# LIMATAMBO IN LATE PREHISTORY: Landscape Archaeology and Documentary Images of Inca Presence in the Periphery of Cusco.

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This thesis is the original work of the author, except as acknowledged.

[KENNETH JAMES HEFFERNAN]

For my parents, Kevin and Patricia Heffernan

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ABSTRACT

LIMATAMBO IN LATE PREHISTORY: Landscape Archaeology and Documentary Images of Inca Presence in the Periphery of Cusco.

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This study combines the results of surface archaeological survey and early historic documentary information to examine the expansion of the Inca polity and its interaction with local socio-economic systems in the Apurimac Basin near Limatambo from about AD 1000 to the arrival of the Spaniards in Cusco during 1533. The respective roles and limitations of the two sources of information are discussed and give rise to the organization of chapters in four groups.

Chapters 1 to 3 discuss the modes and degrees of Inca presence throughout the Andes and their measurement for comparison with the circum-Cusco region. The system of site survey, environmental background of the study region and the late prehistoric archaeology of surrounding areas are examined in greater detail to enable inferences of site function and dating.

Chapters 4 and 5 describe recorded archaeological sites of late prehistory and present detailed measurements and maps of large prehistoric terrace sites which enable their systematic internal analysis.

Ethnohistoric information is synthesized in Chapters 6 and 7 and the appendices include transcriptions of previously unpublished 16th Century title records. The attachment of the social data they contain to specific landscapes supports the inference of an intricate variety of Inca-local relations at the end of prehistory that is not apparent in the standard chronicles.

The final chapters use two different approaches to assess current propositions about the nature of Inca expansion which have been largely derived for this area from documentary generalizations. Chapter 8 employs archaeological data in a landscape model to infer site function and to compare parameters which may have affected the choice of site location. It assumes that the distribution of settlements and of energy inputs in terrace construction are measures of Inca and local-level interest in different Limatambo environments during late prehistory. Chapter 9 uses documentary data to elaborate a social hypothesis to explain the recorded variation in Inca terrace schemes and Chapter 10 is a similar analysis of mountain-summit Inca sites in the study region. Available comparative data suggest that the distribution patterns of such sites in Limatambo are part of a wider phenomenon near Cusco and provide a basis for comparison of the centre of Inca state formation with greater Tawantinsuyu.

FRONTISPIECE. Tarawasi, Sondor and the junction of the Colorado, Parqo and Ch'akimayo Rivers, Limatambo.

VOLUME 1.

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FIGURES (continued)



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TABLES (continued)

# CHAPTER 1

# LANDSCAPE ARCHAEOLOGY AND THE SOCIO-ECONOMIC CORRELATES OF INCA STATE FORMATION AND EXPANSION.

## 1.1 Introduction: Questions, Objectives and Methods.

Expanding prehistoric polities grew from localized Upper Holocene societies at many places in the world and temporarily retained the power to extract energy and resources from diverse areas and peoples. The extension of Inca socio-economic objectives across the western South American Andes is usually attributed to the final prehistoric Century before capture of the Inca ruler, Atawallpa, in 1532. Placement of these events on the boundary of prehistory and history offers a special opportunity to define and compare social, economic and ideological mechanisms which operated in late prehistoric *Cusco*, where distinctive archaeological indicators of Inca culture emerged and were most prevalent at European contact, and in *Tawantinsuyu*, the area of its ultimate influence (Fig. 1:1).

This study aims to model socio-economic systems before and during this expansion, using information from surface archaeological survey and documents relevant to ethnohistory of the landscape around Limatambo, about 50 km from Cusco. It also aims to evaluate explanations of prehistoric social and economic change. Emphasis is placed upon establishing the likely material correlates of ethnohistorically documented phenomena, primarily because this permits their examination through longer timescales [Trigger 1978:155]. The setting is


FIG. 1:1 Tawantinsuyu Boundary and Major Sites/Places Mentioned in the Text. 1. Cusco, 2. Hatun Qolla, 3. Cochabamba, 4. Colca Valley, 5. Chincha Valley, 6. Chillon Valley, 7. Hatun Xauxa, 8. Huanuco Pampa, 9. Chan Chan, 10. Cajamarca, 11. Cuenca (Tomebamba), 12. Quito.

proposed as among the first to have experienced Cusco's territorial expansion and to be especially appropriate for examining how the instruments of that expansion were initially applied and evolved.

*Inca social organization* is the analytical fundament in structural ethnohistoric studies of Cusco and its immediately surrounding territory [Zuidema 1964, Sherbondy 1977, Poole 1984:1-24,85-98]. Such models depict *bureaucracy* and *politics* in social terms and reconstruct conceptual systems which integrate social organization and space. They analyse the structure of *myth-history* in chronicles (early Colonial written accounts) and illustrate its inadequacy as the fountain of answers for dynamic narratives of prehistoric events, but formulate its viability for reconstruction of ethnocentric contexts within which the late archaeological record was formed.

Chroniclers recorded their observations alongside myth-history. Accounts of origin were generally regarded as fabulous, but most accepted the presentation of pre-Inca populations as *uncivilized*, disaggregated and in constant conflict. Life stories of *early* rulers were partially accepted, along with the military success, building works and *new ritual and administrative order* imposed by Pachacuti Inca, Topa Inca and Huayna Capac, and the subsequent conflict between Huascar and Atawallpa [Cieza (ca. 1550) 1985:Chs.4-8,31-74; Betanzos (1551) 1880:Chs.1-18; Santillan (1563) 1968:377-383; Polo (1571) 1916:49,51-60; Sarmiento (1572) 1943:Chs.6-69; Collapiña et. al. (?1542-1608):22-43; Santacruz (ca. 1613) 1927:131,192]. Selected elements of such narrative are echoed in some diachronic syntheses, although the sources are less amenable to internal assessment than oral tradition [Vansina 1965:xi,3] and are open to

interpretations which diminish their utility as records of events in linear time [Zuidema 1964:11-14; Wedin 1966; Duviols 1979].

Ethnohistorico-archaeological studies of *Tawantinsuyu* primarily examine the interaction of *Inca state organization* and *provincial* cultural complexes. They emphasize the Inca state's political and economic impact upon resilient and varied regional polities with solidly founded economic bases [Murra 1982:257]. Their setting is distant from the region of Inca social formation and this sharpens the focus upon the mechanisms of state expansion. An apparently rapid construction and abandonment of provincial installations also facilitates *activity-pattern* studies. *Actors* in such syntheses are state officials or dependent institutions, local elite and producers at the levels of *community* (*ayllu*), chiefdom (*curacazgo, cacicazgo* and *señorío*) or *ethnic group* (*etnía*). The composition and territories attributed to such groups by early Colonial documents cannot be assumed as static over long prehistoric timescales, nor can their form in Colonial times be seen as the simple reversion to a pre-Inca identity [Pease 1982:174-176; 189-190].

In *Tawantinsuyu studies*, chronicles are used to formulate general questions rather than resolve specific ones, but archaeological data are often combined with early Colonial administrative documentation, interpreted in the light of anthropological models of *Andean* socio-economic systems, to portray Inca-local relations [Murra and Morris 1976:271]. Administrative records provide more uniform quantitative information in a clearer spatial setting than chronicles and the testimonies are closer to individual memories. Nevertheless, they still lack temporal immediacy to remoter events and the detailed landscape context of the archaeological record.

## 1.2 Politico-economic Mechanisms of Inca Provincial Statecraft.

The control over human energy and resources, which satisfied Inca social or state demands, is generally characterized as a product of the power to effectively threaten warfare, combined with political, economic and ideological techniques to achieve consensus or alliance [Godelier 1977:69; Schaedel 1978:289]. Spanish officials, who sought testimony about local contributions to the Inca state, preferred to record statements of *tribute in kind*. However, early Colonial administrative documents indicate that the prehispanic expression of tribute was in labour units over time and that rotating labour obligations (*mit'a*) were the principal source of energy for creation of state wealth [Murra 1982:245-246, 257].

Under the state administrative *ideal*, land for state fieldcrops, wool for state weavers and other resources, was *vested* in the state beneficiary institution [Moore 1958:49-50; Murra 1962b:715, 1965:203-5, 208-9; Salomon 1986a:170]. In fictional reciprocity for *mit'a* the state disbursed rights to local communities to work their subsistence lands [Murra 1965:203-204]. Tribute obtained by hunting and gathering could be framed as labour-tribute by deeming resources, such as wild birds, to have been vested in the state [Moore 1958:46-47]. This system may be seen as served by the continuance of self-sufficient labour forces and hence, the continuity of their subsistence bases.

Storage of produce from the hinterland of state installations was a foundation of the Inca state's ability to expand. Morris' research on Huanuco Pampa and ethnohistoric data from Tawantinsuyu suggest that storage capacity for state purposes was much greater than that at local level, that provincial

storage was primarily of subsistence goods or special goods for processing at provincial Inca installations and that ritual or luxury items, such as cloth and feathers, were those most likely to be moved over long distances to other centres or Cusco [1967:170, 1982:168-169, 1986:63-66]. Hence, the Cusco region is seen as the main producer of its own subsistence requirements, with the exception of some special foods such as maize, a product of enormous ritual import [Murra 1960]. However, the archaeology of storehouses in the Cusco region has yet to receive comparably detailed attention. High concentrations of Inca jars and culinary pottery in large buildings at Huanuco Pampa may represent the role of ritual generosity in Inca *administrative* relations with local elite [Morris 1982:163-167]. The flow of state stores to local chiefs is apparent in early documentation from diverse regions of Tawantinsuyu [Morris 1986:65; Salomon 1986a:170].

Stores were used to feed, reward and bolster the prestige of military forces and allied local elite and their value could be augmented by transfer to places where they were most esteemed [Murra 1962:717-721; Morris 1986:65]. The construction and maintenance of an extensive road network, and attendant facilities, provided the communications infrastructure for economic, political and military aspects of administration in Tawantinsuyu [Hyslop 1984]. The creation of new wealth by full-time artisans, characteristic of state-level organizations [Peebles and Kus 1977:432], apparently grew as a means to reinforce social stratification and politico-religious institutions [Earle 1987:67-75]. Such production is evidenced in parts of Huanuco Pampa by abundant spindle whorls for textile manufacture [Morris 1974:53].

Local production and interzonal exchange of subsistence products, below the level of provincial state control, probably obviated large *market centres* in most of Tawantinsuyu, although exchanges among large crowds in Cusco city may have been enacted as part of state ritual [Murra 1978:198-210]. Local-level exchange is unlikely to have homogenized diets in settlements within distinct production environments, as indicated by archaeobotanical research in the Mantaro region [Earle 1987:67]. At the northern frontier of Inca expansion, marketplaces appear to have been abundant in late prehistory [Salomon 1986a:97-102]. Morris has raised the possibility *'that in the Cusco area, where the imprint of the state was all pervasive and local units were of less functional importance, the exchange of subsistence goods was in fact controlled by the Inca elite'* [1986:65].

One qualitative indicator of economic control by Cusco is documentary evidence of groups which were dependent upon state stores for subsistence. However, a fuller comparison of Inca presence in Tawantinsuyu and Cusco rural landscapes requires quantitative information on the proportions of labour and production zones placed under state control. This can be framed as a question of imperial expansion [eg. D'Altroy 1981:1-10] or intra-societal differentiation. However, Murra [1962a; 1966:39-40; 1970:11-12, 17; 1979:285] has emphasized the importance of attaching physical evidence to documentary images, especially the quantitative aspects of land tenure in late prehistory. Use of detailed 16th Century administrative sources alone has not enabled this determination [Murra 1982:257].

The questions posed by Murra and Morris demand interregional comparisons and a landscape approach which provides data on the distribution and area of

late prehistoric settlements and land-use patterns. In a highly varied environment, such as Limatambo, the distribution of state installations may be a measure of its ability to regulate production and movement of goods. However, both ethnohistoric and archaeological data illustrate a variety of modes and degrees of *Inca presence*.

## 1.3 Provincial Settlement Policy.

### 1.3.1 The Lake Titicaca Basin:

In the Titicaca Basin, Hatunqolla served as the major Inca administrative centre of the Qollasuyu region, but archaeological evidence does not support its documentary description as previous capital of the *Qolla* ethnic polity [Julien 1978:82-95, 214-217]. Copacabana, on the shore of Lake Titicaca, received *mitmaqkuna* (transplanted groups) from Cusco and surrounding areas (*Chankas, Quichuas, Chumbivilcas, Paprechilques, Canchis* and *Canas*) [Julien 1978:50-55]. Chucuito was historically cited as the chief settlement of the *Lupaqa* polity. However, Hyslop [1976:224-233, 1977] found that it and other principal Lupaqa settlements were established after Inca domination and suggests that elaborate burial structures, which combine local-style features and Inca-style masonry, may represent state reinforcement of the local elite [1976:224-233, 1977]. Information from a late-prehistoric *khipu* (knotted-string record), read into the Spanish records of the Lupaqa territory in 1567, indicated that 153 households were *mitmaqkuna* from Chinchaysuyu (northern Tawantinsuyu) and 20 were from Canas, south of Cusco [Murra 1975:195].

Valleys between the Lake Titicaca *altiplano* and the Amazonian lowlands contain evidence of Inca influenced settlements and extensive agricultural terraces, some with projecting stone steps [Thompson 1968:114], a common feature in those near Cusco.

1.3.2 The Southern Andes:

Southern Andean Inca installations were markedly concentrated in areas with a special abundance of mineral resources, particularly gold, silver, copper, lead, tin and semi-precious stones, and are comparatively rare in direct association with cultivable lands [Raffino 1981:261-262]. Agricultural terraces of pre-Inca date are known in the region [Hyslop 1976:87] but none are reported to have elaborate Inca-style masonry. Five schemes in Chile and Argentina have some constructional similarities, including a few with *inset water drops* which are also common near Cusco [Field 1966:472, 482-483]. The warm Cochabamba Valley of Bolivia was a special case in Inca control of agricultural production. Large numbers of Inca-placed *mitmaqkuna* and *mit'a* labourers apparently displaced its population [Wachtel 1982]. In contrast, some lowland (*yunga*) peoples on the eastern side of Lake Titicaca were not resettled and were probably favoured by the grant of access to certain resource zones [Saignes 1986:317]. Massive state storage facilities were constructed at Cochabamba, presumably for agricultural products, and one of the largest Inca buildings in existence is located nearby, at Inkallaqta [Hyslop 1984:139; Gasparini and Margolies 1980:199, 208]. Documents indicate that the Cochabamba Valley was divided into areas which were worked by labour forces drawn from high altiplano groups and the main product may have been maize to support the Inca army in its southern conquest [Murra 1986, Wachtel 1982].

### 1.3.3 South Coast of Peru:

Southern coastal Peru contains a number of probable state *administrative* sites. Menzel [1959:128] demonstrated that the main Inca installation in the Chincha Valley was attached to an existing monumental centre (La Centinela) whereas Tambo Colorado and Lima La Vieja, in the middle and lower reaches of the Pisco Valley, were placed beyond previous centres and Huaitará lay on the upper-valley route to Cusco. She proposed that an existing power structure was reused by the Inca in Chincha, but that decentralized Inca control was applied to Pisco in the absence of prior political unity; Inca occupation in the Nasca, Acarí and Yauca Valleys was similar to Pisco and in Ica the pattern resembles that of Chincha [1959:128-129]. Colonial Chincha was known for its gold and silver mines and metalsmiths [Menzel and Rowe 1966:68]. Continuity of existing power structures did not preclude *mitmaqkuna* extractions, since silversmiths from Chincha, Ica and the central and northern coasts were sent to Cusco in late prehistory [Rostworowski 1977:92, 1988:112].

Inkawasi in the Cañete Valley, a site of storage facilities, elite and non-elite residences and probably an Inca garrison of conquest against the Guarco coastal polity, was located above the most densely populated lower-valley agricultural lands and near an important river crossing [Hyslop 1985]. Defeat of Guarco paved the way for large placements of *mitmaqkuna* from the neighbouring Coayllo and Chincha valleys as well as Chimu territory. Documentary sources indicate that some were rivals of Guarco and that such placement could have been a reward, in symbol if not wealth, to groups which assisted the Inca and previously had an interest in Guarco resources [Rostworowski 1988:109].

Several Inca structures were built on unoccupied promontories beside the ocean in Guarco territory and even elaborate Inca-style masonry is present, although Inca pottery is scarce by comparison to that at La Centinela and Chincha [Marcus 1987:94-105].

1.3.4 South-Central Peruvian Highlands:

Late prehistoric terraces in the Colca Valley of Arequipa generally lack the elaborate masonry found in terraces of the Vilcanota Valley near Cusco [Denevan 1987:21]. However, others have channels built into the stone walls [Guillét 1987:199] and lower levels of terraces near Corporaque have end-walls, an orderliness of layout and lack of otherwise abundant Middle Horizon pottery, all of which are consistent with an Inca period date for their construction [Malpass 1987:57-58].

Vilcashuaman, on the Cusco-Huanuco road, reputedly contained 700 storage structures for maize [Cieza 1984 (1553):252], but only the *ushnu* and elaborate masonry are now preserved and the storage and non-elite residential sector is probably beneath a present-day town [González Carré et.al. 1981]. *Ushnu* is shorthand for a platform or pyramid in an open plaza, but ethnohistoric research notes an association with elaborate steps or staircases, low placement and functions including *sacrificial altar* and *font* [Zuidema 1980]. Inca occupation in the small Carahuarazo Valley of southern Ayacucho was probably an extractive imposition on a local population nucleated on the maize/potato production ecotone, since Inca evidence comprises small storage establishments (91 structures), a road and associated building of elaborate masonry, one other Inca building and a possible *mitmaq* village [Schreiber 1987:277].

1.3.5 Central Coast of Peru:

Central Peruvian coastal valleys, Huaura, Chancay, Chillón, Rimac and Lurin, and their adjacent higher slope regions of Yauyos, Canta and Huarochirí, feature in detailed ethnohistoric research. A *visita* of 1553 indicates that dispersed small plots were dedicated to state purposes, direct control was taken of gold and silver mining, and the *curaca* (local leader) gave the Inca fifty men for the army, a hundred as carriers and ten *yanacona* (special servants) [Rostworowski 1978:177-179]. The Chaclla group, from Yauyos, were placed by the Inca as unwelcome *mitmaqkuna* in coastal coca fields pertaining to the Canta polity, but the *curaca* of Huaura placed *mitmaqkuna* in the Chancay Valley to provide seafood to the Inca, reflecting a local political hierarchy in which Chancay leaders paid tribute to Huaura [Rostworowski 1978:127, 174-175]. Chaclla *mitmaq* were also placed in coca fields of Collique *curacazgo* in the Chillon Valley, and an Inca appointee placed as leader, probably policies encouraged by Collique resistance to state control [Rostworowski 1977:33-35]. Colonial documents suggest that accusations of conspiracy and subsequent massacres by the Inca were used to obtain some coca lands for *mitmaqkuna* emplacements [Rostworowski 1977:92].

Partial archaeological survey of the Chillon Valley revealed little evidence of Inca control at most late prehistoric sites [Dillehay 1977]. Two lower valley sites were probably administrative and one of them, Collique, overlies a previous centre. Major storage capacity was situated near coca growing lands in the middle valley, at Huancayo Alto, and small Inca settlements and local settlements with Inca ceramic and architectural influences were more common in upper-valley locations, on the route to highland Inca centres. Inca

domination of the middle and upper valley provided control of irrigation water essential for cultivation below and may have given strategic advantages over the densely populated lower valley [Dillehay 1977:402-404].

1.3.6 North Coast of Peru:

In northern coastal Peru, Inca relations with the Chimu kingdom are tenuously represented in the archaeological record [Rowe 1948:45]. Chimu pottery continued in use during the Inca period in the Casma Valley, and most sites with Inca pottery appear to be cases of continued occupation [Thompson 1964]. At Chiquitoy Viejo, in the Chicama Valley, Inca related pottery was most abundant near elaborate architecture, and Chimu pottery near *retainer living areas*, suggesting it was an Inca facility [Conrad 1977:14-15]. However, Chimu architecture and overall paucity of Inca pottery at the site leaves it open to interpretation as the centre of low-order Chimu nobility, loyal to the Inca state [Netherly 1977:325].

Documentary and archaeological research confirms that Inca presence was not strongly manifested at Chan Chan, the Chimu capital, but four places were of special concern [Netherly 1977:310-328, 1988:274]: Firstly, documentary data suggest a direct interest in coca producing lands, possibly the former lands of Chimu nobility since local groups did not reclaim them immediately after Spanish conquest. Secondly, Chimu blackware pottery at graves near the sea features Inca stylistic traits, consistent with references to Inca control of nearby lands. Thirdly, Inca pottery concentrations around the largest Moche Period temple, Huaca del Sol, indicate a parallel with the special treatment given by the Inca to the central coastal shrine at Pachacamac, probably

reflecting state incorporation of powerful belief systems. Finally, centres of overt Inca architecture, such as Ñanchoc, secured a route to Cajamarca in the highlands.

1.3.7 The Central Peruvian Highlands:

The Inca installation at Huanuco Pampa covered almost 2 sq.km on a broad valleyside ledge. It comprised about 497 storage structures, a sector of elaborate Cusco Inca masonry, long rectangular buildings (*kallanka*) around a plaza with a central platform (*ushnu*) as well as about 4000 surrounding structures arranged around courtyards, possibly for *mit'a* labourers [Morris and Thompson 1970, Morris 1971, Thompson 1972, Murra and Morris 1976, Morris and Thompson 1985]. There had been no previous major settlement at this location [Thompson 1968:113-114].

*Visitas* in 1549 and 1562 found that local Yacha, Wamali and Chupachu peoples were accompanied by *mitmaqkuna* overseers, some from the vicinity of Cusco [Murra 1962a]. Archaeological survey by Thompson [1968:108-112, 1972] identified *imperial* Inca sites on the basis of architecture, layout and association with the Inca road and pottery style. Other settlements were of local groups whose territory was approximately ascertained by collection of toponymic survivals. *Mitmaq* settlements were problematic.

Local Huanuco settlements were mostly on ridges, for defence or to conserve crop land, and their architecture (circular and rounded-rectangular dwellings) was unchanged by Inca presence. Cusco Inca pottery was rare, except in large and elaborate residences, but some Inca vessel forms were made in

local pastes [Thompson 1967, 1968:115-119]. Only one or two *mitmaq* settlements were identified and several factors affecting their visibility were raised: *Mitmaqkuna* may have occupied pre-existing villages or have obtained local pottery rather than produce material which could reflect their cultural origin, or their settlements may have been dispersed near to fields or the valley floor, rather than nucleated on crests and ridges [Thompson 1968:111].

Central highland Inca administrative centres, like Huanuco Pampa, appear to have been the economic, political and military anchors of Inca expansion. Coastal control was firmly based on upper-valley installations and maintenance of routes to highland centres. Three large centres lie northward on the main highland road, at Pumpu, Tarma and Hatun Xauxa. Pumpu has a large plaza, central *ushnu*, non-elite residential sector and contains 325 storage structures with 62% of Huanuco's storage capacity [LeVine 1985:182-203]. Smaller roadside storage or lodging installations (*tampu*) occur in the vicinity of Huanuco at Tunsucancha and Taparaku and near Pumpu at La Cima and Telarnioj, 1.0 and 2.4 ha respectively [Thompson 1968:114, Morris 1967:51-54, 1982:157; Le Vine 1985:236-244].

Hatun Xauxa is further south, in the Mantaro Valley. It contains 1069 state storage structures and a further 883 lie within 17 km [LeVine 1985:317-320]. No evidence of weaving compounds or large non-elite residential areas is reported, but Inca pottery was common at many local settlements in the Yanamarca and main Mantaro Valleys, and state-style storage complexes were dispersed over 52 sites, some even on the periphery of local Wanka villages [D'Altroy 1981:209-241, 255-259; D'Altroy and Hastorf 1984:Fig.1]. Most local dwellings were circular, but an association between structures with squared

corners and Inca pottery suggests Inca influence on local architecture [LeBlanc 1981:78-79]. Late prehistoric agricultural practices are represented by drained lacustrine basin fields, canals, ridged fields at high altitude, earth banked lynchet fields and stone-walled terraces on slope contours, but none are reported to have elaborate Inca masonry or architectural embellishments [Hastorf 1983:139-166]. Inca arrival in the Upper Mantaro does not correlate with any increase in population size, as measured by site area, despite historic evidence for placement of Yauyos, Cañari, Llaguas and Chachapoyas *mitmaqkuna*. However, local-level settlement patterns became less nucleated and there was apparently some movement towards valley-floor maize-producing areas in this period [Earle et.al. 1980:35-43].

1.3.8 Northern Peruvian Highlands and Northeastern Slopes:

Inca control of the Cajamarca-Huamachuco region appears to have been achieved by governorship over existing leadership systems, placement of *mitmaqkuna* from the Cusco region and the construction of a major centre in the vicinity of present Cajamarca city, another beneath modern Huamachuco and numerous *tampu* [Hyslop 1984:56-67, Ravines 1985:71]. Small Inca sites have been reported in Chachapoyas Province to the east, well placed for control of jungle products and coca, as well as Inca pottery in large domestic structures at local village level [Schjellerup 1984]. The 1549 *visita* of Huanuco recorded that the state placed 400 Chupaychu Indians as *guards* in Chachapoyas and Quito [Murra 1982:241]. Chachapoyas received Quechua speaking *mitmaqkuna* but its people also were subject to placement in Cañar territory and other parts of Tawantinsuyu, probably because of a continued opposition to Inca control which

culminated in their assistance to the Spanish conquerors [Murra 1982:181-183, 1979-80:301].

1.3.9 The Far North:

*Tomebamba* and *Quito* were major Inca centres mentioned by chronicles in far northern Tawantinsuyu, now Ecuador. Uhle's research [1969:82, 88-91] of 1923 revealed several small sites of Inca rectangular architecture near modern Cuenca. He identified it as the site of Tomebamba, based on toponymy, thousands of shaped stones reused in part of the city and excavations of Inca building foundations and terraces. Large outward-facing trapezoidal niches, like those known at Inca sites in Cusco, Ayacucho and Huancavelica Departments, are reported in Cuenca, but nearby sites are small, probably staging points or *tambos* along the Inca road [Hyslop 1984:28-34].

The highland Inca road from Tomebamba to Quito passed through Ingapirca [Hyslop 1984:32], a site of elaborate Inca masonry and both Inca and Cañar structures at 3150 m near Cañar city [Rivera 1973, Gasparini and Margolies 1980:289-300]. Occasional Inca sherds, among local Cashaloma pottery at the site, are significant amidst regional rarity of Cusco Inca or mixed Inca-Cañari wares [Rivera 1973:236]. It was a former centre of Cashaloma settlement and burial and it has been proposed that the central platform, of elaborate Inca masonry, was placed on a Cañar shrine, perhaps the outcrop upon which it was erected [Alcina 1978].

Thousands of Cañari *mitmaqkuna* were placed in Cusco, retained traditional forms of dress, and provided special armed service to the Inca ruler and to the

Spaniards following the conquest, along with Chachapoya, Quito and Cayambe Indians from the far north [Oberem and Hartmann 1979]. Testimonies of 1574 stated that 10 Cañaris who fought for Atawallpa against Huascar came as soldiers to Cusco and decided to remain with extant Cañari *mitmaqkuna* in the Yucay Valley [Villanueva 1970a:111-114, 125]. *Cusco mitmaqkuna* were placed at Cojitambo, between Tomebamba and Hatun Cañar (Ingapirca) [Hyslop 1984:26].

Quito lay beside the northern Inca frontier at Spanish conquest and is important to study of the mechanisms of Inca-local interaction [Salomon 1986b:89]. Nevertheless, the area was not significantly influenced by pre-Inca state-like polities and is therefore distinct from much of central Tawantinsuyu. 16th Century chronicles described Quito as the site of major Inca lodgings and this is supported by references to Inca buildings in city council books between 1534 and 1537 and Inca pottery which occurs at several sites in and around the city [Salomon 1986a:147-148]. Cayambe *mitmaqkuna* were placed in Huanuco, and Caranqui and Pasto people from Quito went to Lake Titicaca, whereas *mitmaqkuna* entered Quito from surrounding Uyumbicho, Cañari, Chachapoya and Otavalo territories, but at least one emplacement included Wankas and Yauyos [Salomon 1986a:158-167].

Northern frontier hill-top forts (*pucará*) in Otavalo have a spartan appearance and material culture. Surface collections at 13 of 37 identified Otavalo *pucará* found scarce Inca pottery in 3 sites, but stone projectiles and other arms are well recorded [Schuller 1976:86-88, 106-107]. Most are on hills with modified breaks of slope or ring-ditches, but no elaborate Inca architecture is reported in them and only one contains substantial evidence of settlement.

## 1.4 Inca Acquisition of Labour and Land.

### 1.4.1 Vertical Economy, *Mitmaqkuna* and Territorial Power:

Agricultural *mitmaqkuna* placed by the Inca amidst former rivals, or on lands previously worked by other groups, relied upon state power for security, but appear to have remained subject to general *mit'a* and provided their own subsistence [Murra 1978:248]. Murra [1972, 1985a] posited that the economic ideal of late prehistoric Andean societies, below state level, was to obtain control of resources in a maximum range of vertically differentiated ecozones, particularly by means of permanent, but not necessarily contiguous, land holding settlements. Similar concerns are reported in European Alpine and Himalayan peasant economies, although the mechanisms employed include extended exchange networks and cyclical transhumant migration [Brush 1976a:127-128].

Political implications of the verticality model were based upon ethnohistoric records of distances over which more powerful polities obtained direct access to resources. A mid-altitude nucleus of village settlement in the Huallaga-Marañon basin used colonies within a few days walk to retain fields of coca, cotton, peanut, chili and sweet potato below, and pastures and salt mines above. The Lupaqa population, centred on the rich Titicaca basin, maintained large colonies over 10 days walk away, in eastern jungles for coca production, and on the southwestern coast for cotton, maize and marine products [Murra 1972:430-443].

Inca *mitmaqkuna* may be seen as the vast extension of a pattern recognizable at village level in 16th Century documentation. The elaboration of

political arrangements between distinct settlement nuclei to establish rights over distant resources, and of the power and mobility to enforce them, can be posited as dynamic processes which accompanied the method of territorial *on-site resource control* which probably emerged prior to Inca expansion. Ethnohistoric data suggest that sub-state colonists were still counted in the census of their original nuclear settlement, and provided goods to their nuclear sponsor into the Colonial period [Pease 1982:177-179]. However, the large distances over which Inca *mitmaqkuna* were moved, according to Murra [1985b], accentuated the difficulty of maintaining their kinship ties or land claims, and thus produced some groups with greater dependence upon state sponsorship.

The formation of this socio-economic pattern is part of the prehistory of the Inca state, although its timescale transcends that of the archaeological markers of the contact state. Onuki [1985:346] proposes that around 3500 BP highland Andean puna economies, based on camelids and highland crops, were separated from low valley maize-manioc subsistence complexes and that large-scale vertical-control systems emerged later, accompanied by a shift of population to the mid-altitude quechua zone. Major Wari occupation in the Carahuarazo Valley (AD 600-800) appears to have been accompanied by agricultural terracing and a shift of large settlements from the potato/pasture production ecotone to the potato/maize ecotone [Schreiber 1987:271, 276-281]. Settlement-pattern information is insufficient for early time periods in most highland areas, including the Cusco region, but growing numbers of Late Intermediate Period site surveys enable comparison of Inca and late prehistoric settlement and land-use patterns.

The emergence of *mitmaq*-style colonization or settlement would, at first, seem readily examinable in the material record [Trigger 1978:158], but attempts have met difficulties. Their archaeological identification was even problematic for the Late Horizon in Huanuco, where documentary data was available to narrow down the likely locations. What archaeological evidence distinguishes the permanent agricultural colonies of highland centres from settlements tied by trade or exchange systems?

Long exchange networks and expert trading communities have been posited as the practicable means of access to extra-regional goods for the relatively flat Bolivian altiplano, a mode of economic integration which may have supported the 400 ha urban centre of Tiwanaku as a locus of craft specialization (AD 300-900) and which gave way to *vertical control* as Tiwanaku trading influence diminished (AD 900 and AD 1250) [Browman 1984]. Mujica [1985:112-114] argues that certain Tiwanaku coastal settlements with cemeteries, large amounts of altiplano pottery and goods which were not special exchange items, represent permanent agricultural colonies.

This model requires that *luxury exchange goods* be distinguished from *domestic cultural baggage*. *Mitmaqkuna* placed by the Inca were rarely from the *sponsoring* nuclear centre, Cusco, and the analogy between local-level and Inca concepts of transplantation is strained insofar as external coercion or state largesse were employed to achieve it. Hence, it is probable that the cultural markers of permanent Inca *mitmaq* settlements would include both those of the Inca state and the settlers' place of origin. Schreiber [1987:277] identified a Carahuarazo Valley settlement of local late prehistoric architecture as a

village bearing the ethnic name *Wanka* in a 1540 source and notes the presence of local, Cusco Inca and otherwise unknown pottery styles.

1.4.2 Inca Dependent Peoples:

Certain groups had far greater dependence upon the Inca state than *mitmaqkuna* at European contact. The Cusco elite, members of royal lineages, had no *mit'a* labour obligations [Espinoza 1977]. People dependent on the state or Inca private estates for provision of subsistence included groups of *yanacona* (personal servants), *acllacona* (chosen women), some artesans and special guards, although armies were mostly under *mit'a* obligations [Murra 1978:215, 1986:54; Oberem and Hartmann 1979:376-377].

In a carefully ordered reply to the 1549 Spanish enquiry about Chupaychu labour obligations to the Inca, Indians for military service in Chachapoya and Quito were listed amidst groups of *mit'a*-exempt servants, the *yana* of Guayna Capac, *yana* to guard the body of Tupa Inca Yupanqui (deceased), *yana* to guard Tupa's weapons, and indians to guard the body of Huayna Capac after his death [Murra 1982:241].

The term *yanacona*, used to designate labour assignees in early Huanuco and Canta *visitas*, is always related to services to be rendered a dead or live Inca ruler, and almost certainly implied relief from general *mit'a* obligations [Murra 1978:242,245; 1982]. Many remained free of taxation after the Spanish conquest. Toledo extended the exaction of tribute in the 1570's and this affected 429 *yanaconas* and *vacant* Indians from Yucay, as well as 1404 *yanaconas* and 1494 other Cusco people who were previously exempted [Toledo 1975:210-212]. The

Chupaychu *yanacona* were among the smaller groups listed in 1549, comprising 330 out of 4108 tributary units, in two groups of 150 persons, one of 20 and one of 10, and only twenty *yanacona* were required according to the Canta document [op.cit.; Julien 1982:138]. These low figures may reflect the permanency of *yanacona* placements in contrast to the transient and recurrent nature of large *mit'a* assignments.

Claims were made in 1552, by persons alleging the status of *legitimate grandchildren of Tupa Inca*, for small groups of between 2 and 30 *yanacona* attached to lands in the Cusco, Urubamba, Paucartambo and Anta Valleys, giving a total of 240 persons in 19 named places [Rostworowski 1962:154]. The term *grandchild* could represent descent from a common *huaca* (sacred site), or a common lineage, rather than a precise degree of removal from an actual ancestor [Zuidema 1964:73, 162]. The claimants stated later that they were descendants of both Tupa Inca and his son, Huayna Capac, in a possible concession to the need to establish linear male succession in Spanish land law [Rostworowski 1962:159]. Unfortunately, the term *yanacona* was used in Colonial times to generically describe tribute-free servants and came to incorporate many people dislocated from their communities [Murra 1978:240-241,247; Glave and Remy 1983:7-9]. The identification of Inca institutions and their reflections in early Colonial documents is as dependent upon contextual factors as it is on the terminology used.

*Yanacona* were not intrinsically of low status. Rowe found that the 16th Century usage of *criado*, to translate the designation, connotated the meaning *son* or *disciple* as well as *servant* in late medieval Spanish [1982:98-101]. Agricultural *yanacona* of Atawallpa in Quito are reported to have included his

relatives and local leaders [Salomon 1986a:171]. There is nevertheless a striking difference between the large *ayllu* groups named *yanacona* in administrative surveys following the Toledan extension of tax burdens in the 1570's, and the small groups of *yanacona* with specialized service functions which appear in lists derived from prehispanic labour-assignment records and in land litigation.

According to less specific sources, Inca *yanacona* were granted to Cusco and provincial shrines, such as 500 placed with 200 *aclla* in service of lands of the Cusco sun temple, 2000 granted by Tupa Inca to a Titicaca Island pilgrimage centre, several hundred granted to the Pachacamac temple on the coast and 50 granted to Pariacaca, divinity of Huarochiri [Murra 1978:239-240, 254]. They were also the major source of labour on the lands of Inca rulers, both living, and deceased, as represented by their lineages (*panaqas* or royal *ayllus*) and the cult of their mummified corpse [Cieza (ca.1550) 1985:52; Rostworowski 1988:224-226]. Documentary sources indicate that *yanacona* status could be inherited. In an interesting case, cited by Rowe [1982:100], service was firstly given by a *yanacona* to a brother of Tupa Inca, and then by the *yanacona* and his son to Huayna Capac.

*Mitmaq* and *yana* designations were not mutually exclusive and the distinction is particularly difficult to make in usages of the terms in documents on the Yucay Valley. Viceroy Toledo had advised the Lima *Audiencia*, to help them adjudge a property claim by Doña Beatriz, a descendant of Huayna Capac, saying that the *Yucay Valley* was a retreat of Huayna Capac and that both its *naturales* (*natives*) and *mitmaqkuna* were *yanaconas* of the Inca, for the benefit of his fields and other tasks [Villanueva 1970a:94]. Wachtel [1982:219-

221] concludes that *mitmaqkuna* translated to the Cusco region often worked on private rather than state lands as was usual in the provinces, and were thus *yanacona* under ties of personal dependence. The fact that *mitmaq* placed on lands for state purposes in Cochabamba and Abancay left for home after Spanish conquest, or became the object of disputed rights between their homeland chiefs and Spanish *encomenderos* in their place of resettlement, suggests that some retained ties with their ancestral lands, and contrasts with those in the Yucay Valley who mostly remained in place [Wachtel 1982:200-201, 220-221; Espinoza 1973:251-252].

*Acclacuna, mamaconas* or *Intiwarmi* (chosen women or women of the sun) included daughters of the elite, their brothers and sisters in Cusco and the provinces. They were renowned for production of cloth and maize beer for soldiers and labourers on lands of the Inca and sun [Cieza (ca.1550) 1985:80-81; Santillan (1563) 1968:396; Pizarro (1571) 1978:94-95]. Some *mamaconas* became wives of provincial chiefs and relatives of the Inca ruler, military leaders, *yanacona* of the sun, or secondary wives of the ruler [Polo 1917:83; Zuidema 1964:224-225; Murra 1978:244-245; Rostworowski 1988:227]. Their subsistence was provided from the stores of various state institutions which they served [Santillan 1968:396; Pizarro 1978:94-95; Garcilaso Bk.4, Ch. iv, 1960:13, 18]. At European contact, *accla* of the sun in Cusco occupied the Atunkancha compound near residences of sun cult officials [Estete (1535) 1938:390-391; Pizarro 1978:92-94] and may have numbered several thousand in the city [Murra 1978:244]. Some, like *yanaconas*, served the cult of a deceased ruler [Pizarro 1978:94] and their hierarchical grouping appears to have resembled that used in documentary references to *yanaconas* [Zuidema 1964:225].

1.4.3 Land of Inca Institutions:

Butzer [1982:313-314] provides the analytical metaphor of society as an ecosystem and questions the degree to which state bureaucracies were *top-heavy* in comparison to producers and thus prone to destabilising forces. Such analysis depends upon measurement of prehistoric trends in the relative distribution of wealth, primarily land. This problem parallels that of identifying the archaeological correlates of state-like characteristics, such as growth of hereditary inequality, strong territoriality, coercive law and hierarchical administration [Service 1975:66, 74-90, 101-102].

A structure of late-prehistoric land tenure is suggested by early Colonial accounts. According to Polo de Ondegardo [(1571) 1917:50-60], a tripartite scheme was used by the Inca for division of land and animals following incorporation of a province. Certain lands were dedicated to the state sun cult, or other state and local shrines, and varied in amount from place to place. A second part went to fill *Inca* stores, although the amount destined for Cusco varied according to regional requirements to feed field workers, armies and nobility on travels in Tawantinsuyu. The third part was cultivated by communities for their own subsistence. Some stores continued to be filled after conquest, according to the old sun-state land division [Polo de Ondegardo 1917:68-69]. Hernando de Santillan, a lawyer who sought elderly Indian informants [(1563) 1968:377,386,404], presented the tripartite scheme and noted that old people remembered which fields were previously dedicated to the Inca and the sun despite subsequent land grants to Spaniards. Pedro Sarmiento [(1572) 1943:17, 230-231], who reached Peru in about 1557, gave an alternative perspective on the issue when recounting a legend that Tupa Inca divided the

year's work into three months for personal fields and the rest for fields of the sun, *huacas* and Inca.

The tripartite land-tenure model is an ideal or abstraction which may reflect a mixture of Inca and Spanish logic. Other forms of land tenure can be extracted from documentary sources which contain the relevant information on particular lands, who took control of their harvest, who worked upon them and the succession of beneficiaries. Burkheimer [1985:73-74] contrasts five principal tenurial patterns in Inca Cusco by reference to beneficiaries. These are the state, cult (*sun* or *huaca*), *ayllu*, service group (*mitmaq* or *yana*) and nobility. Other sub-state tenurial arrangements remain additional to these [Murra 1979:274].

*Inca* lands included tracts pertaining to *royal beneficiaries*, primarily lineages (royal *ayllus* and *panaqas*), rulers, their wives and close relatives [Rostworowski 1962; Villanueva 1970a]. These are distinguished from state land by their continued designation as property of a named person, following decease, as well as by their agricultural *yanacona* workforce [Rostworowski 1964:33-34]. They were poorly described in chroniclers' accounts of Inca land distribution, but are indicated by references to estates and houses for enjoyment or in memory of named rulers in and around Cusco, and appear in specific documents on early Colonial land tenure. Such sources indicate that lands were dedicated to the personage Viracocha in Caquia Jaquijaguana and Paucartica, Pachacuti in Tambo (usually meaning Ollantaytambo) and Pisaq, Tupa Inca in Chinchero, Guaillabamba and Urcos, Huayna Capac at Quispi Guanca near Yucay and Huascar at Calca and Muyna [Sarmiento (1572) 1943:162,164,179-80,234; Uriel García 1959:146; Rostworowski 1964:32;].

Following Flannery's invitation to integrate culture ecology and humanism in approaches to *complex societies* [1972:399], and the reassertion of *cultural factors* and 'ideology' in systemic or multi-causal models of social evolution, Conrad and Demarest [1984] recently posited ideology as a principal driving force of Inca state formation, expansion and destruction. They argue that an ethnohistorically recorded system whereby each Inca ruler's property was devoted entirely, *post mortem*, to the ancestor cult maintained by his descendants, '*would force each succeeding ruler into a constant search for agricultural land*', that '*ever greater amounts of farmland became tied up in the hands of dead men*' and that '*the property rights of the dead forced Inca rulers to adopt a policy of continuous territorial growth*' [1984:121-122,126].

Cieza [(ca.1550) 1985:29] stressed that the whole of a ruler's property followed his cult inalienably after death. However, the *panaqa* of rulers, often presented in chronicles as the cult-maintaining descendants of a ruler excluding the heir, was probably a late prehistoric, simultaneous construct comprising politico-religious institutions, led by appointees of the presiding ruler, but with a mythico-historic ruler as deified ancestor, embodied in a hierarchy of regal mummies [Zuidema 1964:12, 1983:49-50]. Patterns in the dynastic myth indicate that pairs of *early* (*Lower Cusco*) rulers and *later* (*Upper Cusco*) rulers shared particular *personal* characteristics, such as martial or religious talents or roles [Zuidema 1964:126-158].

Many critical elements in this expansion model are hypothetical, but some are of wider import and amenable to archaeological investigation, such as a postulated population explosion around Cusco which accompanied imperial success and the suggestion that agricultural terraces were a response to land shortages

and represent *a major commitment to marginal land* resulting in increased risk of crop failure [Conrad and Demarest 1984:129-130]. Their main assumption is that private lands were of great extent:

> *The exact amount of territory owned by any single ruler is unknown, but the total was obviously large: various sources name entire highland valleys that were the personal property of Inca sovereigns* [Conrad and Demarest 1984:120].

Documentary sources are less unequivocal and Murra has noted that the proportion of Inca private and state lands to total land, as well as their likelihood of realienation, remain uncertain despite progress in work on specific Colonial administrative records [Murra 1982:257, 1978:215].

Sarmiento [(1572) 1943:179-180] related a tradition that Pachacuti, the ninth ruler in his list, depopulated Cusco and certain places within 2 leagues (ca 10 km) around it, gave it over to the benefit of Cusco's people and *tomó para su recámara el valle de Tambo* (took the valley of Tambo (Ollantaytambo) for his retreat). It is not known whether Pachacuti was an extant being, but the personage is characterized in 16th Century accounts of Inca myth history as a reformer of ideas and catalyst of major Inca expansion, a role reflected in his name which means *world change* [Zuidema 1964:36]. Juan de Betanzos [(1551) 1880:72-74], who understood Quechua, recorded elements of a similar myth about Pachacuti, in which he is said to have called a meeting to grant lords and principal persons of the vicinity, and their descendants, perpetual rights to their lands.

Such myths may reveal a concept of land tenure in late prehistory but it is impossible to select an adjective of size for the *valley* denoted in Sarmiento's statement. Spanish translations of Quechua geographical terms, according to Taylor [1987:32], often have dimensional implications which are not inherent, so that *cocha* can refer to a pond or the sea, and *pampa* to the level space for a ritual dance, or to a vast plain. *Huayco*, in the 17th Century Huarochirí Quechua manuscript, is translated as *valley* [Taylor 1987:159], but also occurs in 16th and 17th Century land title sequences for features which have been located in the field and which are now called *quebrada* (ravine or gully).

In 1551, Corregidor Alvarado undertook a survey in the *Yucay Valley* section of the Vilcanota River Valley in order to find lands of temperate climate for residents of Cusco [Uriel García 1959:145; Villanueva 1970a:21-54]. Proof that lands had belonged to the *Inca or the sun* was sufficient to establish their reversion to the Crown and hence, availability for grant [Matienzo (1567) 1967:30, 57-58; Polo 1917:54]. Cusco Incas were taken along and resident informants were sought to identify prior land ownership [Villanueva 1970a:11]. The official was able to identify 26 blocks of land, of which three pertained to the sun, two to unstated beneficiaries, one to *mamaconas*, one (Urcosbamba) to *past Incas*, thirteen to Huayna Capac, one each to his wife and uncle and two to his mother, one to Tupa Inca and another to Tupa's nephew.

The meaning of Inca names and Spanish translations of Inca kinship terms is not straightforward. Huayna Capac's *uncle*, who had four topos in the Yucay survey, was named Inca Roca. This is also the name given in many myth-history

derived genealogies of Inca rulers, and is the sixth ruler in Sarmiento's list [1943:144-146], attributed with beginning the Hanan (Upper) Cusco lineage and being the first Inca ruler to build his own palace apart from that of his father (the house of the sun). Another 'Inca Roca', in a myth recorded by Sarmiento [1943:180-181], assisted Pachacuti Inca to kill his brother, Inga Urcon, by the throwing a large stone at his throat when in the village of Paca in the Yucay Valley. *Pacachaca* (Paca bridge) appears as land of Huayna Capac in the 1552 Yucay Valley survey [Villanueva 1970a:53]. It is possible that peoples dedicated to the memory of the mythical personage were beneficiaries of those four *topos*.

The areas of 13 were specified in *topos*, regionally variable land units of around 0.25 to 0.35 ha [Table 7:2; Bennett 1949:604-605; Rowe 1946:324]. The largest he specified was 100 *topos* of the sun, two were of 30 *topos*, one of 10 *topos*, three of 8 *topos*, two of 4 *topos*, three of 2 *topos* and one of 1 topo [Villanueva 1970a:51-53]. The 30 *topo* fields were described as terraces, but the others were generically designated *plots of land* or *chacaras* (cultivable fields). Dimensions were not specified for any of the five places described as forests/woods or brushland (*arboledas, monte*). Four fields without specified areas were simply called *chacaras* but another four were terraced. According to descriptions and toponym survivals, two of these were blocks of terraces on alluvial fans of Urcosbamba (now Urquillos) and Yucay and were probably in the upper range of specified sizes [op.cit.:13, 37, 46, 52-53; Valencia 1982; Farrington 1989].

A Cusco Inca witness testified that Urcosbamba was worked by people from *Chinchero*, depicted in the survey's map and name of an Inca-style terrace/built

complex in the designated place today, and that the produce was taken to Cusco or wherever the Inca ordered [Villanueva 1970a:35]. This does not exclude a state dedication, but the witness added that Tupa's wife had dwellings there, which accords with references elsewhere to his lands in *Urcos* and Chinchero [Rostworowski 1964:32]. Moreover, a principal chief of Maras in 1557 testified that the deceased Tupa owned nearby maize lands called Tiobamba which were planted and harvested by Tupa's *yanaconas* from Chinchero [Rostworowski 1962:140-141].

The locations of these lands may reflect the Spaniards' selection of property, but the procedure of finding them, their description and sizes, strongly suggest that Inca landholding was discontinuous, even if especially widespread along the Vilcanota. Inca agricultural infrastructure and documented landholdings in the circum-Cusco area of Paruro were also apparently scattered and the major installation was placed apart from local-level settlement concentrations [Poole 1984:95; Bauer 1987]. The extent of forests is difficult to identify archaeologically, and equally problematic for unterraced state crop-fields and pasture lands, although some were irrigated [Sherbondy 1982:11] and prehistoric canal systems may permit their identification and measurement.

The ethnohistoric modes of Inca land and labour control correlate with physical evidence insofar as terrace or reclaimed lands were an elaborate core in the landscape of Yucay royal estates. Surrounding socio-economic patterns in prehistory are less well understood, and demand an approach combining archaeological land-use and settlement evidence with documentary land-use and tenurial images which are fixed in space.

## 1.5 Conclusions.

(a) Prehistoric settlements and modified landscapes, as evidence of resource control in different Limatambo production zones, may indicate local-level economic arrangements and Inca interaction with them. Economic reconstructions and comparisons require a classification of the present environment and production zones in the field area and also its refinement for application to late prehistoric environments (Chapter 2).

(b) Archaeological survey of late prehistoric site types and their distribution provides an overview of Inca-local relations throughout the landscape, without the uneven pattern of ethnohistoric documentation caused by relative geographic or cultural isolation of social components and vagaries of document preservation and availability. However, it is necessary to assess parameters of differential site preservation in the field environment, to discuss site visibility under survey conditions and methods, and to evaluate the regional artefactual, architectural and associated radiocarbon chronology (Chapter 3).

(c) Physical information on pre-Inca and local-level Inca period archaeological sites (Chapter 4) and Inca sites (Chapter 5) is amenable to direct quantitative and qualitative comparisons (Chapter 8). However, ethnohistoric socio-economic reconstructions are difficult to extend to the pre-Inca past and require a different critical framework. They appear to be more satisfactory in synchronic models of late prehistory, especially when combined with archaeological evidence and the physical setting (Chapters 6 and 7). The results of this analysis are used to compare Limatambo and other parts of Tawantinsuyu.

(d) The use of toponymic continuities, descriptive historic documents and observations to link documentary images and a physical landscape, emphasizes the analysis of land-title sequences as a means of traversing the half millennium which separates regional prehistory from the present. Documentary and archaeological images are not totally commensurable. Nevertheless, the patterns of intensity of Inca influence reflected in each, for specific landscapes, permit the development of a more general model in which archaeological data alone can be highly suggestive of particular ethnohistorically recorded land-tenure modes (Chapter 9).

(e) Studies of the synchronic mechanisms and diachronic formation of the Inca state rely greatly upon *power theory*, the interplay of violence and consent in relations between state organs and local groups, and *culture ecology*, that archaeological evidence is primarily a symbol of the economic or adaptive relationship between people and their environment. They assume that settlements in particular production zones indicate a special interest in the exploitation or control of resources accessible from that place, and hence, that settlement location is largely determined by subsistence and resource requirements.

The latter assumption is used to explain labour investment in terracing or land reclamation, but such explanation can be complemented for certain sites, particularly cemeteries or places which ethnohistoric sources indicate were sites of special Inca interest throughout Tawantinsuyu and representative of the elaborate social and spatial organisation of Cusco. Conceptual or *ideological* factors probably had a role to play in the location and form of all archaeological evidence, but the ethnohistoric data on Inca concepts of space,

set in the last moments of prehistory, enables a further approach to the adjunctive question of site meaning (Chapter 10).

# CHAPTER 2

# ENVIRONMENT AND SETTLEMENT IN THE LIMATAMBO REGION

## 2.1 Introduction.

The study region comprises an extremely mountainous and ecologically diverse part of Anta Province between the Apurimac River and Cusco (Fig 2.1). Fieldwork centred upon the 'Limatambo Area', 456 sq. km within Limatambo and Mollepata districts (Fig. 2:2). These formed a single district until 1929, in an area known in Colonial documents as the 'Limatambo Valley'. Limited survey was extended into the adjacent 317 sq. km of western Chinchaypuquio District as well as selected locations in adjacent provinces. Cusco and the Vilcanota Valley lie beyond the mountain rim of Anta Pampa, a broad, high and poorly drained valley or plain. The Vilcabamba region and Lower Urubamba Valley are separated by the Vilcabamba Cordillera and the permanently glaciated peaks of Humantay and Salkantay. The Apurimac River is a border of Apurimac Department, created out of Cusco in 1873 [Gade 1973:41].

## 2.2 Geology and Landforms.

Andean surfaces truncated by erosion at mid-Tertiary sea level were uplifted in the upper-Miocene to the Peruvian *puna* at altitudes around 4200 m [Clapperton 1983:84]. Undulating *puna* topography occurs at the base of Salkantay and mature mountain formations separating Anta Pampa from minor streams which follow steep ravines to the Apurimac River. Glaciers descended to 3600m during the Pleistocene, giving rise to hanging valleys, moraines and

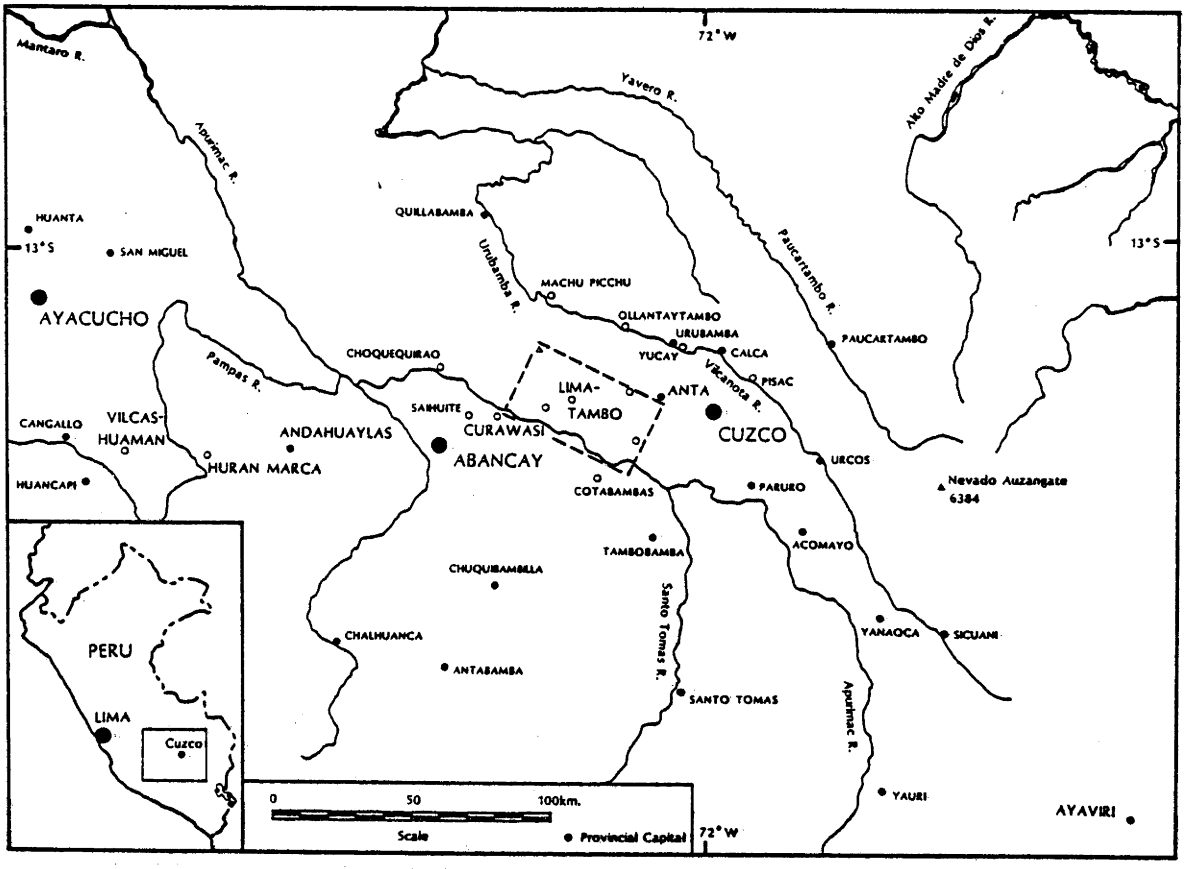



FIG. 2:1 The Cusco Region in Southern Highland Peru.

