URBAN SETTLEMENTS IN ANCIENT PERU

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There were urban settlements in ancient Peru which were comparable in size and cultural importance with the great cities of antiquity in the Old World. Large urban settlements were built in Peru much earlier than is generally recognized; one preceramic site of this character is known from the central coast. The story of the urban pattern in Peru in later times is not one of simple expansion through the growth of existing settlements and the establishment of new ones, however. Many sites of large urban centers were occupied for relatively short periods and then abandoned. Whole districts with a flourishing urban tradition lost it and shifted to other patterns of settlement. The most striking example of the loss of an urban tradition is found in the southern sierra, where there was a general abandonment of urban settlements toward the end of the Middle Horizon which invites comparison with the abandonment of Roman cities in the Dark Ages. At the time of the Spanish conquest the only parts of Peru where there were large urban settlements were the central sierra and the north coast.

The evidence relating to the rise and fall of urban settlements in Peru is still scattered and fragmentary, and any interpretation of it is bound to be tentative. A review of the subject may, however, serve to clarify the problems involved and suggest fruitful lines of research for the future.

Two introductory digressions are necessary before we can discuss the evidence from specific sites. We need an explanation of the system of dating to be followed and a discussion of what we mean by an urban settlement.

In this review dates will be given in terms of the system of periods of relative time which I have used in earlier publications.[1] The periods are defined with reference to a master sequence, the sequence of changes in the pottery style of the valley of Ica. There are seven periods in all in this system, covering the span of time from the introduction of pottery at Ica to the abandonment of the traditional cemeteries a little over a generation after the Spanish conquest. The periods are named Initial Period, Early Horizon, Early Intermediate Period, Middle Horizon, Late Intermediate Period, Late Horizon, and Colonial Period.

The Early Horizon begins with the beginning of Chavin influence in Ica pottery and ends when slip painting replaces resin painting in this valley as a method of executing polychrome designs on pottery. The Early Horizon can be subdivided into ten smaller time units (epochs) on the basis of a recent analysis of the Ocucaje pottery style.[2] The Early Intermediate Period, which follows the Early Horizon, is characterized by the presence of Nasca style pottery in Ica and can be divided into eight epochs on the basis of L. E. Dawson's studies of Nasca pottery. The next period, the Middle Horizon, begins with Phase 9 of the Nasca style, which, elsewhere

on the coast, is associated with strong influences from the Ayacucho area in the sierra. It lasts until the beginning of the Chulpaca style at Ica and can be divided into four epochs. The Late Intermediate Period lasts from the beginning of the Chulpaca style at Ica to the beginning of the Tacaraca A style, an event which apparently coincides rather closely with the conquest of Ica by the Incas in about 1476. The Late Horizon is the period of Inca domination at Ica and of the Tacaraca A phase of the local pottery tradition. It ends with the beginning of the Tacaraca B style, close to the time of the Spanish conquest of Ica, an event which took place in 1534.[3]

Archaeological units from other parts of Peru are dated to one or another of these periods or their subdivisions on the basis of evidence that the units in question are contemporary with a particular unit of pottery style at Ica. Direct evidence for dating of this kind is available in those periods labelled "horizons," because in these periods there was an expansion of trade; certain highly distinctive pottery styles were distributed over large areas, and imported vessels in these styles are found associated with ones in the local traditions. In the Early Horizon the Chavin and Paracas styles were widely distributed in this way, while in the Middle Horizon a spread of the Pacheco-Conchopata style is followed by an even wider distribution of the style of Huari. One phase of the Cajamarca pottery tradition had a wide distribution at the same time that the Huari style did. In the Late Horizon Inca style vessels from Cuzco were widely traded and imitated, and a number of other styles had a more restricted spread.

In the periods which lack the "horizon" label trade was much more restricted, and arguments for contemporaneity are generally indirect, except when closely neighboring valleys are involved. As more local sequences become known, however, there is no reason why detailed cross-dating on a valley to valley basis cannot be achieved.

The Colonial Period and the Late Horizon can be dated by historical records and reliable traditions. Our only source of dates in years for earlier sections of the Peruvian chronology is the method of radiocarbon dating. Relatively few radiocarbon determinations are available for ancient Peru, and not all the determinations which have been announced are on reliably associated samples and consistent with one another. The most consistent determinations available in June, 1962, suggest the following approximate dates for the beginning of the periods named:

1400 B.C. - Initial Period

600 to 700 B.C. - Early Horizon

100 to 150 A.D. - Early Intermediate Period

800 A.D. - Middle Horizon

1100 A.D. - Late Intermediate Period

The determinations used for these estimates are based on the Libby half-life value of 5568 years for radiocarbon.

The assignment of cultural units to periods in this study is based on archaeological evidence independent of radiocarbon dates, except in a few cases which will be discussed individually.

This study is concerned with urban settlements in ancient Peru. For the purposes of the present argument, an urban settlement is an area of human habitation in which many dwellings are grouped closely together. The dwellings must be close enough together to leave insufficient space between them for subsistence farming, although space for gardens may be present. In the case of a site where the foundations of the dwellings have not been excavated, an extensive area of thick and continuous habitation refuse provides a basis for supposing that the settlement was an urban one.

The intent of this definition is to exclude clusters of dwellings so small that they could be interpreted as belonging to the members of a single extended family. Twenty dwellings is perhaps the minimum number which would provide this exclusion.

It will be convenient in our discussion to distinguish four kinds of urban settlements, according to whether or not they include residents who are engaged full time in occupations other than hunting, fishing, farming and herding, and whether or not there is a separate rural population in the area. I am proposing to use the word "pueblo" to designate an urban settlement in which all the residents are engaged in hunting, fishing, farming or herding at least part of the time, and "city" to designate one which includes residents engaged in other activities (manufacturing, trade, services, administration, defense, etc.). If the urban settlements have around them a scattered rural population, I propose to call them "synchoritic," a term coined from the Greek word chorites, countryman. If all the people engaged in rural occupations reside in the urban settlement itself, so that the countryside has virtually no permanent residents between the settlements, I propose to call the settlements "achoritic." The four kinds of urban settlements, then, are the synchoritic pueblo, the achoritic pueblo, the synchoritic city and the achoritic city.[4]

People who live in an urban settlement but are engaged in hunting, fishing, farming or herding must travel to work, and they can only work effectively in the immediate neighborhood of the settlement. The productivity of land and water in the accessible area therefore limits the number of people engaged in these rural activities who can live together in a single urban settlement. The maximum figure under favorable conditions in native North America seems to have been about 2,000; at any rate, the largest pueblo-type settlements in the Southwest and on the Northwest Coast apparently did not exceed this figure. There is no reason to think that the limit was higher in ancient Peru.

The population limit just discussed sets a ceiling for the total population of pueblos but not for that of cities, since cities also include residents engaged in occupations which can be carried on within the city itself. We thus have reason to suppose that any urban settlement with a population in excess of 2,000 is or was a city and not a pueblo, even though specific evidence relating to the occupations of the inhabitants is

not available. Unexcavated archaeological sites with habitation areas of great extent fall into this category. I propose to refer to urban settlements estimated to have had less than 2,000 inhabitants as "small," and ones estimated to have had more than 2,000 as "large."

