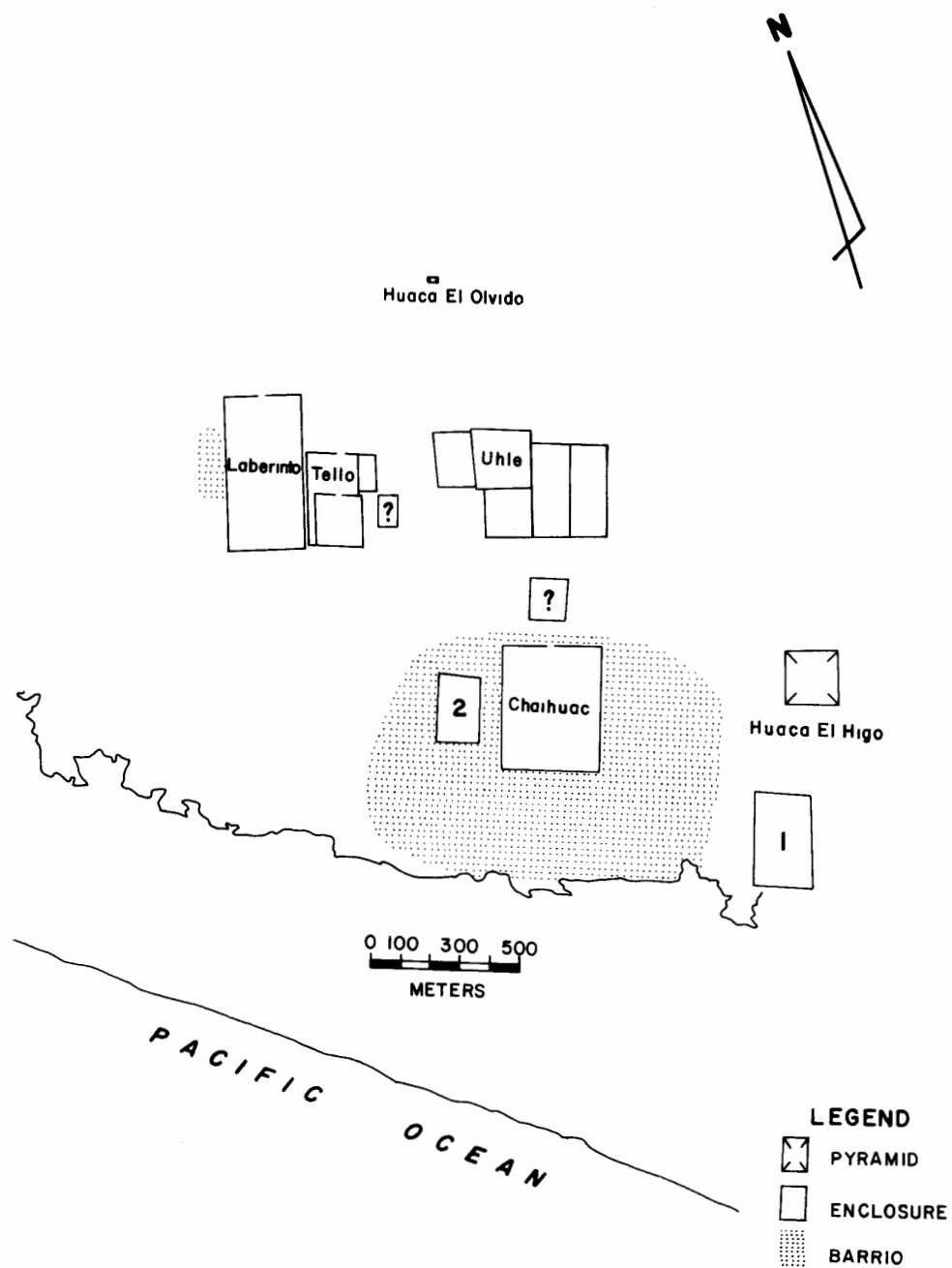


Fig. 25, Chan Chan during Early Phase 3.
 Estimated populations: *Barrio*, 19,000; Monumental and Elite compounds, 1700.