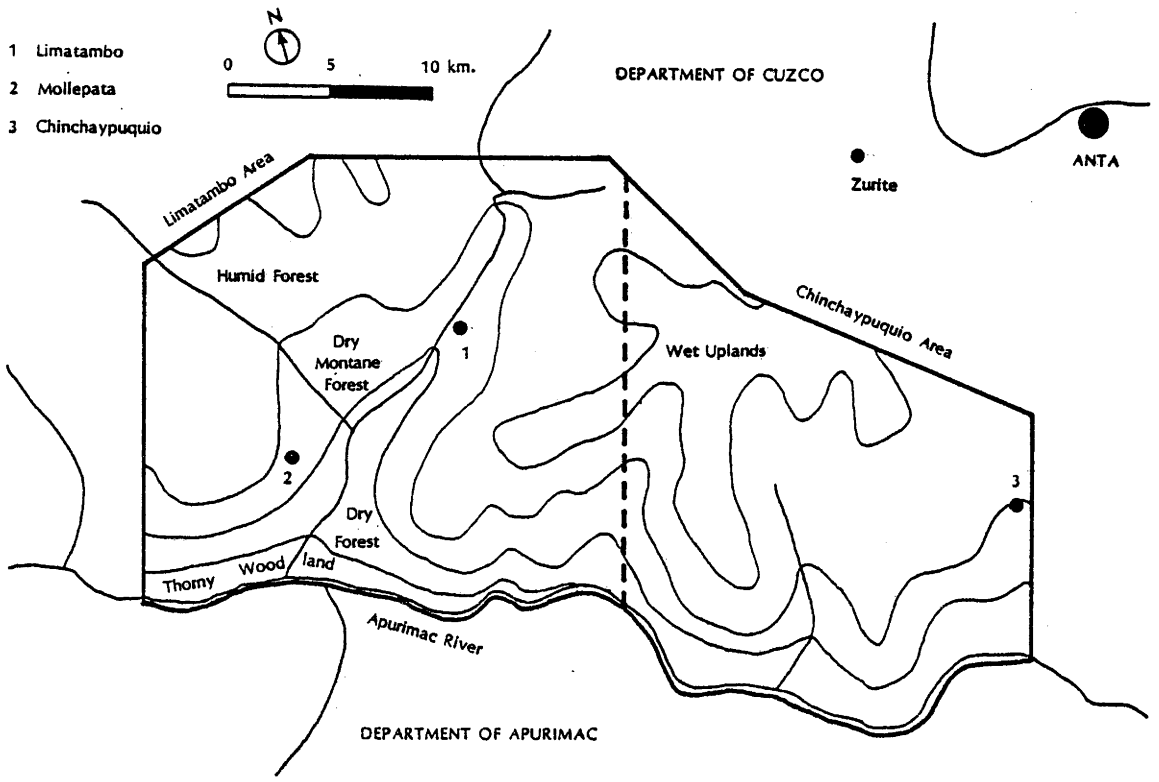
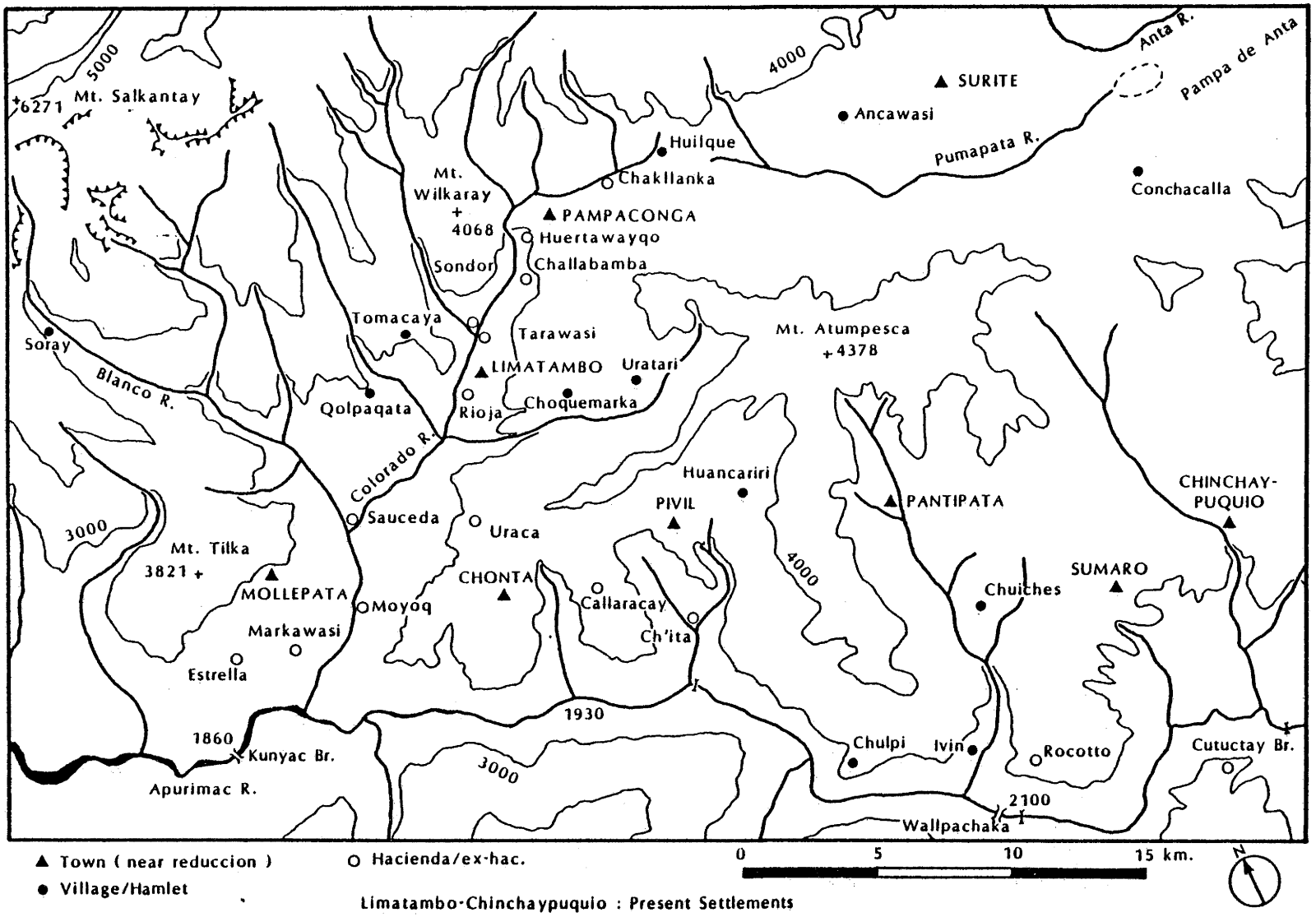



FIG. 2:2 Life-Zones in the Field Area.




▲ Town ( near reduccion )
● Village/Hamlet
○ Hacienda/ex-hac.

Limatambo-Chinchaypuquio : Present Settlements

FIG. 2:3.

glacial lakes, whereas accelerated postglacial river down-cutting formed deep canyons [Ñaupas 1984:26-29]. The present glacier of Nevado Salkantay rises from about 4600 m [Pulgar 1981:148-149] to a snow spire at 6271 m [Cleare 1979:137]. Within twenty five kilometers the hot and dry Apurimac Canyon reaches 1850 m.

The geology of the region lacks detailed study. The northeastern Limatambo Valley, from near Huilque pass to Limatambo, is characterized by Cretaceous Period sedimentary rock of continental origin. From Limatambo, along the Colorado River to the Mollepata region, Triassic marine sedimentaries of the Pucará Group predominate [I.G.M. 1975]. In Limatambo these comprise lime accumulations formed when the area lay on a coastal strip bordered by lagoons and the emerging Andes [Marocco 1978:75]. Jurassic marine sedimentary rock occurs at the deeply cut confluence of the Blanco and Apurimac rivers [I.G.M. 1975]. Red sandstones and clays, and conglomerates in Limatambo, are a result of continental sedimentation during the upper-Cretaceous [Marocco 1978:85]. Plutonics, including Cretaceous granite and diorite, occur to the south and east of Limatambo as far as Cotabambas in Apurimac Department [I.G.M. 1975]. White granite outcrops are common on ridges of the vicinity. Volcanic intrusions, of importance to prehistoric and historic stonemasonry, include andesite outcrops near Huilque pass, Limatambo and Markawasi.

Geologically recent volcanism has given rise to hot springs at Sauceda and Queswawayqo, beside the Colorado River, at Conoc, on the left margin of the Apurimac River, and to a steam blow-hole on the slopes of Cocha Quebrada below Pivil. Sauceda springs are very salty but are used, like those of Conoc, for

bathing. Landslippage in recent decades has damaged Queswawayqo springs, although they were once important baths [Göhring 1935:293; Ortega 1948:4-5].

Landslips and rockslides commonly cause inversions of geological strata and damage to archaeological sites and fields. They are thought to be prompted by increased soil weight during the wet season and by earth tremors. A landslip on the right margin of the Colorado, opposite Queswawayqo stream, is locally reported to have occurred in the 1950s and to have caused ponding of the river, a phenomenon seen near Pampaconga in 1988.

Soils generally conform to the Andean Mountain pattern [Drosdoff et.al. [1960:99-101]. A narrow strip of alluvium is bounded by colluvial-alluvial terraces on one or both sides of valley floors, intermittently broken by alluvial fans and terraces of tributary streams. Steep hillsides are often eroded and stony, but soils are deeper and well drained on hillside benches of lesser gradient. Puna grasslands at high altitude have greater organic content but this decomposes slowly. Soils above 4000 m are predominantly stony, shallow or poorly drained.

## 2.3 Flora and Fauna.

Marked variations in vegetation complexes are indicated in the observed altitudinal distribution of large and distinctive floristic elements in Table 2:1. Only plants recorded on numerous occasions are included and some common ones, of wide distribution, are excluded. Several bromeliaceous plants, all locally called *achupa* (*Puya spp.*), grow on rocky locations from 1800 m to 3800 m. Some widely distibuted flora (eg. *llaullikiska, ch'ilka, molle, oqe pakpa*

TABLE 2:1 Limatambo-Chinchaypuquio Region Life Zones and Observed Altitudinal Distribution of Flora

| Common Name | Genus/ Species | Zone and Altitude (kilometers above sea level) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TW | | DF | | | DMF | | | | HF | | WU | |
| | | 1.8 | 2.0 | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 | 3.2 | 3.4 | 3.6 | 3.8 | 4.0 | 4.2 |
| ichu | Stipa ichu | | | | | | | | | | | | | |
| 'pillow-cactus' | Opuntia sp. | | | | | | | | | | | | | |
| wild tarwi | Lupinus sp. | | | | | | | | | | | | | |
| llaulli-kiska | Barnadesia horrida | | | | | | | | | | | | | |
| ch'ilka | Baccharis lanceolata | | | | | | | | | | | | | |
| chach-acomo | Escallonia resinosa | | | | | | | | | | | | | |
| mutuy | Cassia sp. | | | | | | | | | | | | | |
| p'ata-kiska | Opuntia sp. | | | | | | | | | | | | | |
| retama | Spartium junceum | | | | | | | | | | | | | |
| chamana | Dodoneae viscosa | | | | | | | | | | | | | |
| tara | Caesalpinia spinosa | | | | | | | | | | | | | |
| molle | Schinus molle | | | | | | | | | | | | | |
| pisonay | Erythrina falcata | | | | | | | | | | | | | |
| oqe pakpa | Agave americana | | | | | | | | | | | | | |
| tuna | Opuntia ficus i. | | | | | | | | | | | | | |
| q'ello-pakpa | Fourcroya andina | | | | | | | | | | | | | |
| kiska-warango | Acacia sp. | | | | | | | | | | | | | |
| salvaje | Tillandsia usneoides | | | | | | | | | | | | | |
| phati | Bombax sp. | | | | | | | | | | | | | |
| giganton | Cereus sp. | | | | | | | | | | | | | |
| wanarpo | Jatropha ciliata | | | | | | | | | | | | | |
| algar-robo | Prosopis sp. | | | | | | | | | | | | | |

and *tuna*) are only abundant in part of the observed range. *Ch'ilka* and *llaullikiska* are often the only tall shrubs at the upper end of their altitudinal distribution. *Molles*, at their lower limits, are straggly and uncommon. *Oqe pakpa* is most abundant in its middle to upper range.

Some plants found 'wild' are also used and tended in gardens or near fields. Mexican blue agave marks field borders, and the spiny *p'atakiska* reinforces the bounding effect of adobe walls. *Pisonay*, with decorative red flowers, and *algarrobo*, are most common in association with dwellings. *Molles* are left to grow on field margins and provide shade for resting agricultural work groups. *Tuna* (prickly pear) appears to be an encouraged invader on many steep uncultivated slopes and is planted on some field margins. Its fruit is collected during the wet season, and the cactus is host to introduced cochineal dye insects (*Dactylopius coccus*). The latter brought high prices in early 1985 when sold by part-time collectors to local shopkeepers or travelling buyers at the Sunday market. *Tarwi* (*Lupinus mutabilis*) is common in uncultivated contexts but is an important field crop at high altitude. A stand of chirimoya trees (*Annona cherimolia*), beside Yuraqmayo stream (2170 m), is the source of small fruit collected by residents of Pivil (3400 m) in July.

Eucalypts were introduced to Cusco in the late 19th Century [Gade 1975:193] and are cultivated for construction material and fuel. They occur near houses, villages and in community forests such as those established in the early 1960s by the Ministry of Agriculture at Pampaconga and Mamako. A native hardwood, *chachacomo*, is only abundant in the dense humid forests of the northwestern Limatambo Valley, from about 3100 m to 3700 m in the Salkantay foothills. Occasional old trees remain in high grassed lands, but their

distribution has been affected by agricultural clearance, use as cooking fuel and manufacture of charcoal and agricultural implements. Tall forests of different species thrive at the base of ravines such as Quebrada Tincoc of Chonta, below 2800 m, and along the Yuraqmayo of Pivil. Uncultivated lower altitude slopes of the western Limatambo valley have few tall trees, mostly *phati*, but contain dense undergrowth of spiny plants including *kiska warango*, *q'ello pakpa*, and *achupa*. These plants have invaded parts of Inca terraces at Markawasi. Enormous columnar cacti are common in dry thorny forest near the Apurimac.

Rope of *q'ello pakpa* fibre, made near Chonta, is sold at Limatambo market, and strips of leaf are collected for tying tomato plants. Its tall flower stems appear in the late wet season and provide a light wood when dried. They are also the abode of a flying insect borer called *wayronqa* which is considered a destructive nuisance in woodwork. Fleshy *achupa* leaves are regarded as good fodder for guinea pigs (*Cavia porcellus*). *Ichu* and *retama* are both employed as roof thatch and combustible material. Thorny *llaullikiska* and *kiska warango* branches are used in fences to protect fields from livestock. *Molle* and *chamana* are used as fuel but spiny trunked *tara* and soft *pisonay* are rarely so used. Pods of the *tara* tree provide a substance used in tanning, and a stone trough at Huayronqa was identified by the owner as having once had this function. *Higuerilla* (*Ricinus communis*), an introduction common on roadsides, was once used to produce oil for sugar mill machinery [Gade 1975:183].

Useful unplanted herbs are associated with house garden or disturbed locations. *Wakatay* (*Tagetes minuta*) thrives between 2200 m and 3400 m during the wet season, but remains for a longer period near canals and other damp

places. It is used to prepare roast guinea pig and green chili sauce called *uchukuta*. *Hierba buena* (*Mentha sp.*), another 'mint', *muña* (*Minthostachys sp.*) and introduced fennel *hinojo* (*Foeniculum vulgare*) are used as condiments. Medicinal herbs include *llantén* (*Plantago hirtella*), *pinco pinco* or *cola de caballo* (*Ephedra americana*) and *yawar chunka* (*Oenothera rosea*). *Chaminko* (*Datura stramonium*) is used in sorcery.

Orange flowers of *chiwanway* (*Crocopsis fulgens*) and large white flowers of *hamancay* (Amaryllidaceae) are used as decoration in women's hats. The former appear with the first persistent rains of September and the latter in December and January when the soil is very damp and when the *hallmay* festivities accompany the first weeding and mounding of maize fields.

Faunal observations only indicate conspicuous components of regional wildlife. The small grey deer called *taruka*, *luichu* or *venado* (*Hippocamelus antisensis*) was seen wild in the humid forest of the northwestern Limatambo Valley at 3300 m, and a young one being kept as a child's pet at Markawasi (2380 m). Cultivators of Mamako mountain complain that it eats young crops in fields at 2700-3000 m and Choquemarka residents note that it inhabits steep vegetated slopes of Pampahuaylla Quebrada at 3200-3500 m. It was reported by an assistant in forested Apurimac Valley slopes below 2300 m, a place also said to be inhabitated by the *spectacled bear*. This is an area of very low altitude occurence in the Peruvian-Bolivian distribution of *taruka* but accords with its debated preference for vegetation cover [Roe and Rees 1976:724-725]. Wild guinea pig was seen in the high humid forest on the southern slope of Wilkaray mountain at 3580 m, and informants at Markawasi relate that they inhabit overgrown terraces there. *Puma* (*Felis concolor*) and *vizcacha* (*Lagidium*

*peruanum*) are reported to inhabit the northwestern heights of the valley. *Zorrinos* (skunks) are not uncommon in the middle altitudes and bats frequently wound horses left out overnight near Limatambo. No snakes were seen, only the slough of a small green variety in a maize field.

Ground dwelling *perdizes*, *q'ente* (small honeyeaters) and *loros* (green parrots) are the most abundant avifauna. *Loros* appear in large noisy flocks during the maize harvest in May-June and many techniques are used to keep them from crops, particularly the placement of a guardian with a *honda* (slingshot). They are often captured as pets. The *mayupato*, a small red-billed duck with black wings, brown underbody and defensive spines on wing joints, is found on the Colorado River in early August. The *huamán* (*Buteo poecilochrous*) occasionally appears on the valley floor near Limatambo. A *condor* (*Vultur sp.*) was observed from 3740 m in Sondor community lands.

Fishing is not a significant contributor to the Limatambo region diet, but is undertaken as an occasional pastime with line and hook available at the Sunday market or Cusco. Trout are caught in the Colorado, Parqo-Sondor and Pisti watercourses. A *catfish* named *suche* is similarly taken from the Apurimac River.

Various insects appear at 2600 m on the valley floor in May-June, at the onset of the dry season. They include a white butterfly, *apasanqa* (tarantula), a large wasp and *kachi kachi* (a dragonfly). Limatambo is infamous for small biting flies. They are prevalent in dry season months from May to August, especially between the lower limit of the study area at, 1800 m, and 2500-2800 m, and are most bothersome on still days. Sandflies inhabit banks of the

Apurimac River and mosquitoes are occasionally seen up to about 2600 m. Late last Century fever was common in the Apurimac Valley [Squier 1877:553]. Sr. Pedro Cunza, long time owner of Moyoq sugar cane, fruit orchard and *cañazo* enterprise at 2150 m, recalls that malaria was rife in the lower valley until a host eradication programme after the Second World War. DDT was extensively used until the mid 1960s in the lower intermontane valleys of the Apurimac region [Gade 1973:43].

## 2.4 Limatambo Region *Life Zones*.

Limatambo vegetation and agricultural patterns correspond to four of Pulgar Vidal's *eight natural regions of Peru* [1981:60,79,102,119]. These are the *yunga* (of the Amazonian Basin) between 1000 m and 2300 m, the *quechua* (2300-3500 m), *suni* (3500-4000 m) and the *puna* above. The terminology derives from folk geography and toponymy and each zone is characterized by some related fauna and flora, rainfall and temperature ranges, but also crop complexes and agricultural systems.

The parameters of zonation are clearer in Joseph Tosi's application of the Holdridge 'Life Zone' system to the ecology of Peru, a scheme used in elaboration of the Ecological Map of Peru (1:1000000) [O.N.E.R.N. 1976]. It has the advantage of systematic organization and worldwide applicability and is based upon long term temperature and effective precipitation records. In practice there are too few meteorological stations and long series data are unavailable for some areas so that potential evapotranspiration is usually estimated. The zones, determined by actual and estimated macro-climatic variables, are then checked in the field to enable listing of associated floral

components. Application of this scheme to an area requires field observations of local components to be correlated with those listed. The zones overlap in altitudinal ecotones and other factors contribute to vegetation patterns which do not follow altitude in a simple relation [Brush 1976a:126-127]. However, in areas of compressed altitude variation, altitude ranges provide a reasonable approximation of 'life zones'.

The Tosi 'life zones' can therefore be correlated with the altitudinal distribution of floristic components in the Limatambo-Chinchaypuquio region (Table 2:1). Terms used to describe zones are based on a reconstruction of climax vegetation, which is rare in the present study area and elsewhere in the highlands. Zones in the study region, indicated in Figure 2:2, are:

1. *Thorny Woodland* (ca. 1800-2000 m; 4.8% of the Limatambo Area) corresponds to Tosi's subtropical *monte espinoso* (mte-S) and occurs on the low altitude margins of the Apurimac and Colorado rivers, characterized by abundant tall columnar cacti, acacias and *Fourcroya*.

2. *Dry Forest* (ca. 2000-2400 m; 11.8% of the Limatambo Area) corresponds to the *bosque seco* (bs-S), characterized by spiny acacias and *Fourcroya* on slopes and in dense stands on flatter ground, as well as dispersed trees, especially *Bombax*. Columnar cacti are found at the lower limit but are not common, and *Erythrina* begins to appear at the upper altitude limit.

3. *Dry Montane Forest* (ca. 2400-3200 m; 24.8% of the Limatambo Area) corresponds to the *bosque seco-Montano Bajo* (bs-MBS), and includes most valley floor flats in Limatambo as well as slopes above the Colorado and Apurimac

rivers. The characteristic vegetation complex is *Schinus molle, Sparteum junceum, Caesalpinia spinosa* and *Dodoneae viscosa.*

4. *Humid Forest* (ca. 3200-3800 m; 51.7% of the Limatambo Area) corresponds to the *bosque humedo-Montano* (bh-MS) and *bosque muy humedo-Montano* (bmh-MS), humid forest life zones which exist at similar altitudes in the eastern and western sides of the area respectively, divided on the Colorado River axis. The latter, is characterized by greater humidity and the existence of high canopy forests. The eastern area is nearly all grassland with occasional *Escallonia* trees and shrubs in steep or stony locations.

5. *Wet Upland* (ca. 3800-4200 m; 6.9% of the Limatambo Area) corresponds to the *páramo muy humedo-Subalpino* (pmh-Sa) and *páramo pluvial-Subalpino* (pp-Sa) in the eastern and western sides of the area respectively. These are cold, subalpine grasslands, wetter on the western side. Shrubs and small trees are restricted to the most protected locations at the lower margin.

Above these zones the Wet Alpine Tundra (ca. 4200-4800 m), or *tundra pluvial-Alpino* (tp-A) with periglacial flora, and the Snow or glacial zone (up to 6271m), *nival* (N), lie effectively beyond the scope of the field survey.

## 2.5 Present Population and Settlements.

The steep Apurimac gorge prevents linear riverside travel. Only two unsurfaced vehicular roads permit access to bridge crossings. One passes through Limatambo with a branch to Mollepata. The other, completed in 1962-63 [Guillet 1979:140], reaches Cotabambas via Chinchaypuquio (Fig. 2:3). They are

linked by bus and truck services to Cusco. Improved surfacing of the Limatambo road, part of the highway from Cusco to Lima, began in 1987. A third bridged route across the Apurimac, suited to non-vehicular travel, traverses Qopachaka suspension bridge below Pivil. Horses, mules and donkeys are important for transport throughout the region.

According to the 1981 Census, the three Apurimac margin districts of Anta contain 16,767 persons. 14.5% (2431) of them reside in Limatambo, Mollepata and Chinchaypuquio, the district capitals. The other five Anta districts contain 31,685 persons, 30% (9366) of whom reside in district capitals on flatter land closer to Cusco [I.N.E. 1981:I:51-57]. Anta Province covers about 1858 sq. km [Peru 1969-70:24], so overall population density is 26 persons per sq. km. However, the Apurimac gorge is very sparsely populated and large settlements lie on mountainsides rather than near the valley floor. This contrasts with settlement in the wide Vilcanota Valley [Escobar 1973:672], Cusco Valley, Anta Pampa and widest parts of the Limatambo Valley.

Seventeen large settlements, those comprising between 50 and the maximum of 300 dwellings, account for 40% of population in Limatambo, Mollepata and Chinchaypuquio, the largest being Chinchaypuquio (892 persons), Mollepata (884), Limatambo (627), Chonta (449) and Pampaconga (419). The rest contain between 199 and 382 persons [I.N.E. 1981:II:729-735]. Some are very dispersed across community lands, such as Tomacaya, Chakllanka, Chinllawachu and Huertawayqo, and all lie between 2550 m and 3850 m. About 94% of their inhabitants live in settlements of the DMF Zone (3037 persons in 5 settled units named in the 1981 Census) and HF Zone (3326 in 11 units), and 6% in Uratari above.

The five largest settlements, combined with Pantipata (274 persons), Pivil (200) and Sumaro (199), retain the names (or can be traced to the vicinity) of the *reducción* villages, established by the Spanish to concentrate population during the 1570s (Fig. 2:3). They are nucleated villages with a church and levelled plaza surrounded by a rectangular grid of streets. Their inhabitants (3944 persons) form 23.5% of the regional population, somewhat less than the figure of 30% calculated by Gade and Escobar for *reducciones* in the adjacent southern provinces of Cusco [1982:446].

Small Sunday markets at the district capitals are attended by people from surrounding villages, for sale, exchange and purchase of produce, and by vendors of manufactured goods from Cusco. The gathering facilitates communication and administration. The largest market in the surrounding region is at Ancawasi on Anta Pampa, where some forms of Choquemarka pottery from Limatambo are taken for sale or exchange, and which attracts large numbers including people on horseback from Pantipata and Pivil. The major market centre at Izcuchaca, beside Anta, may be visited for special reasons, such as charging car batteries for record players. More subsistence goods appear to move between households outside the market system as is common in valleys of horizontally compressed altitude variation [Brush 1976b; Farrington 1984b; Mayer 1985:43].

Large towns may have small shops, a lower secondary school, a health officer, small dispensary, resident priest and persons skilled in blacksmithing, carpentry, building and clothing repairs. The nearest hospital is at Cusco. Only Limatambo had electricity, unreliable and of low and variable voltage for five hours in the evening, from a small turbine beside the Parqo River.

District capitals have varying numbers of non-community residents, but other towns are essentially nucleated centres of a peasant community whose members work in surrounding lands. Some households prefer isolated houses or hamlets near to particular fields or pastures. These are common at high altitudes, often in association with an animal corral.

Moderate concentrations of dwellings are also common near former hacienda buildings, as at Tarawasi and Sondor, Huertawayqo, Chakllanka, Uraca and Markawasi. These pertain to recognized peasant communities, peasant groups and cooperatives. Old hacienda establishments centre upon a large dwelling with a tiled roof, carpenter-built doors, window frames and shutters. Many of these buildings are reused as schools. Small chapels are often located nearby and industrial facilities included kilns for lime and roof tiles, *cañazo* plants, and water driven grain mills. Private or non-community landholdings are characteristic of valley-floor or low altitude flatlands located near roadways. Much of this land is irrigated, sometimes incorporates the site and facilities of a former hacienda complex, and production is largely destined for sale in Cusco.

## 2.6 Agriculture.

Observed crop complexes vary with altitude (Table 2:2), but the distribution of crops is an effective result of complex decision making as much as absolute growth limits [Gade 1975:95].

Haciendas in the lower southwestern Limatambo valley were renowned for sugar cane products prior to agrarian reforms after 1969. *Cañazo* (sugar cane

TABLE 2:2 OBSERVED ALTITUDE RANGE OF MAJOR LIMATAMBO VALLEY CROPS

| CROP Name | Genus/species | Altitude Range (kilometres above sea level) 1.8 | 2.2 | 2.6 | 3.0 | 3.4 | 3.8 | 4.2 |
|---|---|---|---|---|---|---|---|---|
| (Field Crops) | | | | | | | | |
| yuca | Manihot esculenta | --- | ▬ | ---- | ---- | ---- | ---- | |
| platano * | Musa sp. | --- | ▬ | ---- | ---- | ---- | ---- | |
| camote | Ipomoea batatas | --- | ▬ | ---- | ---- | ---- | ---- | |
| cana de azucar * | Saccharum officinarum | --- | ▬ | ▬ | ---- | ---- | ---- | |
| maiz | Zea mays | --- | ▬ | ▬ | ▬ | ▬ | --- | |
| tomate * | Solanum lycopersicum | ---- | ▬ | ▬ | ▬ | ---- | ---- | |
| zapallo | Cucurbita maxima | ---- | ▬ | ▬ | ▬ | ▬ | --- | |
| calabaza | Cucurbita moschata | ---- | ▬ | ▬ | ▬ | ---- | ---- | |
| frijol | Phaseolus vulgarus | ---- | ▬ | ▬ | ▬ | ---- | ---- | |
| trigo * | Triticum spp. | ---- | ▬ | ▬ | ▬ | ▬ | ▬ | - |
| papa | Solanum tuberosum | ---- | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ |
| quinoa | Chenopodium quinoa | ---- | ---- | ▬ | ▬ | ▬ | ▬ | ▬ |
| tarwi | Lupinus mutabilis | ---- | ---- | ---- | ▬ | ▬ | ▬ | - |
| haba * | Vicia faba | ---- | ---- | ---- | ▬ | ▬ | ▬ | ▬ |
| oca | Oxalis tuberosa | ---- | ---- | ---- | ▬ | ▬ | ▬ | - |
| ullucu | Ullucus tuberosus | ---- | ---- | ---- | ▬ | ▬ | ▬ | - |
| (Garden tree crops) | | | | | | | | |
| chirimoya | Annona cherimolia | --- | ▬ | ▬ | ---- | ---- | ---- | |
| pakay | Inga feuillei | --- | ▬ | ▬ | ---- | ---- | ---- | |
| palta | Persea americana | --- | ▬ | ▬ | ▬ | ---- | ---- | |
| lucma | Pouteria lucuma | --- | ▬ | ▬ | ---- | ---- | ---- | |
| higo * | Ficus carica | ---- | ▬ | ---- | ---- | ---- | ---- | |
| citrus * | Citrus spp. | --- | ▬ | ▬ | ---- | ---- | ---- | |
| (Garden herbs/condiments) | | | | | | | | |
| rocotto | Capsicum pubescens | ---- | ▬ | ▬ | ▬ | ---- | ---- | |
| (Forage) | | | | | | | | |
| alfalfa * | Mendicago sativa | ---- | ▬ | ▬ | ▬ | ---- | ---- | |
| (Field margin/roadside) | | | | | | | | |
| tuna * | Opuntia ficus indica | --- | ▬ | ▬ | ▬ | ---- | ---- | |
| sokos * | Phragmites communis | --- | ▬ | ▬ | ---- | ---- | ---- | |
| eucal-ypto * | Eucalyptus spp. | ---- | ▬ | ▬ | ▬ | ▬ | ▬ | - |

* = introduced crop

liquor) is still produced on a smaller scale. Lack of water at Markawasi has led to the decline of cane plantings. Crops include banana, oranges and *achokcha* (*Cyclanthera pedata*), a vine fruit used as a salad vegetable. Others, such as sweet potato, manioc, *chirimoya, pakay, lucma, saiwinto* (*Psidium guajava*) and avocado, are known to have been used or cultivated in Peru since the Preceramic [Bonavia 1982:313-345]. Large avocado varieties were introduced to the lower valley for sale in Cusco. Bamboo, used for construction, is cultivated in dense stands beside the Colorado, Blanco and Apurimac rivers.

Middle altitudes are dominated by maize cultivation. It is eaten boiled (*mote*), toasted (*kancha*), ground and baked (*huminta*), in thick soups and in the form of maize beer (*aqa* or *chicha*). The most common variety below 2300 m is *chunchusara* which has small yellow kernels. It is occasionally seen up to 2600 m. Dry flint maizes of this kind are more resistant to disease in hot and humid environments than large kernel flour varieties [Gade 1975:120]. An unidentified disease in Limatambo during 1985-86 affected maize fields below 3000 m most seriously, but had little impact on *chunchusara*. Intercropped beans (*Phaseolus*) and self sown *calabaza* (Cucurbitaceae) were the only harvest from many fields.

The outstanding maizes for *mote* and *chicha* from 2400 to 3000 m are yellow *uwina* and mottled yellow-crimson *lunkuchanka*. Harvests also contain some white *paraqay* for *mote* or special beer, small cobs of purple-black *kullisara*, used to colour *chicha* and grey-white *hankasara* for toasting. Different varieties are cultivated at Takaranayoq in Chakllanka (3355 m). They include *chanku, chanku blanco, chembar, wayrasara, uchukullu, matariñu* and *wakamullu*. Herrera [1923:24,26] recorded *uchucullu* and *huairasara* elsewhere in Cusco, but others

may be localized. At this high altitude, maize is only grown on the flat, protected and irrigated valley floor fields and is usually intercropped with *haba* (introduced broad bean) or *tarwi*. Frosts on Anta Pampa at 3300-3400 m in 1984-5 burnt maize crops but left interspersed *tarwi* and *habas* unscathed. Cultivators said the latter protect maize plants from cold winds.

Crops common in the middle altitudes of the valley include *zapallo* (pumpkin) of which examples up to 60kg were observed and weighed. Tomato was grown by smallholders and some community producers for good prices obtained in Cusco, but losses due to pests and the cost of pesticides and fertilizers limit its cultivation. In 1985-86 the high protein grain amaranth *kiwicha* (*Amaranthus caudatus*), mostly the *Oscar Blanco* variety, was experimentally promoted by the Ministry of Agriculture in Limatambo and Mollepata districts. It was not seen during my survey of cultivated fields in the previous main growing season, although use of *hataku*, the comestible leaf of uncultivated amaranths, was known.

Old World crops found in central valley fields include garlic (*Allium sativa*), onion (*Allium cepa*), cabbage (*Brassica oleracea*) and chick peas (*Cicer arietinum*). Wheat is common on unirrigated valley slopes (*temporales*), but is most extensively planted near the upper effective limit for maize, such as rolling hillsides around Sumaro, above 3400 m. Barley (*Hordeum vulgare*) is less common but planted in similar locations.

High altitude field crops for local consumption are principally potatoes, broad beans, *quinoa*, *ullucu*, *oca* and *tarwi*, of which only the beans are introduced. They are used in soups, toasted to make bean *kancha*, or both

toasted and boiled to make *phuspu*. *Ullucu* is commonly grated or finely cut for use in soups and *ocas* are boiled and eaten without peeling. *Tarwi* is boiled to remove bitterness, caused by quinolizidine alkaloids concentrated in seeds [McBarron 1976:87]. Both planting seed, for exchange, and prepared comestible *tarwi* is brought to Limatambo market.

Part of the valley floor potato crop is transported to Cusco, and includes large varieties, such as *mariva* and *revolución*, as well as *micaela, sika* and *salomé*. Potato is not significant in lower valley agriculture, probably a result of factors including fungal disease which, according to Gade [1975:209], increases in prevalence to an extent which precludes its cultivation in the Vilcanota Valley below 2600 m. The *old* varieties, *q'ompis* and *yungay*, occur in both valley floor and higher slope fields. Potatoes of Choquemarka (3480 m) include *wayru, yungay, papa blanca, q'ompis* and *orrellones*. *Q'ello runtu* (yellow egg) comes from Q'ellwacocha in the heights of Sondor. *Suwayllu* is grown at Ch'illkaqasa (3585 m) near Pantipata. Potatoes dug from fields planted with maize at two locations above Limatambo (2800 m and 3345 m) were called *arraq papa* by the cultivators, and were said to be unplanted. They took several forms, and varieties of the same name are reported elsewhere in Cusco as 'wild' [Herrera 1923:32; Vargas 1936:224].

Frosts and insolation during the dry season are used in the production of *chuño*, freeze dried potato, at Uratari (3825 m). White frosts at Qasakancha, in Tomacaya community lands, were not regarded by residents as suitable for *chuño* although it lies at about the same altitude. Potatoes were stored there in straw covered mounds bounded by a brushwood fence after harvest. *Oca*, *ulluco*

and red and white seeded varieties of *quinoa* are cultivated on high valley side fields.

Tree crops are mainly found at altitudes below 3000 m. Those listed in Table 2:2 are, with the exception of commercial oranges and avocados (*palta*), grown in gardens or near houses to provide an interesting addition to the diet. Avocados in some Limatambo gardens are a small egg-shaped and smooth skinned variety with a strong flavour. *Pakay* pith provides an occasional juicy snack. Figs, lemons and peaches from gardens are sold in small quantities at Limatambo market. The native tree tomato or *sacha tomate* (*Cyphomandra crassifolia*), is grown for a family jam production business in Limatambo, but rarely seen elsewhere in the valley. Experimental plantings of grafted *Erythrina spp.*, in view of high protein seed production, were conducted in the valley under the auspices of Cusco University and the Agriculture Ministry with foreign aid.

Alfalfa is the only crop specifically planted as forage for guinea pigs, horses and cattle and is limited to parts of smallholder's irrigated valley floor lands. Several cuts may be made each year, depending upon the amount of irrigation water applied.

Guinea pigs (*cuy*) are raised in most rural households. They dwell on house floors and consume food scraps. They are mainly prepared for religious fiestas, important family days and to feast special guests, such as visiting government officials, aid programme personnel, and *compadres*. Dogs are also commonly kept for the purpose of guarding houses and to announce the presence of strangers. Andean camelids are not raised in the Limatambo Valley, but are

pastured on bunch-grass stands in the *puna* above 4000 m between Anta Pampa and Chinchaypuquio.

Households often own introduced species of chicken and pig for occasional consumption. At valley floor locations cattle are largely held by private landholders. Communities tend to devote such lands to field crops, although cattle are kept by specialists in bullock ploughing. Small herds of cattle and sheep are more frequently retained by community households that live near high altitude lands without wide potential for field crops. Goats are raised in several steep parts of Limatambo. Animal raising is usually combined with field cultivation. Children take charge of pasturing animals and return them to household corrals in the evening. Those who choose to raise stock at high altitudes appear to eat meat and milk products more frequently. Meat is dried, and cheese made, occasionally for sale at Limatambo market and exchange with valley floor households.

Much produce is carried on people's backs, but the dispersed nature of fields also contributes to a peak demand for pack animals during the main crop harvest. Horses from the areas of Chonta, Pivil and Pantipata, places remote from highways, are considered as particularly sturdy.

Private landholdings are concentrated on valley-floor irrigated lands and most rely on paid labour. Payment in produce or seed may be specifically requested. Lunch, *chicha* and/or *canãzo* is expected. For major tasks a *campesino* households arrange a *minka*. Invited neighbours are provided with food, *chicha* and usually *cañazo*. The work has a strongly social flavour, and there is some understanding that the host will later make his own labour

available. Labour is scarce at certain times of the year so food and drink, prepared by women in most households, is essential to success. Stronger obligations to give reciprocal personal assistance in agriculture exist between relatives. Community members are expected to participate in communal projects, such as canal or road digging, or cultivation of fields the produce of which is for upkeep of a school or other community purpose.

## 2.7 Agricultural Systems and Agroclimate.

Altitudinal variation and absence of a meteorological station in the study region hinder generalisation about the agroclimatic background for seasonal cultivation practices. The estimated ranges of climatic variables used in the definition of Tosi-Holdridge 'life zones' [O.N.E.R.N. 1976], as applied to the area, provide a spatial overview of this variation (Table 2:3).

Occurrence of frosts and the availability of water for irrigation are critical parameters in the selection of crops and annual cultivation strategy. Observations and interviews indicate that frosts are virtually absent at 2600 m but become common above 3000 m, in the upper part of the Dry Montane Forest Zone, during the driest period from mid-May to mid-October. Hail storms are not regarded as seasonally restricted, and can occur at much lower altitudes. The low altitude zones (DMF, DF and TW) suffer annual precipitation deficits, insofar as annual potential evapotranspiration equals or exceeds average total annual precipitation (Table 2:3). However, the deficit is spread unevenly through the year. Published information for Calca in the Vilcanota Valley, at 2926 m and analagous to the DMF zone, indicate a deficiency only from

TABLE 2:3 CLIMATIC VARIABLES IN LIMATAMBO LIFE ZONES (After O.N.E.R.N. 1976)

| Field Zone | | ONERN Zone | A.T.A.P.(1) mm | M.A.B.(2) °C | A.P.E.(3) % |
|---|---|---|---|---|---|
| Wet Upland | (W) | pp-SaS | 1000-2000 | 3-6 | 12.5-25 |
| | (E) | pmh-SaS | 500-1000 | 3-6 | 25-50 |
| Humid Forest | (W) | bmh-MS | 1000-2000 | 6-12 | 25-50 |
| | (E) | bh-ms | 500-1000 | 6-12 | 50-100 |
| Dry Montane Forest | | bs-MBS | 500-1000 | 12-17 | 100-200 |
| Dry Forest | | bs-S | 500-1000 | 17-24 | 100-200 |
| Thorny Woodland | | mte-S | 250- 500 | 17-24 | 200-400 |

NOTES:
(1) Average Total Annual Precipitation Range.
(2) Mean Annual Biotemperature Range.
(3) Annual Potential Evapotranspiration, expressed as % of A.T.A.P.

April to October [O.N.E.R.N. 1976:18]. Hence, agriculturalists may take advantage of the seasonally sufficient rainfall, employ irrigation or do both.

From January 1985 to June 1986 simple climatic observations were recorded at Quinta Quillabamba, on a Limatambo Inca terrace at 2595 m, to provide seasonal agroclimatic data in the largest (DMF) zone for correlation with observed agricultural practices (Appendix I, Table 2:4). A *dry season* occurs from May to September, centred upon the driest months of June and July. These months have the coldest nights, relatively clear morning skies and clearer evening skies. Precipitation deficiency probably prevails at about the same time as in Calca. Rain occurred on half or more of the days observed during the *wet season* months from October to April. This period is also the warmest of the year, with frequently cloudy or overcast mornings which tend to clear towards the evening. Rains are most frequent in December and January and tend to fall gently. During most months winds tend to be stronger in the afternoon than in the morning, and most frequently exceed a light breeze in October and November afternoons. They only reached the strength of a fresh breeze on three afternoons and are not considered a threat to crops on the central valley floor. Rain is not always disruptive of wet season work since it occurs most frequently at night. In 196 observed 24 hour periods, it rained overnight on 90 occasions and during the day on 56. However, rivers rise and low bridges on the Colorado are prone to be washed away.

Corresponding agricultural activities observed at different altitudes were also recorded (Table 2:5). Field crop cultivation is rare at altitudes over 3900 m, although pastures are used. Planting at lower altitudes, for the 'main' crop which uses the warm wet season months for growth, occurs as the frequency

TABLE 2:4 LIMATAMBO CLIMATE OBSERVATIONS AT QUILLABAMBA, 2595m.
[Jan 1985- June 1986; First 6 months combined]
[ (n) = total number of observations]

| | % Rainy 24 hr Periods | Mean Monthly Min. o/night Temp. °C | % Winds above Light Breeze | | % Cloud Observ. below 20% cover | |
|---|---|---|---|---|---|---|
| | | | Morn. | A/noon | Morn. | A/noon |
| Jan | 86 (7) | 11.0 (3) | 25 (8) | 14 (7) | 0 (7) | 33 (6) |
| Feb | 71 (17) | 11.5 (9) | 0 (18) | 5 (20) | 0 (20) | 20 (20) |
| Mar | 77 (43) | 11.5 (45) | 9 (47) | 17 (42) | 2 (48) | 8 (39) |
| Apr | 60 (2) | 10.5 (29) | 3 (32) | 23 (26) | 13 (32) | 31 (26) |
| May | 33 (12) | 7.0 (22) | 13 (23) | 41 (17) | 55 (22) | 78 (18) |
| Jun | 0 (8) | 5.5 (15) | 0 (14) | 25 (12) | 27 (15) | 67 (12) |
| Jul | 0 (16) | 5.5 (18) | 20 (20) | 25 (16) | 40 (20) | 81 (16) |
| Aug | 15 (20) | 7.0 (23) | 15 (26) | 19 (21) | 35 (26) | 67 (21) |
| Sep | 30 (20) | 10.0 (22) | 28 (25) | 40 (20) | 20 (25) | 40 (20) |
| Oct | 50 (6) | 9.5 (8) | 0 (9) | 44 (9) | 30 (10) | 22 (9) |
| Nov | 78 (9) | 10.5 (13) | 19 (16) | 69 (13) | 13 (16) | 23 (13) |
| Dec | 83 (18) | 11.5 (18) | 10 (20) | 24 (21) | 10 (20) | 29 (21) |

TABLE 2:5 LIMATAMBO MONTHLY AGRICULTURAL ACTIVITY (1) IN ALTITUDE RANGES

| | 1800-2000m | 2200-2600m | 2600-3000m | 3000-3400m | 3400-3800m | 3800-4200m |
|---|---|---|---|---|---|---|
| Jan | H:c | H:p | S:f<br>L:m | L:m | S:w,b | |
| Feb | H:m | H:s | H:p<br>S:t | H:p<br>S:b | | |
| Mar | | H:s | S:p | | H:p,u | |
| Apr | | H:k | T:w,b | | H:p,o,h | |
| May | | H:m,f,k | H:m<br>S:p | H:p,u | H:p,o,u<br>P | |
| Jun | | S:p<br>T:f<br>BM | H:w | H:m,b | H:t,p,q<br>h,b | H:h<br>C |
| Jul | | H:m<br>S:p<br>IP<br>B | S:p,s | | H:w,b | |
| Aug | H:c | B<br>P<br>G | | | | |
| Sep | S.m | P<br>I<br>S:s | H:p<br>P<br>S:p | | S:p,o,u | |
| Oct | | | | S:m | S:h | |
| Nov | | H:p<br>P<br>S:m | H:p<br>P<br>S:m<br>L:m | L:m | S:q,w | |
| Dec | H:i | H:p<br>S:m<br>L:m | L:m | | S:t | |

(1) H = harvest, S = sow, P = plough, I = irrigate, L = mounding (lampa), B = burn undergrowth, BM = burn maize stubble, G = apply guano, T = thresh, C = make chuno;
b = barley, c = sweet potato, f = frijol bean, h = haba, i = pakey, k = kiwicha, l = tomato, m = maize, o = oca, p = potato, q = quinoa, s = pumpkin, t = tarwi, u = ullucu, w = wheat.

of rains increases between September and January. These crops are harvested as rains abate between March and July.

The vast majority of fields above 3400 m are only cultivated during the wet season, and the highest are rested for many years between harvest and replanting. New fields are prepared when the earth is still damp enough to facilitate ploughing, sometimes with the *chakitaklla* (foot plough). In Choquemarka this work is done in groups of three, two men with foot ploughs and a third downslope using hands, a pick or *raukana* (*lampa* or hooked-handle broad-blade implement) to turn *champas* (sods) and remove shrubby vegetation. Some woody branches are taken for fuel, and smaller material is left to dry for later burning on the field. A smoke haze is common in the sky during the dry season months of June to August when dried vegetation near field borders and crop stubble are burnt.

Lower altitude unirrigated fields (*temporales*) are used in a similar seasonal pattern but are not long fallowed. Many are only rested during the dry season after harvest. At this time animals are left to eat field stubble. Ploughing begins with the first rains, and is done by Spanish bullock plough. Rarely, a tractor is available for use on sufficiently level ground. Animal or purchased chemical fertilizers, where funds suffice, are applied before planting.

Irrigation is common in terraced, lower valley floor and flank locations. Canals are drawn from side streams and main courses of the Colorado and Blanco rivers. Sufficiently flat lands are chosen for effective irrigation. Construction of short canals to fields near a side stream are not technically demanding and are built by household members and their neighbours. Both stone

walled terracing and an irrigation supply was organized in this way on a valley side *pampa* (relative 'flat') near Limatambo during the dry season of 1985. Long canals, and those requiring rock cutting, are a major project for community or private landholders which may take several years to complete.

Canal irrigation is a distinctive feature of many cultivated tracts between about 3400 m and 2400 m, associated with maize agriculture in the lower Humid Forest and Dry Montane Forest Zones, and of nearly all field agriculture between 2400 m and 1800 m, in association with sugar cane or fruits in the Dry Forest and Thorny Woodland Zones. This is consistent with the cultivation requirements where the soil water deficit, on general indicators, is high and probably extends over a longer period of the year (Table 2:3).

Where both rainfall and irrigated cultivation are an option for fields, agricultural organisation is more complex. Irrigation water is applied during the middle of the dry season to enable ploughing, sowing and initial growth of crops. An early harvest can be obtained of a crop which is otherwise scarce. 'Early potato' (*maway*) was frequently sown under irrigation on valley floor fields between 2400 m and 3000 m in the dry season months of May, June and July. The same fields, especially with manure, can provide a successful wet season and irrigated dry season crop. Timing is of the essence for double cropping. An accepted guiding date for the latest time to sow a wet season maize crop at around 2600 m is the feast of *Virgen de la Concepción* (8 December), because it is essential to allow for the crops growing season and have it ready for harvest before rains commence again (causing rotting and fungal disease). These factors led to a fairly frantic harvest of potato in a

central valley floor area in November 1985, and high demand for maize to make *chicha* for workers.

The early dry season is a busy time. Crops are harvested, sorted and transported, and maize is dehusked and set out to dry for storage. Beans, wheat and barley are threshed, often using horses. Grain threshing is sometimes done on paved circular platforms, about 10 m diameter, located on level ground near fields. Stone walls of terraces are repaired and vegetation cleared from them, usually by burning. It is also a time for building, roof thatching, and pottery production by the women of Choquemarka village, since vessels can be dried (in the shade) and dry fuel is available for use in bonfire kilns.

## 2.8 Palaeoenvironmental Perspective on Limatambo in the Last Millennium.

Modelling late prehistoric land use and settlement for the region requires an explicit assessment of the applicability of modern environmental and land use patterns. The main sources of information are field archaeology and records indicating the impact of Colonial social patterns and technology upon the landscape. These can be augmented by the limited palaeoenvironmental data available for the period proximate to Inca state formation and expansion.

A recent synthesis of research on late Holocene Andean climate by Clapperton [1983:87-90, 126-133] indicates that a period warmer than present extended from about 11,000-10,000 BP until 6,500 BP. Evidence for widespread glacial readvances in the periods 4,700-4,200 BP and 2,700-2,000 BP is considered reasonably good, but dubious for those proposed between 8,000-5,000 BP and 1,300 and 1,100 BP. The occurrence of a *Little Ice Age* throughout the

Andes from about the 14th Century until the late 19th Century, and for glacial recession between the 1930s and 1960s, is strongly supported. The starting date for the most recent readvance is therefore important to the reseach timescale.

In the Central Peruvian Cordillera Blanca a minor glacial advance in the early 14th Century is reported to have killed trees and buried soils, but greater readvance is dated from 'after the 16th Century' until about 1850 [Clapperton 1983:127]. Cores from Quelccaya ice cap near the Cusco-Puno departmental border (13° 56'S, 70° 50'W) have been analysed in detail and combined with field investigations of the cap's properties [Hastenrath 1978:86]. Core dating is believed to be accurate to about ±20 years before AD 1600, year of a dust event correlated with a volcanic eruption, and about ±2 years thereafter [Thompson et.al. 1986].

In the 1,000 year Quelccaya record, the period AD 1530 to AD 1900 is distinguished from the previous 500 years by generally low $\delta 18$ O values. The pattern of decadal $\delta 18$ O values follows very closely the Northern hemisphere pattern of decadal temperature departures from the 1881-1975 mean between 1580 and 1975. It may, therefore, represent a cooling in southern Peru [op. cit.:363, Figs 2, 4]. Decadal average ice accumulation rose above the 1,000 year mean from AD 1500 to AD 1720, regarded as the wettest interval in the period, whereas 1720 to 1860 is thought to have been very dry. High microparticle concentrations continued throughout the Little Ice Age, above their averages for the 14th, 15th, and 20th Centuries. Hence, these are attributed to increased atmospheric loading rather than decreased accumulation. Since particles were of

similar kinds throughout, they may reflect higher wind velocities across the Peruvian altiplano [op.cit.:363-364].

The Quelccaya dating of recent palaeoclimatic fluctuations suggests that the modern climate is, in broad terms, more like that of AD 1300 to AD 1500 than that prevailing for most of the Colonial Period.

If there were earlier significant fluctuations, as indicated for central Peru, then it is necessary to model their effects. To convert oxygen isotope ratio variations to temperature changes is not straightforward [Gray 1981:53-61]. If the global figure of about a 1-2°C drop in mean annual temperature is assumed [Grove 1988:364], it is further necessary to consider the rate of impact upon other systems. Forested limits may have descended slowly at onset, and elevated rapidly after glacial recession [op.cit.:379], and human responses to such phenomena can be measurable in days or months [McGhee 1981:163], and vary according to complex technological and other cultural factors [Mackay 1981:373]. Risk-reducing cultivation strategies, such as intercropping and multi-level landholding for diverse crops, will have been advantageous, and the effective boundaries of fieldcrop cultivation generally, and for particular crops, will have shifted. It is possible that changed temperature and humidity conditions could prove useful in some localities and disastrous in others, according to multifarious value systems.

One method to model effects of prehistoric climatic fluctuations is to use historic records of environmental conditions during similar events, but special caution is required to ascertain the meaning, spatio-temporal orientation and

quantitative significance of the statements they contain [Claxton and Hecht 1978; Ingram et.al. 1981].

Descriptions of the Limatambo-Chinchaypuquio region in 1586, during the early 'Little Ice Age', provide a general picture [Fornee (1586) 1965]. Residents of Anta Pampa described four towns there (all above 3390 m) as cold, subject to frosts between April and August and with greatest rainfall between October and March. It was seasonally inundated, as today, and the flat lands sustained cattle, sheep, pigs and mares, and produced wheat, barley, maize, potatoes, *ocas* and *quinoa*, all part of its present crop complex [op.cit.:17-18].

The survey reached Limatambo in March 1586 and information was sought about Pampaconga, Patallacta (near modern Limatambo), Chonta and Mollepata. In conformity with expectations, based on their present altitudinal positions, Pampaconga and Chonta were described as *cold and wet* and *cold and dry* respectively whereas Patallacta and Mollepata had *good* climates. Rains extended from September to March but the climate was said to be otherwise dry. Winds, as today, were not damaging or powerful [op.cit.:24], but the informants were met at the valley floor. The same animals and crops as Anta were listed, with the addition of chilis and fruits of warmer climes (including pakay, guava, lucma and passionfruit) [op.cit.:25]. The cold, wet and windy conditions of Sumaro, Pivil and Pantipata villages were juxtaposed in the 1586 survey with the temperate climate of Chinchaypuquio. Crops grown in this Chinchaypuquio region included maize and the highland tubers, but also warm climate crops of the Apurimac river margin (sweet potato, manioc and peanut) [op.cit.:20-23].

The subregional crop complexes of 1586 are not distinguishable from those of the present, and available information does not permit greater focus on zonal micro-shifts which could be attributed to climatic fluctuations alone.

It has been proposed that the domestication of Andean camelids around 5000-6000 BP, and the large populations of them in southern Peru, contributed to the extension of grassland into forested regions [Craig 1985:26-27]. The extent of dense forest with old native hardwoods is small in the field region, and concentrated on the northwestern valleyside (3200-3700 m). This is consistent with the hypothesis that higher humidity impeded agricultural clearance, by comparison with the denuded landscape of the drier southeastern valley and Chinchaypuquio at the same altitude. Some forest in the subhumid Apurimac gorges may also be very old, but in places is seen to have grown over late prehistoric settlements. By the early 20th Century the Cusco Valley depended on surrounding valleys for wood [Hardy 1914:502-503] but further archeobotanical and geomorphological evidence is needed to model the environmental legacy of prehistory to Colonial highland Peru. Did the early Colonial population decline relieve pressure or did subsequent changes in land tenure compound it?