The distinction between synchoritic and achoritic urban settlements has a bearing on the problem of the destruction of cities. By definition, some of the residents of a city are not themselves directly engaged in the production of food and raw materials of animal and vegetable origin, and these people must obtain such necessities from the producers. In the case of synchoritic cities, some or all of the producers live outside the city proper. The spatial distinction facilitates the development of a social distinction between urban and rural residents. If the urban residents control the market, as is usually the case, they are in a position to exploit the rural residents in various ways, arousing thereby an understandable resentment and hostility among the latter. Then if the cities are weakened by political and economic instability the countrymen may take a violent revenge, destroying the cities which have become a symbol of oppression. In the case of achoritic cities, resentment between the producers of food and raw materials and the rest of the urban population might also arise and could easily lead to violence. The producers, however, being themselves city dwellers, would be more likely to try to take over the city government than to destroy their own homes and shrines. As a pattern of residence, the pattern of synchoritic cities contains an element of potential instability which is not present in the achoritic city pattern or in any of the other patterns of urban settlement.

This general theory is a development out of Michael Rostovtzeff's more specific argument that the antagonism of the rural population to the cities in the Roman Empire was the major factor in the destruction of Roman cities in the west in the 3rd and 4th centuries A.D.[5] The best documented example is the destruction of Augustodunum (Autun) in 269 by a coalition of local "peasants" and Roman soldiers, the soldiers themselves having been recruited from the rural population.

Any discussion of urban settlements in ancient Peru necessarily involves reference to ceremonial centers as well. Ceremonial centers occur in Peru; they may be combined with urban settlements in various ways or provide a kind of alternative to them. A ceremonial center is a grouping of public buildings housing common facilities, such as shrines, meeting places, markets, and law courts, which is used seasonally or at prescribed intervals by the population of a considerable surrounding area. Between the occasions when a ceremonial center is used it is either closed and empty or houses only a small permanent population of caretaker personnel. The general population which makes use of the center may be entirely dispersed in the surrounding countryside, or it may be clustered in urban centers.

Ceremonial centers may be found even in an area where large cities also occur. In the Andean area today there are a number of rural churches which attract very large numbers of people once a year for a religious festival and fair, and some of these ceremonial center churches are located

not far from major cities. Cities do generally provide competing facilities, however.

We can now turn to the archaeological evidence for urban settlements in ancient Peru. The story begins on the Peruvian coast before the first appearance of pottery in this area, but after cotton began to be used as a textile fiber. In the stage bounded by these two events the coast dwellers drew their subsistence primarily from hunting sea mammals, fishing, and gathering shellfish, although some plant cultivation was practiced as well. Many of the known habitation sites are on waterless sections of the coast which were attractive because of the abundance of shore resources. Small urban settlements of the pueblo type are very common, the best known being that at Huaca Prieta in Chicama. At a few of these sites public buildings can be identified. At Rio Seco, for example, there are two mounds about 4 m. high, each consisting of two levels of rooms which had been deliberately filled with stone to provide a raised substructure for an important building.[6] The preceramic population of the coast did not live exclusively in pueblo type settlements, however; there are also many very small habitation sites. At Ancón, where Edward P. Lanning and I have been making a systematic survey, some of the small sites are set back from the shore, probably to take advantage of supplies of Tillandsia, an epiphytic plant which was used for fuel in dry areas.

The possibility that there were also preceramic cities is suggested by the size of the Haldas site, situated at Km. 329 north on a dry shore just south of Casma. Lanning tells me that the preceramic occupation refuse at Haldas covers an area about two kilometers by one and averages 50 cm. in thickness. There is also a complex and imposing temple structure at this site, and part of it was built before the introduction of pottery. The University of Tokyo expedition of 1958 secured a sample for radiocarbon dating consisting of cane used to wrap stones laid in the floor of the temple, and this sample (Gak-107, run in 1960) yielded a date of 1631 B.C. ± 130.[7] If the area covered by preceramic refuse at Haldas is continuous and was all occupied at the same time, the population of the site must have been well over 10,000. Further excavation at this site is urgently needed.

The temple at Haldas was enlarged in the Initial Period, but there are only about 300 square meters of Initial Period habitation refuse. The shrinkage of population which this figure suggests may be the result of a shift to the Casma Valley following the introduction of maize cultivation. Maize appears in the refuse at Haldas shortly before pottery.[8] In any case, Haldas appears to have become a ceremonial center rather than an urban settlement in the Initial Period.

There were urban settlements elsewhere on the coast in the Initial Period, however. The Hacha site in Acarí is one; it has habitation refuse covering an irregular area about 800 by 200 m. along an abandoned channel of the Acarí River. This occupation is dated by two radiocarbon determinations: UCLA-154 (1962), 1297 B.C. ± 80, and UCLA-153 (1962), 997 B.C. ± 90, both run on charcoal samples.[9] At this site there are remains of several structures with walls of packed clay which were probably public buildings; one of the structures is earlier than the 1297 B.C. charcoal sample.

Ordinary dwellings were probably constructed of flimsier materials, as they were in later times. Pottery is common and distinctive. Although the Hacha site is located about 21 km. from the sea, marine shellfish are prominent in the refuse. In the refuse associated with the radiocarbon date of 997 B.C. the cultivated plants represented, in approximate order of abundance, are cotton, gourds, lima beans, squash, guava, and peanuts.[10] No trace of maize has been found. Relatively little excavation has been carried out at Hacha, and the data are still insufficient to determine whether it was a pueblo or a city.

In the sierra the site of Qaluyu, located in the northern part of the Titicaca basin near Pucara, probably also qualifies as an urban settlement of the Initial Period. Qaluyu is a stratified site with two distinct phases of occupation. The later one, associated with Pucara style pottery, is Early Horizon in date. The earlier occupation is characterized by a distinctive pottery style called Qaluyu which occurs in a stratigraphically early position at Yanamancha, near Sicuani, as well as at Qaluyu itself. Although there is no way to relate the Qaluyu style to the Ica valley sequence directly, its consistently early position in local sequences and the absence of common Early Horizon stylistic features argue for a date in the Initial Period. There are two radiocarbon dates from Qaluyu based on charcoal samples associated with Qaluyu style pottery, namely P-156 (1958), 1005 B.C. ± 120, and P-155 (1958), 565 B.C. ± 114.[11] The two samples were taken from about the same depth in a short test trench and should not be so far apart; they cannot both be accepted in the first sigma. The earlier one fits the archaeological evidence better.

The accumulation of habitation refuse at Qaluyu forms a low mound several acres in extent. A road has been cut through the mound, and the Initial Period occupation is exposed in the road cut. The extent of this exposure suggests that Initial Period refuse underlies virtually the whole mound, but further excavation would be necessary to establish its limits. No buildings have been excavated at this site, and the case for its being an urban settlement of some kind rests on the probable extent of the refuse.

The site of Marcavalle near Cuzco yields pottery in a local version of the Qaluyu style. The refuse covers at least an acre.