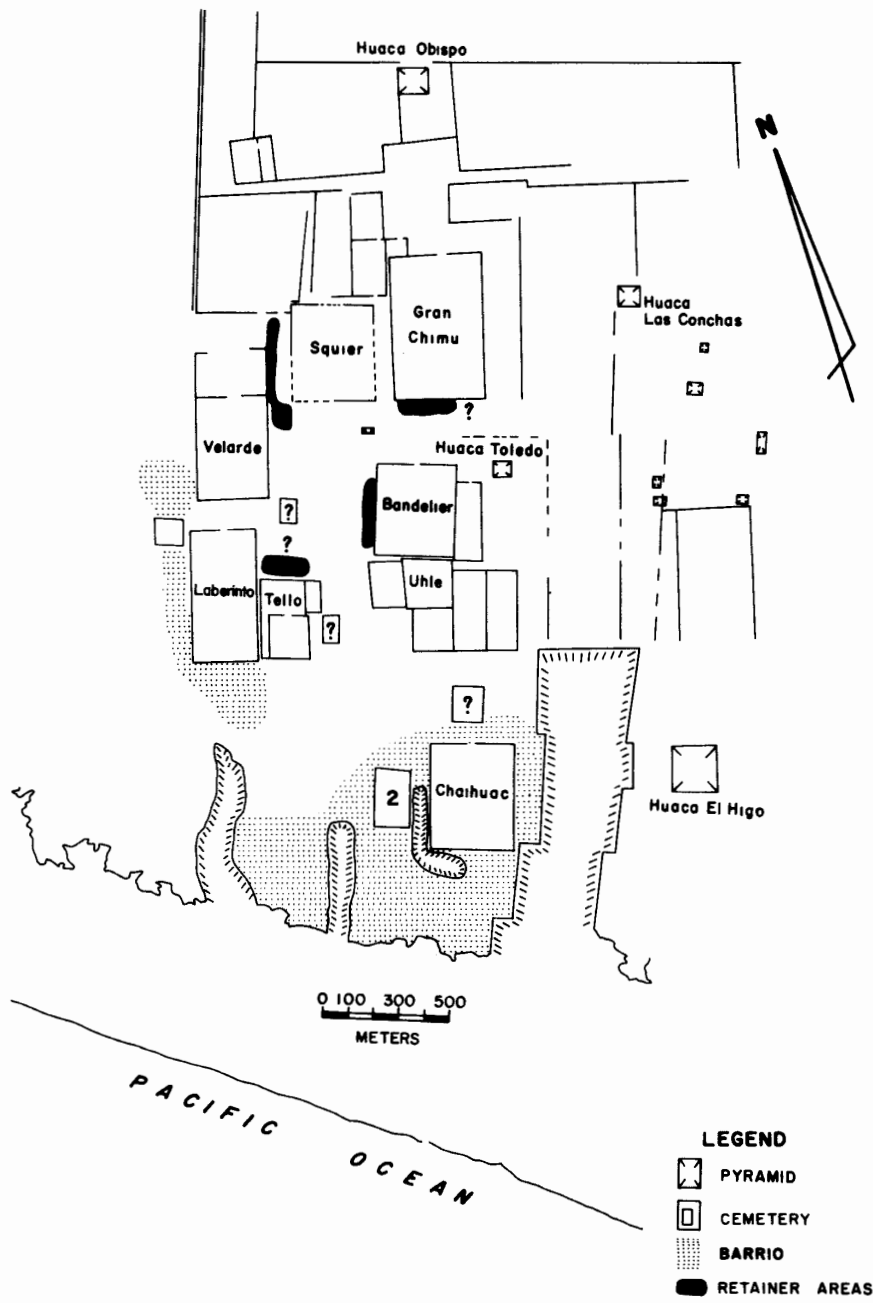


Fig. 26, Chan Chan during Late Phase 3.
 Estimated populations: Barrio, 13,600(?); Monumental and Elite compounds, 2400.