Malaria vectors appear to have existed in prehistoric America, but apparently the most dangerous variety of the parasite did not [Najjar 1976:330-333]. Nevertheless, debilitating indigenous diseases prevalent in warm lands included leishmaniasis, *chagas* and *verruga* [Dollfus 1981:92]. Leishmaniasis (k'epo) is transmitted by riverine sand flies in gorges below 2000 m, such as the Apurimac in the field region, but appears to be most virulent in the eastern Amazonian lowlands [Gade 1973:41].

## 2.9 Conclusion.

Middle Altitudes contain the major current settlements of the Limatambo-Chinchaypuquio region, corresponding with the DMF and lower half of the HF life zones, between 2500 m and 3800 m. Irrigation agriculture is a significant part of land-use in the DMF and lower HF. With careful planning it can increase annual production of fields and attempts are made to increase irrigable land by construction of canals at higher levels on the valley sides. It is a zone in which introduced technology (Spanish bullock plough and some mechanization) is common, especially on lands of moderate declivity. Introduced crops are also widely cultivated, but are probably not as basic to local subsistence as maize and potatoes.

Low Altitude TW and DF life zones have a very small permanent population. They are considered unhealthy by residents of adjacent zones because of the higher temperature, annoying insects and, in the recent past, malaria. Present use by adjacent community villagers is sporadic, such as cochineal or wood collection, or seasonal, for grazing livestock. Irrigation is almost universal where cultivation takes place. Many indigenous field crops and fruit trees are grown, despite the impact of sugar cane on large areas.

High Altitudes, in the upper HF and WU, contain village and dispersed household or hamlet settlement, but are generally of low population density. Lands are mostly cultivated without irrigation, using indigenous crop species. Continued use of prehispanic agricultural implements, such as *chakitaklla* and *alachu* (potato harvester), is common.

Aspects of the operation of a contemporary rural economy and society have been described and a zonation scheme is applied to the region's environmental complexity. Agricultural practices and crop complexes are seen to have changed as a result of post conquest introductions and changing value systems. However, the study also serves to identify the Andean crops and cultivation strategies which are suited to different parts of this landscape. A tentative assessment of the impact of a changing palaeoclimate indicates that the range of native crops recorded in the region could have been produced throughout the period of interest, even if their distributions shifted or different varieties were selected in marginal areas.

# CHAPTER 3

# SITE SURVEY, MATERIAL CULTURE AND CHRONOLOGY

## 3.1 Introduction.

The first phase of the site survey sought standing architecture, including terrace systems, settlements or *installations*, and artefact assemblages representing Inca archaeological culture in the Limatambo and Chinchaypuquio Areas. The second phase was to record Inca archaeological landscapes in such a way as to facilitate their comparison with those reported and/or visited in the Cusco region and in *provincial Tawantinsuyu*. Late prehistoric sites, without Inca architecture, were recorded in the more thoroughly surveyed Limatambo Area. The survey was not designed to locate all such sites in any part of the field area, but their numbers were sufficient to demonstrate patterns in features, layout and placement and could thus serve for site prediction. The methods of site search and recording are the first topic of this chapter.

Dating is achieved for most sites by comparison of surface architecture and pottery with assemblages seriated in surrounding areas, and these data are the second concern of this chapter. It was not planned to carry out excavations producing large quantities of artefacts which could not, with available resources, be properly analysed in the field. The assumed chronological distinction between pre-Inca sites, without state architecture and pottery, and local level sites, with state pottery but no state architecture, is examined from the point of view of social models explaining the distribution of material culture.

## 3.2 Site Survey and Recording.

(i) Locating Sites: All available aerial photographs and published maps of the area were obtained. The old 1:200,000 map series, which had required considerable groundwork by surveyors and explorers, is still the only one to cover the whole field area. More accurate 1:100,000 and 1:25,000 maps are incomplete for the Limatambo Valley, although 1:10,000 dyelines cover a narrow strip of it. Aerial photographs of the whole area were studied for signs of terracing. A field walking programme was set up to visit them. Many were located in community lands at some distance from the Limatambo field base. These had to be visited on special expeditions, usually after prior discussion with community residents. A large concentration of sites was visible on the Limatambo valley floor.

The first six months were used exclusively in site reconnaissance and recording, nearly always with one student and on occasion with up to five. Survey was first conducted from Limatambo to surrounding areas which could be reached in a day on foot. Foot roads were used and virtually all surrounding hamlets and villages were reached. The Limatambo terraces were thoroughly walked in the same period. On one occasion a large team was taken on a valley side 'straight line' transect between the valley floor and Choquemarka village which proved notably unsuitable to the terrain, and confirmed an already apparent lack of sites on steep and eroded slopes. However, valley side benches and ridges did produce sites during the initial surveys from Limatambo. Fieldwork in Mollepata required daily visits by truck, bus or motorbike although longer stays were made on occasion there and at Markawasi. Horses were used in two trips to save time in extending survey to the Apurimac margin of Chonta.

Upon reaching settlements, residents were asked whether they knew of any ruins, old cemeteries or places with pottery on the ground in the community lands. As other researchers in the Andes have noted, this approach emphasises sites with standing architecture and burials. Pottery scatters and terraces, especially eroded and low walled ones, were not frequently mentioned.

It was decided that large surface artefact collections would only be made following the production of site plans. Notes were taken on the distribution, variety and abundance of surface artefacts, combined with a small 'preliminary collection' from various parts of sites. This was biased towards the most informative pottery, emphasizing rim, base, and decorated body sherds, to indicate the range of material present. The number of sherds, in all only 2411, from preliminary and gridded collections at each site, is given in Table 3:1.

The following eight months were used to measure and draw detailed maps of all major valley floor Inca period terrace systems and of selected examples of other site types. Two residents of Limatambo were permanent assistants in this work. It often entailed vegetation clearance from walls in the DMF and DF zones. Analysis of preliminary surface collections commenced at the same time and longer reconnaissance trips, such as that from Limatambo to Pivil, were carried out. Horses were used for transport on that occasion and stops were made at flatter locations not previously visited. A motorbike was used to transport batteries, personnel and food to locations in the Limatambo valley with vehicular access. Cars were hired for several short periods to enable rapid reconnaissance in the area bounding the Pampa de Anta and Chinchaypuquio, prior to further fieldwalking in the intervening valleys around Sumaro and Pantipata. Brief visits were made during a two week period to the bordering

TABLE 3:1 SURFACE POTTERY OBSERVATIONS

| | Major Pottery Group | | | Estimated Density (Sherds/sq.m) | | | Ground Cover | Number Collected |
|---|---|---|---|---|---|---|---|---|
| | Early Inca | Cusco Colonial | Glazed | High (50+) | Medium (10-50) | Low (0-10) | | |
| SITES | | | | | | | | |
| Pampaconga Sub-Region | | | | | | | | |
| AL1 | | | | | | | TG | 0 |
| AL2 | | | | | | | TG/E | 0 |
| AL3 | | * | | | | # | PG | 1 |
| AL4 | * | | | | | # | TG/E | 37 |
| AL5 | * | | | | | # | CF | 20 |
| AL6 | | | | | | | TG/CF | 0 |
| AL7 | | | | | | | CF/E | 0 |
| AL21 | | | | | | | TG | 0 |
| AL23 | | | | | | | TG | 0 |
| AL43 | * | | | | | # | TG/LF/E | 33 |
| AL44 | | | | | | | TG | 0 |
| Limatambo Sub-Region | | | | | | | | |
| AL46 | * | * | | | | # | TG/LF | 5 |
| AL47 | | | | | | | PG | 0 |
| AL48 | | | | | | | PG | 0 |
| AL8 | | | | | | | PG/CF/E | 0 |
| AL9 | | * | | | | # | CF/E | 1 |
| AL10 | | | | | | | CF/E | 0 |
| AL11 | | * | * | | | # | TG/E | 0 |
| AL12 | | * | * | | | # | CF/LF/E | 197 |
| AL13 | | | | | | | TG/CF/E | 0 |
| AL14 | | | | | | | TG/CF/E | 0 |
| AL15 | | | | | | | TG/CF | 0 |
| AL16 | | | | | | | TG/CF/E | 0 |
| AL17 | | * | | | | # | CF/E | 75 |
| AL18 | | | | | | | TG | 0 |
| AL19 | * | | | | | # | CF/E | 8 |
| AL20 | | | | | | | TG/LF/HF | 0 |
| AL22 | | | | | | | TG | 0 |
| AL24 | | | | | | | TG | 0 |
| AL25 | | * | * | | | # | PG/CF/E | 588 |
| AL26 | ? | | | | | # | PG | 3 |
| AL27 | | | | | | | TG | 0 |
| AL28 | * | | | | # | | PG | 150 |
| AL29 | * | | | | | # | PG | 0 |
| AL30 | * | | | | | # | PG | 0 |
| AL31 | | | | | | | CF/PG | 0 |
| AL50 | ? | | | | | # | E | 7 |
| AL51 | | | | | | | CF/E | 0 |

TABLE 3:1 SURFACE POTTERY OBSERVATIONS

| | Major Pottery Group | | | Estimated Density (Sherds/sq.m) | | | Ground Cover | Number Collected |
|---|---|---|---|---|---|---|---|---|
| | Early Inca | Cusco Colonial | Glazed | High (50+) | Medium (10-50) | Low (0-10) | | |
| SITES | | | | | | | | |
| Chonta Sub-Region | | | | | | | | |
| AL32 | | | | | | | TG/CF/E | 0 |
| AL33 | | | | | | | TG | 0 |
| AL34 | * | | * | | | # | TG | 10 |
| AL35 | | * | | | | # | CF/E | 3 |
| AL36 | | | | | | | TG | 0 |
| AL37 | * | | | | # | | PG/LF/HF | 60 |
| AL38 | * | | | | | # | PG | 15 |
| AL39 | * | * | | | # | | PG/LF/HF | 794 |
| AL40 | | | | | | | PG/CF | 0 |
| AL41 | * | * | | | # | | PG/LF/HF | 334 |
| AL42 | * | | | | # | | PG/LF/HF | 2 |
| AL45 | * | * | | | | # | PG/LF/HF | 18 |
| AL49 | | | | | | | PG | 0 |
| Mollepata Sub-Region | | | | | | | | |
| AM1 | | * | | | | # | PG | 9 |
| AM2 | * | * | | | | # | PG/E | 13 |
| AM3 | | | | | | | TG/PG/LF | 0 |
| AM4 | | | | | | | TG/LF/HF | 0 |
| AM5 | | * | | | # | | CF/E | 3 |
| AM6 | | * | * | | # | | PG/LF/HF | 19 |
| Chinchaypuquio Sub-Region | | | | | | | | |
| AC1 | | | | | | | TG/CF/LF | 0 |
| AC2 | | * | | | | # | CF/E/PG | 11 |
| AC3 | | | | | | | CF/E/PG | 0 |
| AC4 | | | | | | | CF/E/PG | 0 |
| 61 Sites | | | | | | | | 2411 |

KEY: TG = thick grass; PG = patchy grass; CF = field in cultivation, E = earth exposures; LF = low forest (producing litter); HF = high canopy forest

areas of Apurimac Department, to parts of Paruro Province, including the Molle Molle River Valley, Huanoquite, Paqariqtambo, Huaynacancha, Maukallacta and Colcha and to Acomayo Province around Pillpinto.

Many of the 61 sites in the Limatambo and Chinchaypuquio Areas were large and complex. Extensive areas would have required collection at these sites to provide a fair sample for inference of differentiated activity patterns and correlation with architecture. Moreover, analysis of the resultant material would have precluded documentary research which preliminary investigation in Cusco had shown to be promising. Sites for gridded collection of surface artefacts were chosen for their relatively high artefact density, estimated in preliminary survey (Table 3:1), the associated presence of architecture and relative lack of disturbance. The selection also aimed to represent sites with apparently very different histories of occupation, including examples with no Inca attributes, those of Inca and earlier use, and sites of continuous use from prehistory through to the Colonial Period.

The final six months were used for the completion and checking of site plans and recording, but greater emphasis was given to documentary research and artefact analysis in Cusco.

(ii) Sites and Site Separation: Places containing evidence of prehistoric human activity were accepted as archaeological sites. Isolated portable artefacts were noted but not regarded as a site if recent movement was likely, such as in the case of occasional potsherds or hammer dressed building stones reused in modern walls. A nearby provenance was in some cases indicated by the size, number and unlikelihood of mechanized movement of stone in recent times, or by

proximate artefacts or features. Massive sculptured boulders were usually regarded as *in situ*.

Very large areas contain evidence of terracing by the construction of stone walls, backfilling and levelling. Some are contiguous with other prehistoric features. They were classed as archaeological areas which terminate where the continuity of successive walls and relatively level lands is broken. A landslide or erosion gully, which breaks what otherwise appears to have been a continuous archaeological area, was not considered to create a separate site. Differentiated areas of architecture within them and areas separated by contemporary roads or canalisation (walled watercourses), were usually designated as sectors. Rivers and streams are taken as limits of archaeological sites unless the watercourse between such areas was walled.

A site within a prehistoric terraced area, such as an artefact concentration or stratified deposit, was regarded as a component of the larger site and was given a sub-site component number.

(iii) Site Numbers and Names: Recorded sites were given names currently applied by the nearest residents to the landscape features within or upon which they occur. A choice was made between equally applicable alternatives, or code suffixes were added to the same site name in some cases. All sites were given a number prefixed by letters designating the Province in Cusco Department ('A' for Anta) and District ('L' for Limatambo with 51 sites, 'M' for Mollepata with 6 sites and 'C' for Chinchaypuquio, with 4 sites).

(iv) Plans and Estimation of Site Extent: Plans were made of many sites according to various, indicated, methods and degrees of precision. The best of these, appropriate for large and complex archaeological areas, employed an electronic distance measurer and theodolite ('EDM & Theod.'), and a team of three (measurer, booker and staffperson) using two-way radio communications. In areas remote from vehicular access and electricity, sufficient 12v power to supplement NiCad packs for the EDM was taken in the form of car batteries. This presented logistic problems and was the main limitation of its use. The theodolite alone ('Theod.') was used but is inconvenient for large sites in steep terrain because numerous time consuming station changes are necessary.

Less precise plans were measured by tape, compass and clinometer ('Tape & Comp.'), pace and compass ('field sketch'), or a combination of these as field checks for aerial photograph interpretations ('FCAP Sketch'). The area of unmapped sites was estimated by pacing in site reconnaissance and, in the case of large sites without a thick canopy of vegetation, with the aid of air photographs at the best available scale.

(v) Vegetation Zone Association: Placement of sites within the Tosi-Holdridge Life-Zone system was achieved by a comparison of observed floral components at sites with indicator species in the scheme.

(vi) Relative Topography: The importance of settlement location in models of prehistoric culture change in the Andes requires a systematic approach to the relative topography of sites. A qualitative scheme is employed which distinguishes site location categories in the field area, albeit subjective in

marginal cases. The site plans have been framed to demonstrate topographic placement. The categories are:

Valley Floor (VF) comprises the land nearest to level in the area, mostly old river terraces along one or both margins of a permanent stream or river course, and cone-shaped alluvial-colluvial fans which spread over them at the mouth of deeply cut side streams and seasonal water courses (*quebradas*). The terraces usually have a gradient of less than 15%, but the fans may be included up to 33%. Such lands usually suffer erosion from river meander and undercutting, and from deposition at the boundary with steeper slopes, both gradual and as a result of landslides or rockslides.

Slope (S) is a valley side location exceeding a gradient of 33%, either open or enclosed in a ravine. Such lands are constantly being eroded.

Valley Side Pampa (VSP) is an area of lesser gradient than the slopes on a valley flank, or perched above a deeply cut ravine. VSP are subject to deposition at the upper margin and erosion at the lower.

Ridges (R) are elongate areas, prone to erosion on the margins, elevated above the surrounding landscape in most, but not all, directions.

A Mountain or Hill Peak (P) is an area elevated above the immediate surrounding landscape in all directions. Some are low hillocks whilst others are major peaks.

(vii) Recording Architecture: Structures, mainly stone buildings and retaining walls, were described in the field, and all or a sample measured as to a set of basic dimensions. Information on all stone walls included the pattern of coursing and corner bonding, the nature and uniformity of stone used, any material used in bonding or filling internal spaces, the size range of stone employed and whether it was unshaped (fieldstone), shaped (by percussion) or dressed (by pounding). Architectural features in terraces, such as canals or drains, stairs and niches, were recorded and measured, and a special search made for eroded profiles which provided information on construction methods. Architectural features of above-ground buildings, such as windows, doors, niches and evidence of internal subdivision or storeys, were also recorded and measured in the whole or part of a site. The time and resources needed to clear dense forest and undergrowth proved the major obstacle to complete survey and structure recording at several sites. Most sites had very poorly preserved surface architecture.

(viii) Excavation and Surface Collection Grids: Little attempt was made to augment collections of already well collected Cusco Inca pottery, but one site (Queswawayqo, component 1 of site AL12), featuring almost exclusively Cusco Inca pottery and associated with Inca style terracing, was chosen. AL12-1, a stratified deposit of pottery and carbon 1.4 m below the surface and exposed in an eroded terrace profile, was suffering disturbance by erosion, casual digging and collecting and was threatened by roadworks. Full excavation would have tied up the general survey, but a grid on the slumped erosion mound was collected in September 1985 and a narrow profile cleaned for extraction of soil samples and carbon for dating (Appendix IV). A visit in 1988 showed that it had escaped the road course but not the picks of constructors.

Sites chosen for further surface artefact collection included several with architecture and pottery (AL28, AL37 and AL4), but none of Cusco Inca style. A second group lacked Cusco Inca style architecture but contained such pottery (AL45, AL39 and in the main, AL41). One site (AL25), with Inca artefacts and pottery and a large amount of Colonial pottery, was also chosen for further collection because documentary sources indicated the time frame and social circumstances of its Colonial occupation.

Preliminary analysis of these collections indicated sherd densities of between 0.76/sq.m (AL4) and 290/sq.m (AL39), although open areas were selected to give high numbers of sherds and density was affected at most sites by thick grass cover, leaf litter or rubble from collapsed structures (Table 3:2). Thick mats of hardy green grass, common at high altitude, appeared to exclude ground observation more than thick stands of tall grasses at lower altitude. No pottery at all was observable on the surface of some sites of prehispanic architecture with such cover (Table 3:1). Patchy grass was common at eroded and stony places with thin soils and usually permitted surface observation. Exposed earth was a result of cultivation or erosion. Low forest or shrubby vegetation produces a thick organic surface cover, but also restricts site recording in general because of the occurrence of dense spiny components. Such sites are most clearly visible in the drier low altitude areas and in all areas during the dry season. High forest alone is not as restrictive of rapid general survey despite litter and an understorey. Highest densities occu red at sites remote from present nucleated settlements and which are not used for field agriculture (AL39, AL41 and AL28). Surfaces of stone-walled terraces distant from above-ground architecture contained little pottery, whether the surfaces were presently cultivated or abandoned.

Rim sherds formed a small part of each sample (less than 9.2%), bases and handles usually less, and body sherds the bulk of material (Table 3:2). Other baked clay material on sites included *straw-holed lumps*, Spanish roof tile fragments (AL12 and AL25) and a sculptured animal head, possibly from an Inca deep dish handle (AL12-1). The only metal artefact found was a copper *tupu* from AL25.

The mean maximum dimension of sherds fell between 2.8 cm at AL41, and 5.2 cm at AL12 (Table 3:3). The large material at AL12-1 reflects its stratified origin and that it was probably dumped there rather than lived upon, as at most other sites. The generally small size of sherds and limited number of rims restricted the degree of vessel reconstruction possible. Attempts to fit sherds indicated that at all sites but AL12-1, and to a lesser extent AL39 and AL28, surface material was highly mixed.

The mean wall thickness of sherds was from 0.6 to 0.9 cm, excluding tiles, handles without any body attached and damaged sherds (Table 3:4). Modal thickness was in two cases 0.51-0.6 cm, in eight 0.61-0.7 cm, in four 0.71-0.8 cm and once was both the latter and 0.81-0.9 cm. Very restricted ranges only occur in small samples (AL43, AL39-R12C4, and AL41-QP2C7). Very thin-walled vessels (under 0.4cm) are noticeably absent from the pre-Inca sites AL28 and AL37, which provided average sample sizes. Very thick walled vessels (over 1.2 cm) are represented in all other cases. In further analysis, presented in the following two chapters, *thin-walled* signifies less than 0.61 cm, *medium walls* from 0.61 to 0.8 cm and thick walls *the higher range.*

TABLE 3:2 SURFACE COLLECTION UNITS : Sherd Density and Vessel Part

| Site | Code | Area sq.m | n | Density n/sq.m | Part of Vessel Rim n | (%) | Body n | (%) | Handle n | (%) | Base n | (%) | Other n | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL4 | JT | 28.3 | 37 | 1.3 | 2 | (5) | 28 | (76) | 3 | (8) | 4 | (11) | 0 | |
| AL12 | Ext+Sc | 11.0 | 190 | 17.3 | 17 | (9) | 152 | (80) | 66 | (3) | 8 | (4) | 7 | (4) |
| AL25 | 1/3-4 | 32.0 | 171 | 5.3 | 9 | (5) | 156 | (91) | 1 | (1) | 1 | (1) | 4 | (2) |
| | 2/A2 | 25.0 | 74 | 3.0 | 6 | (8) | 49 | (66) | 1 | (1) | 2 | (3) | 16 | (22) |
| AL28 | HBA | 12.6 | 133 | 10.6 | 9 | (7) | 116 | (87) | 5 | (4) | 3 | (2) | 0 | |
| | HCB | 12.6 | 35 | 2.8 | 3 | (9) | 31 | (89) | 0 | | 1 | (3) | 0 | |
| | HCC | 12.6 | 29 | 2.3 | 2 | (7) | 26 | (90) | 1 | (3) | 0 | | 0 | |
| AL37 | LLS | 1.0 | 60 | 60.0 | 1 | (2) | 54 | (90) | 3 | (5) | 2 | (3) | 0 | |
| AL39 | 9C1 | 1.0 | 208 | 208.0 | 11 | (5) | 190 | (91) | 2 | (1) | 5 | (2) | 0 | |
| | 9C2 | 1.0 | 277 | 277.0 | 10 | (4) | 263 | (95) | 1 | (-) | 3 | (1) | 0 | |
| | 9C3 | 1.0 | 290 | 290.0 | 16 | (6) | 268 | (92) | 4 | (1) | 2 | (1) | 0 | |
| | 12C4 | 1.0 | 17 | 17.0 | 1 | (6) | 16 | (94) | 0 | | 0 | | 0 | |
| AL41 | PC5 | 1.0 | 98 | 98.0 | 4 | (4) | 92 | (94) | 0 | | 2 | (2) | 0 | |
| | PC6 | 1.0 | 175 | 175.0 | 14 | (8) | 154 | (88) | 4 | (2) | 3 | (2) | 0 | |
| | PC7 | 1.0 | 44 | 44.0 | 4 | (9) | 40 | (91) | 0 | | 0 | | 0 | |

TABLE 3:3 SURFACE COLLECTION UNITS : Maximum Dimension Analysis

| Site | Code | Maximum Dimension (cm) n | Range | Mean | SD |
|---|---|---|---|---|---|
| AL4 | JT | 37 | 2.7- 6.7 | 4.52 | 1.16 |
| AL12 | Ext+SC | 185 | 1.6-14.8 | 5.21 | 2.55 |
| AL25 | 1/3-4 | 167 | 1.3- 5.9 | 3.11 | 0.90 |
| | 2/A2 | 59 | 1.5- 5.8 | 3.10 | 1.08 |
| AL28 | HBA | 133 | 1.2- 9.5 | 3.55 | 1.54 |
| | HCB | 35 | 1.2- 8.6 | 2.79 | 1.46 |
| | HCC | 29 | 1.2- 8.2 | 3.13 | 1.55 |
| AL37 | LLS | 60 | 1.9- 6.5 | 3.11 | 1.17 |
| AL39 | 9C1 | 208 | 0.9- 7.9 | 3.73 | 1.81 |
| | 9C2 | 277 | 0.8-12.5 | 3.56 | 1.77 |
| | 9C3 | 290 | 0.6-10.3 | 3.39 | 1.36 |
| | 12C4 | 17 | 2.2- 5.2 | 3.37 | 0.89 |
| AL41 | PC5 | 98 | 0.5-12.0 | 3.61 | 1.43 |
| | PC6 | 175 | 1.3- 7.6 | 2.84 | 1.04 |
| | PC7 | 44 | 1.3- 5.8 | 2.77 | 1.11 |

TABLE 3:4 SURFACE COLLECTION UNITS: Sherd Thickness Analysis (mm)

| Site Code | n | Range | Mean | SD | Range Frequency (%) 2.1-3.0 | 3.1-4.0 | 4.1-5.0 | 5.1-6.0 | 6.1-7.0 | 7.1-8.0 | 8.1 9.0 | 9.1-10.0 | 10.1-11.0 | 11.1-12.0 | 12.1-13.0 | 13.1-14.0 | 14.1-15.0 | 15.1-16.0 | 16.1-17.0 | 17.1-18.0 | 18.1-19.0 | 19.1-20.0 | 20.1+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL4 JT | 37 | 4.8-14.5 | 7.5 | 1.8 | | | 1 (2.7) | 2 (5.4) | 14 (37.8) | 12 (32.4) | 5 (13.5) | 1 (2.7) | 0 | 0 | 0 | 1 (2.7) | 1 (2.7) | | | | | | |
| AL12 Ex+SC | 180 | 3.0-18.7 | 7.3 | 2.6 | 2 (1.1) | 14 (7.7) | 15 (8.3) | 27 (15.0) | 37 (20.6) | 23 (12.8) | 22 (12.2) | 15 (8.3) | 11 (6.1) | 7 (3.9) | 3 (1.7) | 1 (0.6) | 0 | 1 (0.6) | 1 (0.6) | 0 | 1 (0.6) | | |
| AL25 1/3-4 | 166 | 2.5-15.0 | 7.9 | 2.5 | 3 (1.8) | 14 (8.4) | 11 (6.6) | 11 (6.6) | 16 (9.6) | 29 (17.5) | 26 (15.7 | 28 (16.9) | 12 (7.2) | 11 (6.6) | 4 (2.4) | 0 | 1 (0.6) | | | | | | |
| 2/A2 | 58 | 2.8-13.2 | 8.6 | 2.1 | 1 (1.7) | 0 | 0 | 5 (8.6) | 7 (12.1) | 11 (19.0) | 11 (19.0) | 8 (13.8) | 6 (10.3) | 6 (10.3) | 2 (3.4) | 1 (1.7) | | | | | | | |
| AL28 HBA | 132 | 4.5-14.6 | 7.4 | 1.8 | | | 6 (4.5) | 22 (16.7) | 37 (28.0) | 24 (18.2) | 22 (16.7) | 13 (9.8) | 4 (3.0) | 0 | 1 (0.8) | 2 (1.5) | 1 (0.8) | | | | | | |
| HCB | 35 | 4.8- 9.5 | 7.1 | 1.3 | | | 2 (5.7) | 5 (14.3) | 10 (28.6) | 9 (25.7) | 5 (14.3) | 4 (11.4) | | | | | | | | | | | |
| HCC | 28 | 4.6-10.9 | 6.9 | 1.5 | | | 1 (3.6) | 7 (25.0) | 11 (39.3) | 4 (14.3) | 3 (10.7) | 0 | 2 (7.1) | | | | | | | | | | |
| AL37 LLS | 57 | 5.4-16.3 | 9.0 | 2.1 | | | | 3 (5.3) | 7 (12.3) | 13 (22.8) | 8 (14.0) | 12 (21.1) | 3 (5.3) | 8 (14.0) | 1 (1.8) | 1 (1.8) | 0 | 0 | 1 (1.8) | | | | |
| AL39 9C1 | 203 | 3.0-18.0 | 7.8 | 2.3 | 3 (1.5) | 6 (3.0) | 17 (8.4) | 34 (16.7) | 42 (20.7) | 27 (13.3) | 33 (16.3) | 19 (9.4) | 11 (5.4) | 6 (3.0) | 1 (0.5) | 2 (1.0) | 1 (0.5) | 0 | 0 | 1 (0.5) | | | |
| 9C2 | 276 | 3.3-23.6 | 7.9 | 2.7 | | 5 (1.8) | 23 (8.3) | 26 (9.4) | 62 (22.5) | 47 (17.0) | 45 (16.3) | 32 (11.6) | 14 (5.1) | 5 (1.8) | 4 (1.4) | 5 (1.8) | 2 (0.7) | 0 | 1 (0.4) | 0 | 0 | 1 (0.4) | 4 (1.4) |
| 9C3 | 290 | 3.4-37.7 | 7.5 | 2.8 | | 5 (1.7) | 18 (6.2) | 58 (20.0) | 81 (27.9) | 44 (15.2) | 34 (11.7) | 18 (6.2) | 11 (3.8) | 11 (3.8) | 6 (2.1) | 1 (0.3) | 1 (0.3) | 0 | 0 | 1 (0.3) | 0 | 0 | 1 (0.3) |
| 12C4 | 17 | 4.6 -8.3 | 6.7 | 0.9 | | | 1 (5.9) | 1 (5.9) | 10 (59.0) | 4 (23.5) | 1 (5.9) | | | | | | | | | | | | |
| AL41 1C5 | 98 | 3.7-13.5 | 8.3 | 2.0 | | 1 (1.0) | 3 (3.0) | 10 (10.2) | 13 (13.3) | 18 (18.4) | 14 (14.3) | 17 (17.3) | 15 (15.3) | 6 (6.1) | 0 | 1 (1.0) | | | | | | | |
| 1C6 | 171 | 3.5-16.4 | 6.4 | 2.0 | | 11 (6.4) | 34 (19.9) | 48 (28.1) | 28 (16.4) | 25 (14.6) | 12 (7.0) | 6 (3.5) | 3 (1.8) | 1 (0.6) | 0 | 0 | 2 (1.2) | 0 | 1 (0.6) | | | | |
| 2C7 | 44 | 5.1-11.9 | 8.1 | 1.6 | | | | 2 (4.5) | 10 (22.7) | 13 (29.5) | 8 (18.2) | 5 (11.4) | 2 (4.5) | 4 (9.1) | | | | | | | | | |

The identification of signs of burning and kitchen use in surface pottery is difficult. Carbon was rarely present. Blackening of the outer surface of a sherd was generally regarded as the result of use but deep or complete blackening of the fabric was noted as the possible result of firing.

(ix) Comparability of Site Distribution Patterns: The survey was purposely directed to increase probability of site recovery. This may facilitate discovery of unusual or clustered archaeological manifestations, but information was also obtained about 'site recovery biases' [Schiffer et.al. 1978]. It is thought to present a good inventory of larger terraced and monumental sites in the study region and to indicate the variety and likely locations of other site types in the Limatambo Area.

Surface collections were minute compared to site sizes, and densities were affected by coverage at most sites in such a way that intrasite activity differentiation was unlikely to be clarified. They were extended in selected sites which were most likely to provide information on chronology and the nature of state relations with local level settlements.

Site function and chronology are key parameters in attempts to use regional archaeological information to examine socio-economic formations. Surface survey only permits a general degree of control of these variables [Parsons 1972:142-3], yet excavation at any one of the recorded sites would not nescessarily be more useful without the landscape context. This is especially so for multi-hectare sites which appear to conform to an overall plan.

## 3.3 Cusco Regional Pottery Seriation and Chronological Inference.

The chronology for Limatambo sites is dependent upon similarities with architectural and artefact assemblages seriated in the Valley of Cusco and nearby areas. A review of regional archaeology is used to ascertain the types of sites which are likely to be found in similar environments and to assess the limits of interpretation applicable to the surface survey data.

### 3.3.1 The Preceramic.

No preceramic sites have been dated in Cusco Department. The high altitude meseta of Espinar Province contains a number of rockshelters with flaked stone implements including 'laurel leaf' points of basalt and small points of obsidian [Astete 1983:1-3]. Large amounts of flaked stone were seen on the hillside surface surrounding Mollok'awa, a walled Inca installation in Espinar, visited in 1988. The rolling hills and grasslands contrast with the deeply incised valleys which typify Cusco.

### 3.3.2 Marcavalle and Chanapata.

The earliest Ceramic Period site is at Marcavalle, about 4 km from Cusco, excavated between 1966 and 1968. *Marcavalle* pottery is thought to date to between 3000 and 2600 BP [Mohr 1982:1-2]. Five associated dates on charcoal and a consistent bone date [Mohr 1977:91, 1142-44] give a calibrated date range of 1350-585 BC [Klein et.al. 1982]. Occupation is indicated by the density of pottery, possible adobe structures and food remains including beans (*Phaseolus*

*vulgaris*), maize in upper levels, camelid bones, deer, wild cat, dog, guinea pig, birds and toad [Mohr 1977:1085-88].

Decorative techniques on various bowl forms and jars throughout the occupation included punctation, grooving and application of specular haematite paint, although open cooking vessels were undecorated. Grooves were often used to delimit painted areas on early phase pottery; 'cream on brown' painting appears after initial occupation and predominates thereafter. Incised ware with post-firing paint, and 'black on cream' material occurs late in the sequence [Mohr 1977:1069-78]. The industry is thought to have technical and stylistic associations with early pottery assemblages from Puno and the southern coast, but shows little affinity with contemporary *Chavinoid* styles of northern and central Peru [op.cit.:1084].

Chanapata, on the northwestern outskirts of Cusco, was excavated by John Rowe in 1941 [1944:13-19]. Architecture was limited to a fieldstone retaining wall, interpreted as part of a structure. Substantial occupation had produced carbon rich refuse containing flaked obsidian debitage and a flat-based point and a wide range of bone implements, but none of metal. The pottery was divided into groups prefixed by *Chanapata* and *Pacallamocco*, after a site at Maras where the material occurs on the surface. It was identified as pre-Inca because it was overlain by well known Cusco Inca, plain, glazed and *Canchon type* (*Killke*) sherdage [op.cit.:18,60]. Pottery like that of Marcavalle has not been reported from Chanapata. However, *Pacallamocco type* pottery occurs at Marcavalle and two associated dates on charcoal calibrate to the range 390 BC to AD 15 [Mohr 1977:1142; Klein et.al. 1982]. In Mohr's attribute analysis it

was closer to *Marcavalle* pottery than the other Chanapata types, but substantially post-dated it [1977:1006].

The *Chanapata Series* [Rowe 1944:16-19] includes *Plain*, a thin coarse ware with interior and sometimes exterior brush strokes, probably from plates, bottles and globular forms with low, vertical necks and vertical body-mounted strap handles; *Incised Plain* features fine geometric incisions; *Punctate* sherds have elongate excisions; *Pattern Burnished* is like Plain except that a tool was used to flatten the brushed surface to form unevenly spaced lines in approximately the same direction; *Polished Black* comprises mainly bowls with rim thickening and highly polished surfaces, of black colour except for clouded or red patches; *Incised Black* features thick, incised, mostly straight lines, zones filled by parallel horizontal lines, and occasionally incised stylised animals or applied ornament; *Polished Red* and *Incised Red* are firing colour variants, although the latter may have red or white painted decoration. *Pacallamocco White on Red* consists of polished plates and bowl forms with red interior slip and broad, lustreless white lines forming zig-zags on plate margins, crosses and 'S' shaped figures; *Pacallamocco Red on Buff* features a contrasting colour usage.

*Pacallamocco* sherds from Maras and incised and polished black Chanapata sherds, inspected at Cusco University, are highly distinctive. Black and Red polished ware occurs at Pacallamocco, but Plain and Pattern Burnished without Polished Black was reported at Limpillay Hill, 5 km from Cusco [Rowe 1944:23]. Further *Chanapata sites* were later found without Polished Black, but the pottery was described as *predominantly red fired* with *a reddish or brownish surface* [Rowe 1956:143]. Black ware decreased in upper levels at Chanapata and Rowe

proposed that this red fired pottery, named *Derived Chanapata*, was later [op.cit.:143; 1944:18]. It is unknown how it compares with pottery at Chanapata. If it resembled the other red fired pottery there, no new category would have been needed.

Surface sites and excavations in the lower Urubamba Valley, many less than 50 km from Limatambo, contain *Chanapata, Chanapata type* or *Chanapata related* pottery (related on the basis of paste and temper alone or combined with surface treatment and/or firing). It expressly includes Pattern Burnished sherds, plain brown, haematite-and-cream painted burnished red-slip ware and an incised, straight-sided vertical bowl form [Kendall 1976:47-52, 69-70; 1985:295-299, 319]. Many other reports of Chanapata-like pottery fail to specify the elements or categories of the *Chanapata Series* to which they refer.

Components of the early pottery assemblages contain a variety of technological features. Some are used in distinctive combinations for the region. Importantly, the use of line incision is scarcely known in later assemblages. There is therefore some basis for the identification of a regional pottery horizon.

Excavations by Chavez Ballón in 1952 at Batan Urqo, 40 km southeast of Cusco, are not published. However, Rowe [1956:142] has stated that pottery in a refuse deposit included *Chanapata* overlain by *Waru* (named but not described by the excavator), in turn overlain by *Lucre style* associated with *Wari types*, and early and late Inca pottery on the surface. Sherds from Batan Urqo, shown to me by Julinho Zapata, included polished red, incised red and pattern burnished

Chanapata styles, as well as sherds with the wide variety of paint colours and motifs of Wari polychrome pottery.

### 3.3.3 Wari Occupation.

The site of Wari, 250 km to the west of Cusco, had an area of simultaneous occupation covering perhaps 500 ha over half a millennium before Inca expansion [Isbell 1984]. *Wari* pottery at Batan Urqo was associated with stone slab tombs like those at Wari [Rowe 1956:142]. Pikillacta is a large site of Wari style architecture in the Lucre Basin about 30 km southeast of Cusco. It contains some 508 structures which appear to have been constructed and occupied between 1350 and 1050 BP, on the basis of radiocarbon dates and also the presence of seriated Wari (*Ocros* style) pottery of Middle Horizon Epoch 1B or early 2A [McEwan 1983; 1984a:131-133, 227]. The calibrated high confidence range of four dates, excluding one from the base of excavation, is between AD 420 and AD 1035 [Klein et.al. 1982]. Abundant pottery, bone, *batanes* (grinding slabs) and hearths unearthed in excavation have demonstrated that it was a complex centre of occupation, possibly organised on military lines, with differential architectural elaboration suggesting it served as a residence to both commoners and elite [McEwan 1983; 1984a:153-162].

Wari pottery occurs elsewhere in the Lucre Basin. It was associated with early construction at Rayallacta and accompanies some local contemporary and later pottery styles in refuse at Choquepukio, a site featuring high walls with Wari-like construction attributes but with trapezoidal Inca-like ground plans and local niche forms [McEwan 1984a:17,33-34,211; 1984b:12]. Wari polychrome pottery is reported in association with a style named *Qotakalli* at a site

within Cusco itself, but there is no indication of Wari occupation in the lower Urubamba Valley [Kendall 1976:91;Espinosa 1983:16-22]. The likelihood of surface occurrence must be considered low, given that in the case of a well known and accessible site, like Pikillacta, the nature of Wari occupation was unknown before major excavations.

Lucre basin pottery styles from the time of Wari influence are known as *Lucre* and *Qotakalli*. The former, illustrated but not formally described, has been divided into two variants by McEwan [1984a:165,241-3]. *Lucre B* incorporates elements of Wari decorative technique, motifs and colour, occurs in deposits in buildings at Pikillacta and is considered a local imitation of Wari pottery. *Lucre A* appears to be decoratively related to *Killke*, a style common therafter in the northern part of the Cusco Valley.

*Qotakalli* sherds occurred in clear association with Wari pottery at Pikillacta, but the style is not considered by McEwan [1984a:165] to show strong Wari influence. Excavations at Wimpillay (Limpillay), although not yet reported in detail, appear to have located *Qotakalli* material stratified between *Chanapata* and *Killke* style pottery and associated with 'Wari' pottery [Barreda 1982:14]. *Qotakalli* sherdage, which I was able to inspect at Cusco University, has been described and illustrated for Wimpillay and other sites in circum-Cusco provinces by Barreda [op.cit.14-22]. The fabric is described as light cream or pale red, well fired, without mica, slightly porous and with white inclusions. Exterior surfaces are pale cream, interiors are the same or pale red and both have a self-same slip. Exteriors feature traces of polish and interiors are brushed or cloth-wiped. Decoration comprises painted parallel or crossing lines on the exterior and sometimes interior, in black and red or red

alone. Motifs include vertical or oblique parallel lines meeting other lines, black dots, parallel or crossing lines filling triangular or diamond shaped spaces and alternating black and red parallel zig-zag or wavy lines.

3.3.4 Post Wari Cusco.

The Late Intermediate Period [Rowe 1962, Lanning 1967:25], between withdrawal of direct Wari influence in the Cusco Valley and the emergence of distinctive Inca architecture and pottery assemblages, is characterized by a far greater presence of surface remains of architecture and pottery. Choquepukio, dated from material in the walls of straight sided structures to AD 860±60 [McEwan 1984a:210] and AD 1255±59 [Kendall 1976:97], calibrated to the ranges AD 855-1040 and AD 1235-1345 respectively [Klein et.al. 1982], represents the first part of this phase in the area most directly affected by Wari occupation. Beyond the Cusco Valley, the characteristic settlement architecture of the period is of structures with rounded, circular or ovaloid floor plans.

Several sites, found by Rowe during 1942 in the environs of Cusco, featured a pottery style first located in the the grounds of Santo Domingo church, called *Canchon* and later renamed *Killke* after another site [1944:60-61]. Often mixed with Inca pottery on the surface, but not with glazed Colonial pottery, *Killke* was attributed a late pre-Inca date. Rowe divided the material from several sites into five groups mainly by decoration, defining components of assemblages rather than a single style: *Killke Plain* has a soft and coarse red paste and brushed but not smoothed surfaces, comprising often blackened sherds from wide-mouthed jars with a tapering foot and paired horizontal strap handles on the body, as well as smaller globular flat-based jars and both deep

and shallow plates. The other four groups all shared a finer paste with a chalky texture, more evenly fired and light in colour. *Killke Buff* was undecorated but polished on the exterior with a blunt tool, and jar sherds are brushed on the interior. *Killke Black on Buff* features linear painting and dots in lustreless black. *Killke Black on White* has similar patterns on white slip, and includes cup and bowl forms. *Killke Polychrome* features both red and black linear patterns, and red used to fill areas. Associated material includes slate knives, pottery figurines, spindle whorls, worked shell, and walls of fieldstone in mud mortar [op.cit.].

Further work by Dwyer [1971] in the Cusco Valley has traced technical and stylistic antecedents of the assemblage, and its major contribution to the Inca pottery in use at the time of European contact. A tentative temporal scheme of subdivision was achieved by considering separately a small sample of pottery from a lower excavated unit at Sacsaywaman, called *Killke A*, a larger corpus from the upper unit, *Killke B*, and the material which predominated on surface sites, *Killke CD*, as well as the examination of whole vessels in museum and private collections. The top stratum of the lower unit at Killke provided carbon dated to AD 1180±140, which falls within the calibrated range AD 1020-1405 [op.cit.:140, Klein et.al. 1982].

*Killke B* plain brown ware was probably burnished with a stone, leaving grooves and a 'shiny streak' appearance [Dwyer 1971:87]. It includes a ring-pedestal vessel [op.cit.:86,101,fig.128], possible prototype for an Inca cooking vessel. Common 'buff wares' include straight sided bowls, painted on the interior but not exterior surfaces, featuring black painted triangles on the lip, larger triangles filled with cross hatching, thin black lines combined with

wider bands, or solid black circles connected by lines to the apex of solid or cross hatched triangles [op.cit.:87-90]. Thin curved bowls (Bowl Shape A) often feature a red band with a thin black outline on the interior rim. Shallower bowls (Bowl Shape B), of 10-16cm diameter, stand 3-4cm high. Incurving bowls, of 11-19cm maximum diameter, are more finely finished than other forms and usually feature exterior decoration and a black band on the interior rim [op.cit.:90-92]. A very wide (18.5cm diameter) shallow plate form with smooth and polished surfaces has a rim-bulge or lug with a 3 mm deep hole in the top [op.cit.:99].

Characteristic features of all Killke decorated pottery are the combination of thin black lines (2-3 mm) and red bands (1-3 cm), in which washy application of red fails to mask the underlying fabric colour, and lines which rarely meet with precision. Motifs include triangles filled with a criss-cross pattern of thin black lines, common on bowl interiors, criss-crossing black lines between two parallel lines and strings of criss-cross filled diamond outlines, common on jar necks [Dwyer 1971:102-113]. Other forms include cups, to which white painted backgrounds are restricted, jars with slightly flaring necks and unthickened or slightly thickened rims and sparsely decorated bodies, a pitcher (museum specimen) with a single vertical handle attached to the rim and body (Jar Shape A), a straight necked jar (Jar Shape B) and a flared rim version (Jar Shape C), which sometimes has a roll of clay added as a thickening to the outer lip [op.cit.:94-104].

*Killke A* plain brown jars have taller and straighter necks than those of Phase B. Bowls with an inflected body profile only occur in Phase A and black lines are thicker than in later material. Phase A contains all of the design

elements and motifs of Phase B with variations in organization. Wavy black lines below the interior lip of Shape B bowls occur in Phase A but not Phase B. Phase A buff ware jars carry less decoration [Dwyer 1971:118-124]. Cusco Inca pottery, compared with *Killke CD*, was found by Dwyer [1971:128-129] to be harder and smoother, to emphasize certain Killke motifs and composition rules and to display repetition of exact designs and consistency of shape, finish and firing which are not attributes of Killke pottery.

Architecture is rare at the Cusco Valley Killke sites. Excavations and surface survey in the lower Urubamba Valley have demonstrated a pattern of association between round and elliptical structures and pottery identified as *Killke* or *Killke related*. Of ten sites with round, oval or rounded structures only two lack surface pottery of this kind and these were where nothing diagnostic was found [Kendall 1976:44-88,91]. *Killke related* appears to include sherds which share decorative elements or shape with Killke [see Kendall 1976:52-58,61,63,65-66,68,84-86,92]. 'Killke or Killke related' material is also reported from two surface sites, called Canchacancha and Chacamoqo, situated near Lake Piuray between Cusco and Urubamba [Rivera 1971]. The drawings are of undescribed sherds so that the relationships with Killke can only be surmised from decorative features.

Surface Killke sites in the Cusco Valley were on hills and slopes above the presumably agricultural valley floor, but rarely in defensible places [Dwyer 1971:24,43,145]. All contemporary sites in the Urubamba Valley were located on elevated positions, such as promontories extending into the valley, ridge spurs and mountain tops [Kendall 1976], but in some cases were remote from the valley floor and the occupants probably exploited nearby slopes eg. Ancasmarca and

Quishuarpata. It has been suggested that very high defensive Killke sites beyond Cusco might have been retreats rather than permanent settlements [Dwyer 1971:146]. An alternative model might be drawn from observation of present settlements in such relatively high locations which have an economic basis usually tied to a high altitude crop complex and a greater use of pastures for livestock, combined with outlying resource zones and exchange relations with settlements at lower altitudes.

The relationship between Killke pottery and architecture is suggested by Urubamba Valley excavations. The 57 cm deep floor deposit of one of over 200 circular structures at Ancasmarca produced charcoal dated to AD 1290±60 and AD 1468±91 [Kendall 1976:82-83, 97]. It is probable that these represent dates in the ranges of AD 1250-1395 and AD 1320-1605 respectively [Klein et.al. 1982]. At Ancasmarca and in the 60 cm floor deposit of an oval structure at Huillca Raccay, Inca and 'Killke or Killke related' pottery occurred on the surface and the latter increased at lower levels [Kendall 1976:52-54].

Urubamba sites with higher percentages of later phases of Killke or its related pottery have been reported to show an increased distribution at lower altitudes on valley sides near arable land, like Inca sites [Kendall 1976:99]. However, of the four sites described, one produced no diagnostic pre-Inca pottery [op.cit.:46], a second contained pottery similar to another site on a ridge spur [op.cit.:66-68] and a third contained surface pottery from all phases of 'Killke and Killke related' in the area of round-oval structures [op.cit.:44-45]. Killke Phase A pottery is widespread in Cusco Valley surface sites at locations generally not defensible [Dwyer 1971:140-141,145]. Movement of settlement nuclei from hilltops to near the valley floor, in the late part of

the Late Intermediate Period, is exactly the opposite of the pattern reported in the Mantaro Valley [Parsons and Hastings 1988:224].

If the Phase A pottery indicates an early date, then the settlement pattern of a 'secure society' was established in the Cusco Valley, as Dwyer noted [1971:148], and represented in the Urubamba Valley, long before most estimated dates for the state organisation and expansion of Inca society, the mythico-historic cataclysm of the personage *Pachacutec* and for that matter, the *pax incaica*. This should not preclude the continued occupation of high positions into the period of Inca state control, especially if they are seen as part of a continued complementary system of landscape exploitation rather than simply defensive. Small numbers of Cusco Inca sherds occur at such sites in the Urubamba Valley where overt Inca architecture is absent [Kendall 1985:312,331-332] and this would conform to a model of limited access by local settlements to prestige wares of the State.

## 3.4 Cusco Inca Pottery and Cusco Inca Architecture.

The construction works and pottery which were the product of the *Inca* polity during a period prior to European contact when it had access to considerable human and natural resources and craft specialists, and featured a multi-tiered bureaucracy and state reinforced or incorporated hierarchy of ethnic elite (the *Inca Archaeological Culture* of the *Inca period*), are those which first received attention. Despite major advances in research in the region surrounding Cusco many questions remain unresolved.

Complementing *res ipsa loquitur* architectural infererences with artefactual and archaeobotanical studies of the function of structures, such as storehouses, is needed to augment data for comparison with provincial centres [Morris 1967:162-166]. Application of residue and use wear analysis to examination of artefact function may strengthen the interpretation of associated structures. Little advance has been made in 'the centre' to develop models for interpretation of the archaeological manifestation of documentary concepts like *mitmaqkuna* and *tambo*. To what extent were local villagers in the region of Cusco during the Inca Period part of, drawn into or affected by the social changes of the period? Were villages depopulated so that residents could be put to live in 'Inca villages' and work upon lands dedicated to elite consumption or state maintenance? If so, did lands near abandoned villages simply fall out of production, where are the new villages and how can Inca lands be identified? If not, and the occupation continued, what relationship existed with the powerful polity nearby? Can an Inca Period reoccupation of hypothetically abandoned earlier villages be detected in the prehistoric settlement record, and what sorts of excavation need to be designed given the shallow floor deposits in sites which might answer these questions?

### 3.4.1 The Association of Inca Pottery, Structures and Landscapes.

What is known about the circumstances of production and use of Inca pottery and architecture derives from limited specific early observations and general sources, ethnographic models and the archaeological data of physical attributes, context and association.

Brief Colonial descriptions of elaborate, hammer-dressed and closely-fitted *Cusco Inca style* masonry of buildings in Cusco [Sancho (1534) 1917:193-4); Estete (ca.1535)1938:390; Cieza 1985 (1553):148], and varying indications of their manner of construction and purpose in Inca society, provided the first statements about what remains an identifiable characteristic of the centre of the Inca state at European contact and many distant sites where its influence reached [Gasparini and Margolies 1980].

The state role in construction and placement of monumental architecture is inferred from this wide distribution and the very large labour forces needed to move individual enormous blocks and to fit them together at sites like Sacsaywaman and Ollantaytambo. Colonial administrative documents record labour obligations (*mit'a*) owed by people hundreds of kilometres away to the Inca for construction in Cusco [Julien 1982:137,139; Murra 1982:240-241]. Radiocarbon dates for post-Wari Cusco sites are insufficiently bounded to suggest more than that Cusco Inca masonry began to be produced in the 15th Century. There are technical but not compositional antecedents at Tiwanaku and Chavin. Wherever it occurs, it is associated with pottery which post-dates all but contemporary local prehistoric and historic styles. Other forms of contemporary construction and artefacts did not receive the same detailed attention and the stonemasonry techniques have only recently been subjected to replicative experiment [Protzen 1983, 1985].

The first large assemblage of Inca pottery associated with Inca architecture, studied to develop a formal typology and idea of vessel function, came from Machu Picchu [Bingham 1915, 1930]. The typological trend continued, providing many illustrated and described whole vessels [Pardo 1938; 1939; 1957],

augmented by material from excavations on sites of monumental Inca architecture at Sacsaywaman and Ollantaytambo [Valcárcel 1935; Llanos 1936; Franco and Llanos 1940].

The varied architectural complexes at these sites include not only the Cusco Inca style masonry but also structures and stone-walled dry terraces of less elaborate stonework. Different degrees of hammer dressing, and undressed blocks, may occur in different parts of the same structure. Rowe [1944:25] described *regular coursed* and *polygonal* styles within Cusco Inca style in Cusco itself and made the observation, useful for study of incomplete buildings, that the latter, when employing large stones, was used for terraces and the former was generally restricted to above ground structures. The architectural totality of Inca terrace and building installations featured in plans of Machu Picchu [Bingham 1930] and nearby sites [Fejos 1944]. The details, composition and design of above ground Inca architecture in the Cusco region have been described and analysed by Kendall [1985] and require no further comment here.

Prehistoric stone walled terrace schemes merit further attention because most descriptions of them are incomplete and, as noted by researchers [Alcina 1976:137; Farrington 1980], dating and functional questions remain when they are not associated with visible pottery or structures.

Distinctive elements of *Inca terracing* were ascertained by a review of published reports of sites where terraces are integral with Cusco Inca style masonry or surface architecture of Inca design. These were combined with observations of terraces made during 1982 as a field assistant to Farrington in the Vilcanota Valley and from 1984 to 1986 in the present study region and

surrounding Provinces. Further details of these terraces are presented in Appendix III, in site descriptions and in Chapter 9. Attributes of Inca terraces without Cusco Inca style masonry, found to distinguish them from other occurrences in the region, are:

a. Fieldstone for construction is sorted so that larger blocks tend to occur in lower courses.

b. Stones used in one level of the wall tend to be of similar size.

c. Small wedge-like stones are rarely employed in visible (above ground) courses to hold larger ones in place, (but usually hold projecting stone steps in place).

d. Erosion breaks reveal that smaller stones are concentrated in the space immediately behind a wall, either loose or in a clayish matrix.

e. Blocks are placed to form an even facade from which they do not abruptly protrude.

f. Wall surfaces are battered in an upslope direction.

g. Wall batter is of a consistent angle, not inflected except by tree roots, slumping or reconstruction.

h. Terrace walls are *segmented*, i.e. they have corners or end walls, used to close the end of platforms or to change wall direction.

i. Corners are abrupt, close to right angles, and 'sharp', carefully bonded with the adjacent wall stones.

j. Stones used for exterior corners are consistently closer to a squared form than those in walls and are often percussion shaped.

k. In plan, wall lines are either very straight or trace smooth curves.

l. A retained soil surface usually has a very slight gradient towards the perpendicular wall retaining it.

Certain features occur in walls of Inca terrace schemes, as defined above, which do not occur in other terraces, except in rare instances where the model is employed in modern walls. The most common are:

1. *Wall Steps* (WS), rows of stones which protude from increasingly high points on the wall facade, a short distance one from the other (Plate 1).

2. *Water Drops* (WD), narrow vertical channels recessed into the terrace wall facade, employing more squared blocks like corners (Plate 2).

3. *Recessed Parallel Stairways* (RPS), contiguous steps recessed into a terrace wall, which ascend in a direction parallel to the wall in plan (Plate 3).

4. *Recessed Staircases* (RS), contiguous steps with walled sides which

ascend one or a number of terraces in a direction perpendicular to the wall in plan (Plate 3).

5. *Staired Routeways* (SR), contiguous steps which pass through or are attached to the side of terrace systems but which do not follow a single course perpendicular or parallel to the terrace walls (Plate 4).

3.4.2 Inca Pottery: Chronology, Site Function, the State and Status.

The portability, wide occurence and abundance of Inca pottery makes it the most frequently used indicator of Inca influence beyond major construction works. Its definition is therefore critical to site interpretation.