For the Early Horizon, many sites have been recorded which qualify as urban settlements, both on the coast and in the sierra. Several are large enough to be considered large cities, the ones now known being located in the Titicaca basin, in the Ica Valley on the south coast of Peru, and in the Mosna Valley in the northern sierra. Let us discuss the large sites first.

At Pucara in the northern part of the Titicaca basin are the ruins of a very large urban settlement with imposing public buildings. Pucara is a "one period" site and the type site for the Pucara pottery style. No earlier pottery has been found there, and there was no later occupation until the Late Intermediate Period. There is no direct evidence by which to relate the Pucara style to the Ica sequence, so radiocarbon dates provide

the only basis for correlation. Six radiocarbon determinations have been made on charcoal samples from a refuse deposit at Pucara (P-152, P-153, P-154, P-170, P-172, and P-217).[12] Five of these determinations agree very well and suggest a date in the first century B.C. The sixth, P-154, agrees only if taken in the second sigma. A date in the first century B.C. should fall in the latter part of the Early Horizon, perhaps Early Horizon 8 or 9.

Both public buildings and private houses at Pucara were built of adobe on stone foundations, and the collapse of the adobe superstructures has buried the foundations so that only the largest buildings can be distinguished on the surface without excavation. There were at least three large buildings, probably temples, on a terrace called Qalasaya at the foot of the great Rock of Pucara. The residential area was on the flat plain between this terrace and the river and was apparently very extensive.[13]

The area around Pucara is good farming country where potatoes and quinoa can be grown, and there are catfish in the Pucara River. Good pottery clay is available near the river, and there is a considerable pottery making industry at Pucara today. If ancient Pucara was a city, as its size suggests, its economy probably involved pottery manufacture, trade, and religious activities as well as farming.

The Pucara settlement at Qaluyu, only three or four kilometers away, also covers a substantial area, though a less extensive one than at Pucara itself. As the local farmers have recognized, the mound at Qaluyu is shaped like a catfish, a fact which suggests some deliberate planning. According to Manuel Chávez Ballón, there is another very large Pucara site at Tintiri on the road from Azángaro to Muñani. No one has yet looked for small habitation sites between these urban settlements.

The site of Tiahuanaco, at the southern or Bolivian end of Lake Titicaca, covers an area at least 1-1/2 by 1-1/4 km. The full area over which sherds occur on the surface has never been mapped, but the reports of visitors indicate that it is immense. The surface remains represent a Middle Horizon occupation, but there is evidence that the site was already important in the Early Horizon. Since this evidence has never been brought together, a review of it is in order.

Bennett apparently dug into an occupation level of Early Horizon date at the bottom of his Pit V, located east of the Acapana, the level in question being his Level 9 (4.00 to 4.60 m.). It was set off from the deposit above by a thin layer of clay. Bennett collected 116 sherds from Level 9, 111 of them being plain ones.[14] The most significant of the decorated sherds was a small one with a stepped design in red and black, the color being outlined by incision. When I examined this sherd in Bennett's collections at the American Museum of Natural History in 1941 I identified it as Pucara Polychrome.[15] The identification was based on the colors, surface finish, and technique of decoration, the design being too simple to be diagnostic. It may be, of course, that the sherd in question belongs to a local style related to Pucara rather than to the Pucara style

proper, but, as Bennett noted, it is quite different from later Tiahuanaco pottery.

The evidence of radiocarbon determinations confirms the early date here assigned to Level 9. Alfred Kidder II and William R. Coe dug another pit adjacent to Bennett's Pit V in 1955 to secure samples for radiocarbon dating. Sample P-150 (1958), animal bones from 3.25 to 3.50 m. depth, corresponding to the lower part of Bennett's Level 7, gave a date of 246 A.D. ± 104. Sample P-123 (1958), damp charcoal from 3.50 to 3.75 m. depth, corresponding to Bennett's Level 8, gave a date of 141 A.D. ± 103.[16] In the light of this evidence, a date in the first century B.C. for Level 9 is entirely reasonable.

Some sculpture in the Pucara style has been found at Tiahuanaco also, notably the two kneeling figures in red sandstone which stand at the sides of the door of the Tiahuanaco church. These are ancient statues which were reworked for Christian use early in the 17th century. The reworking did not extend to the backs of the figures, however, and enough is left of the back of the headdress on one of them so that we can recognize it as a work in the Pucara style or in a style closely related to it. The Spanish chronicler Bernabé Cobo gives a circumstantial account of the finding of these statues, and his account suggests that they were dug up near the church, rather than in one of the areas where there were ruins on the surface.[17] Perhaps the reason why more remains in the Pucara style have not been found at Tiahuanaco is that the area of the modern town has not been explored.

In 1858 the Swiss naturalist J. J. von Tschudi purchased a small stone carving in the purest Pucara style at the town of Tiahuanaco.[18] This carving, now in Bern, was in use as a cult object at the time of Tschudi's visit and consequently lacks provenience. It may very well have been dug up at Tiahuanaco also, however.

Since 1957 Carlos Ponce Sanginés and Gregorio Cordero Miranda have been excavating at Tiahuanaco for the Bolivian government, working mainly in and near the Qalasasaya. They have found a new pottery style in their lowest levels which is probably of Early Horizon date also. Ponce assigns the new style to his "Epoca I" and describes it as very distinctive, including painted pieces, plain polished pieces, and modelled ones. The painting is most commonly in red on yellow, with some incised motifs and feline designs drawn in black and white.[19] I propose to call the new style Qalasasaya for convenience of reference. The head of the principal figure on an incised and painted bottle of this style illustrated by Ponce has a number of features which occur in the same combination at Ica, where they are limited to Early Horizon 10.[20] This observation suggests a date immediately following the Pucara occupation. On the other hand, a radiocarbon sample which is supposed to date "Epoca I" materials gives a date of 239 B.C. ± 130 (GaK-52, organic carbon from Qalasasaya Pit E-14, Layer 6).[21] The radiocarbon determination suggests that the Qalasasaya style is earlier than Pucara. More evidence is clearly needed to settle the problem of dating, but the indications are that the Qalasasaya style belongs sometime in the Early Horizon.

So far we have no evidence regarding the extent of the Early Horizon occupation at Tiahuanaco, but if there were urban settlements at the other end of the lake at this time there may very well have been an important one at Tiahuanaco also.

The Ica Valley is one of the larger valleys on the Peruvian coast, but its water supply in ancient times was very limited. The Ica River carried water for three months of the year at most, and in some years it carried no water at all. On the other hand, one good soaking of the land a year was enough to ensure a crop of maize and squash.

In the earlier part of the Early Horizon the population of Ica seems to have been distributed in numerous small settlements along the edges of the valley. Some of them were certainly large enough to qualify as pueblos. In Early Horizon 9 times, however, there was an abrupt concentration of the population in a few very large urban settlements. Two of these settlements have been located, namely Tajahuana, on a dry plateau beside the river, about half way down the valley, and Media Luna in the oasis of Callango, far below. According to L. E. Dawson, who discovered it, Media Luna is an area of continuous, concentrated habitation refuse over a kilometer across, with fifteen small adobe mounds and some remains of adobe walls on the flat. The mounds presumably represent temples or other public buildings. There are no fortifications at this site. The Tajahuana site is only slightly smaller. The whole area is covered with stones representing the foundations of small rectangular houses, and there are a number of mounds about the same size as the ones at Media Luna. Tajahuana is elaborately fortified with multiple walls and a dry moat on the side of easiest access.