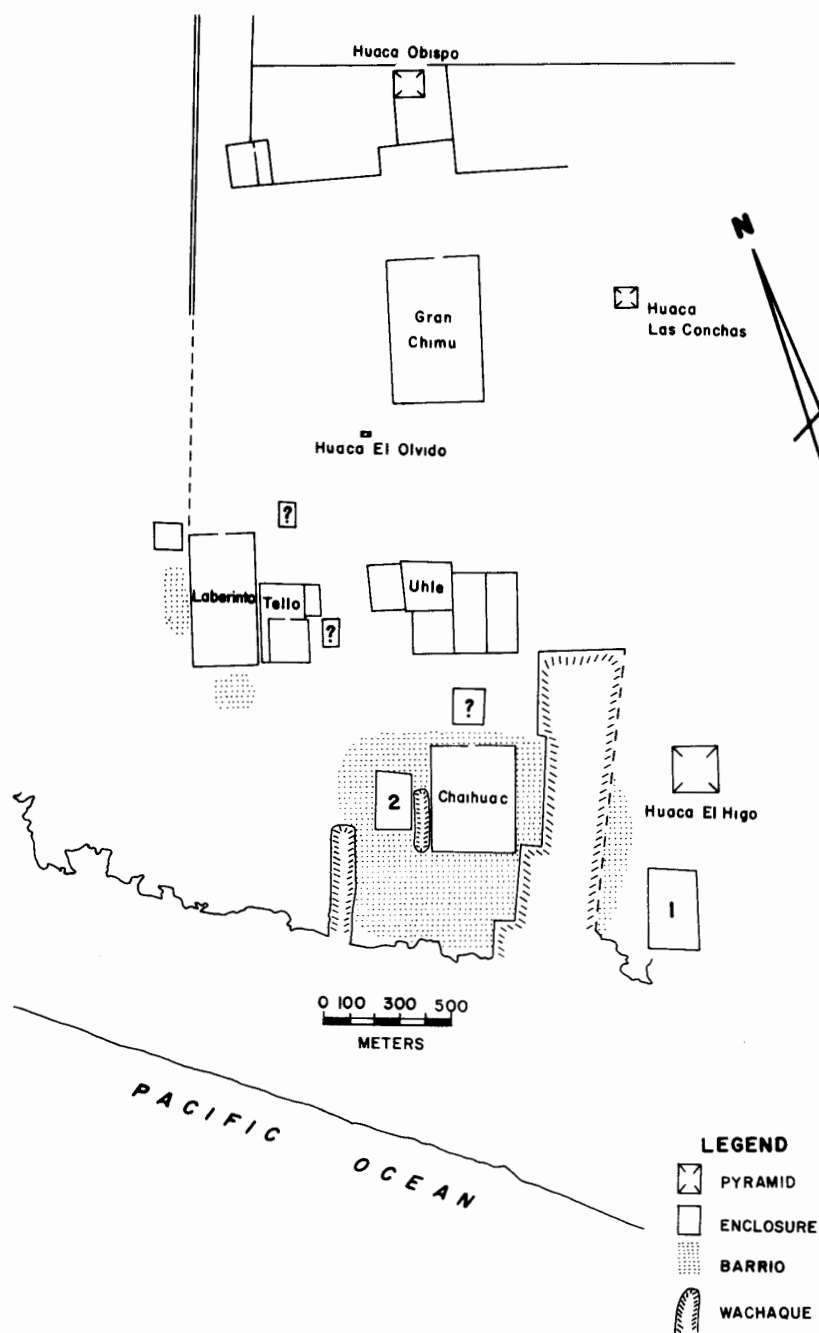


Fig. 27, Chan Chan during Phase 4. Large scale population replacement probably occurred during Late Phase 3 or early in Phase 4; the existing, nonspecialized urban population was replaced by imported craft specialists. Estimated populations: *Barrio*, 17,200(?); *Retainers*, 1200; *Monumental and Elite compounds* 6000.