*Cusco Inca pottery* includes vessels of the shapes, decoration styles and surface texture, but not necessarily the same fabric as those in Rowe's [1944:47-49] categories distinguished by decoration style (*Cusco Polychrome, Cusco Red and White, Cusco Figured Polychrome, Qoripata Polychrome, Huatanay Polychrome* and *Urcusuyu Polychrome*) and *Cusco Buff*, which could include sherds from undecorated parts of the same vessels. Sample size was only stated for Cusco Polychrome, and the origin of the material used to establish the classification is not clear, but probably included surface collections from places near Cusco along with excavated collections from Santo Domingo and Sacsaywaman. The Cusco Inca pottery deposit at Santo Domingo, although undisturbed by Colonial pottery, also contained *Killke* material (38% of decorated sherds) [1944:49]. Shapes will be referred to according to the letters given in Rowe [1944:Fig.8]. Decorated forms in the classification were flaring rim jars with narrow necks (a, d and h), and others of less restricted

necks (b and c), plates (g), deep dishes (f), an open conical based pot (e) and cups (i). D'Altroy [1981] has provided a classification of rim forms of these and undecorated Inca vessels.

No manufacturing site or kiln for *Cusco Inca* pottery has been reported in Cusco, although Bingham [1915:257] regarded the Machu Picchu material as hand constructed and, in Chinchero sherdage, mineral transformations suggest firing above 800°C [Galván et.al. 1976; Rivera 1976:34]. The climate of Cusco is not of the kind highly advantageous for full time pottery production [Arnold 1985:92-96, Fig. 3.8], but the extent of pottery export from Cusco to distant places, by comparison to stylistic influence and provincial manufacture, may have been relatively limited [Menzel 1976:67-68; D'Altroy 1981:50-51,138].

Sherds from large Shape 'a' jars comprised 90% of pottery in circular paved storage structures, associated with maize remains, at Huánuco Pampa [Morris 1971:139]. Nine examples of small rectangular, mostly two doored structures arranged in compounds, almost certainly residential areas, contained 25 to 40% large jar sherds, as well as a variety of globular, neckless forms with frequently sooted exteriors (35-50%) and Shape 'g' plates (op.cit.:141). Several very long rectangular structures, some with benches on the rear wall, probably used for regional administration at the centre, contained some 60 to 80% Shape 'a' jars mixed with a variety of other forms including pottery used by contemporary local groups [op.cit.:142].

The conical base of the large jars is reported to facilitate exit of liquid in pouring [Meyers 1975:11], and would also provide a pivot to facilitate that action without lifting. The use of such a jar and cups of Inca shape for

liquids is depicted in drawings by Guaman Poma [(1615) 1980:220]. Shape 'a' jars could be carried on the back, an action probably facilitated by rope placement around the ubiquitous nubbin on the vessel body [op.cit.:204; Bingham 1930:121, 127, Fig.79]. Early Colonial references use the Spanish terms *cantarillo* for a vessel used to carry maize beer in quantity over a distance [Molina (1573) 1943:53-55] or to provide a generous serve to deceased relatives on All Saints Day [Avila (ca.1608) 1987:423; Taylor 1987:16], and *cantaricos pequeños* for vessels into which it was served for consumption [Molina op.cit.:49].

Maize beer figures almost a dozen times, and drinking more often, in Molina's brief account of Inca rites and festivities in Cusco. These included the bringing of enormous quantities into Cusco plaza for days of feasting during *citua*, the provision by retainers of a daily supply to the mummified corpses of the elite and the feasting of recently initiated youth in their company [1943:44,48,61]. It was a product which, at a state level of resource control and production, probably smoothed demands of allegiance and labour made by the Inca on local elite intermediaries [Morris 1979].

Manufacture of maize beer in modern Peru requires extended periods of boiling, sometimes in several batches before placement in a large vessel for fermentation [Nicholson 1960:296-297; Muelle 1978:247]. Cooking also occurred in its 16th Century production [Acosta (1590) 1979:171]. Such usage is not comfortably attributed to elaborately painted vessels.

The Cusco Inca forms did not include coarse undecorated ware, a point which surprised Meyers [1975:17,f.n.7]. In an addendum, Rowe named a category

*Cusco Plain*, briefly described as *Late Inca cooking ware, which has a coarser paste and is less well fired than Cusco Buff* [1944:62], found in the illustrated forms of Shape 'j' and Shape 'k', a vessel with partly covered, holed top, an off-centre opening and tripod base. Its function is unknown. Bingham called it a 'brazier' and suggested metal working [1930:174]. Pardo assumed it was for toasting [1939:14-15]. This is supported by comparison with a vessel shape manufactured and used in Limatambo today for toasting maize and conforms with evidence that a Shape 'k' vessel was blackened on the interior as well as base and sides [Bingham 1930:173].

The present definition of *Cusco Plain*, based on fabric and surface texture, is not detailed enough to distinguish it from *Killke Plain Brown* except that Shapes 'k' and 'j' enter the former. A ring-based pedestal pot may already occur in *Killke Plain Brown* since a distinctive sherd, from the solid clay constriction of such a vessel, was found by Dwyer in the 'Killke B' unit at Sacsaywaman [1971:fig.128].

Surprisingly, given the numerous documentary references to maize beer in Inca society, neither of the Cusco Plain 'cooking ware' vessels seems to be large enough for boiling any quantity of it. Shape 'k' vessels are rare, shallow and unsuitable for boiling liquids [Bingham 1930:fig.125; Pardo 1939:fig.6b]. Shape 'j' vessels, for which there are published measurements, are relatively small. Three from burial caves at Machu Picchu, described as cooking pots due to the frequency of fire blackening [Bingham 1930:149,151,153], were from 11 to 20.5 cm high, and 15.5 to 25 cm wide. Another, unprovenanced within Machu Picchu, was 23 cm high and 16 cm wide [Bingham 1915:261]. Four, from clearance at Ollantaytambo, were from 7.7 to 10.8 cm high with rim diameters between 5.3

and 8.1 cm [Llanos 1936:156, pls.III,V]. They were not miniatures like those from Tomb 'U' at Sacsaywaman [Franco and Llanos 1940:30-31]. Functional inferences do not extend throughout Tawantinsuyu, since Inca Shape 'j' pots in Ica-Inca refuse deposits show no signs of cooking; some are carefully finished and may have been prestige wares [Menzel 1976:74].

Many sherds from *Killke Plain* vessels were reported as fire-blackened or with burnt organic material, of which the largest were from wide-mouthed jars with a tapering foot and two horizontal strap handles [Rowe 1944:60]. Difficulties in separating Killke Plain Brown from Cusco Plain in the type sites, particularly small sherds, may account for their uncertain distinction. The principal problem at the time was to establish a clear chronology.

Undecorated pottery from sites producing Cusco Inca pottery tends to indicate a more likely assemblage for *living sites*, although descriptions of plain or roughly finished pottery are scarce. Described pottery from Sacsaywaman Tomb 'U' was polished except a worn pot lid [Franco and Llanos 1940:30-31]. Polished plate forms and varying sizes of flaring-rim jars (8.8 to 31.5 cm high) predominate in Ollantaytambo pottery descriptions, apart from a crudely shaped and unpolished Shape 'j' pot, and a similarly finished wide mouthed and deep vessel about 16 cm high with a 12 cm rim diameter [Llanos 1936:156,I-X;III-5/681,X-5/686]. Machu Picchu pottery included two very fire-blackened, tapered-base, globular and fairly open-necked vessels, one 27 cm high and 19 cm wide and with two vertical handles attached to the rim, and the other 15 cm high and 14.5 cm wide, with two horizontal handles on the body and two vertical, rim-attached ones [Bingham 1915:263,fig.48-7A,9A]. Meyers' Inca shape groups include a wide mouthed jar with curved-conical base, common in

Sacsaywaman clearance, often blackened and averaging about 10 cm high, although he thought others might have been bigger [1975:Fig.1, Shape 9].

Rivera's [1976:Fig.43] unscaled outlines of Inca vessel shapes increased Rowe's 11 forms to 28. He used illustrations from Pardo [1939] rather than material excavated at Chinchero. Most of the original vessels for these fit into *Cusco Inca*, on decoration and texture attributes. Shape numbers 7 and 9 are based on miniatures [Pardo 1939:9-10,Pl.4a,Pl.3a]. Shapes 19 to 26 are shallow or deep bowls without handles or with varied handle and lug combinations, painted and unpainted [op.cit.:Pl.8]. Shapes 6, 8 and 12 are narrow necked, elaborately painted vessels [op.cit.:Pls. 2b, 1a and 7a]. The others consist of a highly decorated restricted shape [op.cit.:21, Pl.11d], incurving bowls, one painted [op.cit.:Pl.11e] and the other unpainted with applied decoration, in a group described by Pardo as *small* (ca. 9cm high and 11cm wide) [op.cit.:11,Pl.4f]. A variant of the Shape 'j' pot has tripod feet [op.cit.:Pl.6a].

*Chinchero Llano* (plain) [Rivera 1976:35-39] is reported to comprise *domestic ware* and to include not only *Cusco Plain* Shapes 'j' and 'k', the tripod variant of the former, unpainted open and incurving bowls, and unpainted plates and miniatures, but also Shape 'a' jars and a conical based vessel with a wide mouth [op.cit.:36]. While the latter shapes could have been for cooking, classification as *Chinchero Llano* was strongly influenced by presence and absence of painting on sherds. It included a wide range of fabrics, both smooth-glossy and unpolished textures and could incorporate undecorated parts of Cusco Inca vessels. No indication is given of the sherds or shapes with signs of use in a fire at Chinchero, nor are rim diameters indicated.

If Cusco Inca architecture can be attributed to a powerful polity, how is Cusco Inca pottery to be characterized? Rowe interpreted Cusco Polychrome, the main component of Cusco Inca, as *typical pottery of the later or Imperial Inca period* and Cusco as the centre of the Inca ruling class, where *their pottery style* could most probably be isolated and defined; the *Killke Series* was seen as earlier but some overlap was not excluded [1944:43,47,61]. Rivera suggested that research in the hinterland of Cusco might find *Killke* to be a non-elite or rural assemblage extending into the Inca period [1972:119-120].

*Killke Phase CD* was defined using surface sites, often with Cusco Inca components. However, data from excavations in the Lower Urubamba valley support the temporal distinction between the Killke Decorated styles studied by Dwyer at Sacsaywaman, seen as part of a regional tradition, and the Cusco Inca decorated categories. *Cusco Inca* pottery, as a set of shape, decoration technique and style combinations, is presented in broad syntheses as the recombination and to some extent standardization of certain vessel shapes, motifs and techniques of decoration which have clearest antecedents throughout the post-Chanapata decorated pottery sequence of the Cusco Valley [ Dwyer 1971:135-137,149; McEwan 1984:165-167]. .

Fabric analyses of lower Urubamba Valley pottery suggest that the *Killke and Killke related* category includes sherds from different centres of production [Kendall 1985:342]. *Killke* sherds from Wimpillay and two sites near Chinchero also show considerable fabric variation between locations and great variety within the material as a whole, suggesting production at household level [Rivera 1976:86]. There are differences between the fabrics of plain and painted *Killke Series* components and *Killke related* refers mainly to stylistic

similarities [Lunt 1984:314-315]. *Cusco Inca* pottery from different places very near Cusco, not just in the far flung provinces, also appears to have local paste variations despite uniform elements in technique of manufacture, form and and decoration [Rivera 1976:86]. The complexity of multiple centres of production and different functional wares may not so much increase as become more visible in the late prehistory of the area, because more sites survive, and because temporal proximity to a complex historic record demands a higher precision or elaboration in explanatory models.

Pending systematic attribute analysis of all Cusco pottery styles, the clearest implication of present data is that from about the time of Wari presence in the Cusco Valley there was a tradition of decorative technique, motifs and colours which was preferred, both there and in a region including the Urubamba Valley and Pampa de Anta. Comparisons of Limatambo pottery with the regional sequence can thus be only made on a sherd to sherd basis according to the described attributes, and of assemblages where these have been described.

*Cusco Inca* pottery constitutes an horizon marker in the general sense suggested by Rowe [1962:10], although neither documentary nor radiometric determinations provide a precise commencing date. Its relative position in the Cusco series and those of Tawantinsuyu is apparent from the late presence of *Imperial Inca* and *Imitation Inca* pottery and vessels in which Cusco Inca and local elements are mixed [Meyers 1975:8-9; Menzel 1976:67-77; Rivera 1976:69-84]. The *Cusco Plain* category is likely to be expanded and clarified near Cusco by analysis of whole assemblages from open area excavation at *living sites* with Cusco Inca pottery but not Killke decorated (and presumably not Killke Plain

Brown) wares. Variations in Cusco Plain vessels could follow the trend to shorter and more flared necks already suggested by Dwyer in Killke 'A' and 'B' *Plain Brown* jars [1971:119, 151]. Alternatively they may demonstrate continuity in domestic wares beside the standardization of Cusco Inca wares already known to be abundant in association with Cusco Inca architecture.

3.5 Colonial and Modern Pottery.

Early Colonial period pottery with Inca attributes has been reported from museums and excavations at Chinchero and Ollantaytambo [Rivera 1976:29-30, Figs.44,45; Benavente 1982:176; Gibaja 1984:235, Fig.4] but illustrated examples lack detailed description. The foot-driven wheel and glazing were introduced and some resultant wares, dated provisionally to the 16th and 17th Centuries, have been described from Chinchero excavated collections [Martínez-Caviró 1976:103-105]. Chinese porcelains also arrived in Peru, despite 16th Century prohibitions on their import [Tschopik 1950:204], but their rural distribution was probably limited. Villages continued to produce pottery for local use and workshops used Spanish techniques in Colonial southern Peru [Tschopik 1950].

The pottery most commonly used in present-day villages of the study region is produced in Choquemarka, near Limatambo [Fig. 2:3]. Collection of materials, manufacture and bonfire kiln construction is done by about thirty women during the dry season. Various clays are dug from an eroded gully within a kilometer and water is brought from a spring below the village. Clay is mixed on skins and vessels are coil constructed, some in sections, with the aid of clay discs for rotation on a stone, truck-tyre spatulas, wooden scrapers and

rags for wiping. Kilns are made with a ring of stones, about 2 m diameter, on a flat place. Ash, stored in truncated conical basins, may be placed on the soil surface. Dry grass and small sticks, from steep adjacent slopes, are used as fuel. Green grass is added to seal the top and about 2 hours after lighting the removal of vessel commences.

Frequently made vessel forms are *kanalla* (toasting pots), *manka* (cooking pots with wide mouth and everted rim) and *raki* (open-mouthed chicha cooking, fermentation and serving vessels). Large *raki* are also used in Choquemarka for storage of clothes and broken ones for storage of water outside dwellings. *Maka*, with narrow necks, are for carrying liquid. *Puiñu* (jugs) are used to serve liquids. Shallow bowls are made, but enamel plates are common in their place. Miniature *manka* adorn the Choquemarka cross at the Cross Fiesta in May and small pairs are made joined with a hollow handle.

All handles are vertical straps. They are attached at the rim on *manka*, *kanalla* and plates and at the central body of *maka*, *raki* and its small variant, the *rakicha*. *Puiñu* have an elongate handle attached to the rim and body. Decoration comprises applied 'S'-shaped, linear or half-moon strips, with 'V'-shaped indents, primarily on *manka* and *rakicha*. Vessel walls are generally thick, around 6-15 mm. Surfaces are smooth to slightly abrasive, of variable dark brown to orange colour and often partially blackened from firing. Fabric inclusions are mainly quartz or granite particles up to 1.5 mm.

The pottery is distributed by exchange with villages in the mountains southeast of Choquemarka and is sold and exchanged at Limatambo. Mainly *kanalla* are taken by horse and truck to Ancawasi market, 20 km east on Anta

Pampa, but observations indicate that these, as well as *manka* and *raki*, are common in the Limatambo Valley. Choquemarka pottery is rarely taken to Cusco and is one of several regional wares [Kendall 1983:59].

3.6 Apurimac, Ayacucho and Vilcabamba in Late Prehistory.

Archaeology in areas south and west of the study region, is sketchy. Post-Wari sites in the Ayacucho Basin, 150 km west of Limatambo [Fig 2:1] are poorly dated [MacNeish 1981:199-204, 217-218]. *Wari cups*, reported 28 km from Limatambo at Curawasi, were reputedly from a nearby burial area and *Waywaka* style in Andahuaylas, with black and red painted designs over orange wash, is thought to show Wari stylistic influence [Rowe 1956:143].

Inca myth-history relates that peoples named *Chanca* crossed the Apurimac River to threaten Cusco prior to its imperial expansion. Garcilaso said *naciones* called Hancohuallo, Utunsulla, Uromarca, Villca and others were incorporated under this name, and that their ancestors came to *Antahuailla* province where they fought and defeated the *Quechuas* [1960:Bk.2 Ch.15]. *Hancohuallo* resembles the name of a legendary warrior, *Ancoallo*, noted by Cieza as famous among Chanca people of Andahuaylas [(1553) 1984:254]. Cieza also recorded accounts of the Chanca domination of *Quichuas* [op.cit.]. Limatambo was therefore near a *traditional* frontier.

Post-Wari ceramic *chrono-types* in Ayacucho give their names to the *Huamanga Phase* and the *Chanca Phase*, guessed to span the periods AD 900-1200, and AD 1200-1500 respectively [MacNeish 1981:203,218]. *Huamanga* is regarded by

Lumbreras to possibly comprise domestic pottery of the Wari Period, the production of which survived the elaborate *Viñaque Polychrome* for some time [1981:196]. Of the Chanca Phase, MacNeish states *all we have...is a series of rather plain pottery types called Arqalla, Quinoa black-on-yellow, Ayaorqo and Qachisgo...there is much to be done* [1981:225]. Rowe [1956:143] assessed the Curawasi valley as *home of a tradition of drab unpainted pottery*, and a brief reconnaissance in western Limatambo reported circular structures associated with *locally produced, probably undecorated pottery* [Kendall 1979:139].

Attempts to find linguistic correlates of groups which formed a *Chanca Confederacy* date to at least 1912 and studies to find their archaeological manifestation followed, although hampered by lack of specificity about spatial distribution in the traditions [Gonzalez 1979:61-62]. *Chanca-style pottery* is reported at 122 sites in the Pampas River Basin; most are settlements with circular structures up to 6.0 m diameter on mountain tops. The pottery is often mixed with Inca material, is described as little varied, technically deficient, with incised decoration or applied face designs with eyes, mouth and nose on upright jar necks, and some sherds with a dilute red wash [op.cit.:61,71].

Favre [1973:11-13] used documentary sources to postulate the existence of a pre-Inca chiefdom, *Asto*, in Huancavelica. It was posited as part of the late prehistoric Chanca Confederation by virtue of the present peoples' use of Ayacucho Quechua (A/II), as opposed to Quechua B/I of the Wanka ethnic group. Both Cusco-Bolivian and Ayacucho Quechua are regarded as dialects of the *Chinchay Meridional* language group (QIIC), the Ayacucho dialect being spoken in Ayacucho Department, Huancavelica and the western half of Apurimac Department [Cerrón Palomino 1987:242-243,247]. Twenty seven prehistoric settlements lie on

scarps or mountain tops at 3600 m to 4400 m in the Asto area around the Vilca and Mantaro Rivers of Huancavelica. The early parts of occupation at four are dated to between AD 980 and AD 1200 and an excavated pottery jar has an applied stylised face on the neck [Levallée and Julien 1973:29, Pl.8B].

In the Chicha/Soras Valley of western Apurimac Department, the Post-Wari sequence is first represented by *Chicha style* pottery, and later, in association with a change in settlement patterns to hill tops, the *Soras style* [Meddens 1985:227]. Soras assemblages contain *smudged yellow brown wares*, some featuring roughly applied faces with pronounced lips or chins, as well as overfired (cindered and occasionally vitrified) pottery [op.cit.,Fig.161]. The sites of Aukimarka and Pukya, on hills at about 4000 m, represent vastly different scales of settlement. The former, with Soras and Inca pottery, comprises over 1000 circular or oval structures associated with grinding stones, whereas the latter contains only 30 structures [op.cit.:97-99,104].

Examples of Inca style rock sculpture, at Saihuite and Concacha (Rumiwasi), as well as architectural complexes and surface scatters, have been reported in Apurimac [Squier 1877:555-556; Rowe 1956:143; Pardo 1957:471-487].

The broken and forested landscape of the Vilcabamba region, northwest of Limatambo, has been the subject of widening exploration and research since Bingham's descriptions of Choquequirao, [1910:523], and Espiritu Pampa [1914]. Recording of other Inca installations and/or clusters of circular or ovoid structures, is gradually providing a picture of occupation which transcends the historic sources' great emphasis on its few decades as a base for Colonial Inca insurgency [Savoy 1970:94-94; Drew 1984; White 1987].

3.7.1 Regional Burials and Funerary Structures.

Human burials associated with Chanapata pottery at the type site feature seated flexed body placement without grave goods, in shallow, circular, unlined pits dug into occupation refuse [Rowe 1944:13; Yábar 1972:215]. Two flexed upright burials in shallow earth pits without grave goods, excavated at Huillca Raccay in the Urubamba Valley, may be of similar antiquity [Hey 1984]. No further Wari stone slab tombs have been reported near Cusco since excavations at Batan Urqo [Rowe et.al.1950:123,125; Rowe 1956:142; McEwan 1984:183-190]

Numerous surface sites are attributed to Late Intermediate Period funerary practices, but the combination of human bone, pottery and architecture is rare.

Small above-ground structures of stone, mostly circular and some rectangular towers (*chullpas*), with a small door on one side, are commonly found in clusters at relatively high or valley side locations to the east and southeast of Cusco, including the provinces of Paucartambo, Quispicanchis, Canas and Espinar, and also in Cotabambas Province of Apurimac Department [Pardo 1957:493-501]. Those at Molloccahua, Espinar, include examples in Cusco Inca style masonry, better known at Sillustani in Puno Department to the south and near Lake Titicaca [op.cit.:420-424, Hyslop 1977:222]. These probably represent continuation of a chullpa building tradition into the Inca Period.

A group of 22 conical chullpas, from 0.2 to 1.35 m diameter, with low trapezoidal doors, bounded on one side by a low retaining wall, are located on Murkhapata ridge between the Vilcanota and Paucartambo rivers; according to Franco [1937:56-57] associated looter's spoil contained 'fine Inca' pottery.

However, Killke pottery was not then defined. Another chullpa in Quispicanchis contained human bone [op.cit.:264], and similar structures were located at Cupi amongst remains of 314 circular dwellings (from 3.7 to 5.1 m diameter), as well as burials sealed in nearby cliff cracks [op.cit.:260-263]. Square chullpas, packed with remains of many individuals, are reported in lowlands north of Lake Titicaca [Isbell 1968:110,113]. Corbel-roofed chullpas at Olleriayoc Trancapata in Cusichaca also contained human bone, and a complete Killke Shape 'B' jar held by a local resident is reported to have come from the site [Kendall 1985:312]. Rectangular and circular chullpas in western Apurimac are associated with Inca pottery [Meddens 1984:139].

Eight presumably looted tombs in Vilcabamba appear to be low, subterranean, stone-lined pits, sealed with stone just above ground level [Beauclerk 1980:20,29]. Reported parallels for such features occur in Ayacucho. Large numbers of stone circles, about 1.0 m diameter, were located on platforms at Ñawinpukyo, but test excavation revealed no pottery [Lumbreras 1981:184]. Radiocarbon dating and pottery seriation at nearby prehistoric settlements suggest a date anywhere between 2250 and 1250 BP [MacNeish 1981:249]. Tunasniyoc, 4 km north of Ayacucho, contains pit burials and burial in a stone-lined cylindrical hole capped with rocks but without grave goods, although associated pits were dated to Wari and Huamanga Phases [Lumbreras 1981:186-188, Fig.7-32]. Local level burials of the Inca period in Huanuco include both *subterranean stone-lined cysts* and *beehive shaped* structures [Thompson 1971:118].

A possibility of confusion of funerary structures with small storage structures exists. In six Huancavelica sites of the period, 3 at over 4000 m

and 3 at 3500 to 3700 m, small circular or horseshoe-shaped, stone-lined cavities were contained within some circular structures of 3.5 to 4.0 m diameter, always at the highest part of sites [Levallée and Julien 1973:53-57]. The cavities were 0.7 to 0.9 m in maximum dimension, and about 0.9 m deep much smaller than modern potato storage pits of that region.

3.7.2 Inca Period Burials.

Many burials containing Inca pottery were located outside the structural area of Machu Picchu. They were principally located under boulders, overhangs or rock shelters, sealed by a wall of stone [Bingham 1930:99, Figs.66,68]. Bodies were commonly seated with knees raised, often associated with Inca Shape 'j' pots, two-handled deep dishes and occasional bronze and bone implements [op.cit.:99-102,109-111]. Burial caves were sometimes partitioned by rock walls, and some graves were underground inside caves with a low wall or terrace delimiting the entrance. A *stone lined grave or cyst* contained bones of a woman and beads [op.cit.:102,107,111]. Some undisturbed burials of females contained no pottery or only one cooking pot, but others contained a variety of decorated vessels, metal *topos* (cloak pins), spoons, mirrors, tweezers, and even remains of a dog. A young adult's grave contained no goods, but another contained two silver topos [op.cit.:110].

Rock crevices and holes dug below boulders were also burial locations used in the Chicha/Soras Valley of Apurimac, where they were associated with late Middle Horizon and Late Intermediate Period pottery styles [Meddens 1985:139].

Two Inca burials in Cusco appear to have been placed in terraces surrounding the old centre. One in Huaynapata was surrounded by a wide range of Inca pottery vessels, bone implements, shell ornaments, metal pins and a knife [Pardo 1959]. Another in Toqokachi was placed in a pit some 3.9 m diameter and 1.2 m deep, filled with small stones and a large rock placed on top; the deceased was male, about 30 years old, placed in an upright sitting position with knees raised, and was accompanied by two painted pieces of pottery, a long necked jar and a flaring lip jar [Béjar 1976].

A final Inca burial for comparison is that called Tomb 'U', placed in a 0.4 m wide, 0.4 m deep pit in the floor of a rectangular structure located within the Inca site of Sacsaywaman [Franco and LLanos 1940]. It was of a 50 year old male associated directly with a similar range of goods to Huaynapata. While the pit was not architecturally elaborate, the location in a structure floor may have been of equal significance.

Miguel de Estete, one of the first Europeans in Cusco, wrote that there was a burial place of princes a league from the city, on a crag "like a fortress", where the embalmed and well dressed bodies were piled up [(ca.1535) 1938:393]. This coincides with the view of Béjar [1976:151] that ordinary people were probably buried in terraces, as at Toqokachi, and wealthy persons had access to the resources and influence to have their bodies taken up to high and inaccessible places. Cieza noted that the dead in Cusco were buried seated on *princely stools* called *duhos*, dressed and adorned in the best they possessed [(1553) 1984:196-197]. Mummified corpses in Cusco were regularly brought out to participate in rituals, certainly those of the deceased rulers and elite [Molina (1573) 1943:33,58,61,64]. This constant removal and concern about

appearance make it unlikely that the mummified elite were buried in earth pits while they remained in ceremonial service.

Polo de Ondegardo, who sought mummies in the Colonial Period, raises the problematic point that indigenous people disinterred their dead from cemeteries and churches so as to rebury them in *huacas* (sacred places), mountains, flats, in ancient tombs or in the deceased's house [1916:194].

### 3.7.3 Summary of Burial Practices.

It is perhaps too early to define spatial patterns for late prehistoric southern Andean burial traditions, but some tentative conclusions are suggested. Pit burials appear to have a long usage throughout the regional sequence. Stone-lined subterranean pits have been difficult to date. They are uncommon at Inca sites in Cusco and may be a late Wari period practice in Ayacucho. The burial tower tradition in Cusco and Apurimac Departments appears to date from about the same time and continues through the Inca Period, as does the use of rock crevices and caves for stone-sealed burials. Crevice and cave burial appears to be very common in the Inca period. Adult Inca burials nearly always contain some grave goods, the quantity and variety of which vary greatly and may reflect differences in status. The role of the deceased Inca elite in rituals suggests that they were stored rather than buried in Cusco.

## 3.8 Antecedent Studies in Limatambo and Chinchaypuquio.

Squier's brief description of Inca ruins at Tarawasi is the first of any detail for the study region [1877:535]. He spent a night at *Tarahuasa hacienda*

and proceeded to Mollepata, described as *a collection of wretched huts, on a high shelf of the mountain....* [op.cit.:535-536]. No mention was made of the large Inca site of Markawasi below that town, although the location was marked on a later map by Bingham [1922:203]. Squier left Mollepata, circled Tilka mountain, crossed a ravine and climbed to La Banca post-house having passed an Inca *tambo* on the ascent. He descended to a suspension bridge across the Apurimac at which no definite signs of Inca handiwork were found [1877:536-537]. Bingham's route of 1912 [1922:133], on the way to lower Vilcabamba, shows that he went from Limatambo to La Estrella, presumably passing Markawasi, and down to a different Colonial suspension bridge, probably near the modern steel one marked '1938'.

In 1934 archaeological work was done at Tarawasi by José Franco and Alejandro Gonzalez [1937], under supervision of Luís Valcárcel. It comprised the removal of rustic buildings from Inca masonry and the excavation of two large trenches to follow walls of Cusco style masonry which had been covered by massive soil deposition from a nearby slope. No information on artefacts was published. Terracing and river canalisation nearby, and another site of Cusco style masonry in the town, were noted [op.cit.:68]. Apart from drainage work to preserve the walls, no further excavation is reported at the site [Valcárcel 1946:178; Velasco 1972:279].

Choquechurco (Site AM4) was found by Fidel Ramos of the Instituto Nacional de Cultura [Beauclerk 1980:30], and a report exists on Qolmay (AC2), by students of Cusco University [Alvarez et.al.1984]. A reconnaissance, seeking links with the Cusichaca area, was made by Kendall with Ramos on the western slopes of the Limatambo valley and a pattern of late prehistoric settlement similar to

Cusichaca, with some evidence of Wari occupation, was postulated [Kendall 1979:139-140].

3.9 Conclusions.

The site survey was based upon a multi-stranded strategy, aimed at achieving a maximum gazeteer of Inca terraces and structural sites, as well as many Inca artefact scatters in the Limatambo-Chinchaypuquio study region. Sites with no Inca material culture were also sought and recorded in the Limatambo Area, the western half of the study region.

Preliminary surface artefact and architectural records and small non-random surface collections were used to assist the choice of sites for larger systematic collections and further study. Detailed plans were made of selected pre-Inca sites and of all major Inca terrace systems in the Limatambo Area.

Information on surface sites and excavations in surrounding areas indicates that most surface artefacts and architecture are likely to be of the post-Wari period, of primary concern to the study. Earlier pottery, especially that of the characteristic incised and pattern burnished *Chanapata* styles, would be unlikely to relate to surface architecture. Shallow archaeological deposits may contribute to the surface assemblages of post-Wari structures containing pottery related to the primary occupation or construction phase. The Late Intermediate Period pottery most likely to have reached the study region would be *Killke* and its variants and perhaps *Chanca*.

Cusco Inca pottery occurs in variable abundance in graves. It frequently reached sites of earlier initial occupation and Inca period sites which lack Inca architecture. The pottery of the Cusco elite also appears to have reached a great range of people. Its absence, in sites where pottery is otherwise abundant and observed samples are large, may indicate exclusively pre-Inca occupation. Specific historic documents and Colonial pottery assist identification of the sites occupied up to the Conquest.

Surface sites with only unpainted pottery are most likely to date to the post-Wari Period, but their attribution to the pre-Inca or Inca period relies upon vessel reconstructions permitting identification of *Cusco Plain* forms, distinctive forms of *Killke Plain Brown* or other late prehistoric plainwares. Funerary architecture, without pottery chrono-types, only provides very broad chronological information.

The site descriptions in the following two chapters are divided into Inca sites and *Late Prehistoric Tradition* sites. The latter include both Late Intermediate Period sites and local level sites occupied during the Inca period. Finer chronological inferences and spatial relationships are suggested by comparisons with excavated and surface artefacts and architectural assemblages of the region.

# CHAPTER 4

## LIMATAMBO FROM AD 1000 TO THE EMERGENCE OF INCA ARCHAEOLOGICAL CULTURE

### Introduction.

This chapter describes sites in the Limatambo Area which have pottery or architectural assemblages indicating occupation, use or construction prior to the advent of Cusco Inca pottery, or in the tradition of regional Late Intermediate Period sites. These Late Prehistoric Tradition (LPT) sites are further analysed as to date and function after descriptions.

Twenty eight LPT sites were located (Fig. 4:1). In Table 4:1 they are listed in groups which correspond to sub-regions named after the nearest large present settlement. It summarizes their environmental zonation as defined in Chapter 2, altitude, area, 'relative topography' according to the categories defined in Chapter 3, as well as the general types of evidence present at each site. These types are:

(a) Artefact Concentrations (A),

(b) Stone-walled Terraces (T),

(c) Circular or Elliptical Above-ground Stone Structures (CS),

(d) Standing Stone Walls (W),

(e) Cylindrical Subterranean Stone-lined Pits (CSP), and

(f) Canals (S).

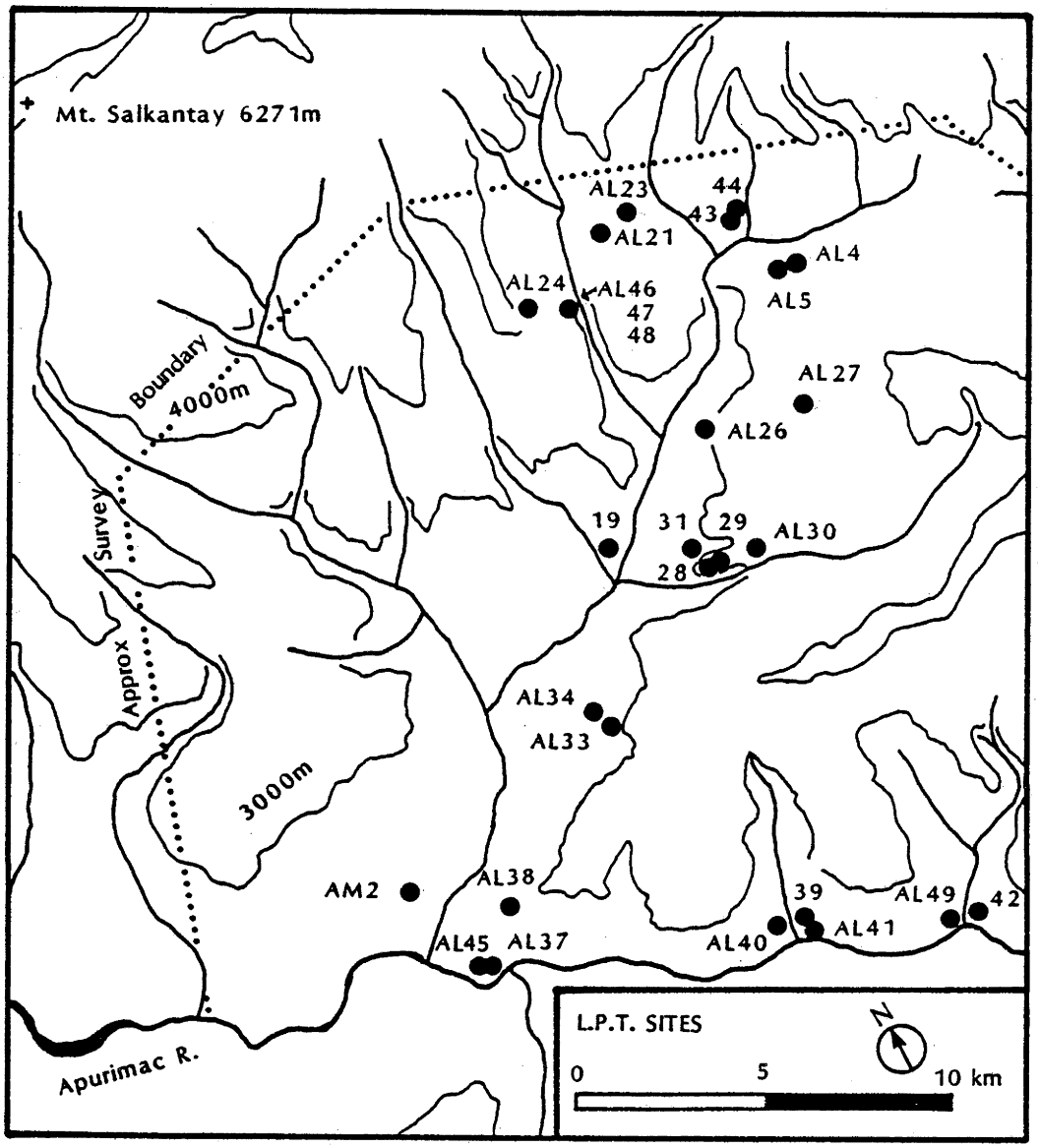



FIG. 4:1 Late Prehistoric Tradition Sites in the Limatambo Valley.

TABLE 4:1 LATE PREHISTORIC TRADITION SITES IN THE LIMATAMBO AREA

| No. | Name | Zone | Alt.(m) | Area(ha) | Features | Rel.Topog. |
|---|---|---|---|---|---|---|
| Pampaconga Sub-Region: | | | | | | |
| AL4 | Hatun Tambowilka | HF | 3450-3480 | 1.200 | T+A | P |
| AL5 | Huchuy Tambowilka | HF | 3420 | 0.400 | T+A | P |
| AL21 | Excursionayoq | HF | 3700 | 0.140 | T+CS | VSP |
| AL23 | Wilkaray (Ridge) | WU | 3860 | 0.003 | CSP | R |
| AL43 | Pulla Rayanqasa | HF | 3320-3460 | 6.000 | T+A | S,R |
| AL44 | Pulla Ridge | HF | 3460-3500 | 0.010 | CSP | R |
| Limatambo Sub-Region: | | | | | | |
| AL19 | Kuchiorqu | DMF | 2700 | 0.040 | A | P |
| AL24 | Qechuloma | HF | 3740 | 0.020 | CSP | R |
| AL26 | Chikchiera | DMF | 2820 | 0.150 | CSP+A | R |
| AL27 | Qerabamba | HF | 3470 | 0.450 | CSP | R |
| AL28 | Wamanmarka AI | DMF | 3080-3160 | 1.160 | T+CS+A+S | R |
| AL29 | Wamanmarka AII | DMF | 3140 | 0.050 | CS+A | R |
| AL30 | Wamanmarka B | HF | 3255-3270 | 0.100 | CS+A | R |
| AL31 | Pistibamba | DMF | 2800 | 0.100 | T | VSP |
| AL46 | Paqchak | DMF | 2980 | 0.450 | CS+A | VF |
| AL47 | Paqchak Lomada I | DMF | 3085-3100 | 0.020 | CSP | R |
| AL48 | Paqchak Lomada II | DMF | 3125 | 0.001 | CSP | R |
| Chonta Sub-Region: | | | | | | |
| AL33 | Waqayoqpampa A | DMF | 3000 | 1.040 | T | VSP |
| AL34 | Waqayoqpampa B | DMF | 3000 | 4.000 | T+W+A | VSP |
| AL37 | Llaktaki SE | TW-DF | 1930-2010 | 1.070 | T+CS+A | P,S |
| AL45 | Llaktaki NW | DF | 2130 | 0.160 | T+CS+A | P |
| AL38 | Cochabamba | DMF | 2820 | 0.060 | A | R |
| AL39 | Qopa Alta E | DF-DMF | 2300-2520 | 34.400 | T+CS+A | P,S |
| AL40 | Qopa Alta W | DF-DMF | 2250-2350 | 8.800 | T | VSP |
| AL41 | Qopa Playa | TW-DF | 1950-2020 | 2.925 | T+W+CS+A | VF |
| Mollepata Sub-Region: | | | | | | |
| AM2 | Qoriwairachina | DMF | 2510 | 1.000 | A | P |
| Chinchaypuquio Sub-Region: | | | | | | |
| AL42 | Llaktabamba E | DF | 2190-2350 | 3.470 | T+CS+A | P,VSP |
| AL49 | Llaktabamba W | DF | 2025 | 1.190 | T | P |
| 28 Sites | | | | 68.409 ha | | |

4.1 Circular-Elliptical, Above-ground, Stone Structures (CS) and Artefacts (A).

Nine sites have CS (AL28, 29, 30, 37, 39, 41, 42, 45 and 46):

Site AL28, Wamanmarka AI.

*Wamanmarka* is the name given by Choquemarka villagers to a ridge within the community's lands, 2 km west of their present settlement (Plate 6). It also refers to an archaeological site (AL28) at the narrow western end of the ridge. Old relatives of the community president called it *Qolqemarka*.

AL28 comprises the stone foundations of 43 circular or irregular elliptical structures (Figure 4:2). Of these, 24 are closely grouped on a narrow flat of the peak (Sector A) and 19 occur in small clusters on stone-walled platforms on a rocky ridge extending eastward (Sector B) to a narrow saddle (Sector C). On every approach, except from the saddle, the site was protected by extremely steep gradients. A stone-lined canal once supplied a reservoir in Sector C.

(i) Sector A and B Structures:

Stone rubble is not mounded in or around structures. This indicates that walls were of perishable material above the one or two course double-stone foundation now visible. Raised soil beside walls gives a crater-like surface form which may represent decay of adobes or sods (Plate 7). Walls are higher on the side of structures which backs onto a retaining wall. This is common in sector B.

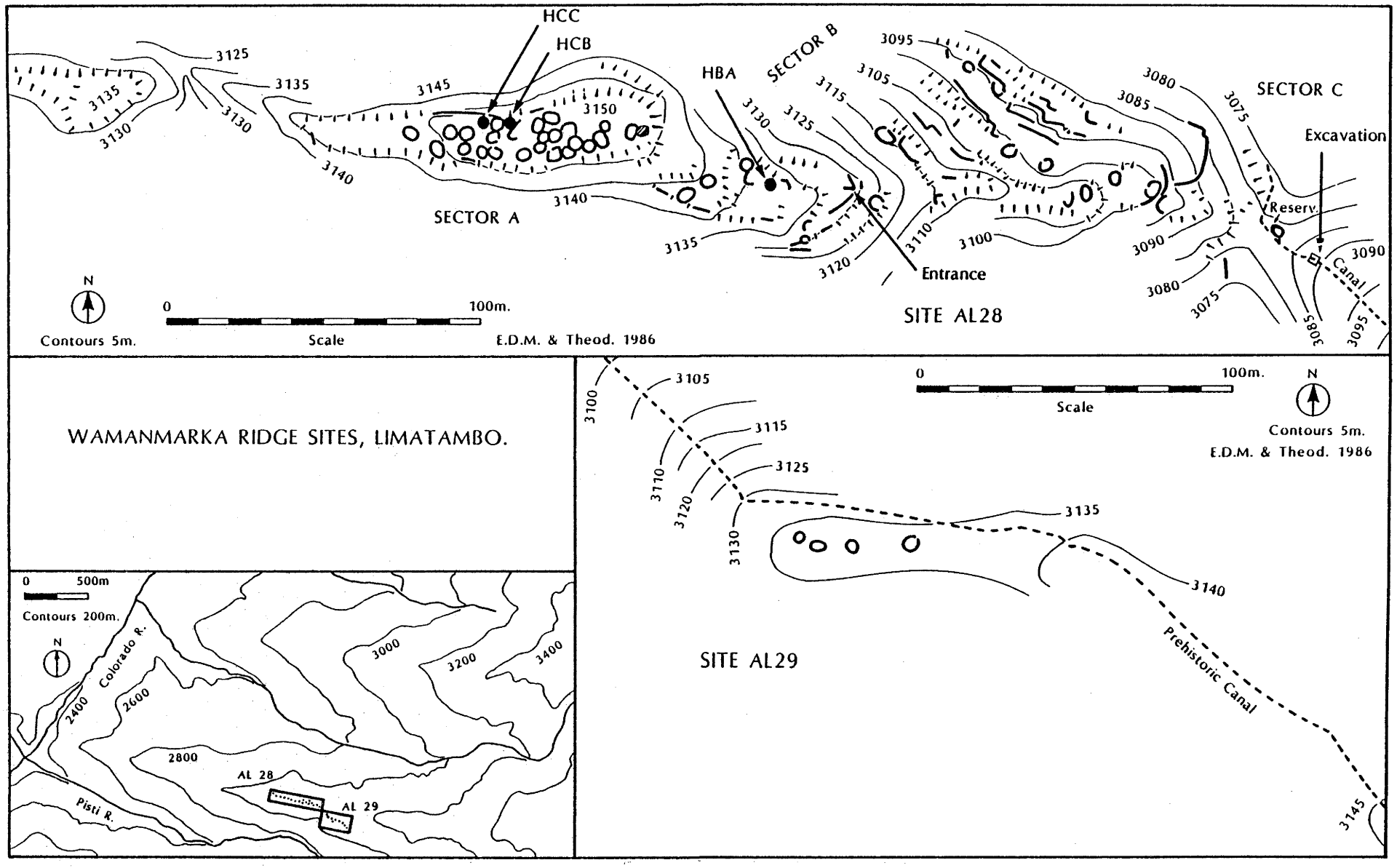



FIG. 4:2 Wamanmarka Ridge Sites, Limatambo: AL28 and AL29.

All stone construction employed unshaped white granite which outcrops on the site. Wall thickness is between 0.35 and 0.75 m (n=8). Approximate structure areas were calculated for circles or ellipses, as subjectively assessed from survey data. The mean area for circles is 10.5 sq.m (n = 21, range = 4.9 to 12.6 sq.m) and the mean area of elliptical forms is 12.8 sq.m (n = 22, range = 4.7 to 18.8 sq.m). Exterior diameters of circular structures are between 2.0 and 4.0 m. The longest elliptical structure is about 6.5 by 3.0 m, that of greatest area is 6.0 by 4.0 m and that with smallest area and the narrowest side is 3.0 by 2.0 m. Size distribution for different forms is given in Table 4:2.

TABLE 4:2 SITE AL28: FREQUENCY DISTRIBUTION OF STRUCTURE AREAS

| | Area (sq.m) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 4.5-6.4 | 6.5-8.4 | 8.5-10.4 | 10.5-12.4 | 12.5-14.4 | 14.5-16.4 | 16.5-18.4 | 18.5-20.4 | TOTAL |
| Shape | | | | | | | | | |
| Circular | 2 | 4 | 3 | 0 | 12 | | | | 21 |
| Elliptical | 1 | 1 | 1 | 8 | 5 | 3 | 2 | 1 | 22 |
| All Strs.(n) | 3 | 5 | 4 | 8 | 17 | 3 | 2 | 1 | 43 |
| % | 7.0 | 11.6 | 9.3 | 18.6 | 39.5 | 7.0 | 4.7 | 2.3 | 100 |

Largest structures are elliptical, in some cases because they could be extended along narrow terraces, but nearly the same percentage of them occur in the flatter Sector A (12 of 24, or 50% elliptical) as in Sector B (9 of 19, or 47% elliptical). The modal size range for both shapes is in the 10.5 to 14.4 sq.m range, not suggestive of shape differentiation for structures with purposes requiring different floor areas. No niches were found in preserved terrace-side walls of structures. Door spaces, where visible, occur in foundations of both floor plans. Doors tend to face level open spaces. Smaller structures, which tend to be circular, could have had different functions, perhaps as household cooking or storage areas, which is consistent with their distribution throughout the site (Fig. 4:2). No bone was found to indicate a burial function. Two circular structures in Sector A contain a shallow central depression (1.1 and 1.2 m diameters), possibly from pot-holing.

(ii) Sector A and B Terraces:

Terrace walls are steeply angled and up to 2.5 m high in Sector B (Plate 8). They were constructed in short interleaving lengths which extend between outcropping granite or end in an upslope curve. Some are built on outcrops.

Granite blocks of 0.2 to 0.5 m were used to build retaining walls of single stone. These are neither hammer dressed nor obviously shaped. Wall surfaces are uneven, although flat facets often appear on the facade. Jutting stones are not placed in such a way as to function as steps.

Access through the site is by zig-zagging passage around terraces and outcrops. Between structures 30 and 31 in Sector B there is an entrance with

side walls perpendicular to a terrace wall. This may have been a short ramp since no steps were found.

Only a small area, about 0.12 ha on the northern side of Sector B, provides terraced lands beside structures which might have been cultivated. This area is minute in comparison with the cultivable slopes descending northward from the site. Other terraces are in rocky terrain or largely covered by circular structures.

(iii) The Wamanmarka Canal and Sector C:

A small excavation (1 m square) confirmed that a line of parallel stones descending to Wamanmarka saddle were remains of an abandoned canal (Fig. 4:2). Low double stone walls of granite filled with gravelly clay, 0.65 to 0.8 m wide, were built on each side of a stone bedded channel. The southern side was partially collapsed, but the eastern cross-section shows that the channel was 0.41 m wide, 0.34 m deep, and filled by between 0.03 and 0.15 m of black loamy soil without artefacts (Fig. 4:3).

The channel platform (Plate 9) and its contour area was walked for 2 km, around the southern side of Wamanmarka ridge as far as a precipice south of a ridge section named Machumachupata. No platform could be seen beyond 0.5 km, and should have been obvious if not completely collapsed. The steep slopes near Choquemarka were also examined without result. It is possible that water was dropped to the canal along a narrow ravine from a spring. Small amounts of spring water are available within 1.5 km eastward from the AL28 saddle, along Wamanmarka ridge.

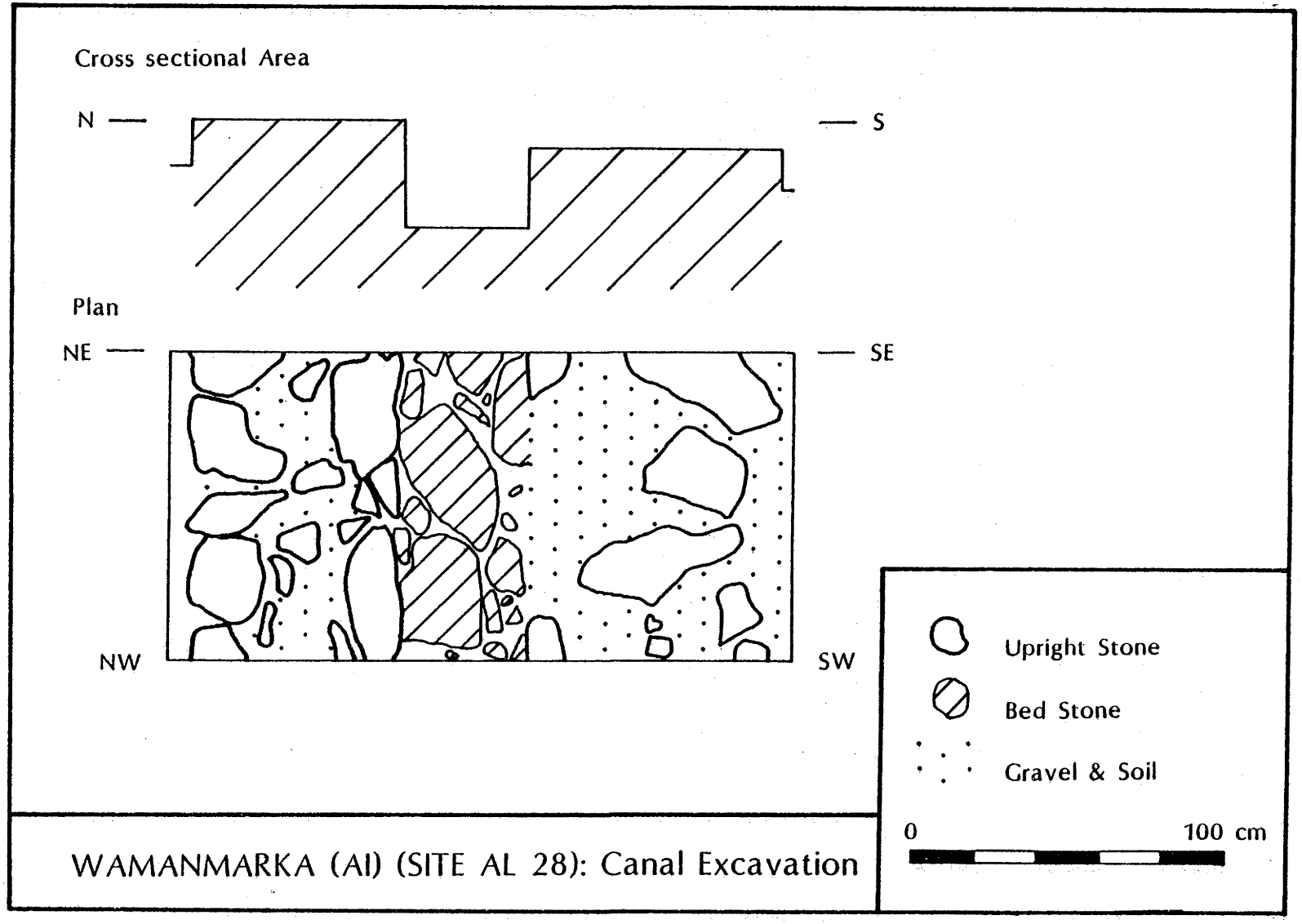

Cross sectional Area
N
S
Plan
NE
SE
NW
SW
Upright Stone
Bed Stone
Gravel & Soil
0
100 cm
WAMANMARKA (AI) (SITE AL 28): Canal Excavation

FIG. 4:3

The canal was mapped for 345 m above the saddle. The upper 130 m length is moderately steep, descending some 5 m as it runs along the southern side of the ridge. It then descends about 8 m in 100 m as it crosses to the northern side, subsequently changes direction, and plunges 47 m in 115 m to the saddle. In this final 115 m its gradient decreases from 44% in the upper half, to 32% below. Surface features indicate the width of the canal is narrower at the top (0.33 m) and mid-point on this descent (0.30 m), than at the place of excavation (0.41 m). Water velocity at the excavated point would be reduced by turbulence from the uneven placement of bedding stone and the reduction of gradient to 24% in the preceeding 8 m.

Below the excavation, the canal drops about 2 m over a small outcrop and a channel of lesser gradient leads to the saddle. A short bifurcation connects to a stone-and-earth bunded hollow beside an outcrop interpreted as a small reservoir. Below, the canal continues in zig-zag fashion for about 30 m where it discharges into a gully.

The reservoir (Plate 10) is of roughly elliptical exterior and rectangular interior plan. Without excavation, it encloses a space 1.4 by 2.2 m in plan and 0.7 m deep, indicating a capacity of about 2160 litres. An outcrop, forming its SE and NE sides, had been raised 0.5 m by a two-course granite wall. The remaining interior is lined with granites, but the exterior is a mounded earth and stone bank, about 1.4 m wide at the base.

The small size of the canal and reservoir, and its termination at the ridge saddle, support the inference that it was part of the AL28 site complex.

(iv) Surface Artefacts:

Abundant pottery fragments indicate that AL28 was a settlement. Sherds collected during preliminary reconnaissance (GM1-15) were augmented by collections from three circles of 4 m diameter centred upon survey stations HBA, HCB and HCC (Figure 4:2). These places were flat, open and sufficiently free of tall grass to place the theodolite and were less likely to contain material mixed by slope processes or covered by structure wall debris.

HBA lies a few metres eastward from the door of a structure built into the slope of western sector B. HCB and HCC occupy open spaces between several structures in Sector A. Sherd density varied from 2.3 to 10.6 per sq.m and between 87% and 90% of each sample were body sherds (Table 3.2). Thicker grass cover probably accounts for comparatively small samples from HCB and HCC. The area collected was 28.3 sq.m, or only 0.24% of the total site area.

(a) Painted Pottery:

No Cusco Inca pottery was found in any collection and further analysis of 133 sherds from the largest sample (HBA) revealed that 13.5% were painted. These are divided into 'A', 'geometric' ('i' monochrome and 'ii', bichrome), and 'B', 'curvilinear' design groups.

Design group 'Aii' sherds (n=4) are painted with thick dark brown lines, sometimes forming criss-cross filled triangles, as well as red lines or bands on smooth scraped convex surfaces with brown (App.II Figs. 1a,d,e) or orange

(2.5YR 4/8) slip. They are 0.71 to 0.9 cm thick, inner surfaces are moderately smooth and brushed and all have a greyish brown or dark brown fabric.

Design group 'Ai' sherds have the same dark brown designs as 'Ai', without red. A wider range of dark brown colours is present (mostly 5YR 3/3, some 5YR 3/2 and 5YR 4/3), on smooth brown-slipped (as Aii or 5YR 6/8) convex surfaces (n=3), a similar orange (2.5YR 5/8) slip (n=8) (App.II Figure 1b), or, in one case, grey slip (7.5YR 5/2). They are 0.58 cm to 0.94 cm thick. Most concave surfaces are moderately smooth, some smooth, commonly with exterior scraping and interior brushing. Those with brown or grey surfaces may have a grey core in the fabric. Others are orange and evenly fired.

Design group 'B' sherds (n=2) have brown curvilinear designs on smooth to very smooth convex surfaces with brown slip (App.II Fig. 1c). They are 0.68 and 0.74 cm thick, with smooth or very smooth concave surfaces and a grey fabric core.