Both of the sites described were occupied only during one epoch of the Early Horizon, perhaps for a century or a century and a half, and then never occupied again. They apparently represent achoritic cities, without smaller settlements between them, but we have no evidence of the nature of their economic life. In the next epoch, Early Horizon 10, settlements were substantially smaller but very numerous, suggesting that there had been a redistribution of the population rather than a decline in numbers. Whether pueblos or small cities, the new settlements were synchoritic. The situation suggests that the striking concentration of population in Early Horizon 9 reflects some kind of political planning.[22]

There is no indication that the urban settlements of Early Horizon 9 depended in any way on large scale irrigation works. There was probably never enough water at Callango to irrigate any very large area, while the Tajahuana site is located close to the river bank and adjacent to a marshy area. The sites in the Ica Valley which depend on major irrigation canals all date to Early Intermediate Period 7 or later.

In the northern sierra of Peru we have evidence of urban settlements in the Mosna Valley east of the Cordillera Blanca. The principal site in this valley is Chavin, where there is an impressive temple which is famous for its stone sculpture. Archaeological research has been largely concentrated on the temple. Wendell C. Bennett, who excavated there in 1938, suggested that the temple was a ceremonial center for seasonal use with a

very small resident population.[23] However, Marino Gonzáles Moreno, the Peruvian government commissioner at the site, who is a native of Chavin as well as a very able archaeologist, showed me evidence that the whole area occupied by the modern town, which is adjacent to the temple on the north, is underlain by Early Horizon refuse and constructions. An area perhaps a kilometer long and half a kilometer wide is involved. There is also a considerable area of habitation refuse on the other side of the river. Chavin thus appears to have been a large city. There are reported to be a number of smaller sites of the same period within a few kilometers of Chavin itself, so it was probably a synchoritic city.

Chavin was certainly a religious center, and it has a favorable location for trade. The Mosna Valley is a natural route of communication between the sierra to the west and the tropical lowlands along the Marañón. Whether the site was also a manufacturing center cannot be determined on the basis of the evidence now available. A city the size of Chavin is likely to have had considerable political power.

Chavin was not a ceremonial center in the settlement pattern sense during the Early Horizon, but it may have become one during the Early Intermediate Period. Most of the habitation area of the city had been abandoned by the end of the Early Horizon, but later structures and refuse around the temple indicate continued use of the ceremonial part of the site.

If Tiahuanaco was already a city in the Early Horizon it may have had a continuous urban life through the Early Intermediate Period. All the other known Early Horizon cities, however, were either entirely deserted or at any rate had ceased to exist as cities before the end of the Early Horizon. The break is particularly remarkable in the northern Titicaca basin, because we have no idea what followed it there. Although a certain amount of exploring has been done, no habitation sites have been found which can be attributed to the Early Intermediate Period; we do not even know what kind of pottery was in use.

Apart from the large city sites we have been discussing, the known Early Horizon habitation sites are mostly small urban settlements, probably of a pueblo character. Some examples are Llawllipata, near Pomacanchi; Chanapata, at Cuzco; Pozuelo, in the Chincha Valley; and the Tank Site at Ancon. There are also, of course, many important sites which I do not have sufficient information about to discuss from the point of view of this survey; Kotosh, La Copa, Pacopampa, and Chongoyape fall into this category.

For the Early Intermediate Period many sites representing large cities are known from southern and central Peru, but none has been reported in the north.

There are large urban sites of the Early Intermediate Period in the south coast valleys of Pisco, Ica, Nasca, and Acarí. The site of Dos Palmas in Pisco comprised an area of habitation nearly half a kilometer long and some 300 m. wide when it was photographed from the air in 1931 by the Shippee-Johnson Expedition (Plate I). By 1957, when Dwight T. Wallace visited it on the ground, the area had been brought under irrigation and the site largely destroyed. The photograph of 1931 shows the habitation area

densely packed with the fieldstone foundations of small rectangular rooms, interrupted by four or five small open plazas. The pottery is in a local style datable to Early Intermediate Period 3.

In Ica there is a great habitation site of Early Intermediate Period 1 and 2 on the slopes of a hill at the edge of the Hacienda Cordero Alto. The population then seems to have shifted to the other side of the valley, where there is an equally large site of Early Intermediate Period 3 to 5 on the slopes of Cerro Soldado. The Cerro Soldado site consists of the fieldstone foundations of small houses scattered over the slopes of a large rocky hill overlooking the Ica River. A shrine can be identified on one of the spurs of the hill. No habitation site attributable to Early Intermediate Period 6 has yet been found in Ica, although burials of this period are known there. In Early Intermediate Period 7 there was a large city on the Pampa de la Tinguiña, a broad alluvial fan subject to occasional flooding. The surviving area of habitation is just under 600 meters across and was probably originally half again as large, the missing sections having been washed out in flash floods. The ruins consist of fieldstone foundations of buildings, a number of small mounds, and at least one plaza. An imposing adobe palace associated with this site was destroyed by the owner of the neighboring hacienda in 1959. Tinguiña is a "one-period" site, abandoned before the end of Early Intermediate Period 7 and never reoccupied.

The story of settlement in the ravine of Nasca has not been traced systematically, and only one large urban site is known there. This site is Cahuachi, which comprises shrines, plazas, cemeteries, and habitation areas extending along the side of the valley for over a kilometer. Strong's excavations there in 1952 indicated an occupation from Early Horizon 10 to Early Intermediate Period 3.[24] It is not easy to determine how much of the area of Cahuachi was used for habitation. The houses were constructed of perishable materials, so that their foundations do not show on the surface, and some of the surface pottery is derived from looted tombs rather than from refuse. Nevertheless, the habitation area was clearly extensive.

The largest urban site in the valley of Acarí is Tambo Viejo, at the south edge of the modern town of Acarí. The Early Intermediate Period habitation area at this site is about a kilometer in length and half a kilometer in width, comprising fieldstone foundations of small rectangular rooms, a number of small mounds, probably representing shrines or public buildings of other kinds, and plazas. The site is surrounded by fortification walls of fieldstone and adobe. The earliest occupation is represented by pottery datable to Early Intermediate Period 2 and representing an old local tradition. The site seems to have been rebuilt and enlarged in Early Intermediate Period 3 and abandoned before the end of this epoch. The Early Intermediate Period 3 occupation is associated with Nasca style pottery and very likely represents an actual Nasca invasion.

Further up the Acarí Valley at Chocavento is another fortified habitation site, closely similar to Tambo Viejo but about half as large. Still further up valley there are two additional sites of the same sort,

one at Amato and the other at Huarato. Both are smaller than Chocavento. All of these sites appear to have been built and abandoned in Early Intermediate Period 3. It is not unlikely that all these Acarí sites represent achoritic urban settlements, that is, ones in which the farming population of the valley was concentrated; their size bears some relation to the amount of farm land available nearby. The size of Tambo Viejo indicates that it, at least, was a city. These sites of Early Intermediate Period 3 represent the peak of urbanization in the Acarí Valley. In all subsequent periods the habitation sites in this valley were relatively small.