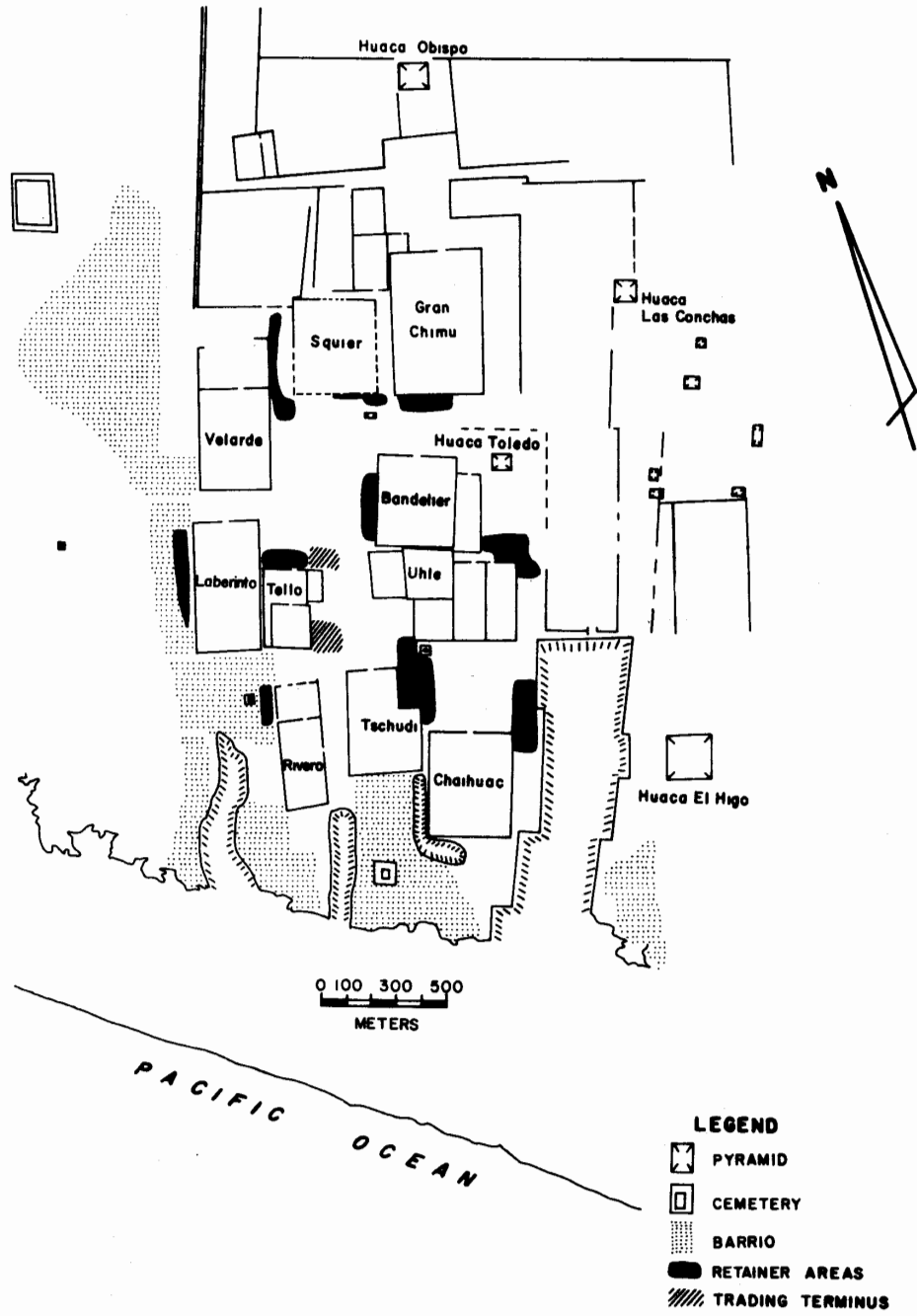


Fig. 28, Chan Chan during Phase 5.
 Estimated populations: Barrio, 26,400; Retainers, 3000; Transport workers (trading termini), 600; Monumental and Elite compounds, 6000.