No painted HBA sherd has blackening from use in fire. A restricted neck 'jug' may be represented by two 'Aii' group sherds (App.II Figure 1a,e). The GM collection included a narrow necked 'jar' or 'cup' shape with black painted inner lip, and rim thickening characteristic of a like *Killke* form (App. II Fig. 3i). GM and HCC also contained 'Ai' sherds (App.II Figure 2a-c,e,j), an 'Aii' example (App.II Fig. 2i), a *Killke-like* thin black line design (App.II Fig. 2d) and a bichrome design (App.II Fig. 2k) similar to that seen on Hatun Tambowilka (AL4) sherdage.

(b) Unpainted Pottery:

This material, from all collections, permits a partial reconstruction of the other vessels in use. Everted rim vessels are uncommon and known examples are not well finished. One is massive and high-necked, another thin walled (App.II Figs. 1g,i). A half reconstructed deep bowl with moderately smooth finish has exterior blackening, but this was probably done in the kiln (App.II Fig. 31).

Wide-mouthed, flaring, thick-rim 'jars' with rim diameters (RD) of 15-24 cm are common in all collections (App.II Figs. 1h,2d-h,k). Some, if not all of this vessel form, may have had small vertical pierced-lugs attached to the rim (App.II Figs. 3a-c). In two cases the hole is too small for a finger, but could have been used for suspending the vessel with a rope. Many sherds have a grey coloured core in the fabric, and a few are evenly fired. Fabric inclusions are black, up to 1 mm, smaller white and occasionally green ones. Surfaces are moderately smooth to rough, often with shape irregularities and fine cracks or pits.

Stub bases (App.II Figs. 1j,2f) were from vessels with a wide or globular basal body shape. One had 2-3 mm wide vertical scraping bands on the exterior, like many painted sherds. Plastic applications were used on two sherds, one a small projecting lug (App.II Fig. 2g) and the other an incised horizontal lug from a thick-walled inflected vessel of only moderately smooth surface texture (App.II Fig. 1f). Strap handles were also from thick walled vessels (App.II Fig. 2h).

Unpainted body sherds of HBA (n=98) included 10 with exterior scraping bands, all thickly slipped a brown, reddish, orange or cream (10YR 7/4) colour.

Two others had a cindered and almost vitrified stone-like exterior surface, seen on one group 'Ai' geometric design sherd. The rest were unslipped or lightly slipped in a colour similar to that of the fabric. Many were grey cored. Nine of them, with moderately smooth to rough and often pitted or cracked surfaces, were also blackened on the exterior. Two others, of similar texture, were well fired but blackened on the exterior, as was an unpainted strap handle fragment.

(v) Comparisons and Chronology.

The shiny-streak exterior burnishing and interior brushing techniques common in painted group 'Ai' and 'Aii' sherds are definitional characteristics of *Killke* pottery styles, and their designs and probable shapes fall within the known range. Triangular zoned criss-cross designs in dark brown or black occur in sherdage from several pre-Inca sites with rounded structures in the Urubamba valley and in Anta [Kendall 1976:Fig. 20c,57a,68e]. A nubbin on a painted sherd from Huillca Raccay is almost identical to an unpainted one at AL28 (App.II Fig. 2g) and the bowl form (App.II Fig. 31) resembles those from Ancasmarca, Olleriayoc Leoniyoc and Huillca Raccay [op.cit.:Figs. 23d,29c,38b, 41a,61c]. Thick rimmed jars with pierced vertical rim lugs occur at Choquepata Piscaycucho in the Urubamba Valley [op.cit.:Fig. 48f], but otherwise do not feature in *Killke* or other regional assemblages.

The architectural features, common in dated sites elsewhere in the region, as well as pottery evidence, suggest that Wamanmarka was occupied during the post-Wari period and probably abandoned before the advent of Cusco Inca pottery. The abundance and variety of sherdage, including large and probably utilitarian vessels, combined with water supply infrastructure, indicates that

AL28 was more than an occasionally visited redoubt.

Site AL29, Wamanmarka AII.

AL29 comprises the stone footings of 4 structures and associated artefacts on a ridge. It overlooks the saddle denominated Sector C of AL28, 62 metres in altitude below, and 150 horizontal metres to the west (Figure 4:2). It is not defensible against an approach from the east. The structures are identical in construction and surface appearance to those of AL28. No walls are higher than 0.4 m. A well preserved double-stone wall of granite is 0.48 m wide. Two structures are circular with exterior diameters of about 3 m and 4 m, and two are roughly elliptical, 5 by 3 m and 4 by 3 m, giving structure areas of 7, 12, 9.5 and 12.5 sq.m respectively. Mean area is 10.2 sq.m, which lies in the lower to middle size range for such structures at AL28.

A few small, eroded and undecorated pottery sherds, similar in appearance to those of AL28, were seen in the vicinity and no collection was made. Low grass cover and accessibility may be responsible. Both sherds and structures probably suffer from use of the narrow ridge area for pasturing cattle. It lies within 15 m of the Wamanmarka canal. This, and the similarity of surface evidence to AL28, indicates that it was built and perhaps used at the same time as the neighbouring site.

Site AL30, Wamanmarka B.

AL30 (Fig. 4:1) comprises granite fieldstone footings of 8 structures, a concentration of small eroded pottery sherds and a stone walled outcrop. It

lies about 1 km west of site AL28, on a 57 m long elevated section of the same ridge, beneath a pasture called Wayllwaqasapata.

Three structures (5, 6 and 7) were placed in a row oriented WNW on the highest part of the descending ridge, and the others were built on platforms dug into the surrounding slope. Floor plans of the former have the 'crater-like' appearance noted at AL28 and AL29, but are poorly preserved (Plate 11). Rear walls of the latter, retaining the slope, and some of their forward platforms, survive up to 0.5 m high. All are circular except structure 5, an elliptical form. No entrances were discerned. Structure 7 is the best preserved and typical of the circular structures present. Its exterior diameter is 3.7 m (an area of 10.8 sq.m) and wall width is 0.5 m. Structure 5 is about half this area, with a double-stone wall width of 0.46 m.

At the eastern end of the group of structures there is a small rock outcrop of circular plan, 6.8 m in diameter and levelled on top. A double-fieldstone retaining wall, 0.45 m wide, encircles the outcrop and fills space between the rock. No pottery was collected at the site, but all seen was typical of undecorated AL28 sherdage, without Cusco Inca material. AL30 is probably another small example, like AL29, of the settlement type described at AL28. Again, the amount of wall rubble is not indicative of fully stone construction.

Site AL46, Paqchak.

AL46 (Figure 4:1) comprises circular structures, stone-walled terraces and an associated concentration of surface pottery. It is located on lower slopes of

a ridge, about 20 m above the broad, cultivated valley floor at Sondor (Plate 12).

Dense and thorny vegetation covers the structural area and it is likely that up to 15 structures could be located with clearance. The site area, about 150 m around the contour and 30 m upslope, was estimated by searching narrow tracks through the undergrowth for the presence of pottery. Two structures, about 20 m apart, lie on flat areas which are separated by breaks of slope. These slopes are intermittently retained by large amounts of fieldstone piled against them and the terrace risers are not steep.

The western side of structure 1 was built against the slope. It has an interior diameter of 4.8 m and a double stone wall 0.65 m wide which rises three courses to a height of 0.45 m. Construction is of unshaped, hard grey and red sedimentary rocks up to about 0.60 m diameter, placed in mud mortar. Structure 2 is built into the slope, of the same masonry construction but badly collapsed, with an interior diameter of 3.1 m. Structure areas are about 29.2 sq.m and 15.2 sq.m, the former significantly larger than any at AL28.

A few potsherds (n=5) were collected from an eroded track between structures 1 and 2 and another track around the base of the site. They include a Cusco Inca shallow plate form (App.II Fig. 4g), the almost vertical and square rim of a vessel with dark brown fabric (App.II Fig. 4e) and a painted body sherd (App.II Fig. 4f) with slip and paint colour, design and exterior surface treatment within the range of AL28 Design Group 'Ai' pottery. AL46 is probably a local settlement which continued to be occupied during the Inca period.

Site AL39, Qopa Alta E.

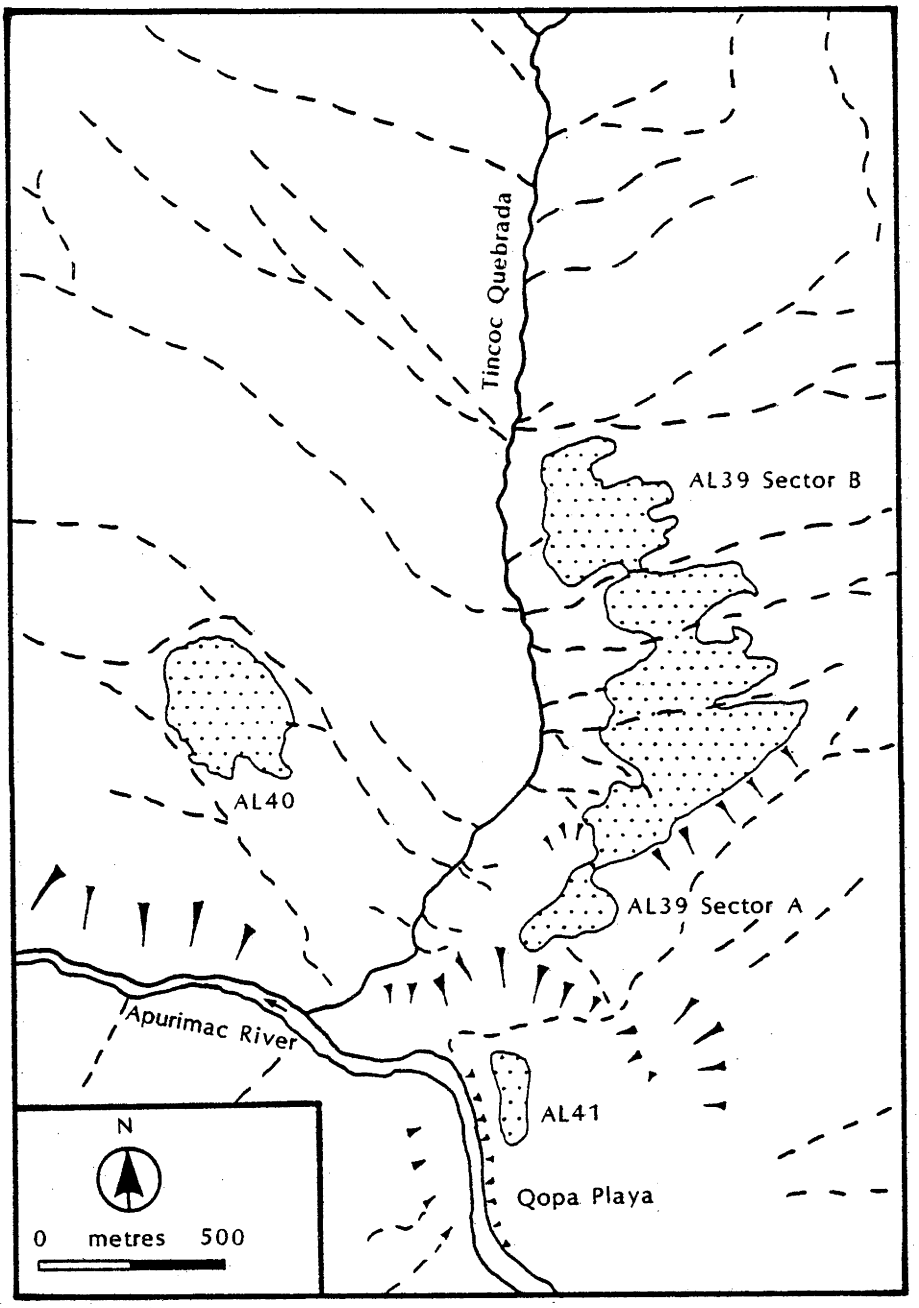
AL39 is at low altitude, about 12 km south of Limatambo (Fig. 4:1). Sector 'A' (2.68 ha) comprises 32 structures, associated artefacts and terraces along a ridge saddle overlooking the confluence of the deeply incised Tincoc stream and Apurimac River as well as walled terraces extending a kilometre northward along the gullied ravine flank (Sector B, 31.72 ha) (Fig. 4:4, Plate 13). A short length of standing wall separates Sector B from a walled platform overlooking Sector A.

(i) Sector A, the structural area:

AL39 structures are approximately circular, as indicated by a plan based on 5 or more points per edifice (Fig. 4:5). Structure No. 23 was squared on one side in order to fit into a narrow terrace, and a corner was bonded into a high terrace wall. The same accommodation is apparent in the shapes of Nos. 5 and 19. Many (n= 23) were built into terraced slopes.

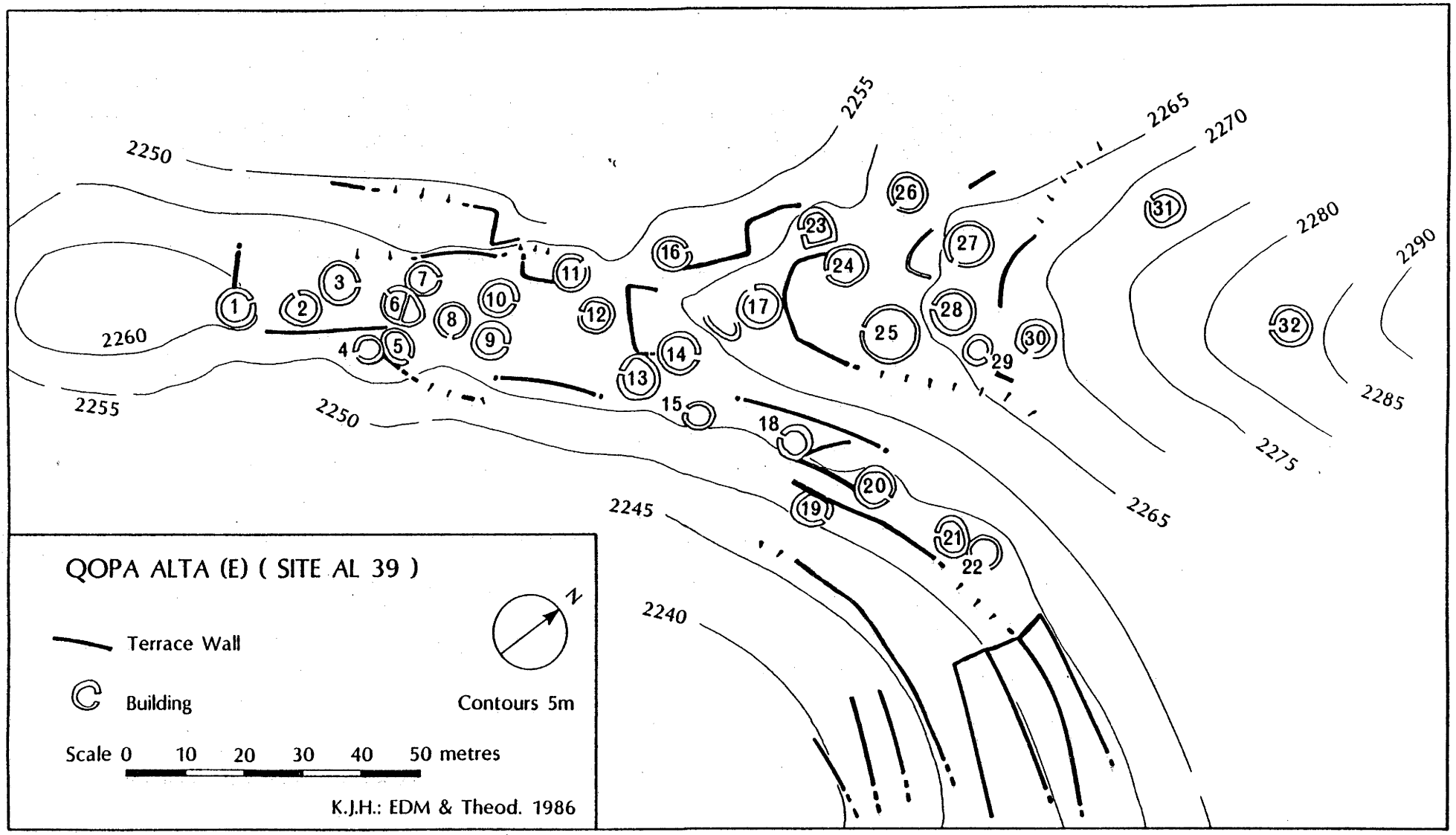
Exterior diameters of structures range between 4.75 and 9.88 m (mean 6.51 m, SD = 1.01, n = 32), giving areas between 17.7 and 76.7 sq.m (mean 34.1 sq.m, SD = 11.2) and a total roofed area of 1090 sq.m. More than half are between 26.5 and 36.4 sq.m (Table 4:3), larger than any structure at AL28, AL29 or AL30. Only four structures at AL39 (Nos. 4,5,15 and 29) are small enough to enter the largest area range at AL28 (18.5-20.4 m).

Structure 25 is by far the largest on the site, a point reinforced by comparison of its interior area (53.8 sq.m) with that of the smallest structure,




QOPA ALTA SITES K.H.:AP Sketch

FIG. 4:4


QOPA ALTA (E) ( SITE AL 39 )
Terrace Wall
Building
Contours 5m
Scale 0 10 20 30 40 50 metres
K.J.H.: EDM & Theod. 1986
N
2250
2255
2260
2245
2240
2265
2270
2280
2285
2290
2275
1
2
3
4
5
6
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32

FIG. 4:5

No.4 (10.2 sq.m). The five largest (25,28,27,17 and 14) all lie on the northeastern rise. Two of them have adjacent patios with low walls (Nos. 17 and 27).

TABLE 4:3 SITE AL39: FREQUENCY DISTRIBUTION OF STRUCTURE AREAS

| | Area (sq.m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 16.5-26.4 | 26.5-36.4 | 36.5-46.4 | 46.5-56.4 | 56.5-66.4 | 66.5-76.4 | 76.5-86.4 | TOTAL |
| n= | 5 | 17 | 8 | 1 | 0 | 0 | 1 | 32 |
| % | 15.7 | 53.1 | 25.0 | 3.1 | 0 | 0 | 3.1 | 100% |

Wall widths of structures range from 0.5 to 0.8 m (mean 0.6, SD = 0.1). Doors or entrances have almost vertical sides and, in many cases, one or both is collapsed. Preserved umbrals range from 0.54 m to 1.00 m wide (mean 0.79 m, SD = 0.13, n = 17). Those in the 16 structures of smallest area have a mean door width of 0.77 m (SD = 0.12, n = 7), and those among the 16 largest have a mean door width of 0.81 m (SD = 0.14, n = 10). There is no evidence of differential impedence of access to large and small structures. Among structures with preserved umbrals, the three largest (within the 7 of greatest area) have a mean door width of 0.90 m and the three smallest (within the 5 of smallest area) have a mean door width of 0.74 m.

Doors tend to face level and open spaces, either a plaza or a narrow length of terrace. 5 entrances face north (315°-45°), 8 face east (45°-135°), 12 face south (135°-225°) and 7 face west (225°-315°). Many face the south quadrant and this reflects that most structures on slopes are on those which rise towards the north and therefore back onto rising retainer walls. Entrances which face north are in structures built upon south or southeast rising slopes (Nos. 1,3,7,11 and 16).

Structure walls survive to heights between 0.4 and 1.35 m. There is enough stone from wall collapse to suggest that construction was primarily of stone. No evidence of adobes was seen nor that of central post holes. In many instances the outer course has collapsed while the interior remains, perhaps indicative of forces exerted by oblique roof beams on walls with little batter.

Internal wall niches were not found. Structure 6 contains a low interior platform retained by a double wall, 0.42 m high and 0.6 m wide and not bonded into the outer wall. A similar feature was indicated by surface form in structure 17, but in most cases wall collapse made surface observations inconclusive.

Walls are all double stone with limited use of a mud mortar containing small angular stones. Wedge stones up to about 0.15 m were used but most wall blocks are 0.2 to 0.5 m and some reach 1.2 m. They are principally of angular grey volcanic, reddish brown metamorphosed sedimentary and white granite rock. Occasional areas of wall are made of small stones. Flat sides of fieldstone usually appear on wall facades (Plate 14). Doorways are squared with stretcher-header bonding (Plate 15).

(ii) Terraces of Sector A and B:

A perpendicular ending wall separates the part of terraces which support structures in Sector A from their eastern extension without structures (Fig. 4:5). The wall dividing Sector A and Sector B is free standing, whereas this one is also a retaining wall. End walls are a characteristic of Inca terracing. Wall batter on three Sector A terraces, from 1.2 to 1.35 m high, varied between 20.3% and 25.4%. The walls were either single or double-stone.

Sector B terraces comprise over 50 narrow levels, many only 3 to 5 m wide, on a slope of about 60%. No structures nor canals could be located despite lengthy reconnaissance by field crew. Drinking water was obtained from the deeply incised Tincoc stream and from rainfall during fieldwork. The slopes of Cerro Sillaqasa to the east should provide good conditions for a spring.

Sector B terrace walls are in the form of short interleaving arcs which terminate by curving in an upslope direction. Batter was not great and very uneven. All observed were of single-stone construction, using 0.10 to 1.4 m blocks of unshaped conglomerate or grey volcanic rock with white inclusions. Large rocks were frequently placed on top of smaller ones. Some rocks are placed such that pointed margins project from the facade (Plate 16). Eroded terrace profiles show very little stony fill behind walls, indicating that they may have been constructed against largely extant breaks of slope.

(iii) Artefacts:

AL39 has a low tree canopy and surface coverage of shrubs, herbaceous plants and leaf litter. Four 1 m squares were cleared of leaf litter for surface collection (Fig. 4:6). Three on a SSW line within Structure 28, the second largest structure on the site, were labelled C1, C2 and C3 according to their increasing distance from the doorway. A square between the latter two is occupied by a small tree and was not collected. A robber's pit on the eastern side of the doorway may have contributed to some mixing of sub-surface material with that on the nearby surface. A single square metre (C4) was collected in the centre of Structure 29, one of the smallest on the site.

Stone artefacts were not found in these collections, but despite ground cover, large pitted or ground stone artefacts based on river-rounded cobbles were visible elsewhere on the surface. They were not collected but were numbered, sketched and measured by assistants in the field. Those measured and other specimens found as mapping progressed were plotted into the site plan (Fig. 4:6).

(a) Large Stone Artefacts:

These mostly have forms and wear patterns similar to present day household utensils in the region. Four classes were distingished on overall form, but these are subdivided in some cases according to the size and nature of the utilized area.

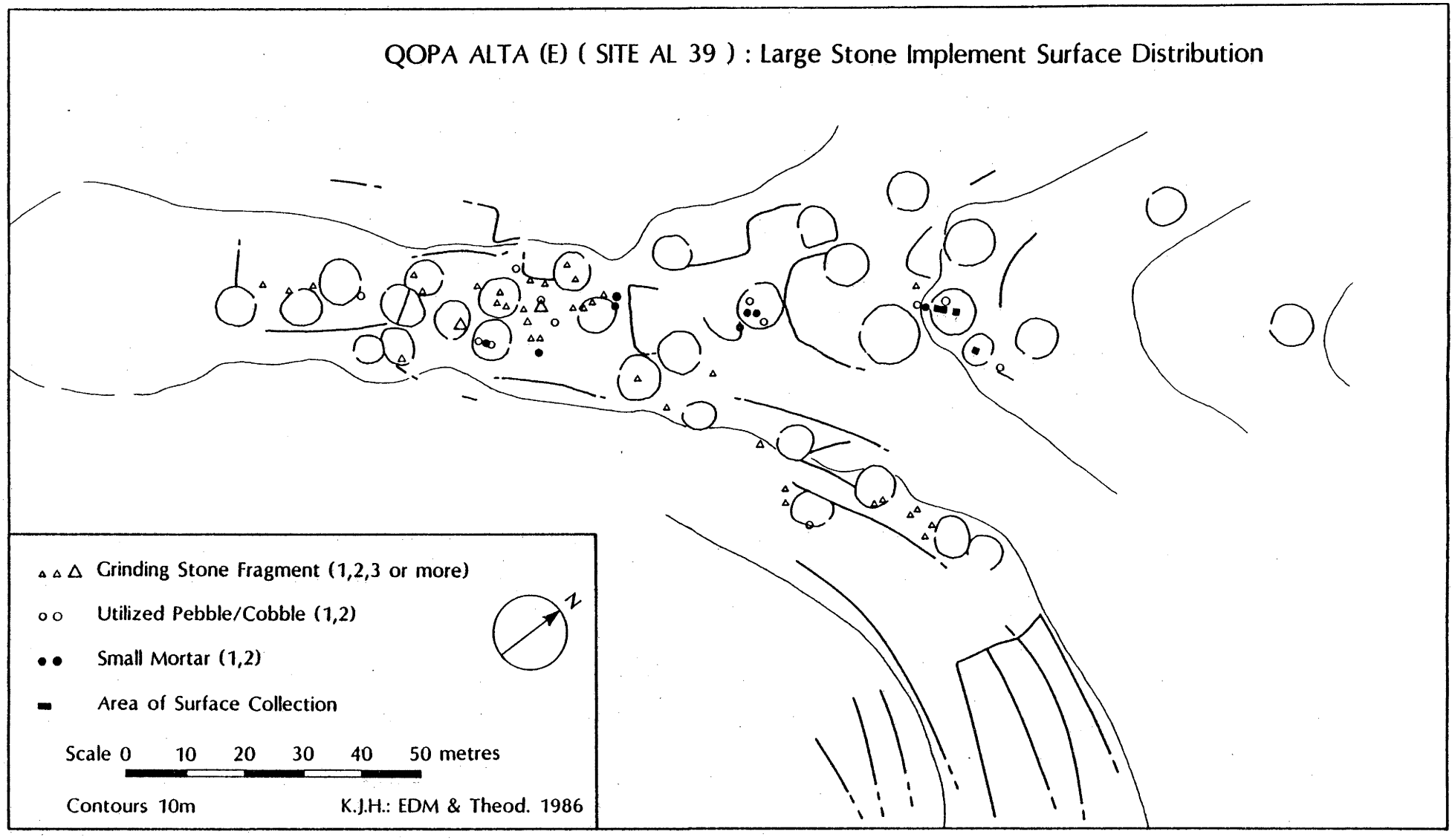

QOPA ALTA (E) ( SITE AL 39 ) : Large Stone Implement Surface Distribution
Grinding Stone Fragment (1,2,3 or more)
Utilized Pebble/Cobble (1,2)
Small Mortar (1,2)
Area of Surface Collection
N
Scale 0 10 20 30 40 50 metres
Contours 10m
K.J.H.: EDM & Theod. 1986

FIG. 4:6

A. *Grinding Stones* or *Tunau* (Fig. 4:6):

These are elongate-oval cobbles of plano-convex cross section which have one, or occasionally both, of the narrow length margins flattened and worn smooth from use. They are large and were probably operated using two hands in the rocking motion by which identical modern *tunau* are used, as suggested by the presence of wear in a broad arc around the narrow margin (Plate 17).

Of 28 measured Shape A examples, 12 were whole. Their lengths range from 40 to 52 cm, with a mean of 44 cm (SD = 4). Widths, approximately perpendicular to the working edge, are from 17 to 39 cm, with a mean of 30 cm (SD = 6). The length : width ratio is from 1.2:1 to 2.7:1 and the mean ratio is 1.6:1 (SD = 0.5). Thickness of cross section varies between 10 and 17 cm and the mean is 12.9 cm (SD = 1.9). Unbroken objects of difficult manufacture and small size would be most likely to be taken from a site during abandonment and by later visitors. Larger specimens could therefore be over-represented in this sample.

All in the measured sample and seen elsewhere were based on rounded white granite cobbles, such as those which abound on the Apurimac River bank, a horizontal kilometre away, but 450 m below in altitude. Only angular granite of this kind is found in walls at AL39. Most present households use only one *batan* and *tunau*, so that 12 whole specimens for a settlement of 32 structures appears, on the ethnographic parallel, to be a good recovery rate for purely surface finds. The concentration of fragments in the central flat area of the site (Fig. 4:6) may indicate that this was the site of much grinding activity, although it is also a less eroded locality.

B. *Grinding Slabs* or *Maran*:

Overall form of these depends on that of the usually massive slab upon which they are based. The distinguishing characteristic is a flat upper surface with a central, shallow and work-smoothed oval depression of around the length of a *tunau* (ca. 0.4 m or more). Only one, of local grey stone, was seen partially buried. It is likely that others are at subsurface levels.

*Maran* or *batanes* with these characteristics are today used as the base for a *tunau*, in crushing malted maize for chicha, maize for corn cakes, the ingredients of chili sauce and many other foods.

C. Utilised Pebbles or Cobbles (Fig. 4:6):

These include hand-sized river-worn rocks of varying form with evidence of (I) use polish or smoothing (*Qollot'a*), or (II) pitting/battering damage, or both (I/II) on the extremities or long margins (Plate 18). Working areas are correspondingly much smaller than on group A artefacts.

One whole CI artefact of white granite was 18 cm long, 8.7 cm wide and 4 cm thick, flattened and polished on both extremities of its length (for 8 cm along one end and 4 cm on the other). Battering damage was seen on pebbles of both white granite and a very dense brown rock. One CII granite artefact measured 12.3 cm long, 6.5 cm wide and 4.2 cm thick with deep pits at the two extremes of the length. A CI/II artefact, 10.8 cm long, 7.3 cm wide and 2.3 cm thick, had one 7.5 cm long flattened and smooth extreme, and a 1.5 cm diameter area of deep pitting on the opposite extreme.

D. *Small Mortar* or *Mut'ka* (Fig. 4:6):

These are based on rounded portable cobbles of varying form rather than large slabs and have a characteristic oval or circular depression on a broad surface, possibly for use with a *qollot'a* like their modern counterparts (*mut'ka*). 9 broken but no complete examples were found. An almost complete one, with a very shallow pecked depression, was probably being manufactured. On others the depression is smooth and up to 5 cm deep (Plate 20).

(b) Painted Pottery:

Between 91% and 95% of sherds from each square (C1, C2, C3 and C4) are body sherds (Table 3:2). Surface collections produced 792 sherds, 84.7% of them unpainted (Table 4:4). No painted sherds have attached carbon or blackening attributable to cooking. Painted sherds of all collections were divided into 5 groups on the basis of decoration. Two are Cusco Inca groups (CID and CIP), two are local decoration styles (QA and QB) and a fifth encompasses other painted pottery (OP):

1. Cusco Inca Design (CID) sherds have painted designs and surface finish characteristics typical of Cusco Inca pottery (App.II Figs. 5a-h, 6a-c, 7j, 9a-b). They formed 2.9% of the C1-4 collection.

Black linear elements are sharp and straight, the 'fern' motif (Rowe 1944:47) is present and many are polychrome. Black is dense, red glossy and the painted surface is usually very smooth and of polished appearance. The

*Mean Surface Texture Scores* (or *MSTS*, see App. II) for the C1, C2 and C3 collections are 2.7, 3.6 and 3.4 respectively.

Forms include a shallow plate (App.II Fig. 7j), thick sherds of highly decorated exterior and slight concavity, possibly from large jars (App.II Figs. 5e-g), and a deep dish from a plotted location on the steep northwestern margin of the site (App.II Fig. 10o).

TABLE 4:4 SITE AL39: POTTERY SHERDS IN DECORATION GROUPS

| Str. No.28: | | CID | CIP | QA | QB | OP | UP | Dam. | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| C1 | n. | 13 | 17 | 0 | 1 | 1 | 172 | 4 | 208 |
| | % | 6.3 | 8.2 | 0 | 0.5 | 0.5 | 82.6 | 1.9 | 100% |
| C2 | n. | 5 | 7 | 2 | 4 | 2 | 255 | 2 | 277 |
| | % | 1.8 | 2.5 | 0.7 | 1.4 | 0.7 | 92.1 | 0.7 | 99.9% |
| C3 | n. | 5 | 5 | 28 | 22 | 1 | 229 | 0 | 290 |
| | % | 1.7 | 1.7 | 9.7 | 7.6 | 0.3 | 79.0 | 0 | 100% |
| C1+2+3 | % | 3.0 | 3.7 | 3.9 | 3.5 | 0.5 | 84.6 | 0.8 | 100% |
| Str. No. 29: | | | | | | | | | |
| C4 | n. | 0 | 1 | 0 | 0 | 1 | 15 | 0 | 17 |
| | % | 0 | 5.9 | 0 | 0 | 5.9 | 88.2 | 0 | 100% |
| C1-4 | n. | 23 | 30 | 30 | 27 | 5 | 671 | 6 | 792 |
| | % | 2.9 | 3.8 | 3.8 | 3.4 | 0.6 | 84.7 | 0.8 | 100% |

2. Cusco Inca Painted (CIP) sherds have paint colours and execution equivalent to that of CID sherds but lack the designs. They are of similar

surface texture and may come from different parts of CID vessels. (App.II Figs. 5i,p, 6d,e, 7i, 8f). They comprise 3.8% of the C1-4 sample.

The MSTS for CIP sherds from C1, C2, C3 and C4 are 3.9, 3.9, 4.0 and 1.0 respectively. The low figure for C4 is because there was only one CIP sherd and both of its surfaces were very smooth and polished.

Likely Inca vessel forms are a small flared rim jar with rim lugs, a small slightly flared neck form, probably a jar, a cup and an everted rim deep dish (App.II Figs. 8f, 5i, 5p and 7i respectively).

3. Qopa A Painted (QA) is a possibly local style of pre-Inca tradition, which is present on 3.8% of the C1-3 collection sherds. Most are from C3, so few vessels may be represented. Sherd-fits were not achieved.

Designs are executed on convex surfaces in a dull and washy dark brown (5YR 2.5/2, 5YR 3/2-3, 2.5YR 2.5/2, or 2.5YR 3/4 where very thin), with some variation on different parts of the sherd. Background slip colours include creamy grey-brown (5YR 4/2-3), an orange (5YR 5/3) a greyish blue (7.5YR 3/0 to 7.5YR 4/2) and 2.5YR 5/6. This variation is apparently the result of uneven firing. Many sherds have a black fabric core. The most common motif is a grid pattern of lines from 2 to 6 mm, and also an oval, semicircle or wavy line. Geometric and curvilinear motifs occur together on some sherds (App.II Figs. 9c-p,r,s,u,z,aa).

The MSTS of QA sherds from C2 (n=2) and C3 (n=28) is 6.0 and 5.4 respectively. They are from 0.53 to 0.80 cm thick, from thin to medium walled vessels.

4. Qopa B Painted (QB) comprises 3.4% of the C1-4 collection, mainly in C3. It is probably related to the QA decoration group, since it shares some decoration and background colours of QA, occasional brushing of the concave surface and the incidence of greying from uneven firing, but not motifs of curvilinear form.

Designs are bands and/or criss-crosses of dull or washy red-brown about 0.3 to 2.0 cm wide on the convex surface of thin to medium walled vessels (0.52 to 0.70 cm) (App.II Figs. 6h, 9q,t-y). The bands and spaces between them are not of even width. Their colour is often faint, but can be as dark as QB group decoration, around 5YR 4/3 to 5YR 3/3 on a lightly slipped or plain background surface of light orange (5YR 5/4) except where greyish-blue probably resulted from firing. The MSTS of QB sherds from C1 (n=1), C2 (n=4) and C3 (n=22) is 6.0, 2.5 and 5.0 respectively.

5. Other Painted (OP): Includes only 5 sherds (0.6% of the C1-4 collection). A sherd from C1, from near a body inflection, has exterior red paint (10R 3/6) like the Inca colour but the red is dull, black crossing lines defining diamond shaped areas with splashed black dots, on orange slip (2.5YR 5/6) (App.II Fig. 5m). Two from C2 and one from C4 have decoration in dull red an black or dark brown on pale orange slip. the slip is glossy and outer surface polished as in Cusco Inca pottery, but the design edges are not straight, lines vary in thickness, colours are not as intense and one sherd

includes a grid pattern not typical of Cusco Inca pottery (App.II Fig. 6f,g, 5q). An everted-rim globular vessel has a trace of Inca-like red paint on the rim, but lacks Inca surface finish and precise painting (App.II Fig. 8j).

(c) Unpainted Pottery:

This material provides useful information on the shapes of probably utilitarian pottery from AL39. Surface textures are generally coarser than on decorated pottery. The MSTS for unpainted pottery in C1 (n=172), C2 (n=255), C3 (n=229) and C4 (n=15) is 6.3, 7.6, 7.3 and 5.2 respectively. Four main vessel shapes can be inferred from the sherdage:

1. The Inca Shape 'j' pot is represented by a sherd in each of square C2 and C3 in Structure No.28. This vessel type is often noted for the presence of adhering carbon, but it was not present on these (App.II Figs. 6l, 9cc).

2. Open mouthed, everted rim vessels are represented by many sherds in Structure 28, in all squares (App.II Figs. 5j, 6m,p, 7g,h, 8c,h,i). Those most likely to pertain to Shape 'j' pots have an acute rim angle (App.II Figs. 5j and 6p), one of which has adhering carbon. Rim diameters vary from 11 to 26 cm, many are of only moderately smooth surface texture and are from robust, thick walled vessels.

3. Flaring rim, restricted neck vessels occur in all Structure 28 squares, have rim diameters between 15cm and 22 cm, surface textures from smooth to rough and are also from thick walled vessels (App.II Figs. 7c,d, 8b,d,g). The

ethnohistoric data and present use of narrow necked vessels in Limatambo would suggest for these the function of storage, transport or serving of liquids.

4. Open curving vessels have a smaller range of rim diameters, from 10 to 15 cm, and are from medium to thick walled objects (App.II Figs. 6o, 7k). These could be plates or pot-lids.

Several types of base are present. One flat base (App.II Fig. 5n) is polished on the exterior and smooth on the interior and possibly from a deep Inca dish. Two thick conical bases from C2 are smooth to moderately smooth on the interior, but grade to rough on the exterior which probably rested on the ground (App.II Fig. 6j,k).

Most handles were looped, and of flat to slightly curved cross section, with smooth to rough surface texture (App.II Figs. 5k, 6r, 7l,m,n).

Applied decoration occurs on two specimens. A small sherd from a thin walled vessel with a polished black exterior surface has a raised belt with incisions made before firing (App.II Fig. 9bb). Another has an ovaloid nubbin with five shallow holes made with a pointed instrument (App.II Fig. 5l).

Almost 7% of the undecorated sherds have superficial blackening consistent with cooking. On many others, uneven firing makes it difficult to be certain.

(d) AL39 Summary.

AL39 was clearly a focus of substantial occupation and of agricultural activities. It stands in stark contrast to the sporadic and minimal present use of the lower Apurimac area.

Cusco Inca pottery comprises 46% of the painted pottery (CID + CIP) in the C1-4 collections at AL39, the best known *Cusco Plain* vessel was well represented by distinctive sherds and probably a number of the unpainted body sherds group. *Qopa* pottery (QA and QB) comprises 50% of painted sherds. It is important in the Apurimac region because previous information from the nearest reported area (Curawasi) suggested that only unpainted pottery of non-Inca wares was likely to be found [Rowe 1956:143].

QB decoration style is not highly distinctive, but the combination of geometric and curvilinear or figurative elements in QA permits comparison with published material and collections. QA decoration is similar to that reported from the surface at Choquepata Piscaycucho, site of circular, oval and straight-sided structures but no Cusco Inca architecture, in the neighbouring Urubamba Valley [Kendall 1985:313-314, Fig. 61f]. There are similarities to *Killke* geometric motifs (see App.II Fig. 9c), and exterior rim thickening on flaring neck vessels (App.II Fig. 7c). The pottery is not out of place amongst that of the Late Prehistoric Tradition.

Settlement at Sector A and construction of terraces of Sector B probably pre-date Inca influence in this area. It is possible that the structures and some terraces in Sector A date to the Inca period. Its Inca period occupants

were sufficiently tied to the state to have had access to a large range of Inca pottery wares, including decorated and domestic vessels.

Site AL41, Qopa Playa.

AL41 is located on a river terrace with colluvial deposition on the right bank of the Apurimac River, separated from AL39 by a short horizontal distance but also a steep mountain side (Plate 13). It comprises an estimated 45 to 60 circular structures, terraces, walled field boundaries and a central sector with 4 rectangular structures, separated by narrow walled streets, on two sides of a level area or patio. The densest structural zone is about 1.43 ha (Fig. 4:4), but associated terraces and walls extend over approximately 1.5 ha to the southwest.

(i) Structures:

The largest rectangular structure (RS-1) is located on the eastern side of the patio. It is 18 m long, has internal bipartition, walls are extant to a height of 2.1 m, corners are loosely bonded and two doors with slightly incurving sides face SSW to the patio. Another rectangular structure (RS-2), on the southern side of the patio, has a single door also facing it.

Circular structures (Plate 19) are dispersed among terraces and field walls. One example (CS-1), with a door facing the Apurimac River, measured 7.95 m in diameter (and the interior 6.65 m), giving an area of 49.6 sq.m. Circular structures appear to be larger than at AL39. Construction materials are grey volcanic rock, a conglomerate and occasionally angular granites in mud mortar.

Fitting is technically the same as at AL39 but fewer structures are built into slopes.

(ii) Terraces:

Terraces walls were built of angular slabs of the same stone as structures, but the size range is from a few centimetres to about a metre. Large stones often lie above smaller ones and some blocks jut out.

(iii) Artefacts:

Two contiguous 1 m squares were collected from the centre of structure CS-1. Square C5 was 2.45 m from the door and C6 was beside it, further from the door. Surface deposits of wall rubble made it impossible to collect from within a rectangular structure, so a single metre square (C7) was placed in the patio area, 4 m NNW (345°) from the door of structure RS-2. Large stone artefacts were also visible on the surface despite leaf litter from a tree canopy and herbaceous ground cover.

(a) Large Stone Artefacts:

These are of Shape-Wear groups 'A', 'B' and 'D' present at AL39, including whole *tunau* and *mut'ka* (Plate 20), and a small, flat pebble with a hammered conical depression on one face. All are of white granite.

(b) Painted Pottery:

Of 317 sherds from the C5, C6 and C7 collections at AL41, 14.2% are painted. These are divided into three groups since the QA and QB decoration styles are not represented (Table 4:5).

TABLE 4:5 SITE AL41: POTTERY SHERDS IN DECORATION GROUPS

| Circ. Str.: | | CID | CIP | QA | QB | OP | UP | Dam. | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| C5 | n. | 5 | 4 | 0 | 0 | 3 | 86 | 0 | 98 |
| | % | 5.1 | 4.1 | 0 | 0 | 3.1 | 87.8 | 0 | 100.1% |
| C6 | n. | 6 | 3 | 0 | 0 | 10 | 156 | 0 | 175 |
| | % | 3.4 | 1.7 | 0 | 0 | 5.7 | 89.1 | 0 | 99.9% |
| C5+6 | % | 4.0 | 2.6 | 0 | 0 | 4.8 | 88.6 | 0 | 100.0% |
| Rec. Str. Patio | | | | | | | | | |
| C7 | n. | 2 | 7 | 0 | 0 | 5 | 30 | 0 | 44 |
| | % | 4.5 | 15.9 | 0 | 0 | 11.4 | 68.2 | 0 | 100.0% |
| All AL41 | | | | | | | | | |
| C5-7 | n. | 13 | 14 | 0 | 0 | 18 | 272 | 0 | 317 |
| | % | 4.1 | 4.4 | 0 | 0 | 5.7 | 85.8 | 0 | 100.0% |

1. CID sherds comprise 4.1% of the sample (App.II Figs. 10a-d,f,g,i,j,l,m, 11c,d). They are from thin or medium walled vessels (0.38 to 0.78 cm) except one in C7 (1.14 cm), and usually very smooth on the painted surface. The MSTS is between 3.4 and 5.1 for CID material in each square.

2. CIP sherds, comprise 4.4% of the sample (App.II Figs. 10h, 11j,k) and include (from C7) a flaring rim with pierced lugs, probably from a jar, and a tall, slightly flaring and square-lipped rim, possibly from an Inca cup. The MSTS is between 2.0 and 3.8.

The preliminary collection (n=17) also contained sherds from a variety of Cusco Inca vessel forms, including shallow open vessels (App.II Figs. 11g,i), a Shape 'a' jar (App.II Fig. 11a), possibly a cup (App.II Fig. 11e) and typical decorative motifs (App.II Fig. 11b).

3. Other painted sherds (OP) comprise 5.7% of the sample. Two each from C5 and C6 are painted with dull, thin and imprecise brown lines and/or red bands on a smooth surface (App.II Figs. 10e,k,n). Several extremely small rim sherds in C6 have traces of red paint, and could be miniature vessels (with 10 to 12 cm rim diameter) within the CIP category (App.II Figs. 11m,o,p). A thin lipped, everted rim vessel, of 18 cm rim diameter, has faint traces of red on the upper lip (App.II Fig. 12g)

(c) Unpainted Pottery:

This includes many coarser textured sherds. The MSTS for collections is 7.2 at C5 (n=86), 6.7 at C6 (n=156) and 8.6 at C7 (n=30). 4% retain surface blackening likely to have been the result of cooking.

Two sherds are from everted rim vessels (App.II Fig. 11n, 12i). Thick flaring rims from C6, smooth on the interior surface, probably come from large jars (App.II Fig. 111,12e,h). Coarser textured flaring rim vessels also occur in

C5 and C7 (App.II Figs. 12a-c) and an incurving bowl with exterior rim thickening was represented in C5.

A sherd from C7, with applied decoration, is almost identical to illustrated body nubbins from large Inca Shape 'a' jars (App.II Fig. 11f).

Stub and conical bases (App.II Figs. 12q,r) and some strap handles (App.II Figs. 12j-l) in structure CS-1 come from thick-walled, fairly coarse-textured vessels.

(d) AL41: Summary and comparisons:

AL41 painted pottery is dominated by Cusco Inca material. There is one central area with structures which are of *Small-Standard-Rectangular-Closed-One or Two Door* Inca type [Kendall 1985: 13,25], but Cusco Inca pottery is not confined to that area. The architecture is primarily of late prehistoric tradition. The dispersal of stone artefacts amongst circular structures and the pottery from limited surface collections suggests that they were dwellings in a settlement. Some sherds have design characteristics of Late Intermediate Period material (eg. App.II Fig. 10e), but the surface pottery is mainly coarse ware and clearly indicative of Inca period occupation.

The terrain is such that access to AL41 from Cusco would virtually necessitate passage through AL39, and the architecture of circular structures at both sites is the same.

Site AL37, Llaktaki SE.

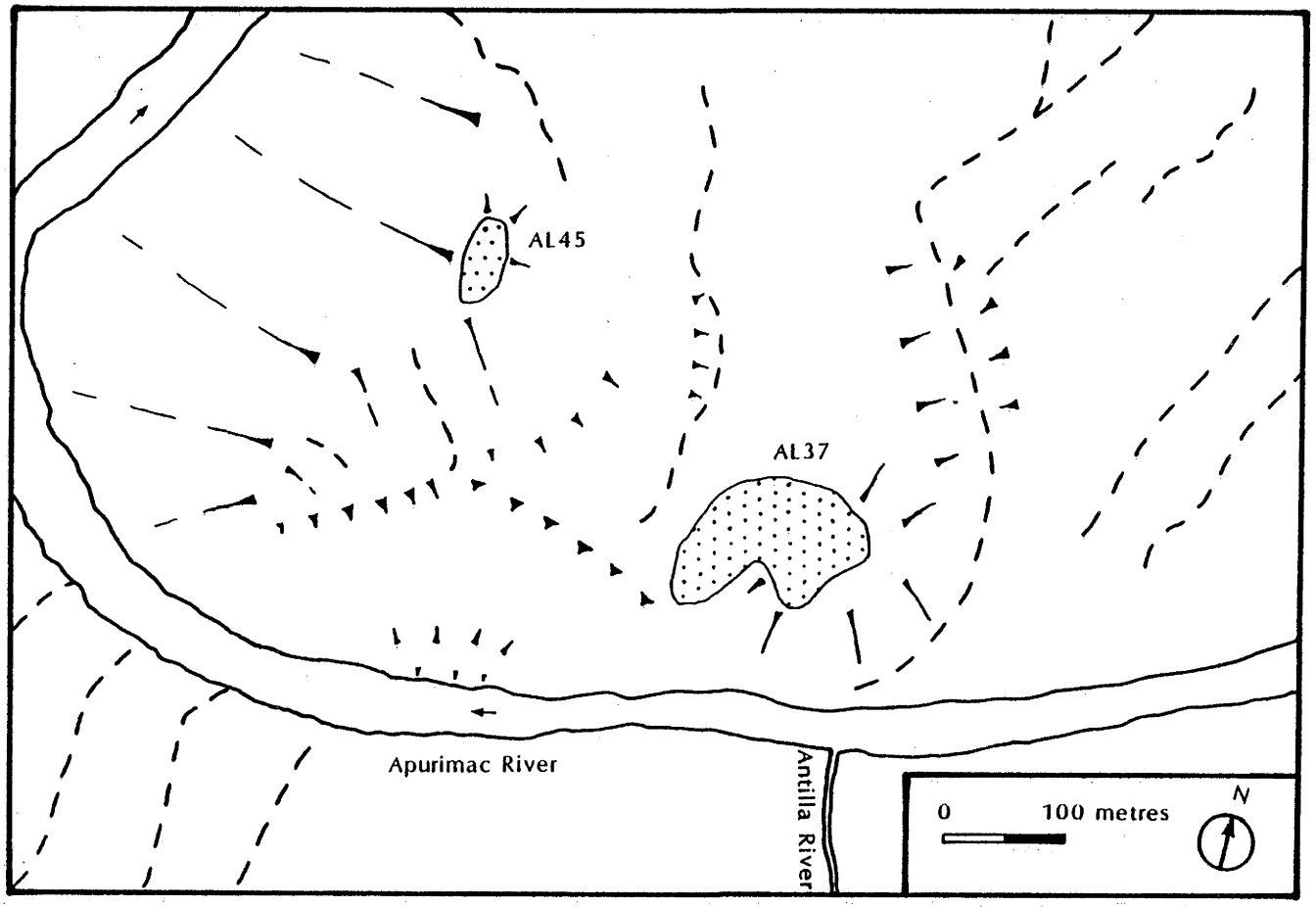
AL37 is located on a small hill at low altitude, about 110 m above an old river terrace of the Apurimac river (Plate 21). It comprises circular structure footings, surrounding and directly associated terraces, and surface artefacts.

(i) The Structural Area:

A concentration of 9 structures is sited on and around the hill peak, in an area of about 60 by 45 m, aligned ENE, on three partially levelled platforms with stone retaining walls. It is protected by very steep slopes on all but the NW side where terraces extend 0.8 ha over a colluvial fan. They are separated from the river flat by a 40 m high cliff (Fig. 4:7).

Structures were poorly preserved. All are of approximately circular floor plan except where flattened for construction against a terrace. Four, (C1, C2, C3 and C4), sit on the peak platform, and their respective exterior diameters are 5.3, 5.0 and 5.7 m, but damage leaves C4 indeterminate. Another four (C5, C6, C7 and C8) are built into the sloping terrace below (Plate 22) and have diameters of 3.7, 5.5, 4.9 and 5.8 m respectively. Structure C9, with a diameter of 6.0 m, is built into the rising wall of the lowest platform.

The range of diameters is 3.7 to 6.0 m, with a mean of 5.2 m (SD= 0.7). Structure areas range between 10.8 and 28.3 sq.m, with a mean of 21.9 sq.m (SD= 5.5). If C4 is attributed an average area for this site, then the total of structural space is about 197 sq. m, within a structural sector of 0.27 ha.




LLAKTAKI SITES

K.H.:AP Sketch

FIG. 4:7

Structures include one of very small area but most fall within the lower ranges present at AL39 (Table 4:6).

TABLE 4:6 SITE AL37: FREQUENCY DISTRIBUTION OF STRUCTURE AREAS

| | Area (sq.m) | | | | | |
|---|---|---|---|---|---|---|
| | 10.5-14.4 | 14.5-18.4 | 18.5-22.4 | 22.5-26.4 | 26.5 30.4 | TOTAL |
| n. | 1 | 1 | 2 | 3 | 1 | 8 |
| % | 12.5 | 12.5 | 25.0 | 37.5 | 12.5 | 100.0% |

(ii) Terraces:

Terraces reach about 1.5 m high, but the best preserved section amongst the structures is about 0.85 m. They are all irregularly curved and end in the slope. Wall stones range from small wedges up to blocks of about 0.7 m and include both angular and river-rounded white granites. Large stones are mixed with small ones and were often placed on top of them. Those to the northwest are of similar construction and form short interleaving arcs between partially levelled platforms, mostly less than 10 m wide.

(iii) Artefacts:

The site is forested and the surface is strewn with leaf litter, but large stone artefacts are visible. A collection area of 1 sq.m (LLS) was placed between the edge of rubble outside structure CS-4 and a steep descent towards the Apurimac River.

(a) Large Stone Artefacts:

Those on the surface include Shape-Wear Groups A and D in white granite.

(b) Painted Pottery:

The LLS collection contains 60 sherds, but only three have traces of paint. Two join as parts of the flat base of a large, thick walled vessel, painted red on the exterior but not on the pitted basal surface (App.II Fig. 13n). The other features three pointed parallel lines, in dark brown, on a very smooth light brown exterior slip and a lenticular excised and modelled area which is partly broken away (App.II Fig. 13j). The fabric is fine and hard, evenly fired but of light grey colour and with opaque white inclusions smaller than 0.25 mm. The decoration resembles *Killke* modelled eyes [Rivera 1972:94; cf. Kendall 1976:Fig. 54a], and the same paste was used in a bowl form with *Killke* characteristics at the nearby Site AL45.

One painted sherd, among three collected from an eroded part of the NW slope (LLSP), could be from a Cusco Inca vessel, based on design execution, surface texture, even firing and bright orange paste and slip (App.II Fig. 13m).

(c) Unpainted Pottery:

LLS unpainted sherds include a strap handle from a thick walled vessel (App.II Fig. 13g), another in the LLSP collection (App.II Fig. 13f), and the flaring tall rim of a large, thick-walled vessel (App.II Fig. 13a)

Unpainted body sherds (n= 53) include 8 with a very smooth convex surface (MSTS= 3, SD= 0.8), 4 with identical slip, fabric, textural features and similar thickness to the *modeled-eye* sherd; 4 have an orange exterior slip and a grey or brown fabric core, none clearly Inca.

Smooth exteriors are present on 26 (MSTS= 6.7, SD= 1.4). Eleven of these have exterior orange slip, 5 with exterior scraping/burnish as well. 7 have only an exterior cream or light brown slip, and 7 have orange exterior and creamy grey interior slips. One is like the flaring rim sherd, with orange outer and light brown inner slips.

The other 19 coarser sherds (MSTS= 14.8, SD= 7.1) include 7 which are eroded, 9 with a cracked orange slip of fabric colour, and 3 unslipped. All are unevenly fired.

(d) AL37 Summary:

Artefactual and structural evidence indicates that AL37 was a settlement with adjacent agricultural lands similar to those beside the Apurimac River at AL39 and AL41. The small ceramic collection tentatively indicates that, in contrast to the other sites, there was no Inca Period occupation or no access

to Cusco Inca pottery by the occupants. Mean structure area is smaller than at those sites. Some pottery has stylistic similarities to that of the Cusco Late Intermediate Period.

Site AL45, Llaktaki NE.

AL45 comprises circular structures, associated stone-walled terraces and artefacts of stone and pottery. It is located a few hundred metres northwest of AL37, upon a ridge peak about 300 m above the Apurimac River (Fig. 4:7, Plate 21). Except for the approach from a saddle at the north, it is protected by abrupt cliffs and slopes.

(i) Structures:

Several sections of low semi-circular footings, built into slopes, are all that remain of AL45 structures. None was well enough preserved to permit measurement or observation of entrances. Vegetation clearance and excavation may further clarify the number present, but a guess of ten would not be unreasonable given the area of rubble and pottery present.

(ii) Terraces:

The ridge is surrounded by interleaving terraced platforms with single-stone walls up to about 1.5 m high. White granite outcrops were incorporated into some walls, and the angular stone slabs used were predominantly of the same material. Walls feature a mixture of stone sizes up to about 0.8 m, with little attention to the placement of flat surfaces on the facade (Plate 23).

Pottery abounds on terrace surfaces, suggesting that they were primarily for support of structures.

(iii) Artefacts:

(a) Two large stone artefacts located on the surface were *maran* (Shape-Wear group 'B'), both based upon angular white granite slabs.

(b) Painted Pottery:

Only a small selective collection of sherds (n=18) was made from terrace surfaces at AL45.