The fact that Cahuachi in Nasca and the urban settlements in Acarí were deserted at about the same time is suggestive, in view of the evidence that the fortified settlements in Acarí represent an invasion from Nasca. Perhaps Cahuachi conquered a little empire on the coast which was destroyed after a generation or two. The situation could be clarified by further study of habitation sites in the Nasca area.

There are a number of Early Intermediate Period sites in the area around Ayacucho in the sierra which are large enough to qualify as large cities. The extent of these sites must be traced from the distribution of pottery fragments; there are no architectural remains of the Early Intermediate Period visible at the surface. In the immediate environs of Ayacucho there are three large habitation sites of the Early Intermediate Period, Acuchimay, Chakipampa (Tello's "Conchopata"), and Ñawimpukyu. All three continued to be occupied into the Middle Horizon, and the last two have remains of Middle Horizon buildings. The great site of Huari, about 25 km. north of Ayacucho, also had an extensive Early Intermediate Period occupation as well as the Middle Horizon one for which it is famous. At Churukana, a short distance east of Huari, there is a very large Early Intermediate Period habitation site which is not obscured by any later occupation.

Tiahuanaco either continued to be occupied or was occupied again in the Early Intermediate Period. The Early Intermediate Period pottery style at this site is the Qeya style, the major component of Bennett's "Early Tiahuanaco" category, corresponding to Ponce Sanginés's Epoca III. The name Qeya is derived from the name of the type site, Qeya Qollu Chico on the Island of Titicaca, where it was found isolated in burials excavated by A. F. Bandelier in 1894. Bandelier's collection from this site is at the American Museum of Natural History; it is referred to but not described in his report.[25] The two pits, V and VIII, in which Bennett got "Early Tiahuanaco" refuse are located half a kilometer apart, a fact which suggests the presence of an extensive habitation area. Ponce Sanginés dates the construction of the Qalasasaya to his Epoca III, so the site also had large public buildings in the Early Intermediate Period.

On the central coast the sites of Pachacamac and Cajamarquilla were large urban settlements in the Middle Horizon and the Late Intermediate Period, and at both sites the occupation can be traced back to the Early Intermediate Period. We do not know the area involved or the character of the early occupation, however. The site of Maranga, between Lima and Callao, includes a cluster of great temple mounds which were built during the Early Intermediate Period and abandoned early in the Middle Horizon. No extensive habitation area has been found associated with these mounds, and it is very likely that they constituted a ceremonial center.

There was a moderate sized settlement of urban character at Playa Grande, on the desert coast south of Ancon.[26] The habitation area at this site was about 400 m. across and included at least seven public buildings. There was no water available for irrigation at Playa Grande, and the population must have been engaged in fishing, gathering shellfish, and hunting sea mammals, like the inhabitants of the settlements along the desert coast before the introduction of pottery. I hesitate to argue that the existence of an urban settlement at Playa Grande implies general use of this pattern in the neighboring valleys. Occupational convenience might encourage the formation of urban settlements by fishermen, even though contemporary farmers preferred a different pattern of residence.

Schaedel has argued that urbanization began on the north coast in the Middle Horizon or Late Intermediate Period, and that the earlier pattern in this area was one of ceremonial centers.[27] He reached these conclusions on the basis of a survey of major architectural remains on the north coast carried out between 1948 and 1950. The procedure followed was to locate large ruins on aerial photographs and then to visit the sites on the ground. This procedure provides an excellent basis for studies of monumental architecture, but it yields only part of the information needed for the study of settlement patterns. Many habitation areas on the coast cannot be identified at all on aerial photographs and can be recognized on the ground only by the presence of ancient pottery, bone fragments, and shell. Except in areas where stone was very abundant, ordinary houses on the coast were generally framed with poles and closed with matting or with canes smeared with mud. Such houses leave no remains except a floor and some post holes which, if not covered by a layer of refuse, weather away within a few centuries. Generally the floors are covered with refuse and can be found by excavation. The data for the Early Intermediate Period collected in Schaedel's survey may reflect the pattern of scattered residence and ceremonial centers which he suggests, but they could also result from a pattern of urban residence in flimsy houses which left no remains of the sort he was mapping.

Apart from Schaedel's survey, data on north coast settlements in the Early Intermediate Period are not abundant. The problem is complicated by the fact that, for certain valleys (e.g., Casma and Lambayeque), the pottery of the Early Intermediate Period has not been identified.

The extensive survey of ancient sites carried out in the Virú Valley by J. A. Ford and Gordon R. Willey in 1946 indicated what Willey has called a small or medium sized village pattern for settlements of this valley in the Early Intermediate Period.[28] The Huaca Gallinazo, which is the largest habitation site associated with Gallinazo style pottery, is described as covering an area of 400 by 200 m.[29] These relatively small settlements may have been associated with ceremonial centers, if that is the function served by the so-called "castillos." The Virú evidence can hardly be said to contradict Schaedel's generalization. On the other hand, it does not support his interpretation very strongly, because Virú, which is not a very large valley, had no major urban settlements even in the Late Intermediate Period when such settlements were fairly common on the north coast.

The fact that later sites on the central coast, such as Pachacamac and Cajamarquilla, were already occupied in the Early Intermediate Period leads us to ask whether the same might not be true of some of the large late urban settlements on the north coast. Heinrich Ubbelohde-Doering did some digging at the great site of Pacatnamú in the Pacasmayo Valley in the hope of finding an early occupation. The earliest pottery he found, however, dates to Middle Horizon 1.[30]

The Middle Horizon was marked by a great expansion of the Huari culture centering in the Ayacucho area, an expansion which probably involved military conquest. Its traces have been found through most of Peru, in the sierra from Sicuani to Cajamarca and on the coast from Ocoña to Chicama. There was a parallel expansion of the Tiahuanaco culture in the basin of Lake Titicaca and in northern Bolivia, reaching the coast in the extreme south of Peru and in northern Chile. These expansion movements are significant for our story, because the Huari culture certainly had a well established tradition of large cities by the beginning of the Middle Horizon, and the Tiahuanaco culture probably did also.

There seems to have been a concentration of population and probably also of power at Huari in the Middle Horizon. The great urban settlements in the environs of Ayacucho were abandoned at the end of Middle Horizon 1, while the major occupation at Huari dates to Middle Horizon 2 and 3. The site of Huari is enormous. According to Bennett, the "major core" of the ruins covers an area at least 1.5 km. square. The masonry structures represented by the ruins now visible above ground were probably public buildings; the habitation area around them can only be traced from the distribution of surface sherds.[31]

Tello reports the existence of another large site like Huari at Hatun Wayllay on the Lircay River in Huancavelica.[32] A 16th century writer describes what appears to be another such site at Cabana in the province of Lucanas in the southern part of the modern Department of Ayacucho.[33]

A striking feature of the Huari expansion was the construction of very large building complexes consisting of plazas, corridors and rectangular rooms laid out according to a formal plan. The walls are very high, with few doors and windows, and refuse is virtually absent. These elaborate complexes probably housed government stores rather than people. There is a comparatively small complex of this type at Huari itself, in the Capilla Pata sector. The larger ones are Pikillaqta, at the lower end of the valley of Cuzco, Wiraqocha Pampa, near Huamachuco, and a site on the Pampa de las Llamas in the valley of Casma on the north central coast.[34] The existence of these formal storage complexes provides evidence that the expansion of Huari was not simply a matter of peaceful penetration or raiding. It represents the formation of an imperial state with a well organized administration.