Four were painted. Two had sharp black lines and thick red designs on a very smooth, polished orange exterior slip, and a well fired paste rich in mica specks (eg. App.II Fig. 13k). They are clearly within the Inca 'CID' category.

A small bowl, decorated on the interior lip with a band of dark red paint of varying width over a cream grey slip, is polished but has slightly irregular surfaces (App.II Fig. 13q). Its fabric is hard and evenly fired to light grey. It features a rim lug, with a small impressed but not pierced hole. This does not resemble the Inca punctated plate lug, but such ornament is also reported in *Killke* bowls.

The *Qopa B* decoration group is represented by a sherd within its range of design, painting execution, surface texture and slip and paint colour (App.II Fig. 13l).

(c) Unpainted Pottery:

This includes a distinctive sherd with an applied band on the exterior surface and three impressed circles on the other. It is moderately smooth on each side, has an even brown fabric containing white inclusions and occasional specks of mica (App.II Fig. 13i). Another sherd has a similar external application, without impressions (App.II Fig. 13h). A similar impression is illustrated on a sherd from the upper 15 cm of excavations at Huillca Raccay in the Urubamba Valley, in association with a mixture of Inca, Killke-related, Chanapata and Chanapata-related pottery [Kendall 1985:Fig. 24i]. The impressed circle motif is known in pottery from the Chanapata type-site in Cusco [Yábar 1972:Figs. 4a, 8c].

Unpainted vessel forms are represented by a robust everted rim (App.II Fig. 13b), a thinner flaring rim (App.II Fig. 13c), a thin-walled, incurving, probably globular vessel (App.II Fig. 13p), a straight-sided open bowl (App.II Fig. 13d), and the base of a curve sided vessel (App.II Fig. 13o). A thick, truncated conical base is from a large vessel (App.II Fig. 14a), as is a strap handle of semi-oval cross section (App.II Fig. 13e).

(d) AL45 Summary:

AL45 contains pottery of Inca, local 'QB' and possibly *Killke* styles, like AL39, but may also have been the site of pre-Wari occupation on the basis of scant ceramic association. This, combined with structural evidence, terraces and stone artefacts, is evidence consistent with a Late Intermediate Period occupation extending into the Inca period.

Site AL42, Llaktabamba E.

AL42 comprises circular structures, associated terraces, a burial and surface artefacts, located over an area of about 0.47 ha (Sector A) on and around a ridge peak some 250 m above the Cocha Stream-Apurimac River confluence. A contiguous area of terraces (Sector B) covers 3 ha of the Cocha valley flank (Figure 4:8, Plate 24).

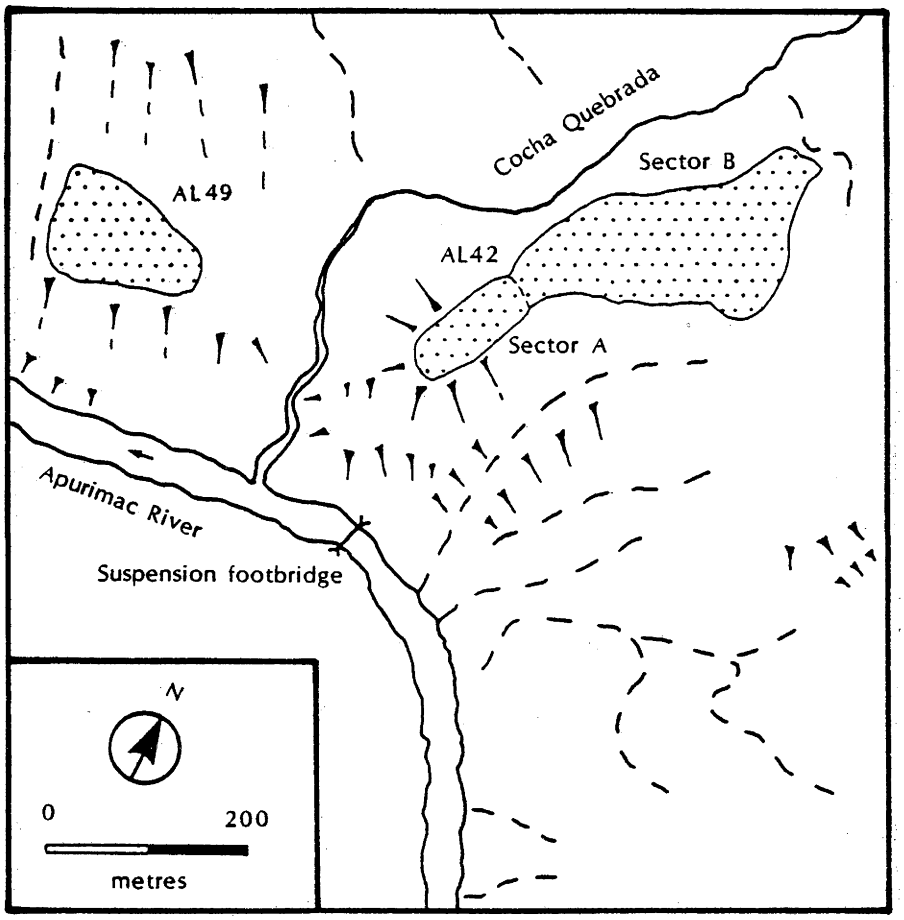
(i) Sector A:

(a) Structures:

All large structures are circular. Most are near the peak of Llaktabamba ridge, but are also dispersed amongst lower terraces where their walls are built into the slope. They number about 20 to 30, based on the density observed during brief reconnaissance.

Two in the upper terraced slopes, at 2300 m, were measured. One (CS-1) has an exterior diameter of 6.4 m and interior of 4.7 m; the other (CS-2) is 6.35 m and has an interior of 4.9 m (Plate 25). The areas are 32.2 and 31.7 sq.m respectively.

Standing structure walls are double, without evidence of mud mortar or adobes, and reach about a metre high. The stone is angular granite up to about 60 cm diameter, but of highly variable size. There are no apparent niches but square sided entrances open onto level areas.




LLAKTABAMBA SITES K.H.:AP Sketch

FIG. 4:8

One structure wall in the upper ridge area, on the side built into a slope, contained an empty stone-sided pit about 60 cm square and 85 cm deep (Plate 26).

(b) Terraces:

Terraces walls in Sector 'A' were built in short lengths, ending in the slope or at massive granite blocks strewn about the sector (Plate 27). They are steep, reach 2 m high, and contain granites of larger size than those used in structures. Rocks jut from the facade and small stones were used to fill gaps between large blocks. Most retaining walls are of single-stone construction.

(c) Burial:

An adult human burial is located in a small rock crevice within a terrace wall. The opening is half closed by small, unmortared granites (Plate 28). The bone is in good condition and all, except the upper cranium, appears to be present. Parallel placement of the left femur, tibia and fibula and the placement of their articulations with respect to ribs, indicate that the body was placed in a reclined sitting position, head up and with legs raised and drawn towards the chest. No grave goods are apparent but the lower part of the crevice is filled with dry humic soil.

(ii) Terraces in Sector B:

Sector 'B' is in less rocky terrain than the Sector 'A' hill. The terraces form short, interleaving and intermittently broken arcs. Walls are of angular

fieldstone, of single-stone thickness and of similar fitting to those in Sector 'A'. They reach about 2 m high, but this varies greatly along the wall length. They terminate in the slope or at collapsed areas. Many retain only partially levelled surfaces, and were probably built against breaks of slope.

No canal platform could be seen on the slopes above or within the sector, but a stone lined channel was found at lower altitude, taken from the Yuraqmayo, a Cocha stream tributary (Plate 29).

(iii) Artefacts:

Small surface artefacts are partially obscured by leaf litter and humic earth developing beneath the lightly forested area of Sector 'A', but large stone artefacts and pottery are concentrated amidst the structures.

Many large stone artefacts of Shape-Wear Groups 'A', 'B' and 'C' were seen. One hand-sized rectangular stone of group CI/II (11 by 7.3 by 4.3 cm) was found to have a flattened and abraded area (3.5 by 9.5 cm on a long narrow margin), and hammering pits (on 5.5 by 2.0 cm on one extremity).

Only two sherds were collected from Sector 'A'. One is a strap handle of a rough surfaced, thick-walled vessel. The other is from the tall neck of a highly decorated vessel (App.II Fig. 14f). The interior is slipped in yellowish cream, over a fabric of pale orange with small black inclusions (less than 0.25 mm). The exterior lip, and upper interior, are painted. Designs include bands and lines of faded red-brown and black over an area of cream. This rim form occurs in Urubamba Valley collections, at Choquepata Piscaycucho, and in Anta

Province, at Huata [Kendall 1976:Figs. 49a, 50e,56a,b]. The painted design is most similar to that on a jar from Huillca Raccay excavation level 'c', and which is described as part of a *Killke and Killke-related* category [op.cit. 1976:49, fig. 156].

(iv) Summary:

The artefacts and structures indicate that AL42 was a settlement with surrounding agricultural lands, of the Late Intermediate Period in the Apurimac Valley. Structure areas are within the modal range of those in the larger sample at AL39, and the site location is very similar to AL39 and the Llaktaki sites. However, a number of features set it apart. Stone walls are massive in the structural area. This could be a function of the abundance of stone in Sector A. Rectangular, subterranean, stone lined pits and wall crevice burials are not known within strucural areas at the other sites.

4.2 CS Without Artefactual Associations, and Artefact Concentrations Only.

The following group of surface sites have either (i) no recorded structures which can be described as dwellings, but have artefacts and often retaining walls which are suggestive of settlements and related land use; or (ii) evidence of structures which lack artefactual associations.

Eight sites, AL21, AL43, AL4, AL5, AL19, AM2, AL34 and AL38, belong to these categories.

Site AL21, 'Excursionayoq'.

AL21 comprises 9 circular platforms and sections of a retaining wall surrounding the ridge upon which they are located (Sector A), and a small set of 3 cross-drainage terrace walls in a gully 20 m below and to the south (Sector B). The northern, western and southern sides of sector 'A' are protected by steep slopes, but its eastern side is a broader ridge ascending from it (Plate 30).

(i) Structures:

The platforms were excavated into moderate slopes around an open level area of 46 by 30 m. Arcs of retaining wall occur on the upslope side of 4 platforms, but no wall stands above ground. Exterior platform diameters, from CS-1 to CS-9 respectively, are 5.15, 4.90, 6.30, 5.15, 7.20, 4.60, 4.90, 4.45 and 5.80 m, with a mean of 5.38 m. Areas range from 15.6 to 40.7 sq.m, with a mean of 23.3 sq.m (SD= 8.1). Total built space is about 210 sq.m.

Structures are, on average, larger than those at AL28 but smaller than at AL39. Only one is below the area range present at the latter site (Table 4:7).

(ii) Terraces:

The terraces are narrow, below 1 m high and all less than 10 m long. Agricultural activities were probably based on the larger areas of surrounding slope, now used for pasture.

(iii) Artefacts:

No artefacts were observed on the surface at AL21. This is probably an effect of the thick mat of grass cover.

TABLE 4:7 SITE AL21: FREQUENCY DISTRIBUTION OF STRUCTURE AREAS

| | Area (sq.m) | | | | |
|---|---|---|---|---|---|
| | 10.5-18.4 | 18.5-26.4 | 26.5-34.4 | 34.5-42.4 | TOTAL |
| n= | 2 | 5 | 1 | 1 | 9 |
| % | 22.2 | 55.6 | 11.1 | 11.1 | 100.0% |

(iv) Summary:

Without further artefactual data this site can only be compared on architectural characteristics, layout and placement with other sites in the area. It was probably a small settlement and has typical LPT structure forms and layout.

Site AL43, Pulla Rayanqasa.

AL43 comprises a pottery concentration and terraces covering about a hectare on the flat of a ridge (Plate 42) and its western slopes (Plate 31).

The slopes and ridge, bordering the Pampaconga community lands named *Pulla*, are designated *Sector A*. Further terraces extend west and north over about 5 ha of slopes (*Sector B*) (Fig. 4:9).

(i) Terraces:

The slopes of Sector 'A' are thickly vegetated and the ridge flat is disturbed by agriculture. A short section of straight wall lies beside a path on the ridge and another piece on a vegetated western slope terrace in Sector A, but no further standing architecture is preserved. The community president, Don Mariano Huamán, referred to the site as *Rayanqasa*.

The lower terraces of Sector 'A' are the only ones free of forest, and appear to have continued in cultivation. Walls were built of unshaped red metamorphosed sedimentary rock, in blocks up to 0.7 m. Terraces of both sectors are about 4 to 6 m wide, and are arranged as interleaving lengths which terminate in the slope.

(ii) Artefacts:

Pottery is concentrated in Sector A, primarily on the ridge top, and in lesser densities on adjacent southwestern terraced slopes. It was collected from paths running through this sector (collection 'PR', n = 33).

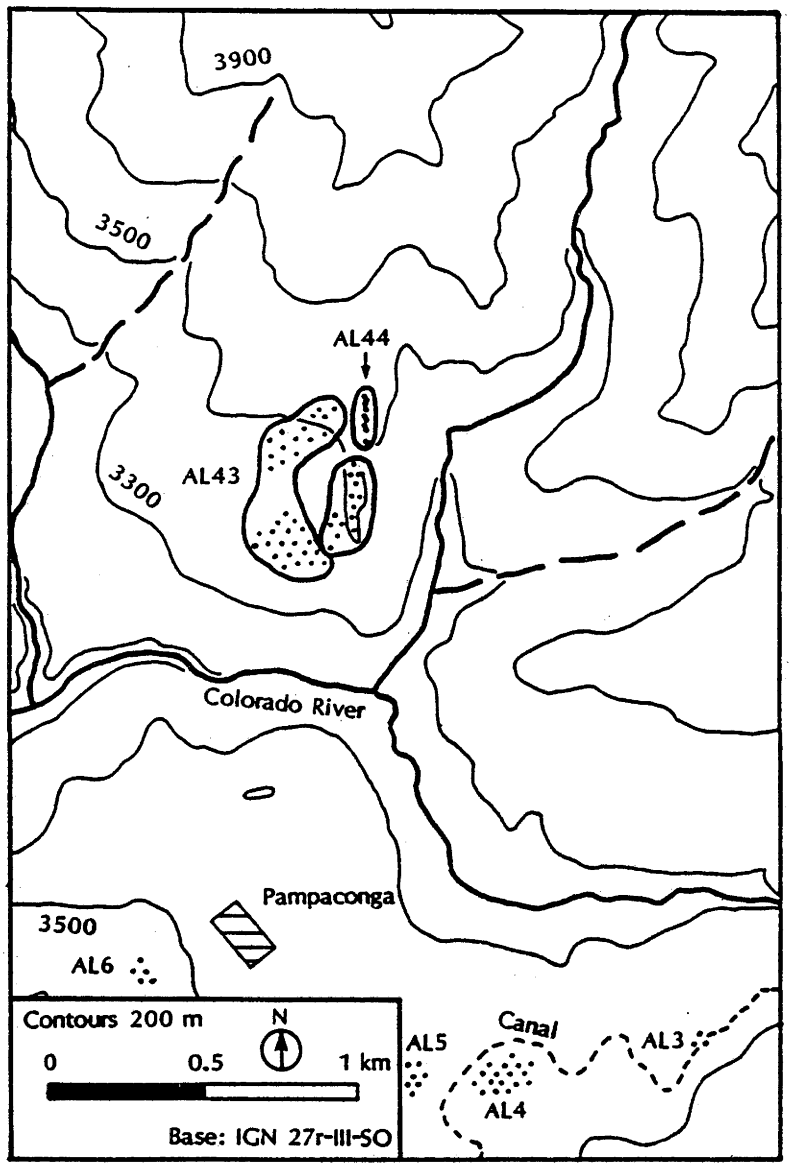



FIG. 4:9 Pulla Sites: AL43 and AL44.

(a) Porous Clay Lumps:

Two PR specimens are clay lumps with elongate holes, probably from a high content of parallel grass stalks. The fabric is red (2.5YR 5/8) and contains medium-sized white inclusions (under 1 mm). Such pieces, from here and at Site AL25, have flat faces like a sherd and are 10 to 22 mm thick. Similar material is reported at an Urubamba Valley excavation in association with *Killke and Killke related* pottery [Kendall 1985:305-306] and in Cusco Valley sites where Rowe [1944:46, 50-52] thought they may be from lining of stoves like those still used in rural dwellings.

(b) Painted Pottery:

Convex surfaces of eleven sherds were painted. Two (fitting) are probably Colonial specimens. They have patchy red paint (10R 4/8) on a smooth exterior, and light red slip (2.5YR 6/6) on the brushed interior surface. The paste is hard, platy on fracture, and of mottled appearance because flat inclusion facets show in the matrix (10R 5/8). Inclusions are green or bluish-grey (angular or sub-angular and under 2 mm), red (of similar shape), white (under 1 mm) and more rarely black (minute). Sherds of similarly thin-walled vessels with this paste occur with glaze at site AL25, where historic occupation necessitates careful differentiation of Inca and Colonial plainwares.

Other possibly Colonial sherds are one with the same interior slip but a red (10R 5/4) on the exterior and a dark brown paste; and two (fitting) with the same red slip and a fabric which is 2.5YR 6/6, like the slip on mottled-paste sherds.

One sherd has cream paint on the polished exterior (7.5YR 7/4), a highly micaceous, orange (2.5YR 6/8) paste with glossy black inclusions, like much Cusco Inca pottery, but the interior slip is 2.5YR 6/6 as on the colonial material. Pottery of earlier tradition includes:

(A) 2 sherds with grey paste, and linear or criss-cross black designs (10R 4/2 to 10R 3/1 where faded) on a smooth grey surface [App.II Fig. 4a]. The latticed band motif occurs on surface sherds from Ancasmarka (Urubamba), where it is thought to resemble *Lucre* style [Kendall 1976:86, fig. 72b]. The motif also occurs on *Killke* Phase C-D jars [Dwyer 1971:Fig. 315];

(B) 2 of evenly fired paste (2.5YR 6/8), with washy brown (5YR 4/3) bands, 4 to 6 mm wide, on a smooth or very smooth but cracked orange slip (5YR 4/3) (App.II Fig. 4b). This is similar in design execution to the *Qopa B* style, and is identical in painted design and slip colour, to a Paqchak (AL46) sherd (see App.II Fig. 4f);

(C) One in which brown and black are combined, over a light brown slip (App.II Fig. 4c).

(c) Unpainted Pottery:

These include a conical-stub base with black fabric from a thick-walled vessel (App.II Fig. 4d), and strap handles from medium to thick walled vessels.

(iii) Summary:

AL43 is interpreted as a site of occupation in the Late Intermediate, probably Inca and Colonial Periods.

Site AL4, Hatun Tambowilka.

AL4 comprises stone-walled terraces and an artefact concentration on a low hill about a kilometre east of Pampaconga.

(i) Terraces:

These are intermittent, fieldstone retaining walls built against sharp breaks of slope between areas of lesser gradient on the hill flanks (Fig. 4:10).

(ii) Artefacts:

These are concentrated on a platform on the peak and, in lower densities, on other presently cultivated fields of the southeastern flank. Therefore, their walls may have once supported dwellings. A surface-collection area (collection *JT*, a circle of 6 m diameter) was centred upon a survey station on the cultivated peak (Plate 32, Fig 4:10). A fragment of a large stone artefact (Shape-Wear Group 'D' or *mut'ka*) was recorded on a field surface about 20 m north of the JT collection.

(a) Painted Pottery:

The JT collection comprised 37 sherds. Small sherds were very eroded and were not collected, as reflected in the sherd size analysis (Table 3:3). 10 body sherds are painted:

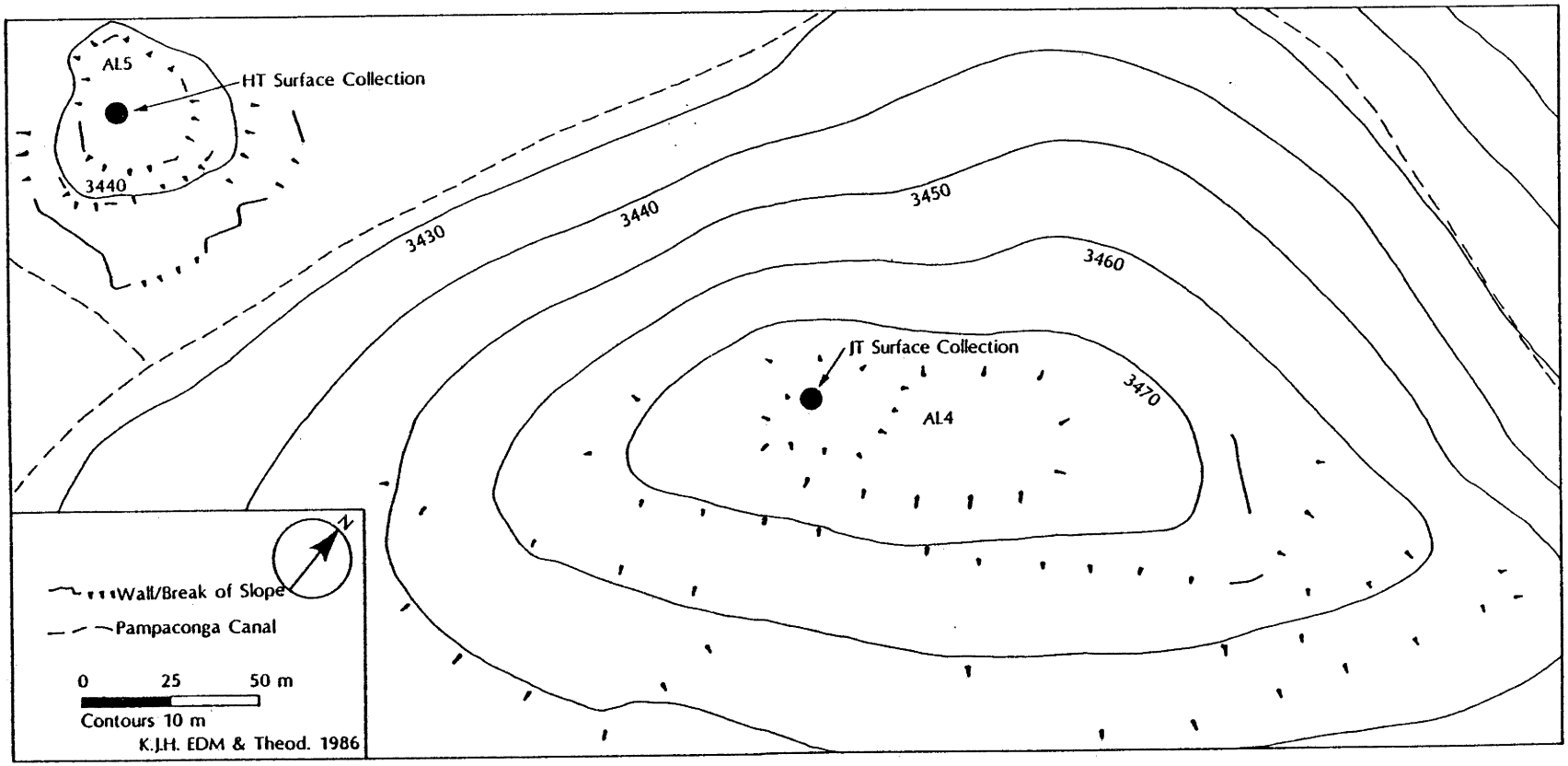



FIG. 4:10 Tambowilka Sites

(A) 6 are polychrome (App.II Figs. 14g,i,j,l, 15c). They have black or very dark brown lines or bands, and red bands, over an orange or creamy-orange slip. All of their surfaces are smooth or very smooth (MSTS = 2.3, SD = 0.8). All have white inclusions and mica flecks in an evenly fired orange paste, except one (App.II Fig. 15c), which has a grey core (and no visible mica flecks). Small black inclusions (Figs. 14g,l, 15c) or red ones (Figs. 14j,l) may be present. One (Fig. 14g), decorated on the concave surface, may be from a bowl form. Several have brushed interior surfaces (Figs. 14i,j,l).

The design of 3 (Figs. 14g,i,l) is similar to Cusco Inca, but lines are not sharp, are of uneven thickness, and lines and bands overlap or fail to meet. Colours are not dense and one sherd has exterior surface scraping-burnish bands (Fig. 14i). These are *Killke-like* technical and stylistic characteristics [Dwyer 1971:87,120,128,134].

(B) 4 have faded black or dark brown lines or bands on orange slip. All have smooth or very smooth convex surfaces (MSTS= 3.5, SD= 1.9). Two (eg. App.II Fig. 14n), with thin black painted lines, have the same fabric colour, white inclusions and firing as the majority of polychrome sherds; one (Fig. 14n) has an identical paste to a polychrome sherd (Fig. 14j). Their designs are typical of *Killke* pottery [Dwyer 1971:105]. The other two are not evenly fired. One has a grey cored orange fabric (App.II Fig. 14m) and the other a dark brown fabric (App.II Fig. 14k).

(b) Unpainted Pottery:

The unpainted group (n = 27, MSTS = 5.7, SD = 4.7), includes: (A) 10 with a very smooth surface (MSTS= 2.4, SD= 1.2, n= 10), one of these with *Chanapata-like* geometric incisions (App.II Fig. 14h) and one base; and (B) 17 coarser sherds (MSTS = 7.5, SD = 5.0), including 2 rims, 3 handles and 3 bases.

14 unpainted sherds, 5 of very smooth texture and 9 coarse, are evenly fired to orange colour, with thin orange or light brown slip. They include a rim (App.II Fig. 15b), a flat base (App.II Fig 14q) and a stub base with exterior scraping bands (App.II Fig. 14p).

12 have grey or grey-brown fabric cores. These include a rim (App.II Fig. 15a), flat and rounded bases (App.II Figs. 14o,r) and three strap handles (App.II Figs.15d-f). The strap handles and rounded base have larger paste inclusions than any other JT sherd (2-3 mm) and are coarse textured. They are probably from cooking ware.

(c) AL4 Summary:

The stone and pottery artefacts indicate that AL4 was an occupation site. It is possible that there was a *Chanapata* occupation, but ceramic associations are mainly post-Wari. No finds of Cusco Inca pottery were made on the hill but several were recorded within 40 m in canal cleaning debris beside a canal which passes below the site (Fig 4:10) and a miniature Inca style terrace group is located beside the same canal a few hundred metres to the east (Site AL3).

Site AL5, Huchuy Tambowilka.

AL5 comprises a small terraced hill and artefact concentration on a level area of the peak, located beside AL4 (Fig. 4:10, Plate 33).

(i) Terraces:

Sections of fieldstone retaining wall divide sloping areas, now cultivated, on the northern, southern and eastern sides of the hill. Many pieces have collapsed leaving only breaks of slope. A retaining wall of the peak platform is partly intact.

(ii) Artefacts:

An inspection, after ploughing on the site, indicated that pottery was concentrated on the peak platform. It was less apparent due to a *tarwi* crop and grass when the survey and pottery collection (*HT*, a 6 m diameter circle) was made there (Fig. 4:10). Further pottery was found beside a path cut into the eroded western side of the hill, probably exposed by passers by. This was collected and labelled *HTP*.

HT produced only 10 sherds, one painted. It is a slightly irregular rim, thus problematic for rim angle determination, but appears to be from a shallow open vessel of about 26 cm diameter, with grey-cored fabric (App.II Fig. 15h).

HTP produced a rim of an inflected open vessel (App.II Fig. 15g), of like paste and similar shape to one at AL4 (App.II Fig. 15b); a jar form (App.II Fig.

14l), a flaring rim (App.II Fig. 14m) with exterior rim-thickening which is characteristic of Killke 'Shape C Medium Jars' [Dwyer 1971:98], and a body sherd with complex black painted designs (App.II Fig. 14o), all featuring a well-fired light orange paste. Two sherds with bright orange and red paste have scraping/burnish bands on the exterior (App.II Figs. 14i,n), as did an unpainted stub base similar to one at AL4 (App.II Fig. 14k, cf. 14p).

(iii) AL5 Summary:

AL5 was probably a post-Wari settlement site. Like the adjacent Site AL4, it does not appear to have had a Cusco Inca pottery-using occupation.

Site AL19, Kuchiorqo.

AL19 is a scatter of pottery sherds on a hilltop and its eastern sloping fields, located at the end of a ridge of Mamako mountain, overlooking the confluence of the Colorado and Achaku rivers (Fig. 4:1). It is protected by steep slopes on all but the eastern approach.

(i) Pottery:

Only a few sherds were collected (KUP1-4 from the peak and KUS1-4 from the eastern slope). A KUP rim is from a narrow-necked (8 cm) vessel (App.II Fig. 14v); a body sherd is painted in a dark brown lattice design over a very smooth brown-orange slip (App.II Fig. 14t), a design found on AL28 sherds and common in *Killke*. Unpainted sherds include 2 strap handles (eg. App.II Fig 14s), one of these from KUP with exterior blackening; 2 are eroded specimens

and one has a similar texture and paste to the painted sherd. A porous red clay lump with holes from straw content before firing, as described for AL43, was located on the eastern slope.

(ii) AL19 Summary:

AL19 appears to have been a small occupation site. Its closest pottery series associations are post-Wari but no Cusco Inca material is represented.

Site AM2, Qoriwairachina.

AM2 is a hill which rises 150 m above Markawasi flats, an area of extensive Inca terracing (Plate 34), and is protected on the opposite side by very steep descent of about 500 m to the Colorado River. Inca style walls also encircle the peak of the hill. A large number of mostly eroded sherds are concentrated around the peak terraces and in lesser densities immediately below them on the northern descent.

(i) Pottery:

A small collection of sherds ('QW', n=13) was made within the peak and 50 m below it on the northern side. Two sherds were painted. One of these was highly polished on both surfaces and decorated on the convex surface with dense Cusco Inca red paint, from a thick walled vessel of large body circumference. One other sherd in QW has a very smooth, polished (concave) surface, but is undecorated. The second painted sherd has a brittle brown fabric, decorated in a loose grid design with splashed dots on cream slip (App.II Fig. 14u). It is

not Cusco Inca, and the use of splashed dot elements is only seen elsewhere in the valley at AL4 (App.II Figs. 15h,o).

(ii) AM2 Summary:

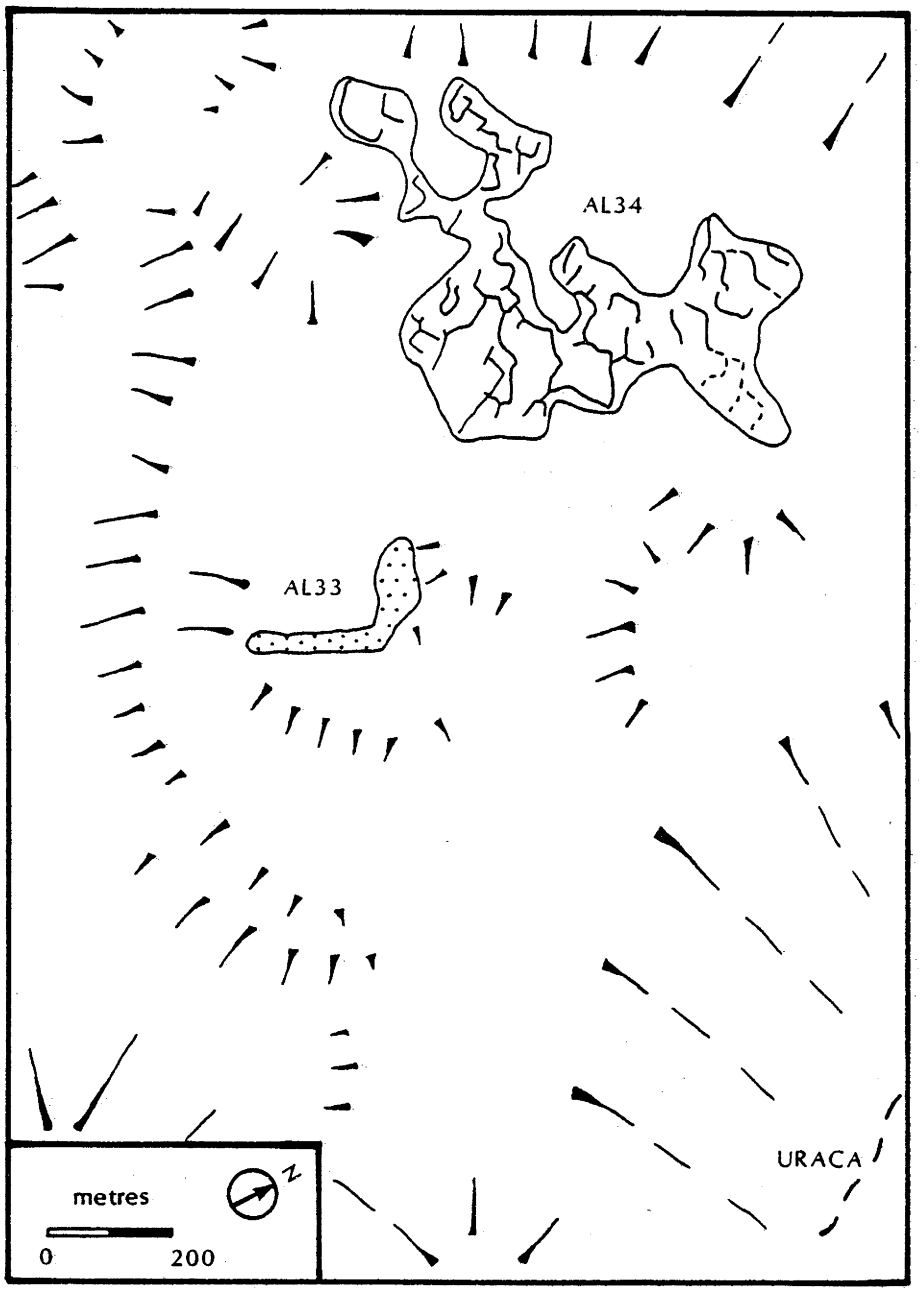
AM2 was probably a late prehistoric settlement site prior to the construction of Inca terraces on the peak.

Site AL34, Waqayoqpampa B.

AL34 comprises terrace walls among breaks of slope and an associated artefact scatter over about 400 sq.m on a low hill, and a contiguous area of about 4 ha containing standing stone walls and linear bunds of stony soil which form irregular 'horseshoe' shaped and closed areas (Fig. 4:11). It is located in an inter-ravine area of relatively moderate declivity.

(i) Terraces:

Terrace walls are intermittent, apparently built against interleaving breaks of slope. Walls are single-stone, stand about 1.0 m high and were built with blocks of fieldstone up to about 0.5 m maximum dimension. Some lower levels to the northwest are cultivated, and here upslope boundaries are breaks of slope with some loose stone piles nearby.




WAQAYOQPAMPA SITES K.H.:AP Sketch

FIG. 4:11

(ii) Standing Field Walls:

The walls are 1.5 to 2.0 m thick, up to 1.5 m high, filled with gravelly soil (Plate 35) and faced on each side with well-fitted single-stone facades (Plate 36). In some places they are collapsed and grade into high, gravelly-soil bunds. Both walls and bunds appear to be part of the same system of field division and some act to retain soil. Their stony nature impedes vegetation growth and makes them highly visible on aerial photographs. Several fields bounded by them are cultivated.

(iii) Artefacts:

A small collection of sherds (*HU*, n = 10) was made in an area of their concentration on lower slopes of the terraced hill at the southern end of the site. Some eroded, undecorated sherds were also seen on the surface of fill in field dividing walls.

One HU sherd belongs to a glazed Colonial bowl form with blocks and lines in green and dark brown over pale green underglaze. It has a well fired, extremely fine fabric matrix containing only a single large, rounded, red stone (4 mm) inclusion.

7 other sherds contain only inclusions of white (under 1 mm), and 2 have white and black (under 0.5 mm) or brown (under 2 mm). They include the flaring slightly irregular rim of a shallow open vessel with smooth surfaces and a grey-cored fabric (App.II Fig. 14d), similar to rims from AL4 and AL5 (App.II

Figs. 15b,g) and resembling shapes from Huillca Raccay, in shallow floor deposits of an Inca structure, and from late prehistoric surface sites at Olleriayoc Leoniyoc and Choquepata Piscaycucho [Kendall 1985:240, figs. 12, 17d; figs. 50c,59c,d]. Handles are straps (App.II Fig. 14c,e) and a flat base has a polished interior brownish-orange slip and eroded exterior (App.II Fig. 14b).

(iv) AL34 Summary:

AL34 was probably both continuously cultivated and site of small areas of occupation in late prehistory. It remains difficult to date construction of the walls which could have taken place over a long period.

They could be interpreted as an alternative to terrace walls, for the purposes of stone removal and gradual field levelling. However, the quality, steepness and height of wall construction, use of fine gravel in a very thick wall fill and the presence of walls perpendicular to contours, suggests other functions too. Enclosed areas are protected from animals and open ones could have been closed with brush to keep them in. The altitude is 3000 m, not as high as the major areas of camelid pasture in present Cusco, but the area is sufficiently extensive and moderately sloped to have provided pasture.

The pottery from the terraced hill shares a form with AL4 and AL5. Site location is similar to these and other sites of late prehistoric tradition.

Site AL38, Cochabamba Ridge.

AL38 comprises a surface pottery concentration, primarily in an area of gentle gradient about 30 by 20 m. This area features abundant stone rubble which may have pertained to disintegrated architecture and some of it is piled near a possible structure-platform. Eroded and undecorated sherds appear sporadically downslope for about 50 m.

(i) Pottery:

A small collection from the site (*CB*, n=15) produced no painted and mostly eroded sherds. This may be a function of site proximity (350 m) to a small modern settlement at Cochabamba saddle. None has paste characteristics of Cusco Inca wares, nor is any glazed.

(ii) AL38 Summary:

AL38 was probably a small settlement prior to arrival of Cusco Inca pottery in the valley and is located at a pass between the main Limatambo Valley and sites AL37 and AL45 on the Apurimac margin.

4.3 Further Sites With Stone-walled Terraces.

The only evidence from a few sites comprises terraces with stone retaining walls. Two are large (AL40 and AL49) and two small (AL33 and AL31). Such surface sites are difficult to date except by reference to distinctive constructional attributes, associated artefacts or architectural complexes. For

this reason the archaeological literature on Inca terracing, with distinctive stone masonry and architectural attributes, is more abundant than that on earlier or local level traditions in agricultural landscape modification.

In the Limatambo Valley today the repair of old terrace walls is not uncommon. Construction of a new retaining wall was seen at only one place, where it was used to bound a newly irrigated field about 1 km from Limatambo town. Large stone in fields is usually piled in mounds or thrown to a field boundary. This boundary may be a break of slope but the result is not a steep wall. The planting of agave or non-clearance of other plants on downslope field margins also gives rise to a terrace forming process, aided by soil loosening for cultivation. Such unwalled terraces surround most highland agricultural community settlements and are difficult to include in a model for detection of prehistoric land-use.

Field observations indicate that detectable stone retaining walls are most likely to be found on stony slopes. The distribution of terraces with deliberately constructed stone walls is still in need of explanation so long as not all stony slopes are terraced, which is also consistent with observations.

Recent repairs or newly built walls are apparent from variation in lichen cover, weathering and style of stone placement, in addition to residents' memory. Nevertheless, attribution of non-elaborate terracing to prehistory must remain tentative especially where there is a likelihood of continuity in land use during the historic period, even if there is no present cultivation.

Site AL40, Qopa Alta W.

AL40 comprises about 30 levels of interleaving terrace walls on a small colluvial-alluvial fan perched above the steeply cut Tincoc Stream. Partial reconnaissance and mapping found them to be of similar construction and design to those on the opposite side of the ravine (AL39). Straight wall lines in a small sector of the group, not visited on the ground, are more characteristic of Inca terracing than that of AL39 (Fig. 4:4; Plate 37).

Site AL49, Llactabamba W.

AL49 is a set of 13 terraces on a colluvial-alluvial fan at low altitude on the right margin of the Apurimac River (Fig. 4:8). Time did not permit reconnaissance of the site but stone walls were observed with field glasses from AL42. The wall lines are parallel and straight in the greater part of the scheme (Plate 38), unlike those of AL39 and AL40.

Site AL33, Waqayoqpampa A.

AL33 comprises a group of 4 roughly parallel stone retaining walls on the slopes of a low hill near AL34 (Fig. 4:11). Unirrigated fields below the hill terraces remain in use, and the absence of thick vegetation on the old terraces indicates regular but not annual usage.

Walls are about 1 m high but are eroded and collapsed in many places, leaving only breaks of slope or rubble. The ground surface between them is about 10 m wide. Construction is single-stone, of granite blocks up to 0.5 m, a

material abundant in fields and outcrops near the site. Their fitting shows some tendency to the placement of flat sides on the facade but large stones were placed over smaller ones.

Site AL31, Pistibamba.

AL31 is a small area of terraces located on stony lower slopes of Wamanmarka ridge, at the edge of a flat and presently cultivated but unirrigated field. The slopes are not presently cultivated and have low patchy vegetation.

The terraces are of interleaving and intermittent form, with single-stone fieldstone walls up to 1 m high. Stones are 0.1 to 0.8 m in the maximum dimension and large stones were occasionally placed over smaller ones. They are badly eroded and collapsed in many places.

4.4 Cylindrical, Subterranean, Stone-lined Pits (CSP).

Seven sites with CSP were located in the field area (AL27, AL26, AL44, AL47, AL48, AL23 and AL24).

Site AL27, Q'erabamba.

AL27 comprises 62 small circular depressions bounded by stone rings, or stone-lined pits on an elongate ridge of rock and a stone-walled platform below it (Fig. 4:12, Plate 39). This site is regarded by members an adjacent dispersed settlement, of the Llamatay section of Choquemarka community, as within a land area called *Cruzpata* (cross-high place), although the cross and

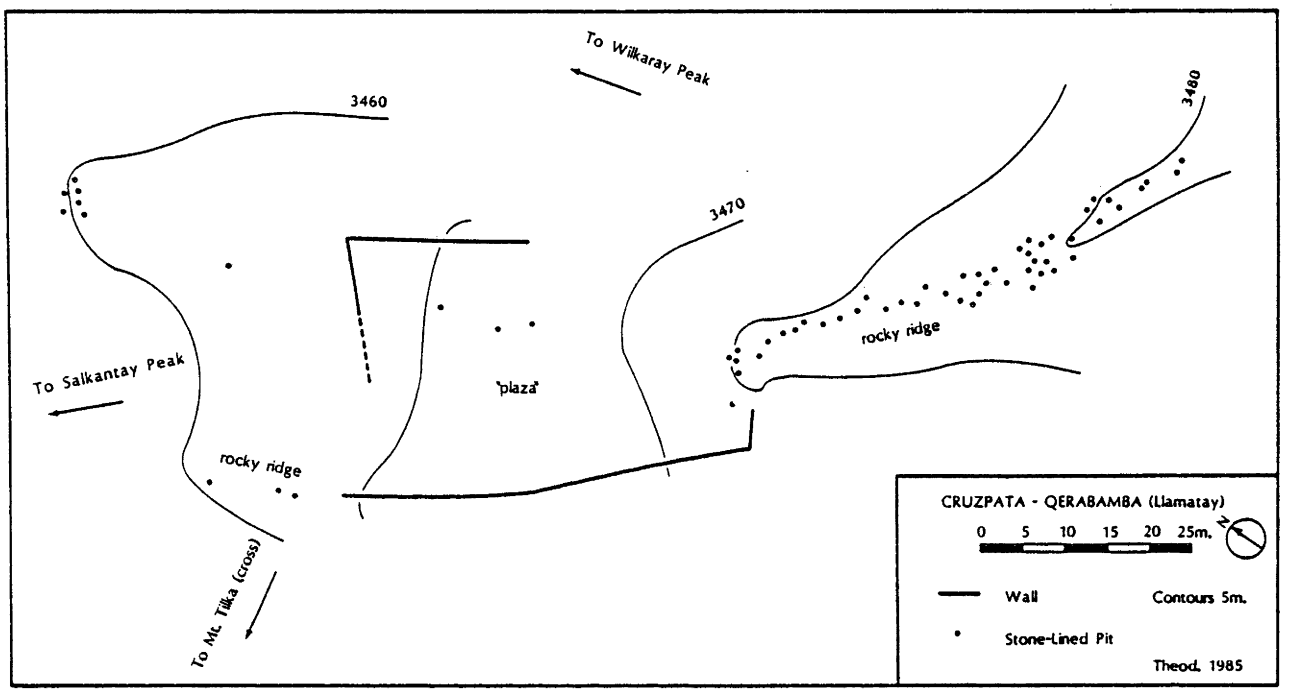



FIG. 4:12

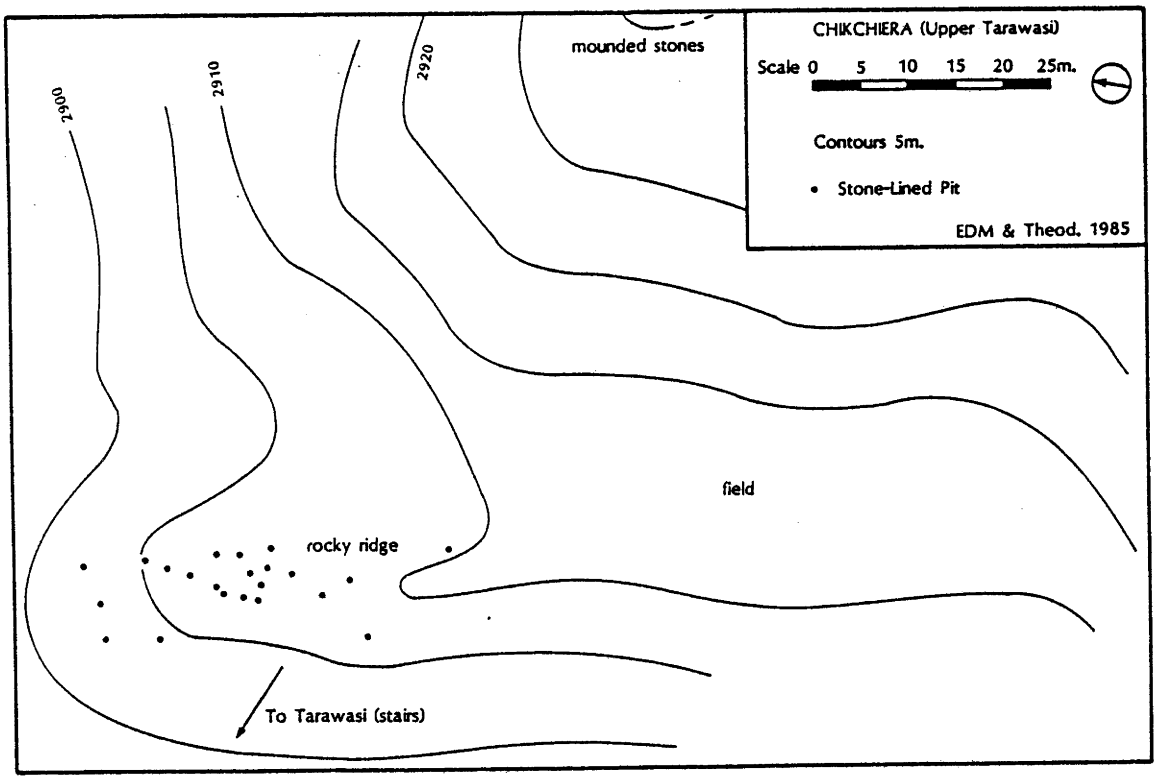



FIG. 4:13

the present cemetery of this name is about 150 m away. It borders high altitude slopes called *Q'erabamba* and is beside a path leading to *Ylpa'*.

The surface depressions within stone circles appear to be subterranean pits which have collapsed inward. Depressions without stone were not counted since they may be looting pits. Five CSP are visibly deep pits, and three retain partial stone-slab and earth coverings near surface level (Plate 40).

Measurable depths, without any excavation of infilling debris, are up to 1.06 m (n = 5). Walls employ locally available granite and red metamporphosed sedimentary rock and are double-stone at the surface where well preserved. Exterior diameters and wall thickness were difficult to assess due to collapse. Diameters of the best preserved examples range between 0.98 and 1.89 m (n = 13, mean = 1.44 m, SD = 0.26). Wall width on these and a further 22 examples is between 0.27 and 0.6 m (n = 35, mean = 0.41, SD = 0.09).

Walls around the *Plaza* (Fig. 4:12) retain the slope, but also rise 0.5 m above ground in several places. They are double-stone, 0.76 m thick and of the same stone as CSP. No artefacts were found in association with these features, nor on a path passing through the site.

Site AL26, Chikchiera.

AL26 contains 22 CSP on and around a rock outcrop and overlooks the Tarawasi Inca Site (Fig. 4:13). A ravine separates it from the present burial area of the Tarawasi sector of Choquemarka community.

Well preserved CSP walls were all double-stone, of local white granite. Some are percussion shaped. The best preserved example has capping stones and is 1.05 m deep (Plate 41). Exterior diameters are between 1.0 and 2.6 m (n = 15, mean = 1.8 m, SD = 0.45) and wall widths between 0.33 and 0.64 m (n = 18, mean = 0.46, SD = 0.09).

The only artefacts found near the CSP were three potsherds without design, located on a small rise between two pits. They are thin (0.44-0.48 cm) and two have smooth or very smooth orange or light brown slip and a well fired paste with small black and white inclusions (under 0.25mm). One has a greyed exterior fabric but the same inclusions, a polished exterior but eroded interior and traces of exterior red paint.

Site AL44, Pulla Ridge.

AL44 comprises 9 CSP at 7 high spots along a 95 m length of serrated ridge and descent of 60 m. A broader and lower part of the same ridge serves as the upper sector of Site AL43 (Plate 42; Fig. 4:9).

CSP-5 and CSP-9, numbered from that at highest to lowest altitude, were sufficiently preserved to permit measurement. Exterior diameters are 0.92 m and 1.64 m (mean= 1.03 m), and wall widths are 0.25 and 0.48 m (mean= 0.34 m) respectively. Some have single-stone walls. No artefacts were found in association with the CSP.

Site AL47, Paqchak Lomada I.

AL47 comprises 7 CSP upon along a ridge-peak, about 40m long and 5 m wide, on a 115° alignment. The eastern end of the ridge is about 50 m from structure CS-1 of Site AL46 and separated from it by a 65% descent (Plate 12).

Numbered CSP-1 to CSP-7 (from west to east along the ridge), the best preserved (CSP-1) has a double-stone wall of grey-red metamorphosed sedimentary rock which outcrops on the ridge. CSP-1 has an exterior diameter of 1.55 m and wall width of 0.30 m. Interior diameters on this and CSP-2, CSP-3 and CSP-4 were between 0.95 and 1.2 m. Despite a careful search, no artefacts were found in association with the CSP.

Site AL48, Paqchak Lomada II.

One CSP was located on a ridge running parallel to that of AL47, about 200 m to the north and 20 m in altitude above it (Plate 12). No other CSP were found during reconnaissance for a further 100 m in altitude along the ridge.

AL48 CSP-1 is built of stone similar to that of AL47, which also outcrops here. The interior diameter is 0.95 m and its double-stone wall width is about 0.40 m. Depth is 0.65 m, on a side built against the slope. No artefacts were found in association.

Site AL23, Wilkaray Ridge.

AL23 comprises at least two CSP, without artefacts, on a ridge near the final ascent of Wilkaray mountain, on the eastern side of a small lake, and within 50 m of site AL22, a pair of rectangular Inca structures (Fig. 4:14, Plate 43). Several depressions on a ridge to the west of the lake may also be remains of CSP.

CSP-2 is round (interior diameter = 1.23 m, wall width = 0.47 m). CSP-1 is oval (2.14 by 1.72 m, wall width = 0.47 m) and shallow (Plate 44), and thus stands apart from the others reported.

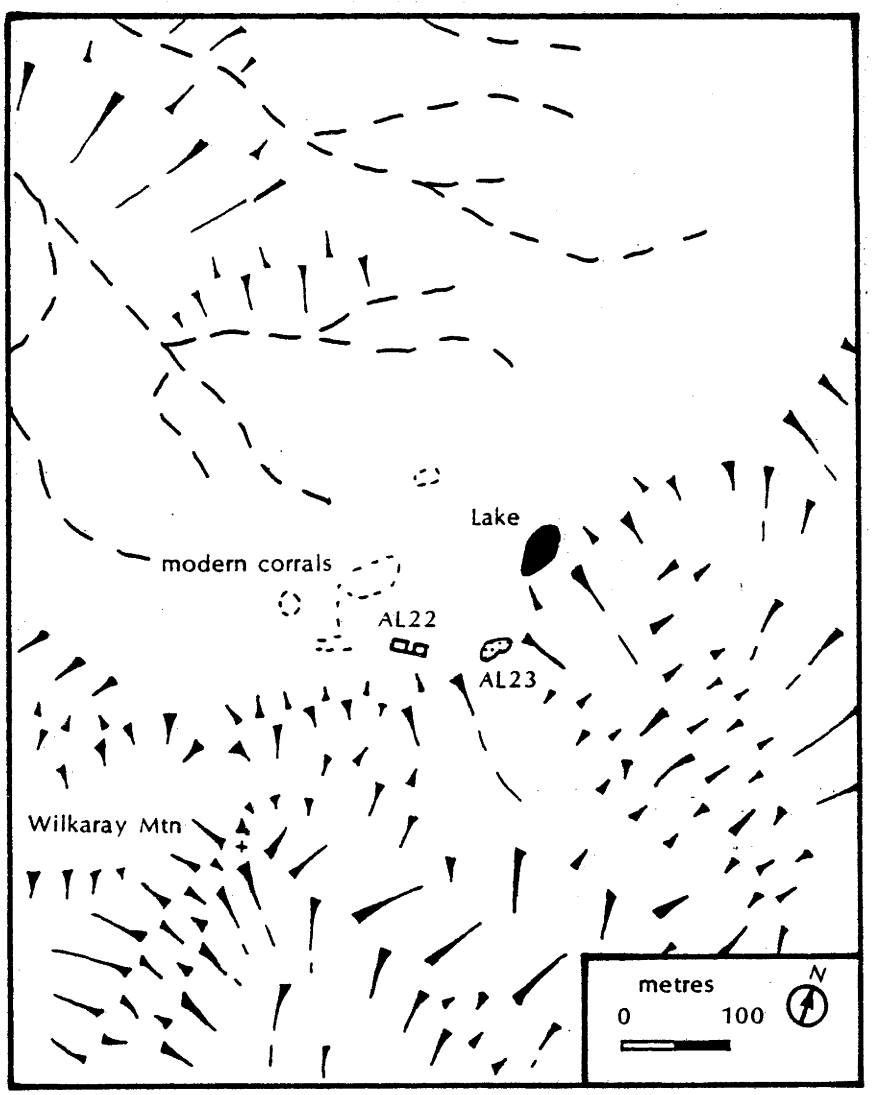



FIG. 4:14 WILKARAY PAMPA, RIDGE AND PEAK K.H.:AP Sketch

Site AL24, Qechuloma.

AL24 comprises 20 CSP, without artefacts, located at high altitude on the flat of a ridge overlooking the Lecheriayoq and Qaywincha branches of the upper Sondor Valley (Plate 45).

Exterior diameters of CSP range from 1.03 to 2.2 m (n = 18, mean = 1.46 m, SD = 0.33), and wall widths are from 0.32 to 0.58 m (n = 20, mean = 0.43 m, SD = 0.07).

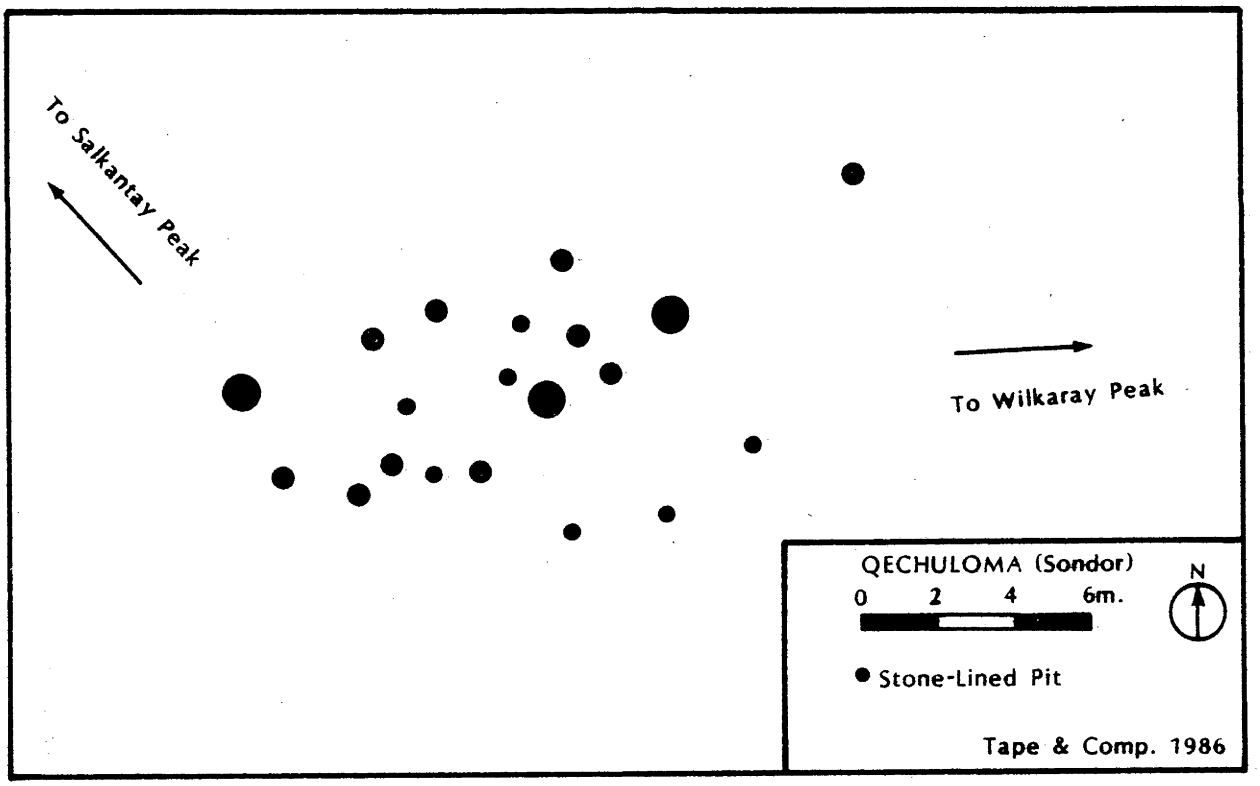



FIG. 4:15 Qechuloma: Site AL24.

## 4.5 Conclusion.

Sixteen sites represent nuclei of settlement occupied during the Late Intermediate Period, although this must remain tentative given the limited nature of time devoted to study of any one site and need for excavation at sites such as AL21. Occupation may have been earlier at AL4 and AL5, but no concentrations of Wari architecture or pottery were located. Present pottery data suggest that nine sites (AL4, AL5, AL19, AL28, AL29, AL30, AL37, AL38 and AL42) were not occupied nuclei in the Inca period or had very restricted access to Cusco Inca wares. AM2 may have been abandoned as a result of the later Inca construction. Its high location was also of interest to the Inca, but probably not for settlement. Site AL28 was sufficiently examined to suggest the temporal significance of its lack of Cusco Inca pottery. Sites AL28, AL29 and AL30 have distinctive architecture by comparison with sites of round structures which have both LPT and Inca pottery mixed on the surface (eg. AL39). They may be of early Late Intermediate date. Five LPT settlements (AL39, AL41, AL45, AL46 and perhaps AL43) were occupied into the Inca period and AL4 and AL5 are very close to later Inca construction sites.

# CHAPTER 5

# THE INCA IN LIMATAMBO

## Introduction.

Sites which have substantial architectural and/or ceramic evidence of occupation, construction or use during the Inca period in the Limatambo-Chinchaypuquio Region are designated *Inca sites*. These include Inca period occupation phases in sites of Late Prehistoric Tradition.

Thirty seven Inca sites were located (Figure 5:1). They are described in this Chapter in 5 sub-regional groups, named after the nearest large settlement (Table 5:1). The types of evidence include:

(a) Artefacts (A) or Building Stone (M) Concentrations,

(b) Stone Retaining Walls of Terraced Lands (T),

(c) Stone Retaining Walls of River or Stream Canalization (C),

(d) Stone Retaining Walls which rise above the level of retained soil (O),

(e) Elaborate Walls of 'Cusco Inca' hammer-dressed masonry (E),

(f) Stone Structures of Rectangular (R) or Circular (CS) Floor Plan,

(g) Sculptured (hammer-dressed) outcrops or boulders (L).

Reconnaissance of Inca terrace schemes was extended to parts of Paruro and Acomayo provinces as well as other surrounding areas. Relevant sites there are briefly described at the end of the Chapter. Inca roads form another category. They are described as an integral part of sites and also discussed.

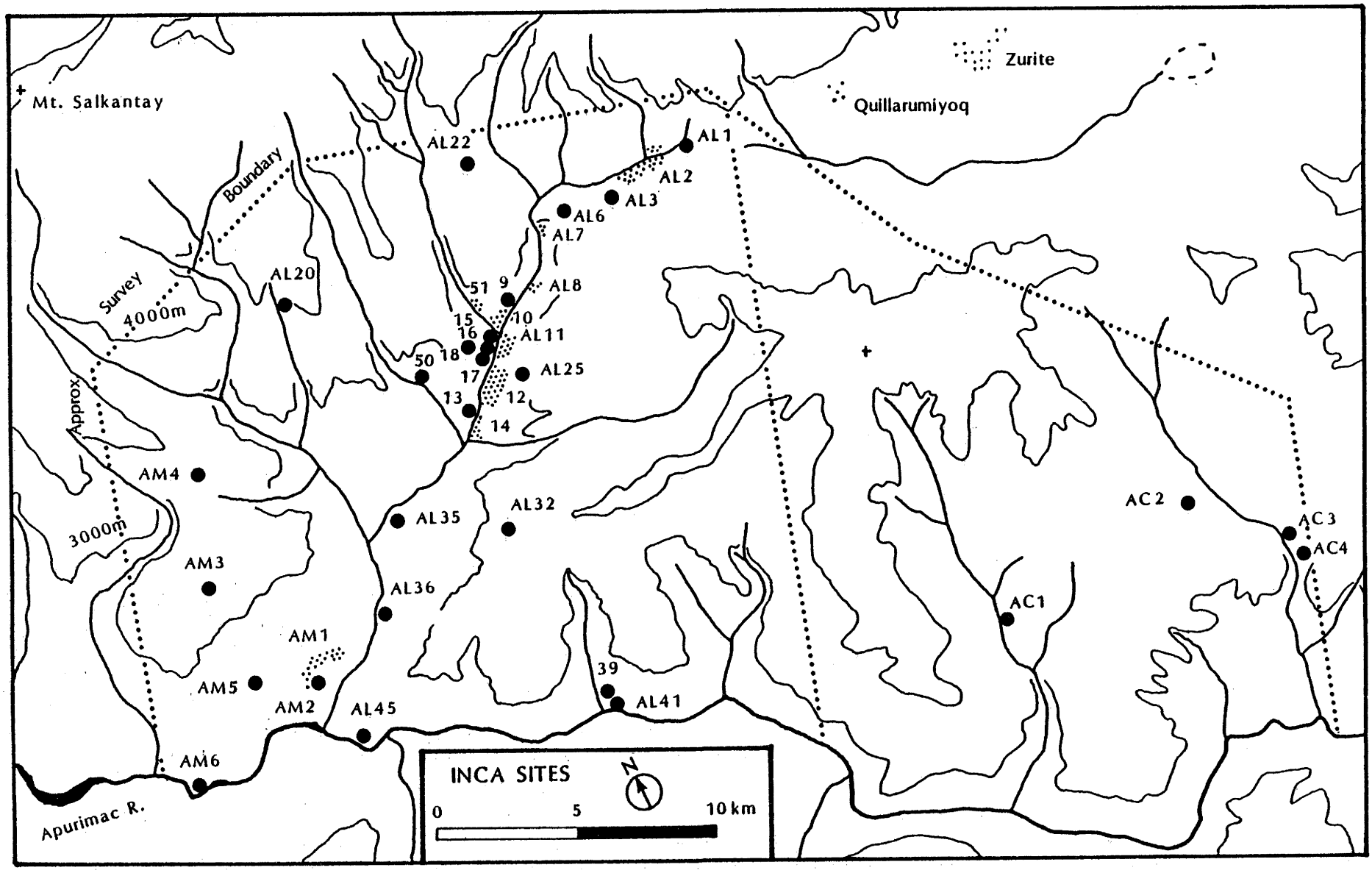



FIG. 5:1 Inca Sites in the Study Region.

TABLE 5:1 INCA PERIOD SITES IN THE LIMATAMBO-CHINCHAYPUQUIO REGION

| No. | Name | Zone | Alt.(m) | Area(ha) | Inca Features | Rel.Topog. |
|---|---|---|---|---|---|---|
| Pampaconga Sub-Region: | | | | | | |
| AL1 | Killaventanayoq | HF | 3600 | 0.500 | T+C | VF |
| AL2 | Chakllanka | HF | 3300-3430 | 8.685 | T+C+S | VF |
| AL3 | Inkaqonqorina | HF | 3450 | 0.008 | T | S |
| AL6 | Suqowayqo | HF | 3230 | 0.250 | T | S |
| AL7 | Mayupampa | DMF | 2910 | 0.390 | T | VF |
| Limatambo Sub-Region: | | | | | | |
| AL8 | Runkuwasi | DMF | 2810-2850 | 3.300 | T | VF |
| AL9 | Tambopata | DMF | 2740 | 0.200 | A | VPS |
| AL10 | Sondor | DMF | 2625-2660 | 17.895 | T+C | VF |
| AL11 | Tarawasi-Quillabamba | DMF | 2550-2675 | 24.215 | E+T+C+O+A | VF |
| AL12 | Limatambo-Rioja | DMF | 2450-2600 | 47.300 | E+T+C+A | VF |
| AL13 | Chinchaybamba | DMF | 2425 | 1.150 | T | VF |
| AL14 | Wayronqa | DF-DMF | 2345-2425 | 7.030 | T | VF |
| AL15 | Pachapachayoq | DMF | 2650 | 0.015 | T | VSP |
| AL16 | Luruwachana | DMF | 2600 | 0.250 | M | VSP |
| AL17 | Qoriminasniyoq | DMF | 2650 | 0.060 | A | VSP |
| AL18 | Mamako | DMF | 3050 | 0.001 | A | VSP |
| AL20 | Llaktallaktayoq | HF | 3710 | 0.200 | T+R | S |
| AL22 | Wilkaray Pampa | WU | 3860 | 0.018 | R | R |
| AL25 | Maukallakta | DMF | 2725-2800 | 1.000 | T+A | VSP |
| AL50 | Achaku | DMF | 2640 | 0.004 | B | S |
| AL51 | Higospampa/Sondor | DMF | 2620-2680 | 1.540 | T | VF |
| Chonta Sub-Region: | | | | | | |
| AL32 | Uraca | DMF | 2805 | 0.850 | T | VSP |
| AL35 | Pichiumarka | DF | 2390 | 0.020 | A | VSP |
| AL36 | Moyoq | DF | 2170-2200 | 0.180 | T | S |
| AL45 | Llaktaki NW* | DF | 2130 | 0.160 | A | P |
| AL39 | Qopa Alta E * | DF-DMF | 2300-2520 | 2.680 | A | P,S |
| AL41 | Qopa Playa * | TW-DF | 2000 | 1.425 | A+R | VF |
| Mollepata Sub-Region: | | | | | | |
| AM1 | Markawasi | DF-DMF | 2340-2420 | 6.320 | E+T+A+O | VSP |
| AM2 | Qoriwairachina * | DMF | 2510 | 0.045 | T+A | P |
| AM3 | Tilka | HF | 3780 | 0.750 | T+R+CS | P |
| AM4 | Choquechurqo | HF | 3500 | 0.300 | T+L | R |
| AM5 | La Estrella | DF | 2245 | 3.000 | A | VPS |
| AM6 | Nawpachaka | TW | 1850 | 0.250 | A | VSP |
| Chinchaypuquio Sub-Region: | | | | | | |
| AC1 | Lucre (Pantipata) | DMF | 3275-3350 | 2.250 | T | VSP |
| AC2 | Qolmay | HF | 3450 | 1.570 | T+R+L+A | R |
| AC3 | Negropuquio | DMF | 3005 | 3.920 | T+L | VSP |
| AC4 | Wankariri | DMF | 2830 | 0.910 | T | VSP |
| 37 Sites | | | | 138.641 ha | | |

* = see also Chapter 4.

## 5.1 The Pampaconga Sub-Region.

### Site AL1, Killaventanayoq.

AL1 comprises a small set of stone-walled terraces on either side of a Colorado River tributary, in the border region between Pampaconga and Huillque campesino communities. The stream is canalised for about 20 m of the length between terraces, on a 320° alignment. Three narrow levels are located on the eastern side, and at least four on the west. The walls are double-stone, up to 2 m high, of well-fitted fieldstone with flat faces on the facade, and are set in straight lengths with segment corners. Some parts are collapsed and many are covered with vegetation.

### Site AL2, Chakllanka.

AL2 is a large and complex set of terraces, river and stream canalizations and two canals. The terraces were built on the valley floor lands of least gradient beside the Colorado River. They are divided into sectors A, B, C and D, from west to east (Fig. 5:2, Plate 46).

Sectors A and B are divided by a narrowing of the valley and a gap in terrace wall continuity caused by a landslide. Breaks of slope indicate that Sector C was connected by continuous walls to Sector B. Sector C terraces bound a narrow area of relatively level valley floor and include a section of river straightening. Sector D comprises a small section of Inca retaining wall beside a path on the opposite side of the river and vestiges of river-canalization wall.

The terraces are cultivated, by families of Pampaconga Community, except those covered by stony landslide deposits in subsector AI and lower Sector B. The terraces are the only place at this altitude beside the river where maize can be seen growing. Don Andres Tonkachi, cultivator of Sector AII, noted that irrigation enables earlier planting for a longer growing season and seed is not lost with downpours as on surrounding slopes. Maize is intercropped or surrounded with *habas* or *tarwi*.

Sector A:

Sector AI comprises six broad levelled terraces and a narrow bench at the top of the group, probably to retain a canal. Two RPS type stairways are extant in terrace walls (Fig. 5:2, Nos. 1 and 2, Appendix III: Table 1). It is deeply incised by a watercourse which changed direction after a landslide. This took place before air photographs were taken in 1956, but the gully was not then fully cut. The stream was directed by the Inca terrace scheme to flow between canalisation walls.

The channel walls are steep and well built of large stone blocks. They are 2.9 m deep near the Colorado River and basal channel width is 1.85 m. A length of narrow terrace, within the western channel wall, may have served as a path or for additional stream containment. Entrance of water to the channel is now blocked by several metres of landslide debris.

Sector AII comprises 6 levelled surfaces. Walls are segmented and three contain pairs of RPS type stairways (App. III: Table 1). The second-highest platform is narrow, and serves as a path. This may have been designed as a

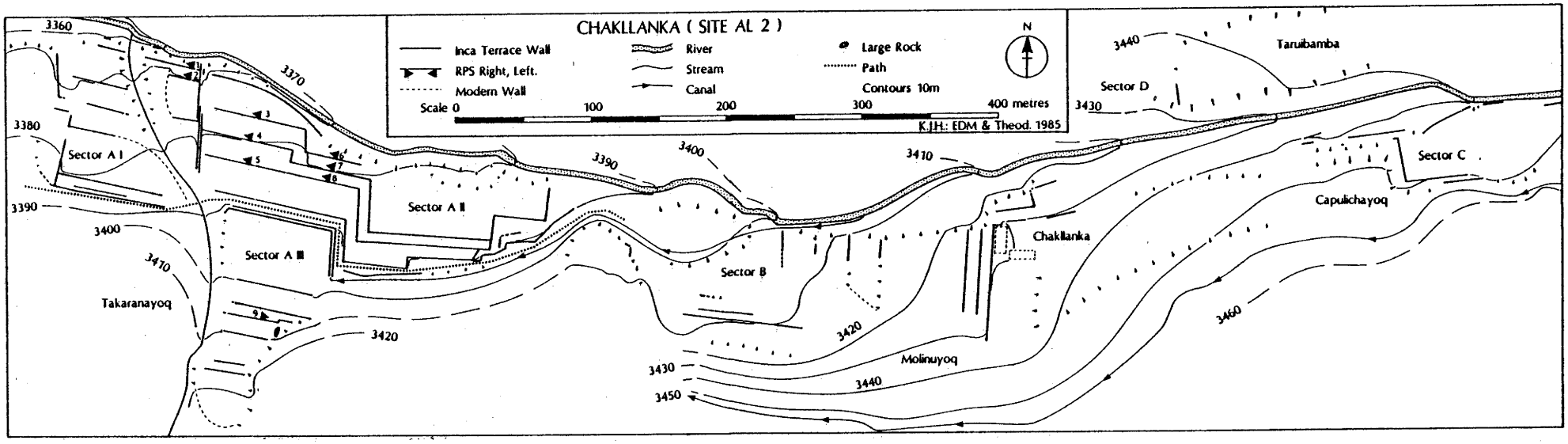



FIG. 5:2 Chakllanka: Site AL2.

road through the scheme because, on the eastern side of this subsector, the wall retaining it ceases to align with other terrace walls. The continuation of this path to a valley floor narrowing at *Estrellayoq* and up the valley side, to a point near Huillque Chico settlement, shows signs of regular use but not of walled platforms or paving.

The highest level is only 2.25 m wide, with no soil surface. It contains a canal, 0.7 m wide and 0.2 m deep between riser walls. This provides water to the terraces, but continues as an earth channel in a westerly direction down the valley. At two points along the following 547 m, in places perched over gradients of up to 110%, the canal collects water from gullies during the wet season and therefore functions as a drain.

The lowest wall is the only curved one in the system. It follows the river curve and indicates that the Colorado River, deeply incised at this point, was canalized but not straightened.

Sector AIII comprises 7 terraces on a colluvial-alluvial fan above the canal bench of Sector AII. An RPS stairway is located in the riser of the third level, but not in well-preserved walls above and below. The terrace surface above it features a very large, unsculptured rock (Plate 47).

Sector B:

Seven north-south terrace walls and 3 east-west walls, which probably joined them prior to landslide activity, are visible in Sector B. A further terrace wall and one 'L-shaped' join appear in 1956 air photographs.

Sector C:

Several terrace walls were located in Sector C, but the scheme is poorly preserved and largely indicated by breaks of slope. The river is channelled by a wall at a place where it is not deeply incised.

Sector D:

A length of wall lies beside a path to Community annexes named Pakara and Kunkawaylla, across a temporary bridge on the northern side of the River. This may indicate that there was a bridge nearby at the time when Inca landscape modification was carried out.

The Chakllanka-Pampaconga Canal:

This present-day canal takes water from the Colorado River at the site of an enormous and sporadically continuing rock slide. It crosses the valley floor and within 1000 m is cut into the steep southern valley flank (Fig. 5:2). Graffiti and local memory date cement refurbishing here to 1972-3. It collects water from five gullies along its length and can thus serve for drainage.

Many lengths are cut into rock faces or constructed of dry stone, including a length of very good, probably Inca period, stonework at 2547 m from the intake. At this point, near halfway, the channel is 1.45 m deep and 0.7 m wide and is positioned beneath a massive boulder (Plate 48). At 3427 m it passes within 25 m of a miniature group of Inca terraces (Site AL3). At 4000 m it veers southward to pass between two hills (Sites AL4 and AL5). Only earth

canal sides are extant but Cusco Inca sherds occur in canal cleaning debris at 4189 m.

The canal enters a lagoon at Motuypata (5015 m). Drainage of the lagoon is affected by highway construction, but overflow, as today, probably went down a steep gully, beside the old Cusco-Limatambo foot road. This leads to the valley flats at Challabamba where discharge crosses the valley floor from Lucre Pampa to the Colorado River along a remarkably straight, but unwalled, stream beside Inca terraces (Site AL8).

Terrace Walls at AL2:

Terrace walls in good preservation are 2 to 3 m high, but reach 4 m in Sector AIII. Most stone is a pale andesite, abundant in the area and presently quarried at a road cutting on Huillque mountain high above. The wall blocks are tightly fitted, unshaped or percussion shaped and up to about 50 cm. Some RPS corners are made of squared hammer-dressed stones.

Site AL3, Inkaqonqorina.

Inkaqonqorina (*where the Inca knelt*) is a small group of 5 terraced surfaces, between 1.4 and 2.0 m wide, covering only 80 sq.m on a 112% slope (Plate 49). The walls are between 1.5 and 2.2 m high, built of percussion shaped stone and are fitted with surface evenness and tightness characteristic of Inca masonry. They contain no stairway features and are not presently cultivated.

Site AL6, Suqowayqo.

AL6 is a small terrace group with straight and segmented walls up to 2 m high (Fig. 5:3). The stone is pale andesite and facades are percussion-shaped and hammer-dressed. Fitting is very precise but the walls are in poor repair (Plate 50). Breaks of slope indicate the former extension of terraces another 40 m on the northern side of extant walls. It is used to cultivate maize.

Site AL7, Mayupampa.

AL7 is an area of levelled and cultivated land with two partially extant fieldstone walls, located at the exit of the Colorado River from its passage through a ravine beside Apaqchiray mountain. The terrace walls are straight and almost parallel (255° and 257°). Many parts are reconstructed using rounded or smaller stone over larger and angular original blocks of grey volcanic rock. They are cut by meander of the Colorado River on the western side.

5.2 The Limatambo Sub-Region.

Site AL8, Runkuwasi-Ch'ancho.

AL8 contains sections of 5 almost parallel terrace walls on riverside lands of relatively moderate gradient (Fig. 5:4).

Machinery has been used to dig a reservoir behind Wall ii, and Wall iv is mostly collapsed. Wall iii is the highest (reaching 3.9 m). Wall v, at the top

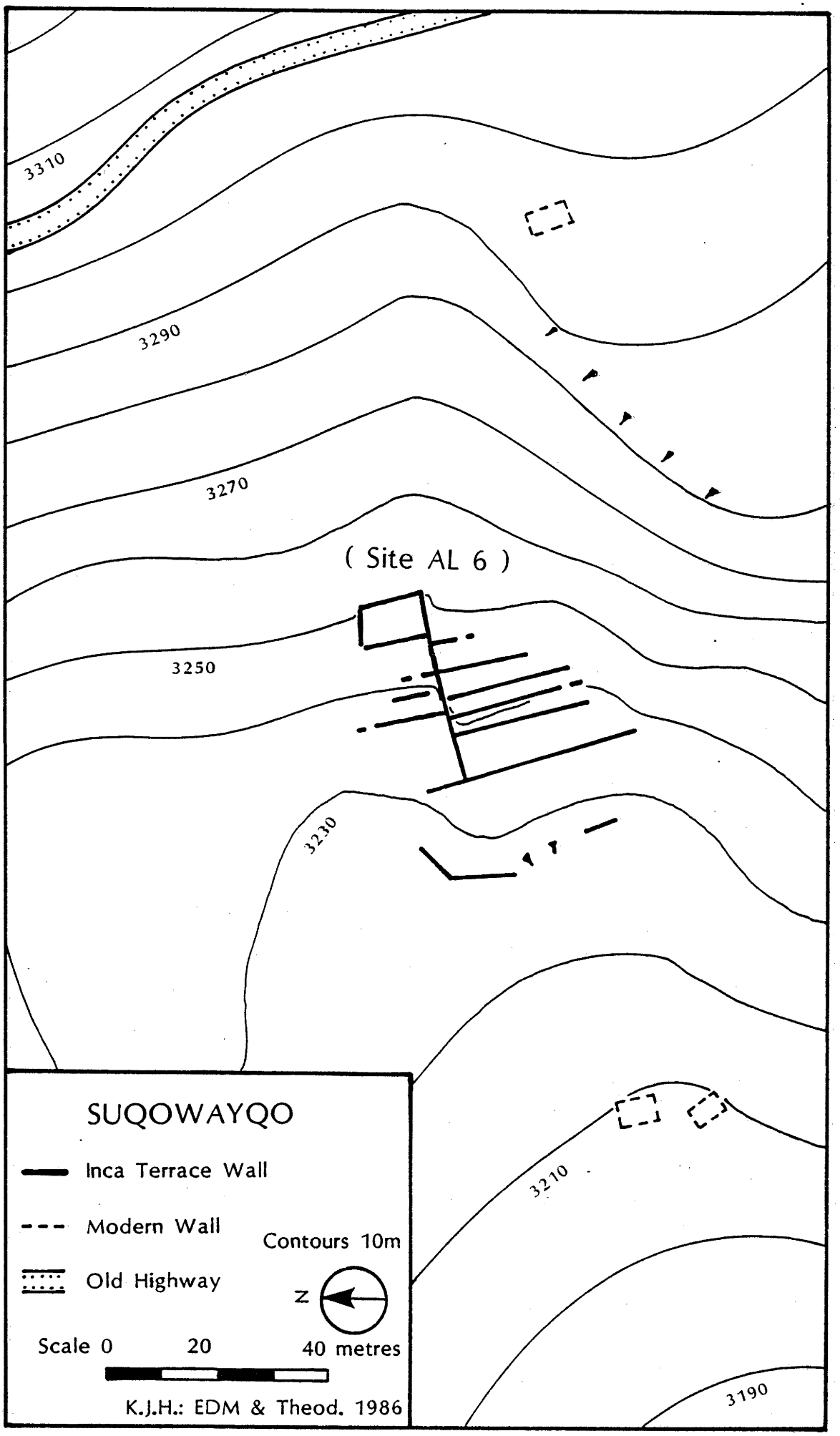

3310
3290
3270
( Site AL 6 )
3250
3230
3210
3190
SUQOWAYQO
Inca Terrace Wall
Modern Wall
Old Highway
Contours 10m
Z
Scale 0
20
40 metres
K.J.H.: EDM & Theod. 1986

FIG. 5:3

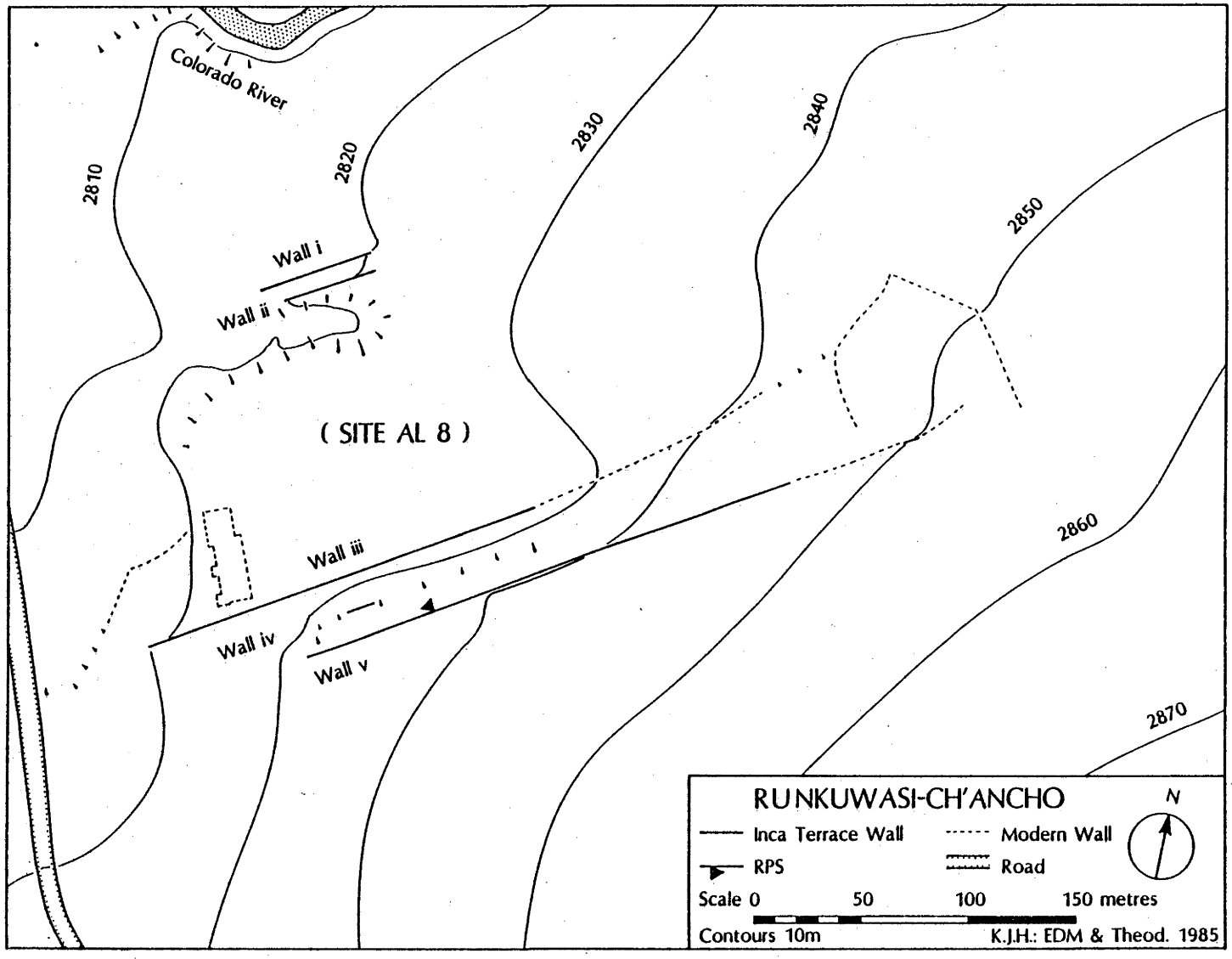

Colorado River
2810
2820
2830
2840
2850
2860
2870
Wall i
Wall ii
( SITE AL 8 )
Wall iii
Wall iv
Wall v
RUNKUWASI-CH'ANCHO
N
Inca Terrace Wall
Modern Wall
RPS
Road
Scale 0
50
100
150 metres
Contours 10m
K.J.H.: EDM & Theod. 1985

FIG. 5:4

of the scheme, is long, very straight and contains an RPS stairway (App. III: Table 1). Their construction employed blocks of conglomerate up to 0.7 m and a few larger ones at the base of high walls. They are well fitted but not tightly joined or dressed (Plate 51).

Site AL9, Tambopata.

AL9 is a concentration of surface pottery on a cultivated field separated from the Colorado River by a steep cliff. It overlooks the eastern end of the Sondor terraces (Site AL10, Fig. 5:5). Cusco Inca pottery is the major component of the material present. Only one sherd, from the lip of a large Inca jar, was collected (App.II Fig. 16a).

No structural remains are extant above the field surface. Bernabé Quispe (78 years, 1986) and another senior Sondor resident who was met on the site in 1985 (Esteban Palomino) recalled that ruined buildings were extant there some 30 or 40 years ago and the former said a *capilla* (chapel) was removed to make field space.

Site AL10, Sondor.

AL10 comprises a large scheme of Inca terraces, river canalization and road platforms on a colluvial-alluvial fan and on the valley floor at the Colorado-Parqo confluence (Fig. 5:5).

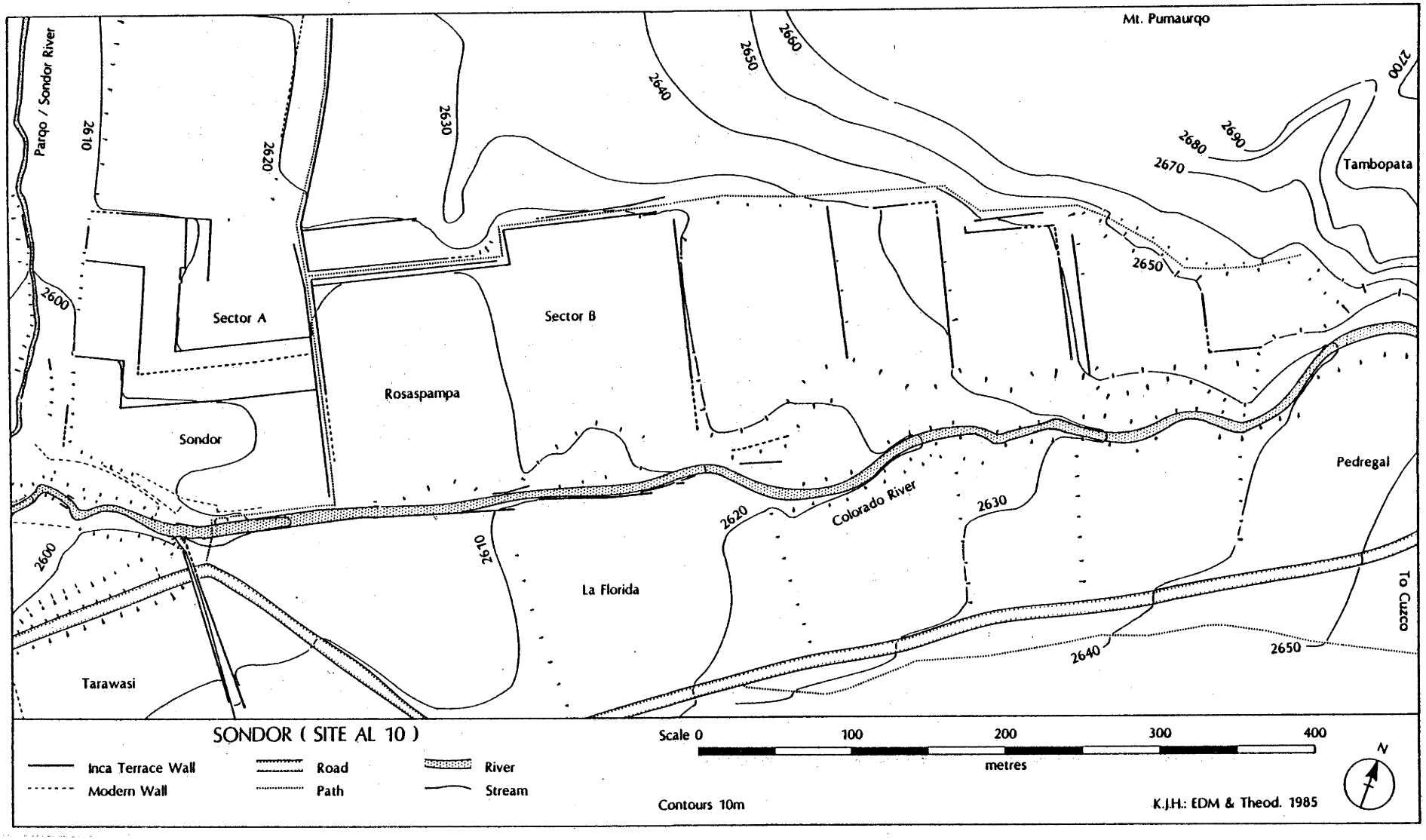

Mt. Pumaurqo
Parqo / Sondor River
2610
2620
2630
2640
2650
2660
2670
2680
2690
2700
2600
Tambopata
Sector A
Sector B
Rosaspampa
Sondor
Pedregal
Colorado River
La Florida
Tarawasi
To Cuzco
SONDOR ( SITE AL 10 )
Inca Terrace Wall
Modern Wall
Road
Path
River
Stream
Scale 0
100
200
300
400
metres
Contours 10m
K.J.H.: EDM & Theod. 1985
N

FIG. 5:5

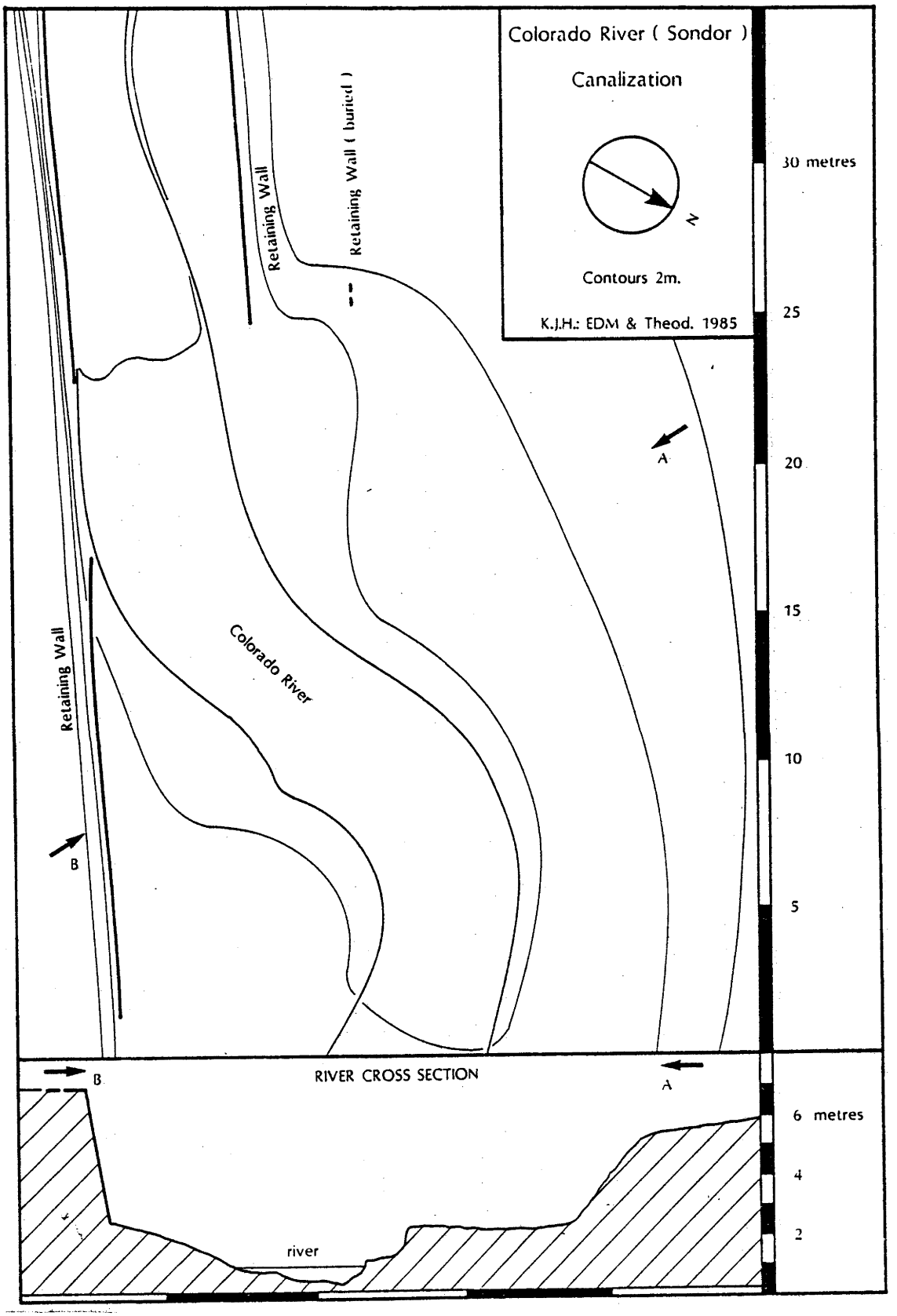

Colorado River ( Sondor )
Canalization
N
Contours 2m.
K.J.H.: EDM & Theod. 1985
Retaining Wall
Retaining Wall ( buried )
Retaining Wall
Colorado River
A
B
30 metres
25
20
15
10
5
RIVER CROSS SECTION
B
A
river
6 metres
4
2

FIG. 5:6

Sector A:

Sector A is bounded by a sloping field in the north, the retaining wall of an inclined road platform in the east, the canalized Colorado River in the south, and the Parco/Sondor River to the west. It contains 4 terraced levels, with segmented wall lines. The hacienda buildings of Sondor are located on the highest of these. A small length of wall for straightening the Parco River remains, but that of the Colorado is better preserved on both sides of the river. Irrigation water is available from a canal with an intake on the Parqo River over 1 km upstream.

Sector B:

Sector B contains 7 agricultural terraces with stone retaining walls. It is bounded by the eastern retaining wall of the Sondor road, narrow terraces at the northern valley floor margin, the rise to Tambopata in the east and the Colorado River in the south. They are cultivated and primarily irrigated by canal water drawn from the Colorado River, but lower levels can receive water from the Parqo.

Sondor Road:

The Sondor road is a ramp with stone retaining walls. It is paved for about 150 m between the river and hacienda. Continuous use in the historic period has led to much reconstruction and maintenance in all Sondor terraces, so it is uncertain whether this was originally a ramp or stepped routeway. It continues up valley as an unpaved path, but is retained by intermittent lengths

of wall in Inca style masonry as far as a narrowing of the valley floor beside further Inca terraces (Site AL51). The length extending 200 m north of Sectors A and B is well preserved.

Excavation of Possible RPS:

A vertical construction line, 1.25 m high, was recorded on the eastern riser wall of the Sondor Road about 100 m north of its intersection with the path to Tambopata. The wall, on the northern side of the line, was filled with culturally sterile soil. This was excavated for 1 m north of the line in order to determine whether an RPS was present. The fill comprised an upper cap of black soil with roots and leaves (40 cm deep) overlying loose brown soil with high organic content (40 cm). These had probably slumped from the retained soil level. Below, a harder red clay with small stones (20 cm) overlay flat stones. These were not carefully bonded but could have been the basal step of an RPS. Their level is at 1.3 m above the present road surface; however, the road has probably eroded because wall masonry below the *step* level is markedly less well fitted than that above. A rear recess wall was located 1.18 m behind the wall facade. Excavation to locate rising steps was not continued since tree growth had destroyed the wall further north.

Wall Construction:

Walls in both sectors are double-stone in the upper courses. Unshaped subangular fieldstone was used, principally red metamorphosed sedimentary blocks up to about 0.5 m. Several erosion profiles demonstrate the placement of rubble behind the facade. Wall heights reach a maximum of around 3 m.

Colorado River Canalization:

Lengths of canalization wall, up to 4 m high, are preserved beside the westernmost terrace of Sector B. They are rarely straight for long distances as many terrace walls are. Eastward, where the river is 5 to 12 m below the terrace surface, there is no riverside wall. Exceptionally big stone blocks were employed in their construction. The first terrace wall above the one for river control was deeply founded (Plate 52). Accelerated collapse of such walls is promoted by river meander (Figure 5:6).

Site AL11, Tarawasi-Quillabamba.

AL11 contains an area of Inca terraces, some of elaborate Cusco Style masonry, as well as lengths of canalization of the Colorado River and of a side stream (Fig. 5:7). These are located on the valley floor. The terraced area is mostly cultivated, trees are planted near bounding terrace walls, it contains substantial houses and has been cut by highway construction and widening. Terrace walls are poorly preserved, except the most elaborate in Sector A.

Sector A:

This is bounded by Wall I, the footroad, the canalized Ch'akimayo stream and the Colorado River. A description, plan and measurements of features in this sector was provided by archaeologists engaged in the partial excavations of 1934 (Franco and Gonzales 1937). Only a general overview and further details are given.

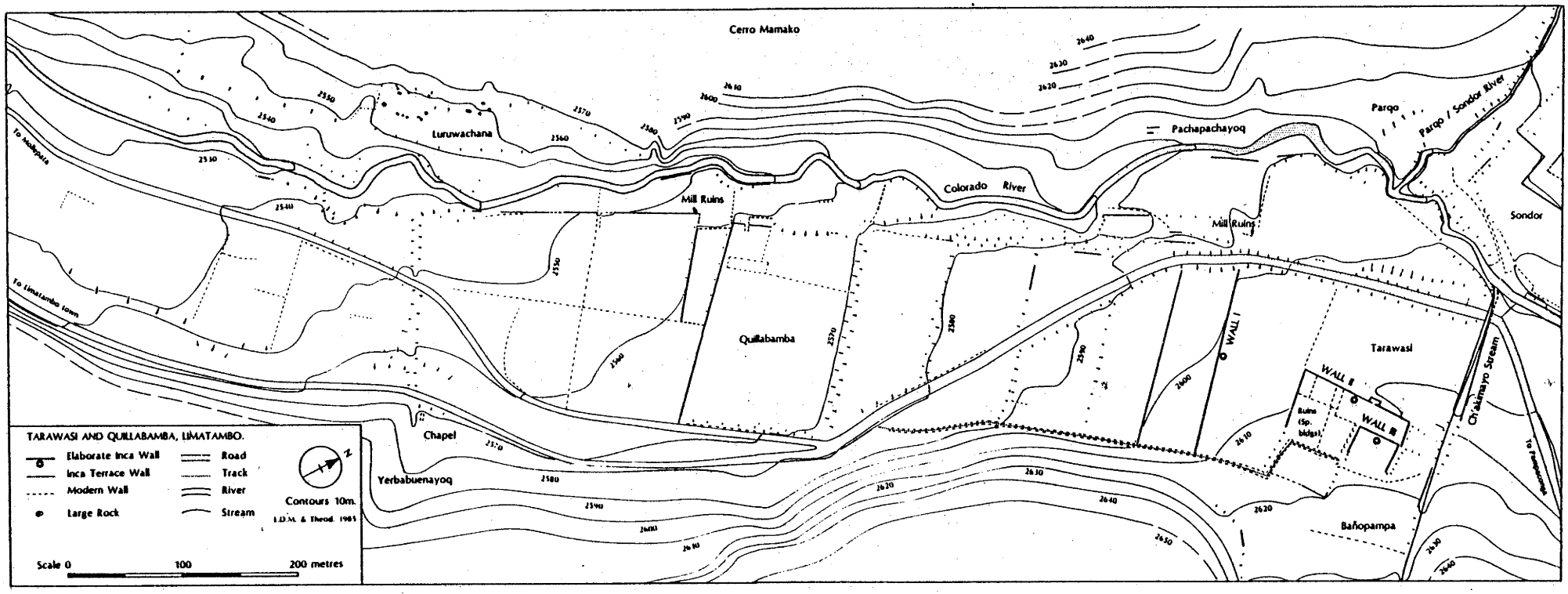



FIG. 5:7 Tarawasi and Quillabamba: Site AL11, Pachapachayoq (AL15) and Luruwachana (AL16).

Wall I crosses the valley floor, is of double-polygonal stone construction, 160.5 m long, up to 4 m high and built exclusively of hornblende andesite, a stone which does not occur in nearby fields (Plate 53). It is broken at the northern extremity by the highway, but did not extend more than 5 to 10 m further because there is a steep descent to the river at this point. No end wall remains on this break of slope, probably obliterated by material dumped in road construction. There are remnants of less elaborate wall where the road turns southward. The southeastern facade is lower because a soil fan has raised the terrace level.

The facade is completely hammer-dressed. Tight jointing of stone was achieved by partial dressing of lateral and bedding surfaces too. Upper courses of Wall I are missing. Such stone was used in construction of the old hacienda buildings nearby.

Wall II retains a roughly rectangular platform. It is constructed in the same material and style as Wall I. The upper 0.5 m of this wall is hammer dressed over all surfaces, and was therefore probably intended to rise above the retained platform level (Plate 54). Two elaborate staircases permitted access to the platform it retained. The best preserved was revealed by 1934 excavations on the northern side (Plate 55), but spaces for the fitting of 6 higher steps are hammered into wall stones. Such spaces are also seen beside a filled opening for a similar staircase on the western side. The eastern and western side walls continue below excavated ground level at their southern ends.

Wall III retains a platform above that of Wall II. It is of the same material and finish as Walls I and II, but stone is placed in more linear

courses and facade surfaces are flatter. Upper courses are missing, but both the inner and outer stone is tightly fitted. It is possible that it rose as a free standing wall above retained soil. The southern and eastern sides were covered with several metres of landslide deposit. The colour and mixed nature of this stony deposit, and the pattern of surface contours, indicate that it originated at a cliff in Lambranwayqo to the southeast of the site. Only the eastern side wall was partially excavated in 1934. The southwestern corner continues beneath ground level but the eastern wall finishes abruptly.

Wall III contains 28 outward-facing niches, each about 2.2 m high (Plate 56). Eight were placed on the eastern and western sides, and 12 on the northern wall (Fig. 5:8). They are spaced at approximately even intervals but those on the eastern wall commence at a greater distance from the northeastern corner. The umbral stones of several niches retain protruding knobs, hammer dressed as the rest of the facade. Three crosses were pecked on upper facade stones on the corners of the wall in colonial times (Fig. 5:8), and a pecked circle is partially retained on stones of the eastern wall near Cross 1.

Further Inca construction almost certainly existed to the south of Wall III, but is covered by soil deposit. One small section of Inca terrace wall, not of elaborate masonry, was located in this area. The main buildings of former hacienda Tarawasi sit on the western half of platform 2, and contain many reused hammer dressed stones from the Inca construction.

The Ch'akimayo straightening wall retains a number of lengths of original Inca style construction, despite considerable damage in the area near Lambranwayqo and reconstruction near its confluence with the Colorado River.

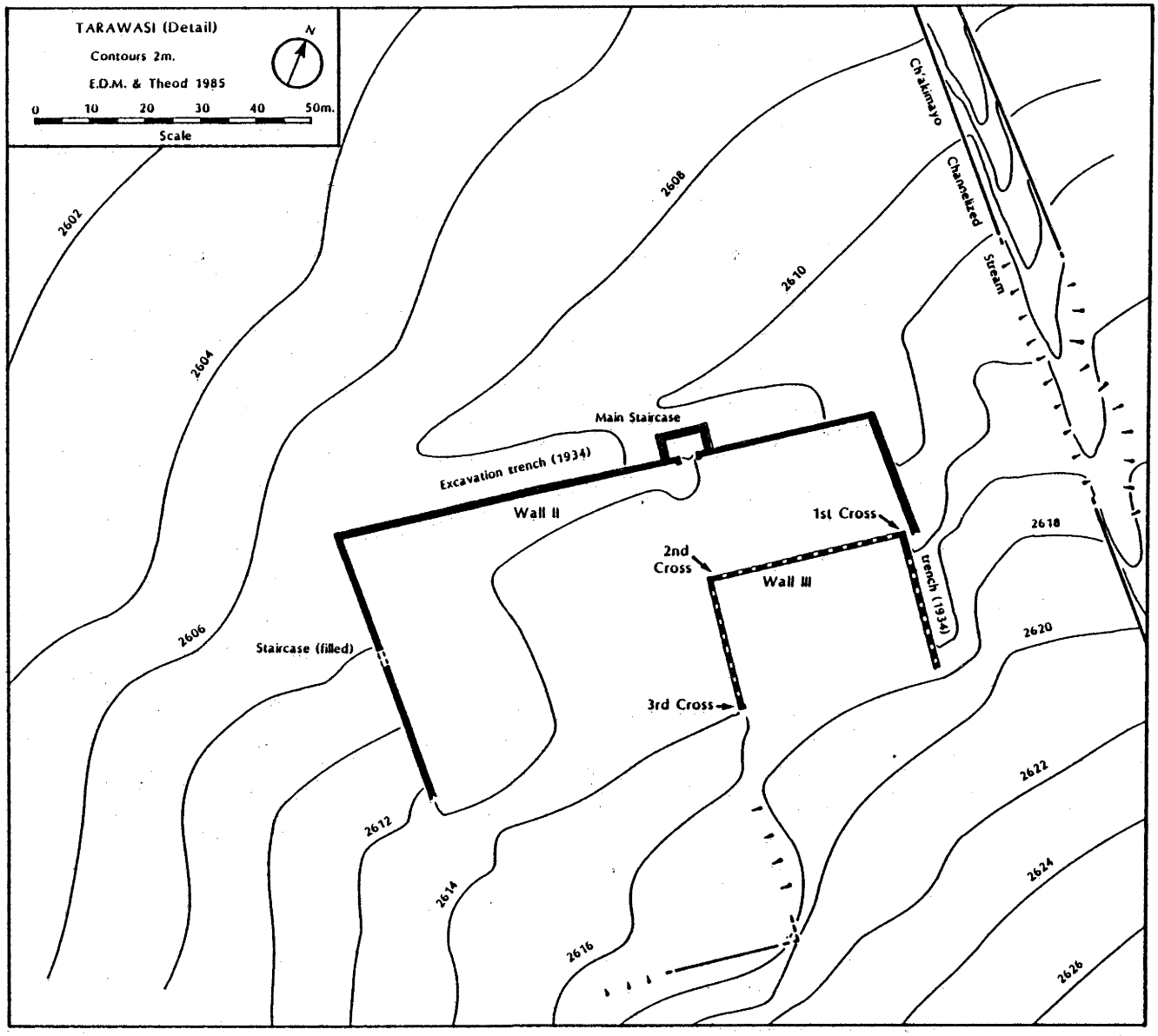



FIG. 5:8 Tarawasi: Site AL11 (Detail).

There are small sections of a bench terrace within the main western canalization wall which may have been a path or for containment, as in Site AL2 Sector AI/AII.

Sector B:

This is bounded by Wall I, the Colorado River, the steep southern valley side, and unterraced lands below a straight gully which crosses the valley floor. It comprises 6 broad platforms and a narrow one, separated by breaks of slope, walls and lengths of river canalization. One low break of slope, at the base of the second level below Wall I, was probably not on a terrace wall line.

Sector B walls are of conglomerate or red metamorphosed sedimentary fieldstone. None employs hammer-dressed andesite, but some of this was reused in recent decorative walls. Most remarkable is a 200 m long Inca terrace wall, roughly parallel to the river course, which rises to between 5 and 6 m high in the southwestern length.

Footroad:

A narrow paved track between walls runs along the southeastern side of both sectors. Its course, below the bifurcation of the highway, is probably that taken by the upper modern branch to Limatambo. Above Tarawasi the foot road rises in a fairly straight line on the valley floor margin, past La Florida (Fig. 5:5) and Runkuwasi terraces (Site AL8), then abruptly ascends to follow a boundary between Pampaconga and Ayaviri lands on the route to Cusco.

Artefacts:

Artefacts were not described in the report of 1934 excavations at AL11 Sector A. However, old excavation profiles and a 1 m wide strip around the base of Wall III, kept clear by a site caretaker, contain occasional glazed Colonial pottery and highly polished sherds with a micaceous slip, probably from Inca vessels.

Site AL12, Limatambo-Rioja.

AL12 comprises Inca terraces, some of elaborate Cusco Inca style masonry, lengths of river-control walling and several sites of artefact concentration, one clearly stratified (Figure 5.9; nb. roadworks in 1987-88, after map completion, cut and filled a strip through the northern sides of the broad terraces of this scheme). They are centred upon valley floor lands of lesser gradient (Plate 57).

The terraces are cultivated annually, except some narrower levels on the southern side which have been invaded by spiny undergrowth. Three terraces and a large area between them and a gully at the eastern limit of the scheme, are the site of the district capital, Limatambo. Terraces on the northern and western descent from the town are cultivated and sparsely housed. A 40 m long trench for a drain, about 1 m deep, was dug on the western side of the town plaza in 1988. It unearthed no Inca artefacts, and it seems likely that the area was terraced for agriculture. A large terrace below, called Limacpampa, is used as the school sportsground. Adjacent lower levels are cultivated either by

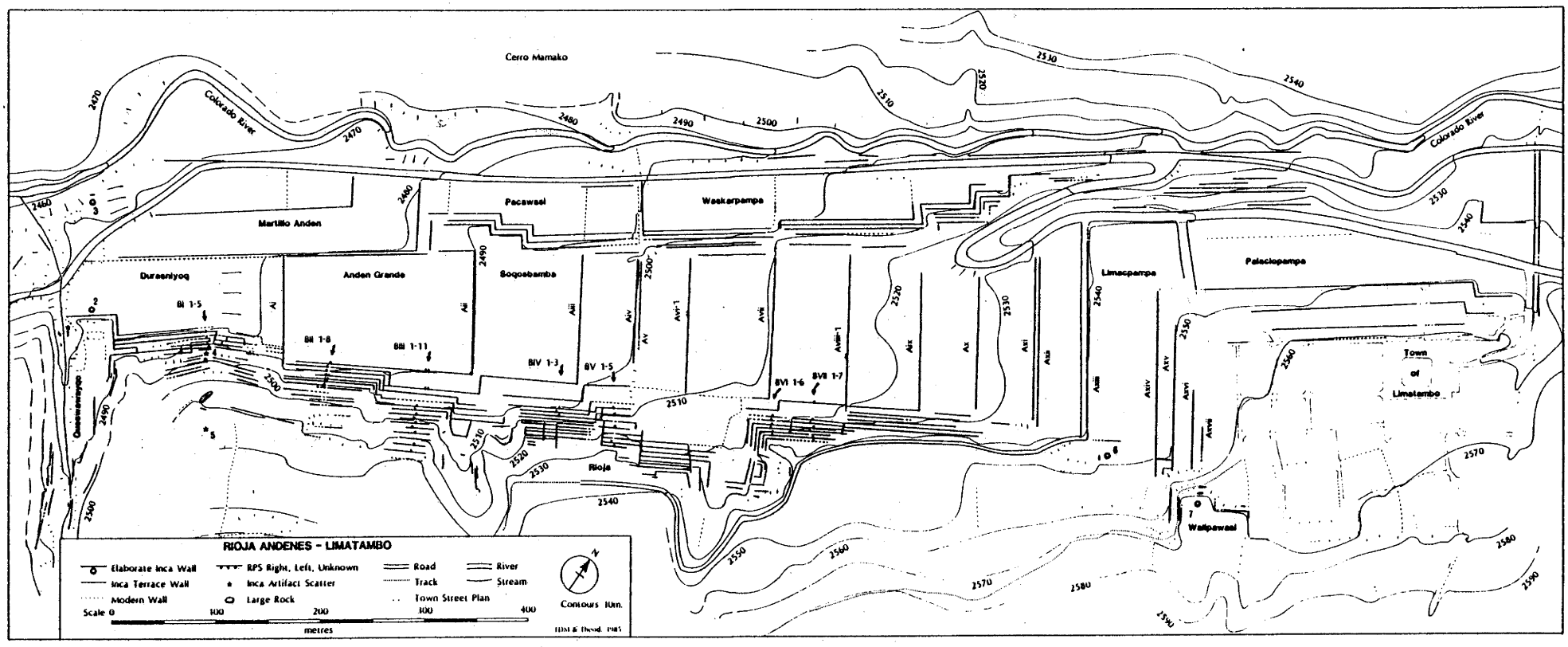



FIG. 5:9 Rioja Andenes, Limatambo: Site AL12.

private proprietors or by the *Rioja Andenes* sector of the quadripartite Choquemarka Peasant Agricultural Enterprise.