Pikillaqta has an extensive Middle Horizon habitation site associated with it. The habitation site is located on the next hill (Raqch'i), an elevation formed by an old lava flow. Here there are pockets of soil, including some fairly extensive fields, among the outcrops of lava, and

Middle Horizon sherds occur on the surface. Presumably the buildings were of adobe.

There are many Middle Horizon habitation sites of various sizes in the area of Huari expansion, usually marked by refuse without standing ruins. Waywaka, near Andahuaylas, is relatively extensive; Yanamancha, near Sicuani, and Zukzu, at Urcos, are small.[35] Evidently, the entire population was not concentrated in large cities.

On the south coast there is a small Middle Horizon 1 habitation site at Pacheco in the ravine of Nasca, associated with a shrine of Ayacucho type. No really large Middle Horizon habitation site has yet been identified on the south coast, although some extensive cemeteries of this period are known, particularly in the Nasca drainage. However, little enough survey work for habitation sites has been undertaken in this area so that it would be dangerous to infer that no large Middle Horizon site exists.

Pachacamac continued to be occupied throughout the Middle Horizon, but the occupation of this period is covered by later construction and could only be traced by excavation. Many Middle Horizon burials have been found at Pachacamac, however, and the pottery in them represents a local variant of the Huari style. This Pachacamac variant is distinctive, and its influence can be traced over most of the central coast and as far south as Ica.[36] Since Pachacamac was a great city in the earlier part of the Late Intermediate Period, it is reasonable to suppose that it was already one in the Middle Horizon when it was such an important center of influence.

The north coast was an area of large cities in the Late Intermediate Period. One of them, at any rate, namely Pacatnamú in the Pacasmayo Valley, can be traced back to the beginning of the Middle Horizon, as we have already noted. If Schaedel is right in claiming that there were no large cities on the north coast before the Middle Horizon, the easiest way to account for the rather abrupt appearance of such cities is to suppose that they represent a pattern of settlement introduced by the already urbanized conquerors from Huari.

Tiahuanaco reached its greatest extent in the Middle Horizon, and most of the famous sculpture from this site is of Middle Horizon date. No other really large Middle Horizon city has been found so far in the area of Tiahuanaco expansion. This fact may be significant, or it may simply reflect inadequate exploration. There has been relatively too much attention paid to carved stones and not enough to house foundations and habitation refuse. For example, when Bennett was excavating the cut stone ruins of a Tiahuanaco temple at Lukurmata he noted the presence of house foundations and habitation refuse but did not trace the area of habitation.[37] Some small Tiahuanaco habitation sites are known; there is one on a hill at Juliaca, for instance.

Both Huari and Tiahuanaco were abandoned toward the end of the Middle Horizon, and there was no sizable later settlement at either site.

Furthermore, in a large part of southern Peru and Bolivia the abandonment of cities was general; there were virtually no large cities in this area in the Late Intermediate Period and the Late Horizon. The entire pattern of settlement in large cities was eliminated and not reintroduced until after the Spanish conquest.

The abandonment of the great cities in the south coincides approximately with the decline and eventual elimination of Huari and Tiahuanaco influence in local pottery styles. The Late Intermediate Period was a time of marked local cultural diversity and relative isolation, contrasting in both respects with the Middle Horizon. Some evidence regarding political conditions in the Late Intermediate Period can be derived from Inca traditions, and these traditions describe a situation of extreme political fractionation in the sierra at the time of the beginnings of the Inca dynasty. Evidently, the great imperial states of the Middle Horizon fell at about the time that the cities were abandoned. There thus appears to be a formal parallel in Peru to the situation in western Europe at the time of the abandonment of the Roman cities.

The general absence of large cities in the south in the Late Intermediate Period was noted by the University of Tokyo field party which surveyed the area in 1958. The expedition report, in discussing the site of Churajón in the Arequipa area, says that it is "the only city site of the Urbanist period that has ever been recognized in the southern Andes."[38] The "Urbanist period" of this statement is approximately equivalent to the Late Intermediate Period. There is some question, however, whether Churajón qualifies as a city in terms of the criteria used in this study. The Tokyo party reports two habitation areas at Churajón, one of 2,000 square meters and the other of 5,000 square meters. The 5,000 square meter area, however, includes tombs and agricultural terraces as well as dwellings. The habitation areas described sound like small urban settlements, and probably pueblos rather than cities.

The largest urban settlements in southern Peru datable to the Late Intermediate Period which I have visited are Mallawpampa at Curahuasi, Qaqallinka and Timirán near Arequipa, and Sahuacarí and Otaparo in the Acarí Valley.[39] Probably all of these sites continued to be occupied in the Late Horizon. They cover areas at least 300 m. across and include the remains of fieldstone foundations as well as habitation refuse. These sites need be no more than relatively large pueblos. The sites which Max Uhle visited at the southeast end of Lake Titicaca between Achacache and Huaycho sound similar.[40]

In the area around Cuzco many Late Intermediate Period sites have been identified. Some are very small, representing perhaps no more than half a dozen houses, while others have an area of refuse 200 to 300 meters across and evidently represent pueblos or small cities. Examples of the larger sites are Qencha-qencha in the valley of Cuzco and Kuyu (Pukara Panti-lliklla) near Pisac.

The Ica Valley seems to have had a pattern combining small settlements and imposing ceremonial centers in the Late Intermediate Period. The

major ceremonial center was at Old Ica in the Pago de Tacaraca where there is a large cluster of adobe temple mounds but little habitation refuse. Smaller clusters of mounds, probably representing subsidiary centers, occur at Macacona and Chagua (La Venta). The habitation sites of this period are numerous but small in area and scattered all over the valley.

In central Peru there are some Late Intermediate Period cities of large size. I have visited two near Huancayo, Patan-qotu and Qotu-qotu. The University of Tokyo expedition estimated that Patan-qotu extended for two kilometers along the bank of the Mantaro River, and Qotu-qotu may be nearly as large. The latter site continued to be occupied into the Late Horizon.[41]

Pachacamac on the central coast was a very large city in the early part of the Late Intermediate Period. Indeed, most of the buildings now visible in the central and southern part of the site appear to be Late Intermediate Period constructions. The city declined in size, however, and was at least partly in ruins when the Incas took it. The best evidence for this fact is provided by the excavations which Arturo Jiménez Borja carried out in the central part of the site in 1957-58. Jiménez cleared a small temple of the Late Intermediate Period in this area and found the courtyard filled with over a meter of very dirty Inca refuse. Part of the facing of the south wall of the courtyard had fallen out, perhaps during an earthquake, and the layers of Inca refuse continued into the gap in the face of the wall. There is thus no question that this building was in a ruinous condition when the Incas began to use it as a dump. Miguel Estete, who accompanied the first Spanish exploring party to reach Pachacamac, in 1533, reported that much of the city was in ruins in his time. He says: "It must be something very ancient, because there are many ruined buildings, and the town has been walled, although most of the wall has now fallen in; it has its main gates giving access to the interior and its streets."[42]

Cajamarquilla, in the valley of Lima, was a large city in the Late Intermediate Period, as we have already noted. No one has succeeded in identifying early Spanish references to it, and its ancient name is unknown. No evidence of Inca occupation has been found there. It is thus at least possible that Cajamarquilla was abandoned before the end of the Late Intermediate Period.

The north coast was the most highly urbanized part of Peru in the Late Intermediate Period, with many large cities of imposing size. I have not explored this area myself and have nothing to add to the descriptions of north coast city sites published by Schaedel and Kosok.[43]

For the most part, the patterns of settlement of the Late Intermediate Period carried through into the Late Horizon. Whatever changes occurred were the result of Inca planning, so we need to add some comments on Inca practice.

As we have seen, the Cuzco area, where the Inca state began, had a pattern of small urban settlements and even smaller clusters of houses in the Late Intermediate Period. Cuzco, the Inca capital, was a small urban

settlement at the time the Incas began their expansion; Inca traditions were quite explicit on this point. Pachakuti, the first great Inca conqueror, who ruled from about 1438 to about 1471, rebuilt Cuzco to make it a more appropriate capital for the new empire. He planned a core of palaces, temples, and government buildings with a ring of small urban settlements around it. The residential settlements were separated from one another and from the core area by open fields. Since the service personnel in the core area probably grew to number at least 2,000, the core itself was technically a large city by the criteria we are using. However, Pachakuti's intent appears to have been to build a ceremonial center with a cluster of small urban settlements dependent on it.

The administrative centers which the Incas established in the provinces tended to follow the model of Cuzco, except when they were attached to already existing native settlements. The Inca administrative center in Acarí, for example, consisted of government buildings with satellite settlements located some distance away.[44] If there were any Inca settlements which were planned as large cities, they were some of the great regional centers in the north, such as Pumpun, Wanuku (Huánuco Viejo), and Tumipampa.

Where the native population was very scattered, the Incas tried to consolidate it in urban settlements to facilitate government control, but the settlements so formed were not large and had a minimum of public buildings, aside from a shrine or two. The settlements established for the colonization of uninhabited country were likewise small. Machu Picchu, which was the largest of a group of Inca colonies in the rough country between Ollantaytambo and Vilcabamba, contained a total of only about 200 rooms for all purposes.[45] The Incas were not city builders in the sense that their predecessors of the Middle Horizon had been.

Such, then, is the record of urban settlement in ancient Peru as it appears in the present state of archaeological knowledge. There are still great gaps in what we know and extensive areas where no archaeological survey has ever been undertaken, but the present record is sufficient to support a few conclusions and to make it possible to ask some useful new questions.

In the first place, Peru has a long and persistent tradition of urban settlement. From far back in preceramic times the urban pattern is found generally wherever patterns of residence have been investigated. Scattered settlement in family groups is also found, but in combination with urban settlement rather than as an alternative to it. There are a few cases of what appear to be achoritic urban settlements, as in Ica in Early Horizon 9, in the Lake Titicaca basin at the time the Pucara cities were flourishing, and in Acarí in Early Intermediate Period 3. In Ica and Acarí the achoritic pattern is associated with fortification of the settlements and may be a deliberate military measure.

So little excavation has been carried out in Peruvian urban settlements that it is usually not possible to distinguish a small city from a pueblo. We can only be sure we are dealing with cities when we find habitation areas so extensive that they fall into the "large" category.

Large cities are not as generally characteristic of Peruvian settlement patterns as small urban settlements. Some large cities were built at some time or other in most parts of the sierra and the coast, but usually only part of the area was urbanized at any one time. The concentration of population in large cities appears to have been most general during the Middle Horizon.

The earliest large city so far known is preceramic Haldas on the coast, an isolated phenomenon in the present state of knowledge and one which deserves careful investigation.

The basin of Lake Titicaca was the home of a long tradition of large cities. This tradition goes back to the Initial Period (Qaluyu) and was very likely continuous from that time until the end of the Middle Horizon. There may have been a general abandonment of large cities in the northern part of the basin near the end of the Early Horizon, bringing an end to such cities as Qaluyu and Pucara, but it is at least possible that the occupation of Tiahuanaco was not interrupted until the general crisis at the end of the Middle Horizon.

There was a large city at Chavin in the Early Horizon, but it is not yet clear whether it was unique or merely one of many such settlements in the northern sierra at that time. If the latter, it may be possible to find links between the northern tradition and the Lake Titicaca one. Similar difficulties attend the interpretation of the occurrence of cities on the south coast in the Early Horizon. A large unexplored area separates the south coast from Lake Titicaca. The south coast urban tradition appears to have been continuous until the Middle Horizon, although individual sites were abandoned on many occasions.

The expansion of Huari in the Middle Horizon is the expansion of a culture of cities which had its center in the Ayacucho area. Large cities in this area can be traced back well into the Early Intermediate Period, and designs on pottery indicate contacts with the urbanized south coast in Early Intermediate Period 7 and with Tiahuanaco in Middle Horizon 1. The origins of the urban tradition in the Ayacucho area are still obscure, because there has been so little exploration in the sierra. Large cities may well go back to the Early Horizon here, in which case a link with other Early Horizon occurrences of cities should be sought.

It was probably the influence of the Huari culture which was responsible for the introduction of large cities to the north coast. This area appears to have had only small urban settlements and ceremonial centers in earlier periods. Once it accepted the large city pattern, however, the north coast became highly urbanized and maintained its urban tradition until the time of the Spanish conquest.

The power of Huari and Tiahuanaco collapsed at the end of the Middle Horizon, and their fall was accompanied by a general abandonment of cities in southern Peru. Thereafter, the prevailing pattern of settlement was one of small urban settlements and dispersed dwellings. The fact that the abandonment of cities was general over a large area suggests that there was a

reaction against cities as such, and we are reminded of the hostility of the rural population to the cities in the later Roman Empire. Like the Roman cities, the Peruvian ones of the Middle Horizon did have a rural population around them. It is interesting that the reaction took place in the areas where the urban tradition was very old and not on the north coast where large cities were a new phenomenon.

The story of ancient Peruvian cities has some important implications for general theories of the development of cities. In the first place, in Ica, where I have had an opportunity to study the relationship between cities and irrigation, large cities appear first and major irrigation canals were only built later. It would be difficult to argue that there was any relationship between irrigation and the development of cities in this area, unless it was that the growth of cities produced a pressure on the land which was met by irrigation projects on an unprecedented scale.

In the second place, the Peruvian data throw some light on the relationship between cities and ceremonial centers. Except for the late and somewhat peculiar case of Cuzco, there is no example in our Peruvian data of large cities developing out of ceremonial centers. When large cities replaced or were added to ceremonial centers, as occurred on the north coast, the cities represent the intrusion of foreign ideas coming from another area where the urban tradition was much older. The ceremonial center, therefore, is not a necessary stage in the development of the city.

The Peruvian evidence also shows very clearly that the large city is not such an advantageous institution as to spread consistently at the expense of other patterns of residence. We have seen how large cities disappeared over a considerable area in southern Peru at the end of the Middle Horizon and were replaced by a pattern of small urban settlements. At Ica an urban pattern was replaced by a ceremonial center one in the Late Intermediate Period. During this same period Pachacamac was transformed from a large city into a ceremonial center, which is all it was when the first European visitors saw it. Something similar had happened at Haldas in the Initial Period.

The ceremonial center is obviously in some sense an alternative to the city, providing the kinds of public institutions and services which are present in large cities, but without a permanent concentration of population. It would be possible to argue from the Peruvian data that ceremonial centers represent a secondary development out of cities. They clearly do so in some cases, but it would be going too far beyond the evidence to maintain that the prior existence of cities is a necessary condition for the development of ceremonial centers.

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NOTES

[1]Rowe, 1960a, 1960b, 1962b.

[2]Menzel and others, ms.

[3]A summary of the archaeological sequence in the Ica Valley is given in Rowe, 1962a.

[4]As the reader will note in the text which follows, this study suffers to some extent from the fact that the categories used in it grew out of my attempts to compare and interpret field data. The field observations were not made with these particular distinctions in mind and often fail to include the most pertinent details. Such deficiencies can be taken care of by further fieldwork, however, and the inductive approach calls for no apology.

[5]Rostovtzeff, 1957, vol. 1, pp. 496-501.

[6]These mounds are described by Engel, 1958, pp. 89-90. My data, however, were provided by E. P. Lanning, who participated in the excavations at Rio Seco.

[7]Kigoshi and others, 1962, p. 91, and information provided by Rosa Fung de Lanning. See Engel, 1958, fig. 4, for an inaccurate plan of the Haldas temple.

[8]Information provided by E. P. Lanning.

[9]Sample UCLA-154 was collected in 1961 by J. H. Rowe and Dorothy Menzel and consisted of wood charcoal and carbonized seeds associated with a thin layer of ash on a clay floor at the foot of and continuous with the longest section of packed clay wall at the south end of the site. The ash represents the remains of a substantial fire which burned the face of the wall. The construction of the wall should, therefore, be earlier than the date of the sample. Sample UCLA-153 was collected in 1959 by Gary S. Vescelius, Hernan Amat Olazabal, and Dorothy Menzel, all at that time working on the joint archaeological project sponsored by the U.S. Educational Commission in Peru and the University of San Marcos. It consisted of wood charcoal from a layer of undisturbed refuse on the lee side of a sand hill

at the north end of the site. Both samples were submitted to the laboratory by J. H. Rowe. Since the site had been dated in the Initial Period on the basis of the archaeological relationships of its pottery, textiles, and stone work, both dates are acceptable.

[10]Preliminary identifications by J. H. Rowe and L. E. Dawson, not checked by experts.

[11]Ralph, 1959, p. 57.

[12]Ralph, 1959, p. 57.

[13]For photographs of the Pucara site see Kidder, 1943, and Rowe, 1958.

[14]Bennett, 1934, pp. 378-385 and Table 1.

[15]Rowe, 1944, p. 56.

[16]Ralph, 1959, p. 55.

[17]Cobo, lib. XIII, cap. XIX; 1956, Tomo 92, p. 197.

[18]Rowe, 1958, pp. 260-261.

[19]Ponce Sanginés, 1961, pp. 33-35.

[20]Ponce Sanginés, 1961, p. 22, top figure; comparison with Ica by Dorothy Menzel.

[21]Kigoshi and others, 1962, p. 91.

[22]Early Horizon 10 was also a time when the Ica Valley had a relatively unified pottery style. See Menzel and others, ms.

[23]Bennett and Bird, 1949, pp. 133, 136-137.

[24]A sample of the pottery from the Cahuachi excavations is illustrated by Strong, 1957, who also provides a plan and aerial photograph of the site. Strong generously permitted L. E. Dawson, Dorothy Menzel, and me to examine his original sherd collections, and the dates here assigned to Strong's materials are based on Dawson and Menzel's observations. I have also visited Cahuachi personally.

[25]Bandelier, 1910, pp. 172-173 and plate XXI.

[26]Stumer, 1953, pp. 44, 48, and fig. 1; Tabío, 1957, p. 5.

[27]Schaedel, 1951a, p. 22; 1951b, pp. 234, 242-243; and compare Willey, 1953, pp. 412-413.

[28]Willey, 1951, p. 198.

[29]Willey, 1953, pp. 132-133; Bennett, 1950, pp. 25-29.

[30]Ubbelohde-Doering, 1959, pp. 6-26. The excavator's stylistic attributions of the pottery found in burials E-I, M-XI and M-XII are erroneous. These are all Middle Horizon I burials, dated by the Moche V style vessels they contained. All dark incised ware is not Chavin; all utilitarian face-neck jars are not Gallinazo, and so forth. The eclecticism reflected by the variety of decorated vessels in these burials is a common characteristic of Middle Horizon 1 burials elsewhere on the coast as well.

[31]Bennett, 1953, p. 18 and fig. 2.

[32]Tello, 1942, pp. 683, 684.

[33]Monzón, 1881, p. 210.

[34]McCown, 1945, pp. 267-273, figs. 5 and 13; Rowe, 1956, pp. 142-143; Kubler, 1962, plate 162; Tello, 1956, pp. 49-51 and fig. 2. Pikillaqta is dated by a find of small stone figures in Huari style. Wiraqocha Pampa is dated by its resemblances to Pikillaqta and to the Capilla Pata sector of Huari. The site on the Pampa de las Llamas is the group of rectangular plazas and associated buildings lying northeast of Huaca Mojeque at the foot of Cerro San Francisco. I know it only from Tello's plan and description, which provide very inadequate evidence for dating. My grouping of this site with the sierra ones is no more than a guess based on certain features of its formal plan.

[35]Waywaka and Yanamancha are discussed briefly in Rowe, 1956, pp. 143 and 144.

[36]Menzel, 1958, pp. 40-41.

[37]Bennett, 1936, pp. 491-492 (sections K and L).

[38]Ishida and others, 1960, p. 468.

[39]Qaqallinka ("Casa Patac") and Timirán ("Dos Cruces") are described briefly in Ishida and others, 1960, pp. 467 and 462. For Sahuacarí and Otaparo, see Menzel, 1959, pp. 130-131.

[40]Rowe, 1954, p. 107.

[41]Ishida and others, 1960, p. 471.

[42]Estete, 1938, p. 87.

[43]Schaedel, 1951a, 1951b; Kosok, 1960.

[44]Menzel, 1959, p. 130.

[45]Plan in Bingham, 1930.

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Plate I. Dos Palmas in the Pisco Valley, photographed from the air by George R. Johnson in 1931 (photo courtesy of the Wenner-Gren Foundation for Anthropological Research, N.Y.).