(i) Terraces:

(a) The central terraces are retained at the lower margin by 17 north-south risers, each 2 to 3.5 m high (Walls Ai to Axvii). A break of slope indicates the probable location of another terrace wall in the lowest terrace. Most walls are poorly preserved but two RPS stairways were located (Avi-1 and Aviii-1).

(b) The narrow southern terraces are highly segmented and straight walls were used throughout. Contour terracing would have probably required less earth movement. They contain 7 sets of aligned RPS stairways on consecutive terrace levels (Fig. 5:9, RPS sets BI, BII, BIII, BIV, BV, BVI and BVII). All were cleared of vegetation to permit measurement and plotting in the field plan (Appendix III: Table 1). Some walls were poorly preserved at places where such staircases were expected on the basis of an alignment.

(c) The northern terraces comprise narrow levels on a steep gradient and wider field surfaces which bound the Colorado River. Many of these were damaged by roadworks. The western end is completely destroyed. A landslide about 40 years ago led to the damming of the river near the Queswawayqo-Colorado confluence, erosion of the opposite bank and subsequent redirection of the highway across the terraces. Parts of the old road remain downstream, near the left bank of the river.

(d) Irrigation water is available to all Rioja terraces. A canal from the Colorado River near the Ch'akimayo confluence of Tarawasi reaches the lower central and northern terraces. Another canal, named *Ch'ancho* after lands near AL8, supplies all of the higher and southern terraces and discharges into Queswawayqo at Durasniyoq. Neither has definite Inca features.

(e) Terrace wall construction is, with special exceptions, of unshaped fieldstone. Corners of RPS and segment corners are sometimes of roughly shaped blocks. The material is varied, including conglomerate, a red metamorphosed sedimentary, grey volcanic rock and white granite. Best preserved original (basal) courses are fitted carefully to reduce spaces between blocks, but are not tightly joined or dressed.

(ii) River Control and Stream Canalization Walls:

(a) Riverside Walls of the Northern Terraces:

Riverside walls beside Waskarpampa (Fig. 5:9) are constructed of very large blocks and reach over 4 m high. The river may have been permitted to meander freely on the right bank since walling was absent there.

(b) Limatambo Stream Canalization:

The lower drainage of a ravine separating Limatambo town from lands called *Waynapata* and *Maukallakta* is straight and canalized. Walls are in a poor state of repair. The channel is also used as a routeway between the lower and upper modern roads.

(c) Queswawayqo Stream Canalization:

Intermittent lengths of well constructed retaining wall indicate that the Queswawayqo stream was originally canalized for 200 to 300 m. One small piece remains with walling on both sides of the stream (Plate 58).

(iii) Elaborate Masonry Zones and Artefact Concentrations:

(a) AL12-1, Queswawayqo:

AL12 component 1 (No. 1 in Figure 5:9) comprises a surface concentration of pottery and animal bone, as well as the soils contained between two of 5 collapsed terrace walls containing stratified artefacts. The walls have been sectioned by undercutting of the Queswawayqo stream and periodic collapse into an erosion mound.

A preliminary collection of sherds (collection *(P)EM*, n = 4) from this location contained only Cusco Inca material (App.II Figs. 17b,c, 18a). A grid of metre squares (12 sq.m) for surface collection was later placed over an erosion mound (collection AL12-1). Further sherds were located during mapping on *Queswawayqo Pampa*, a field 30 m east of AL12-1. Some were located beside a modern wall, and may have been collected from AL12-1 by a passer-by, but others were scattered over a field surface of 400 sq.m. Some were collected and their locations recorded in site plan measurements (collection AL12-1.1, *QP* prefix, n = 9).

QP pottery with very smooth surface texture (n = 6) included large sherds from thick-walled Inca jars (App.II Figs. 16b,c), another from a plate (App.II Fig. 16d) and a truncated conical base from a large vessel (App. II Fig. 16h). Coarser wares are represented by the central core from an Inca Shape 'j' pot (App.II Fig. 16e), as well as an everted rim and elongate strap handle (2 fitting sherds) probably belonging to the same vessel (App.II Figs. 16f,g).

The AL12-1 Collection contained 97 pieces of pottery, 23 fragments of camelid bone and two fitting sherds from a Spanish roof tile. One sherd was thickly glazed on both sides (yellow, 5Y 8/2-3), over a very fine red paste (10R 4/8). Many of the remaining 94 sherds were finely finished (MSTS = 3.6, SD = 3.2) and 62 were very smooth or polished on one or both surfaces.

The very smooth group contains most painted sherds: 19 are *Cusco Inca Decorated* sherds (MSTS = 1.8, SD = 1.0). These include a zoomorphic decorative piece (App.II Fig. 17a), body sherds of large jars and thin vessels (App.II Figs. 17d-k), the flaring rim of a large jar (App.II Fig. 17l) and two plates (App.II Figs. 18b,c). 3 monochrome sherds (MSTS = 2.7, SD = 0.6) enter the *Cusco Inca Painted* group.

Unpainted sherds (n = 71) comprise 40 of smooth texture. 18 have orange slipped exteriors and well fired fabric (MSTS= 1.8, SD= 0.9), including an everted rim vessel and a strap handle (App.II Figs. 17n,p). 18 have a light brown slip (MSTS = 2.1, SD = 1.2). 4 are entirely blackened on the exterior surface and in the fabric (MSTS = 2.3, SD= 0.5).

Coarser textured sherds (n = 32) include one eroded CID specimen (App.II Fig. 17m). Exterior orange slip is present on 8, including a flaring rim (App.II Fig. 17o). 7 have a light brown slip and 9 are unslipped or have a dark brown slip equivalent to the paste colour. 8 are blackened on the exterior, some with attached carbon. Burnt sherds include a strap handle (App.II Fig 17q).

AL12-1 Column Samples:

The pottery originates in a refuse stratum in terrace fill, about 1.4 m below present terrace surface level and 1.2 m above the erosion mound. A narrow profile was cleaned, block samples of soil including artefacts were extracted, and soil and charcoal samples for dating were taken at 20 cm vertical intervals from the rear of the column (Appendix IV)

The profile was first troweled back to undisturbed strata. The artefactual material, here likely to have been mixed on the slope, was not separated by level (profile cleaning bags *LP1* and *LP2*, 34 sherds, 5 bone fragments). Soil and artefacts were then extracted from top to bottom in blocks of the column width (25 cm), in 10 cm depths and inward 10-20 cm, to achieve a vertical rear surface (Plate 59). Cultural material contained by depth and stratum (App. IV) is given in Table 5:2.

Layer B contains large stone from wall collapse and is of similar soil to layer C. Tiles in upper layer C may have entered with wall destruction. Layer D is a fill with some artefacts, and E is a concentrated deposit of pottery, carbon and bone. It sits upon hard, mostly sterile layers, but a few sherds

TABLE 5:2 CONTENTS OF AL12-1 COLUMN IN 10 cm SPITS AND LAYERS

| Layer/Depth | | Contents: |
|---|---|---|
| A-C | 0-0.7 m: | nil |
| C | 0.7-0.8 m: (n=2) | 2 fragments of roof tile, paste same as specimens in the surface collection |
| C | 0.8-0.9 m: | nil |
| D | 0.9-1.0 m: (n=1) | CID large jar flaring rim. (1 bone fragment and carbon). |
| D | 1.0-1.1 m: | nil |
| D | 1.1-1.2 m: (n=1) | orange slipped body sherd (ST=3/4) |
| D-E | 1.2-1.3 m: (n=7) | 3 CID plate sherds (2 fit together, one fits a pair in 1.4-1.5); 3 CIP body sherds and 1 orange slipped (ST=1/2). |
| E | 1.3-1.4 m: (n=9) | 2 CID sherds including a jar flaring rim; 1 CIP and 4 very smooth light brown or orange slipped sherds (one fits the CID pair in 1.2-1.3); 2 are dark brown coarser ware. (1 bone fragment). |
| E | 1.4-1.5 m: (n=36) | 13 painted sherds are CID (n=10), CIP (n=1) or orange slipped but from the same vessels (n=2), three from 2 different plate/shallow-bowl forms, three from a thick-walled, everted rim vessel with a 36 cm wide mouth; 11 are orange slipped and 5 light brown slipped sherds of smooth or very smooth texture; 7 are blackened on the exterior, including plate/bowl forms and a thick-walled coarse-ware vessel. (4 bone fragments) |
| F-G | 1.5-2.1 m: | nil |
| G | 2.1-2.2 m:(n=3) | 3 fitting body sherds of dark brown ware. (1 bone fragment) |
| G | 2.2-2.6 m: | nil |

lay just below the stratum F/G boundary. Layer F is probably a fill, and G the level upon which the upper retaining wall was built. Grass phytoliths were very long and of higher densities at the base of cultural layer D than in spits a metre above and below [Bowdery 1988]. This is consistent with the presence of lush grass, perhaps thatch, upon the unfilled terrace surface, but conclusions are tentative given the need for open area excavation.

All diagnostic pottery below layer C is Inca, mostly *Cusco Inca*. Radiocarbon dates on layer E have broad ranges of probability, but it is unlikely to pre-date the late 15th or early 16th Centuries AD (App. IV).

(b) AL12-2 Durasniyoq Elaborate wall:

AL12-2 comprises the basal courses of an almost completely reconstructed SW-NE length of terrace wall, located beside a canal a short distance from the AL12-1 pottery concentration. It is the lowest of the group of destroyed walls exposed in the Queswawayqo profile. The basal two courses are of tightly fitted and hammer-dressed grey andesite blocks. The courses are linear and of small (25 cm by 25-35 cm) squared blocks.

(c) AL12-3 Rioja Riverside Elaborate wall:

AL12-3 comprises the exposure of a 4 m long, 0.7 m high piece of Cusco Style masonry wall with linear courses of rectangular andesite blocks (up to 45 by 30 cm). Its foundation is roughly fitted fieldstone. The second course retains scars from percussion chipping as well as partial dressing. The upper remaining course has a wholly dressed facade. It continues beneath ground

level in the east, but has collapsed into the Colorado River on the western side (Plate 60).

(d) AL12-4 Artefact Concentration:

This is a small pottery concentration (about 100 sq.m) near an unsculptured white granite rock on a terrace surface. It also lies at the high point of the BI set of RPS staircases. Cusco Inca pottery was noted at the site but no collection was made. A larger granite boulder lies higher on the same line, but no pottery was associated with it.

(e) AL12-5 Artefact Concentration:

Another pottery concentration is centred about 65 m south of AL12-4, on a cultivated field surface of moderate gradient. The artefacts are scattered over about 900 sq.m and include big sherds of Inca large jars and ring-pedestal pots. No collection was made.

(f) AL12-6 Elaborate Wall Length:

AL12-6 comprises a 3 m length of Cusco Inca masonry wall exposed at a field margin on the slopes 30 m south of Limacpampa Terrace. It has a roughly fitted foundation course and two tightly fitted and hammer-dressed courses of grey andesite. Unlike AL12-2 and AL12-3, the blocks are in polygonal shapes with pillowed outer faces. The upslope end is buried in the slope, and the lower appears to be damaged (Plate 61).

(g) AL12-7 Wallpawasi Elaborate Wall Zone:

AL12-7 is a five-sided terraced platform built on the southern valley floor margin. It features three parallel retaining walls in Cusco Inca polygonal masonry. A sharp break of slope, containing a rubble lens, indicates the location of a further retaining wall on the western side.

The stone is dressed grey andesite, but large blocks of fieldstone or percussion shaped undressed andesite occur in foundations (Plate 62). About half of the wall lengths are covered with slope wash or destroyed by road construction. The full height is not retained in any exposed section. Wallpawasi is the probable source of hundreds of dressed andesite blocks which now mark street corners and adorn lower courses of adobe buildings and staircases, especially the rear entry of old *Casa Bolivar* in Limatambo.

The retaining walls have a single stone dressed facade, a rubble in clay backing and stone lenses in fill. An exposure of fill in the lowest terrace contains thin angular stone fragments, probably from shaping facade blocks.

The top platform overlooks the large terrace upon which Limatambo plaza is located. It is a cultivated area and receives deposition from slopes on the southern side. No structures and few artefacts occur on the platform surface, despite careful post-harvest observation. Some polished sherds with orange paste and small black inclusions are probably from Cusco Inca vessels. Other material includes roof tiles, Colonial green glazed thick ware and thin sherds with *mottled-speck* fabric.

Site AL13, Chinchaybamba.

AL13 is a small area of levelled land bounded by two parallel and segmented Inca terrace walls (Fig. 5:10). The walls are 2 to 2.5 m high, of fieldstone, and are poorly preserved.

Site AL14, Wayronqa.

AL14 comprises stone-walled terracing on a narrow strip of valley floor and upon colluvial-alluvial deposits in the ravine of Pisti River (Fig. 5:10, Plate 6).

Sector A is an area of levelled land beside a massive and very straight Inca wall (Plate 63). It was originally a single length of about 560 m but is now cut by meander of the Colorado River. Foundations and the break of slope of a higher parallel terrace wall are evident 4.1 to 5.6 m behind the northeastern length of this wall for about 104 m. Walls are of unshaped conglomerate, red metamorphosed sedimentary rock and river rounded granite. Most are 0.4 to 0.7 m diameter. Maximum wall height is about 4 m.

Sector B is a complex group of Inca terraces on the rising margin of a riverside flat, and a length of river-control walling which is approximately aligned with the massive wall of Sector A. The predominant construction materials are unshaped or roughly shaped angular red metamorphosed sedimentary and granite rocks, up 1 m in maximum dimension. This material is seen on adjacent southern slopes. Fitting was executed to reduce gaps but not in the very tight nature of Cusco Inca style.

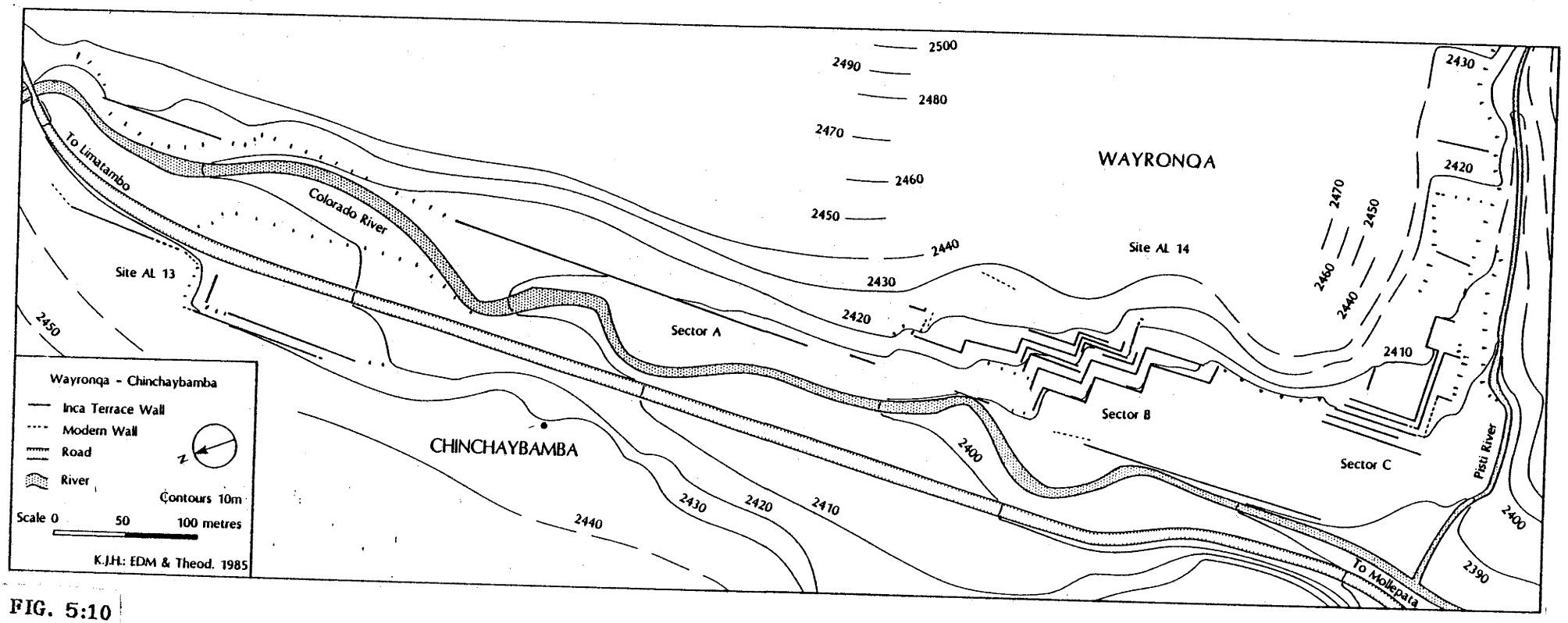

Wayronqa - Chinchaybamba
Inca Terrace Wall
Modern Wall
Road
River
Contours 10m
Scale 0 50 100 metres
K.J.H.: EDM & Theod. 1985
WAYRONQA
CHINCHAYBAMBA
Site AL 13
Site AL 14
Sector A
Sector B
Sector C
Colorado River
Pisti River
To Limatambo
To Mollepata
2500
2490
2480
2470
2460
2450
2440
2430
2420
2410
2400
2390

FIG. 5:10

A small and mostly buried terrace wall corner, located at a high point on the northeastern end of Sector B, was of better quality fitting and stone preparation than other parts of the scheme. The stone, a limestone not used elsewhere, was lightly dressed (Plate 64). Similar limestone is available in an outcrop on the valley floor margin between Sectors A and C.

Sector C is a set of segmented and cross-slope retaining walls ascending from the river flat and along the right margin of the Pisti Stream. More granite appears in Sector C walls, stones are larger than in other sectors and many are river rounded (Plate 65). Large granite boulders are available in the Pisti channel. Some of them maintain the stream banks but there is no definite evidence of canalization.

All sectors are cultivated. Sectors A and B receive canal irrigation from a Colorado River intake near Queswawayqo, and Sector C from a partially stone-sided channel drawing Pisti water. The latter may be an Inca feature.

Site AL15, Pachapachayoq.

AL15 is a short pair of straight terrace walls located upon the otherwise unterraced Mamako mountain slopes of southeasterly aspect (Figure 5:7).

Site AL16, Luruwachana.

AL16 is a flat field elevated above the right margin of the Colorado River and overlooking the southwestern end of the AL11 terraces (Fig. 5:7). The rear slopes contain areas with concentrations of large grey andesite boulders and

blocks, and other isolated blocks at other places down to the eastern field margin. Many of them feature shallow hammered grooves and some have deeper, intermittent wedge-shaped grooves within hammered lines.

An area between several large boulders and a rising break of slope was filled in recent times to build an *era* or threshing platform. Paving on the platform incorporates a squared and hammer-pecked andesite block. One of the large retaining blocks has a small cross pecked on a surface, weathered to the same reddish grey colour as the rest of the surface, possibly a Colonial boundary marker or memorial.

A deep and narrow ravine ascends steeply to the northwest from Luruwachana. Its basal channel contains numerous large blocks of grey andesite at several locations (Plate 66).

The Luruwachana area was certainly used at some time for the cutting of andesite of the kind used in every one of the most elaborate Cusco Inca walls in terrace schemes on the opposite side of the river. Moreover, the andesite is not found in fields or ordinary terrace walling of the Limatambo Sub-Region, except on the slopes and especially upper peak area of Mamako Mountain. A quarry and working area for andesite, with long downslope strips of fragmentary stone, is located at *Suytukura* on the northern side of Mamako Peak. It contains incomplete stone steps, rounded pillars and arch stones, of the kinds commonly seen in old hacienda buildings. Mill stones at historic sites in Limatambo (Fig. 5:7) were also made of the grey andesite.

The stone concentration in Luruwachana is greater and of larger blocks than those present on other fields of lower Mamako. In combination with the stone in Luruwachana quebrada and the restricted distribution of the hornblende andesite, it is probable that Luruwachana was a source area or the site of stone stockpiling for part or all of the elaborate construction at AL11 and AL12. The ravine may have been used to drop rocks from the area of their surface concentration around Mamako Peak, perhaps replicating on a smaller scale the method used to bring massive blocks from one valleyside to another at Ollantaytambo [Bengtsson 1988].

A further problem is determining whether the evidence of stone working dates to prehistory. Some evenly proportioned parallelipiped blocks, and some cutting notches, have edges probably produced with a sharp metal tool. Similar features were observed on material being worked at the modern quarry of pale andesite above Chakllanka (Site AL2). Other notches are shallower and broader, placed along grooves on natural cleavage planes (Plate 67). Such features could have been produced with stone tools, as suggested by Protzen [1983:187, figs. 11,12; 1985:175, fig.24].

The extent of the use of bronze tools for Inca stone masonry is still equivocal. Cusco Inca style block preparation can be successfully achieved with stone hammers, artefacts which are reported from several quarry sites (Protzen 1983, 1985). Microstructural damage and use-wear studies of Inca bronze tools have founded suggestions of their use in chipping and as splitting wedges [Gordon 1985], but controlled experimental comparisons with tools of similar alloy and consistency are lacking. Acuteness of interior angles is carefully

avoided in Inca stone sculpture, a likely result of the use of stone rather than sharp metal tools.

Site AL17, Qoriminasniyoq.

This pottery scatter covers 20 by 30 m on a cultivated field of moderate declivity on the lower slopes of Mamako. No surface architecture is evident but domestic occupation is suggested by sherdage collected along field furrows over 30 sq.m (Collection *QO*, n = 75).

All 15 painted sherds have polished surfaces. Three are CID sherds: One from a thick and narrow-necked vessel is decorated with black diamonds (10R 2.5/1) on red paint (10R 4/4). Another has black lines (7.5YR 2.5/0) on cream (7.5YR 7/4)and the third has black diamonds (10R 2.5/1) on red (10R 4/6) and red criss-crossed line-pairs over white. 12 painted sherds have red paint of Inca density and colours and thus enter the CIP group. 60 sherds are unpainted.

The CID sherds have a fine, hard, well-fired, orange fabric (Fabric Group 1/2). Mica and small glossy black inclusions abound, but white is absent or scarce. Other sherds of the same paste are polished and either CIP (n = 7) or unpainted but orange slipped (n = 3). Two are eroded.

All other CIP sherds fall into one Fabric group (Group 3). This is similar to the former, with the addition of abundant small opaque white inclusions and frequently a grey core or inner surface. 22 unpainted sherds, 7

of them polished, share this fabric. Exterior surfaces are eroded in 7 cases, orange slipped in 11, blackened in 3 and brown in one case.

21 unpainted sherds share a hard, reddish-orange paste (Group 4). It contains mica, black, white, green-grey and occasional rounded red inclusions. Exterior surfaces are brown slipped (n = 14), blackened (n = 6) or eroded (n = 1). One specimen is the central core of an Inca Shape 'j' pot. Ten have some surface polish.

Three other fabric groups are softer, of dark brown matrix, without polish and contain little or no mica. One contains the same inclusions as Group 4 and comprises 10 sherds. 3 of these are blackened on the exterior (one from a thick-walled, everted rim vessel) and 7 have slips the colour of the fabric. Another is of *platy* fracture, with large white inclusions and exterior brown or orange slip (n = 2). One sherd is distinguished by an abundance of soft red stone inclusions.

Site AL18, Mamako.

AL18 is the site of a large andesite block, about 1 by 1 m and 0.6 m high, with a circular basin pecked from the upper surface (Plate 68). It is located on a fairly level area on the Mamako mountain flank, distinguished by an abundance of andesite blocks on flats separated by low, sharp breaks of slope. This area is used as pasture rather than field agriculture, probably because of the stony soils. Undecorated and eroded pottery sherds are sparsely distributed over the Mamako ridge and no greater concentration or structural remains were associated with this object. It may have been in the process of

manufacture. Similar artefacts were reported in the Inca structural zone of Machu Picchu [Bingham 1930:82, fig. 56a], and it may belong to that tradition.

Site AL20, Llaktallaktayoq.

AL20 contains two sets of three narrow, gable roofed, Inca rectangular buildings. They are located on consecutive platforms on the northern and southern sides of a 7 m wide passage and are separated by narrow patio areas (Plate 69). The passage contains an unsculptured boulder about 6 m high, between the central structure of the northern set and the highest of the southern group. It is located on the lower slopes of a narrow and densely forested ravine at high altitude beside the Acopia Stream, 7.5 km from Limatambo.

The structures are 15.8 to 15.9 m long, on 149° axes, and are 3.7 to 3.8 m wide, based upon exterior measurement of central one from each set. Total space covered by standing structures is therefore about 357 sq.m.

Thick moss and plant coverage was removed from the western long wall of the central northern structure. This revealed no doorways, but three of probably six evenly-spaced trapezoidal windows are preserved. They are approximately 1 m wide at the base and 1.1 m high, but lintels are absent (Plate 70). The lowest structure in the northern group is entered by a 0.4 m wide gap between the northern side wall and the retaining wall which forms a long side.

Wall thickness is consistently about 0.8 m, of double or triple stone construction in mud mortar. The material is predominanly conglomerate, like the large boulder, with well bonded corners. Blocks rarely exceed 0.5 m and those on windows and corners are roughly squared. The maximum preserved wall height is 2.8 m, on the eastern wall of the highest northern structure. The exterior is lower since it was partially built against the slope. At 2.2 m above ground there is an interior recessed ledge on the same wall, probably to support a second storey. No artefacts occur on the surface. It is covered with a thick leaf litter and wall rubble.

Site AL22, Wilkaray Pampa.

AL22 comprises a pair of closed rectangular Inca structures located in the hollow of a broad ridge extending northwards from Wilkaray summit, overlooking a small lake (Plate 71, Fig. 4:14). Long axes are oriented 258°. The southern long-wall lower courses are built into the slope and a small retaining wall connects them at this end of a 1.8 m wide passage (Fig. 5:11).

Structure 1 is 13.5 by 6.6 m on the exterior (89.1 sq.m), and Structure 2 almost identical (13.2 by 6.7 m, giving an area of 88.4 sq.m). Preserved walls are double with stony mud mortar and about 0.85 m thick. Contruction employed unshaped red metamorphosed sedimentary rock which outcrops nearby. Corner stones are squared and blocks are between 0.3 and 0.5 m maximum dimension.

Most walls are collapsed and stones used in recent walls, but the SW and SE corners of Structure 2 rise 2.25 m. Trapezoidal entrances (0.87 m wide at the base) occur on the northern side of both structures. It is likely, if

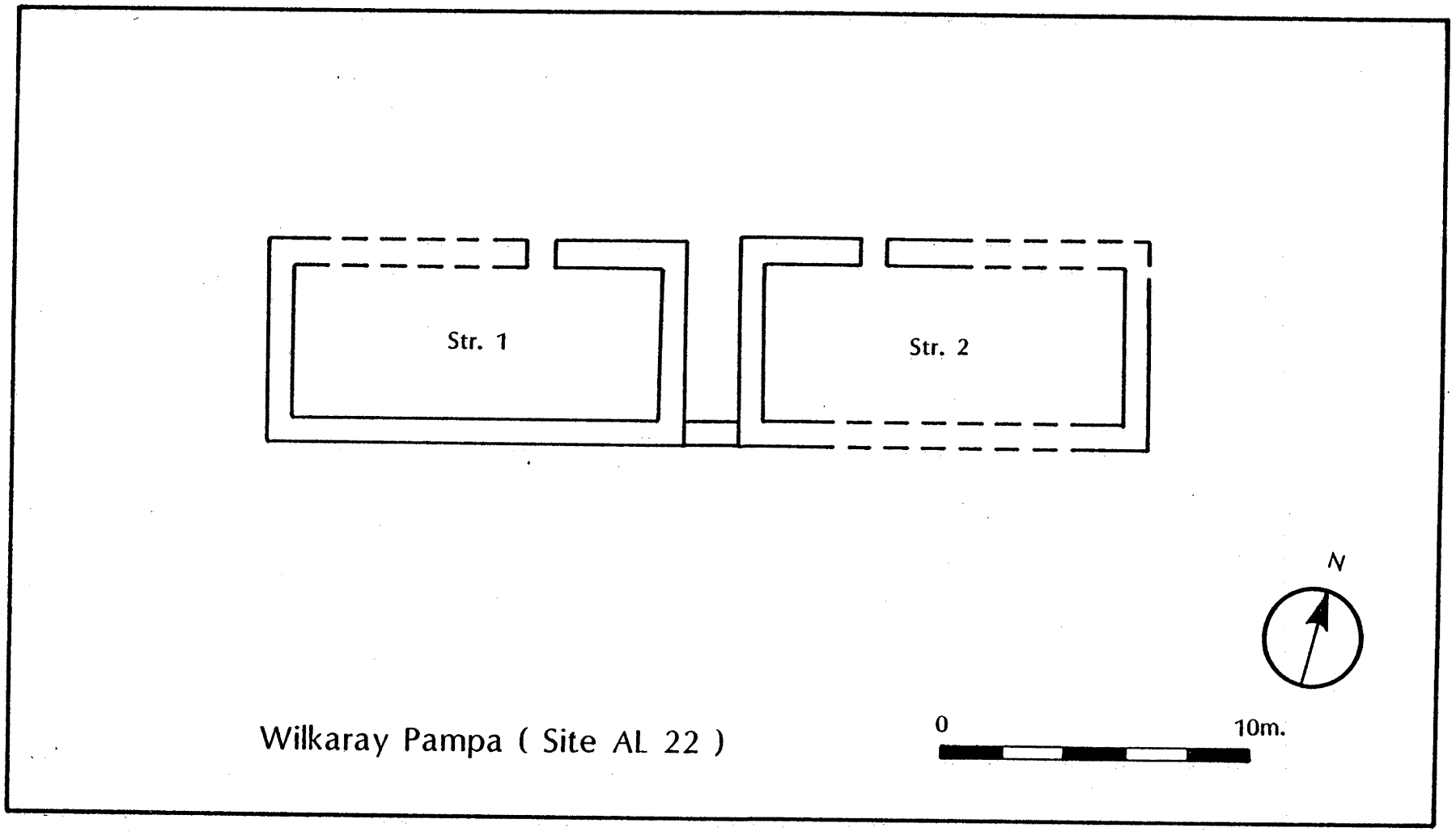



FIG. 5:11

design was as symmetrical as dimensions, that each had two entrances. Wall collapse and rubble did not permit surface verification.

Dense vegetation and rubble occur within the structure, and grass on the outside surface. No surface artefacts were found.

Site AL25, Maukallakta.

AL25 is a surface concentration of Inca and Colonial artefacts on a cultivated field of moderate declivity overlooking the town of Limatambo (Plate 72). No buildings of Inca construction remain on the surface, but some retaining and standing walls and two buildings may date to the colonial period (Fig. 5:12).

Structure 1, known as the *capilla*, lies in the centre of the flattest part of the site. It is rectangular, 27.8 by 15.4 m, with the long axis oriented 335°. The walls, of fieldstone in stony mud mortar, are 0.7 m thick and stand to 2.3 m on the northern side. Stones are between 0.2 and 1 m diameter, most 0.35 m. One stone in the northern wall is a Cusco Inca dressed block (Plate 73). The upper wall surface is flat, perhaps to bed adobe courses. Other walls are too poorly preserved for observation of architectural details. It is likely that entrance was made on the western side since the opposite long wall is built into the slope. Large numbers of roof tile sherds occur on the surrounding field surface, indicating that it was an important building.

Structure 2 is built against a retaining wall. It is 6.3 m long, oriented 258°, 3.5 m wide and stands 2 m. An entrance, 1.2 m wide, is located on the

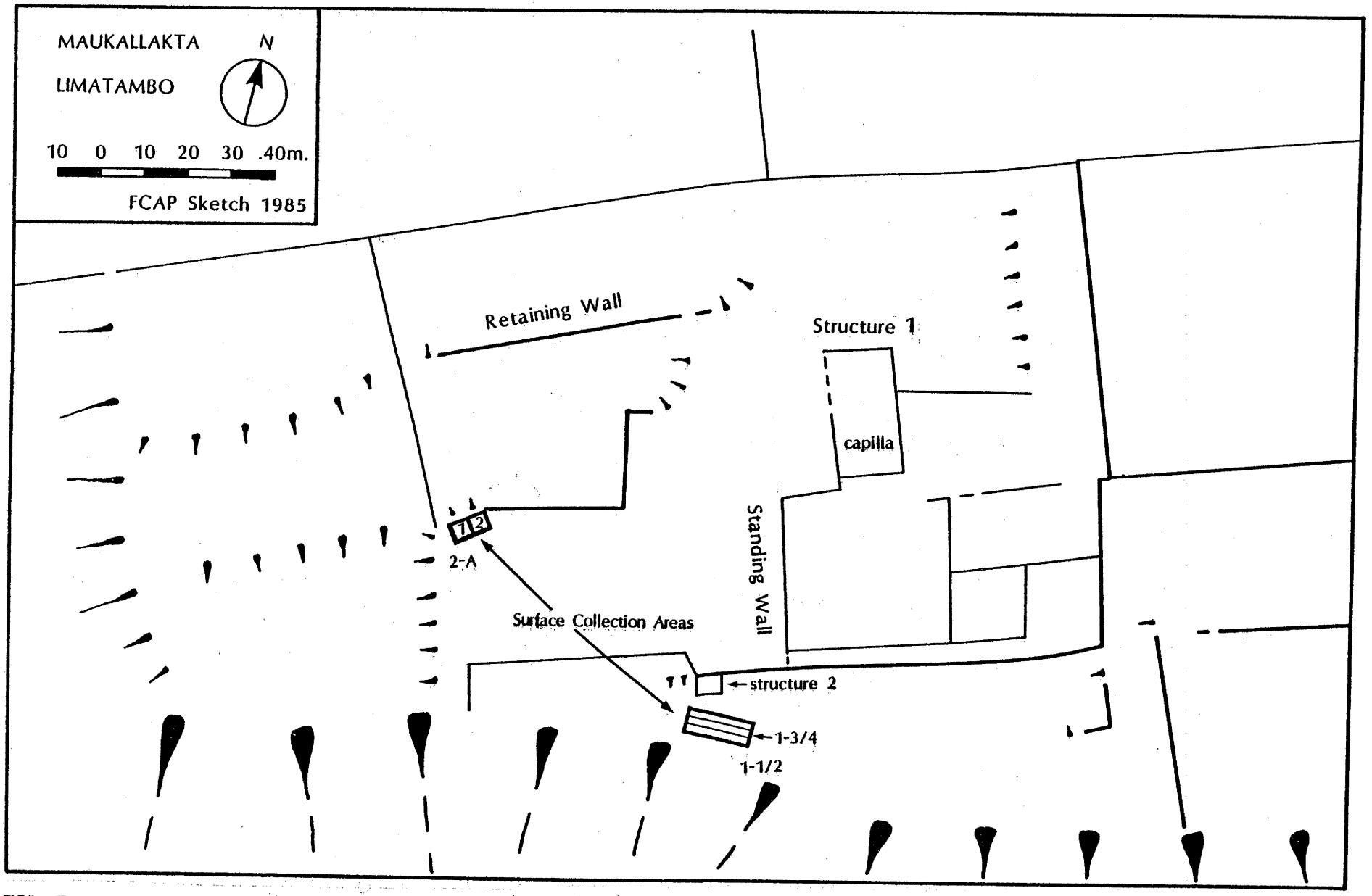



FIG. 5:12 Maukallakta, Limatambo: Site AL25.

southern wall beside the SE corner. Walls are 0.6 m thick and feature granites and conglomerates between 0.06 and 0.5 m in mud mortar. Four unfitted Inca dressed blocks lie in a partly buried row parallel to the terrace beside its eastern wall. Another block was among those used to fill the entrance. Four niches on the northern wall interior are square or rectangular (32 by 34, 31 by 40, 22 by 33 and 26 by 37 cms, from east to west). Roof tile fragments litter the floor.

Artefacts:

Two surface collection areas were set out on the field surface after harvest in places found in reconnaissance to have a higher density of surface pottery. Three 2 metre by 16 m strips were located along field furrows on the southern edge of the site (AL25-1-1/2,3/4,5/6) and two 5 m squares were placed at the western margin (AL25-2-A1/A2). Most surface artefacts are potsherds but other material included horseshoes, hammered nails and an Inca style holed copper *tupu* (shawl pin) from AL25-1-1/2.

A selective surface collection in the wet season (n = 24 sherds) included 13 sherds from the field area south of AL25-2. 3 are CID, with fern-leaf and triangle designs and 4 are CIP. 1 is orange slipped and polished, probably Inca. Another is thickly glazed in yellow on green. Unpainted sherds comprise 2 from blackened medium-wall vessels and 2 from coarse thick-walled vessels, one forming the rounded base of a large vessel with crumbly paste.

Preliminary analysis of sherds from AL25-1-3/4 (n = 171) indicates a large percentage of domestic and Colonial pottery, although 1 of 5 painted

sherds is CIP. 3 are porous clay lumps, like those at AL43 and AL19, and 1 is a roof tile fragment. The historic occupation on an Inca site and much unpainted sherdage (n = 150) necessitates separation by fabric analysis.

Seven fabric groups are represented in the 167 vessel sherds. Fabric 1 is a typical Inca type with a fine matrix, mica and black inclusions (under 0.5 mm) and contains only the CIP specimen. Fabric 2 has an evenly fired fine clay matrix with platy, angular, opaque white inclusions up to 2 mm. It contains three sherds with green exterior glaze and orange interior slip, as well as 12 unpainted specimens. Wall thicknesses range from 0.3 to 0.98 cm . Fabric 3 (*mottled speck* fabric) features platy, angular white, red and pink inclusions (up to 2 mm) and often has a dark brown matrix centre. Vessel walls were 0.38 to 0.82 cm thick and all 8 specimens were unpainted, 6 of them blackened. A fabric similar to groups 2 and 3, with large plate-like inclusions on the surface, is reported in a globular vessel from Inca period excavated deposits and in a probably European jar associated with glazed pottery in the Urubamba Valley [Lunt 1984:313]. It may prove useful as a marker of early historic occupation in the circum-Cusco region and occurs elsewhere in Limatambo at AL12-7 and AL43.

Fabric 4 is evenly fired, red and fine with no visible inclusions. It incorporates 8 sherds with glazes of green, green and brown, brown alone or with white interior paint, and purple-blue. 3 are unglazed and walls are thin, from 0.25 to 0.44 cm. Fabric 5 is evenly fired, contains black (under 1 mm) and fewer white (under 2 mm) inclusions. It incorporates 3 sherds with red and orange paint, including a wheel-turned everted rim, a brown and white painted plate sherd and an unpainted specimen. Walls are 0.59 to 0.77 cm thick. Fabric

6 is completely black, found in one sherd with green glaze. Fabric 7 is soft, sandy, with predominantly white and black inclusions (under 2 mm) and no mica. The matrix is usually reddish brown but varies greatly with firing and many are blackened on the exterior. It incorporates 126 sherds between 0.34 and 1.5 cm thick.

Site AL50, Achaku.

AL50 comprises remains of 5 burial structures, their contents and surrounding surface artefacts and bone (Plate 74). They were exposed by a roadcutting on a hillside of the narrow Achaku valley.

(i) The Burial Structures:

Construction is of unshaped stone in red clay mortar, a colour distinct from that of surrounding soils (Plate 75). It entailed excavating ovaloid chambers into a steep face of gravelly soil with a NW aspect. Red clay and stone was used to seal the opening and provide a lintel. It does not line the interior of the chamber.

Two well preserved chambers (BS-2 and BS-3) were probably built at the same time because an arch of fill, of the ambient soil but looser textured, covers both. Moreover, they are only separated by a wall of red clay and stone. BS-2 is 1.2 m high and 0.5 m wide and BS-3 is 1.23 by 0.49 m. The other 3 chambers exist only as depressions with traces of red clay.

(ii) Contents:

(a) Bone: Only BS-2 contains human cranial and postcranial fragments, consistent with burial of a single individual. The skeleton is incomplete and fragmentary. Bone on the surface below is very light and fragile. None shows signs of burning.

(b) Pottery: BS-2 also contains pottery but much is scattered on the surrounding surface. No collection was made from the tomb, but a rim sherd therein was examined for fabric characteristics and the form recorded. It is sharply everted and high (3 cm), of 11 cm rim diameter with a neck opening of 7-8 cm. The fabric is unevenly fired, mostly black or grey and reddish brown, containing conspicuous white inclusions. The interior is slipped in the fabric colour and carbon is deposited on the exterior. An associated sherd, with the same fabric, has interior carbon deposits.

Seven body sherds were collected from the surface below BS-2, probably from the same vessel. These were thickly coated with carbon on the interior, from a vessel with irregularities of surface form, and 0.5 to 0.83 cm thick. The fabric is 2.5YR 4/8 where well fired and contains angular clear quartz (0.5 mm), grey/black (under 1.5 mm), and subangular red inclusions (0.5 mm). The exterior surface is smooth, irregular, with a brown slip (5YR 3/3) and signs of brushing and scratches. It resembles a wider rimmed vessel at AL12-1 (App.II Fig. 16f) in rim form, presence of a neck joining line, slip colour, surface texture, fabric colour and inclusions. The clear association of AL12 with Cusco Inca pottery suggests an Inca period date for this vessel and the burial.

Site AL51, Higospampa-Sondor.

AL51 is a triangular field area with two stone retaining walls. It is located on the left side of the Parqo River, bounded by the Sondor road in the east and a long sloping field in the south. The latter field separates AL51 from AL10 Sector A. It may once have also contained terraces since two breaks of slope, roughly parallel to the AL51 and AL10-A terraces, cross the field surface. A line of large trees is visible in the same location on an old photograph of Sondor (ca. 1940). Walls are 1.5 to 2 m high and are reconstructed in many places. The walled and unwalled areas have approximately the same field gradient (7-9%).

5.3 The Chonta Sub-Region.

Site AL32, Uraca.

AL32 comprises two large rectangular terraces upon which the former hacienda building and chapel of Uraca are constructed. The upper level is about 150 by 50 m. The lower, with the main hacienda structure against its rear wall, is 60 by 40 m. Most retaining walls are poorly preserved. The best stone section is located on the western side of the hacienda building, constructed of unshaped granites from 0.4 to 0.8 m in maximum dimension.

A reconstructed or modern retaining wall, 300 m south of Uraca, features a staircase of RPS form. However, it has a deeper recess than known examples in Inca terraces.

Site AL35, Pichiumarka.

AL35 is a surface pottery concentration on a cultivated field located in a valley side saddle above the left margin of the Colorado-Blanco River. Observed painted pottery was of Cusco Inca style. A few sherds were collected for examination (n = 3). Two are CID style (App.II Fig. 18d,e), the other polished and orange slipped, probably Inca.

Site AL36, Moyoq.

AL36 comprises 7 stone walled terraces on a valley-floor margin slope at low altitude beside the Colorado-Blanco River.

The walls are numbered 1 to 6, from lowest to highest. Wall 1 curves with the contour, is 2 m high, of angular granite and red metamorphosed sedimentary stone, most in 0.4 to 0.6 m blocks. Near an entrance to Moyoq Hacienda buildings, the wall contains a Water Drop and Wall Steps of Inca form. The wall at the location of the WD appears to have been reconstructed because its western side incorporates many stones of lesser size (ca. 10 cm).

Wall 2, on a steep slope, is poorly preserved. Between it and Wall 3, a modern cemented stone wall has been constructed to retain a canal. Wall 3 rises 3.5 m from the canal, is evenly battered and built of 0.3 to 0.7 m blocks in a single facade course 0.6 m thick with small rubble pieces behind. The lower terraces are on a 78% slope, between 3 and 6 m wide and extended about 60 m eastward to a narrow ravine. Walls 4 to 7 are shorter, on broader fields and rise 2 to 3.5 m. Their constuction is identical to Wall 3.

Site AL45, Llaktaki NW. (Ch.4, Fig. 4:7)

The presence of CID pottery at AL45 indicates an Inca Period use of the site although all stone construction and some other artefacts belong to Late Prehistoric Tradition.

Site AL39, Qopa Alta East. (Ch.4, Fig. 4:4)

Terrace walls in sector B, and the aggregation of circular dwellings in Sector A, have little in common with Inca style facilities of the Cusco and Urubamba valleys. Abundance of Cusco Inca pottery in association with the structures of Sector A requires that its occupation be regarded as part of that characterising the Inca state presence in Limatambo.

Site AL41, Qopa Playa. (Ch.4, Fig. 4:4)

The elements of design and architecture at AL41 are prodominantly of Late Prehistoric Tradition. Rectangular architecture (Plate 76) and the distribution of CID pottery in the structural zone indicates occupation and some building during the Inca period.

5.4 The Mollepata Sub-Region.

Site AM1, Markawasi.

AM1 is a large complex comprising terraces, Cusco Inca masonry, probable sites of standing architecture and surface artefact concentrations. It is

located on the gentle slopes of a valley-side saddle 14 km from Limatambo, and is divided into 4 sectors for analysis (Fig. 5:13).

(i) Sectors A and B (Fig. 5:14, Plate 77):

Sectors A and B are terrace levels which generally follow land contours. Segmentation, rather than sharp curves, was used in Sector A to shape topographic irregularities. Walls abruptly end at a narrow strip of land which contains a cemented stone irrigation channel.

Terraces have a single wall of large stone blocks with angular rubble and mud fill behind. Some blocks, especially those on segment corners and corners of WD wall features, are percussion shaped. Flat stone surfaces face outward. Walls are evenly battered to between 5° and 22° in Sector A (mean = 12°, n = 81; App.III: Tables 2 and 3).

The stone used in walls at AM1 is mainly fine grained grey volcanic rock, but limestone occurs in Sector B. The former occurs as large boulders on the terraces, and the latter outcrops on the roadside within a few hundred metres. A triple chambered structure built against wall Bxiii was probably a lime kiln associated with Markawasi Hacienda. It has three low arched entrances on the eastern side and is surrounded by soft and burnt lime. Stone from nearby terrace walls was used in its construction. The use of tractors at AM1 may explain a gap in terrace walling between walls Aviii(b) and Axiii.

Sector A contains 22 Water Drops (WD) and 62 sets of projecting-stone steps (WS) (Plates 1 and 2). 30 WS ascend to the left, 24 to the right. 8 are

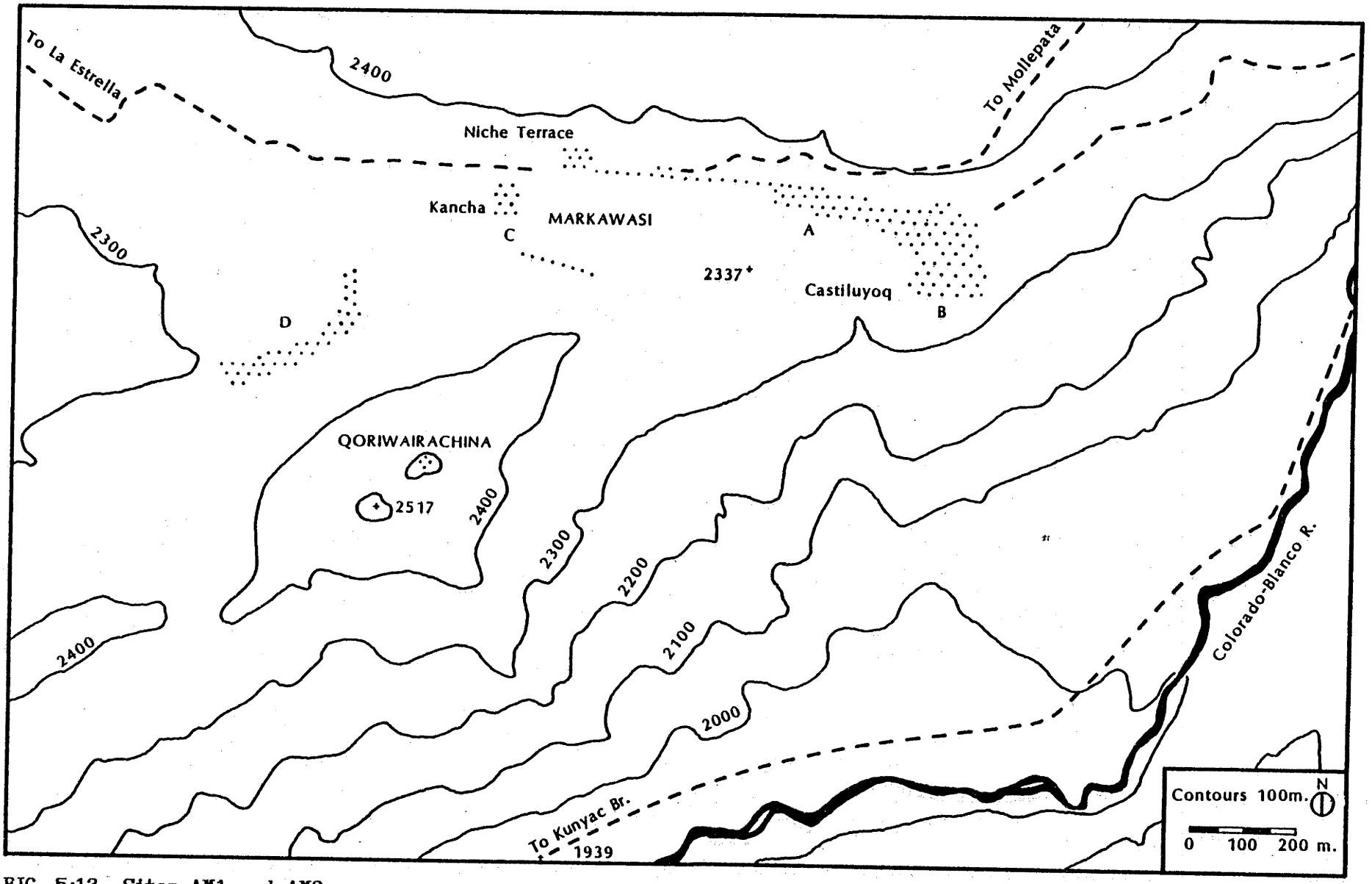



FIG. 5:13 Sites AM1 and AM2.

Sectors of Markawasi & Qoriwairachina

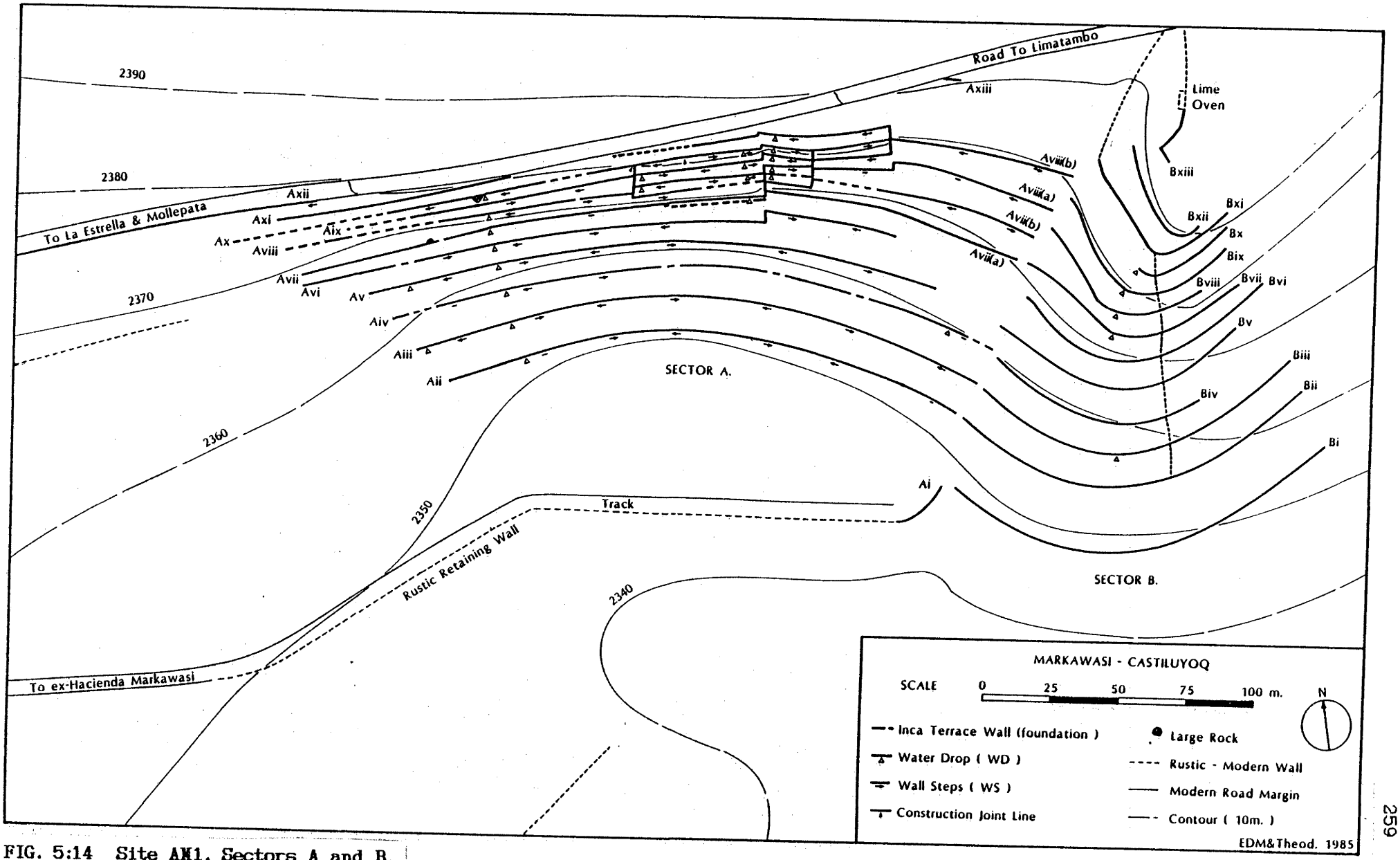



FIG. 5:14 Site AM1, Sectors A and B.

represented by a single step, but 6 remain in some cases (App. III: Tables 1 and 2).

Sector B walls contain 5 WD features but no WS for inter-terrace access. The upper part of this sector (component AM1-1, on the surfaces retained by walls Bxi, Bxii and Bxiii) contains a surface concentration of pottery, including Cusco Inca material. One small southern length of wall Bxiii rises above the soil surface, indicating the location of standing architecture. Some deep pits have been dug beside it.

Pottery at AM1-1:

A few sherds (n = 9) were selected from the AM1-1 surface. 4 from the western ends of walls Bxii and Bxiii are the strap handle and body sherds of a polished, thick-walled vessel, probably an Inca Shape 'a' jar. The paste is evenly fired, orange and contains small black inclusions. 5 CID sherds come from the western end of Wall Bxi (App.II Figs. 18 f-j). They include an everted rim deep dish and the flaring rim of an Inca Shape 'a' jar and have an orange fabric with small black or white inclusions.

Wall Step Alignment, Ascent Directions and Scheme Planning:

WS were clearly aligned from level to level in Sector A. The direction of ascent alternates from one level to the next, as well as along lengths of wall. WS appear to have been put in place as wall construction proceeded. No difference in masonry suggests otherwise. The time taken to build the scheme

is unknown, but the same rules for WS placement were followed from start to finish.

The alternating-direction rule for WS is breached by the left orientations of two side-by-side WS, numbers Axi-2 and Axi-3 (wall features are numbered consecutively from west to east on each wall line). However, both correctly oppose the WS on the level below them. The linear error would have been avoided if Wall Axi had taken a change of direction or segmentation like the terrace walls below. If it had, the WS following to the west of Axi-3 would have been Aix-8 (a *right* WS). There was insufficient vertical difference between Axi-1 and Axi-3 to provide a segment wall of full height, although it was very likely a part of the original terrace scheme plan.

Large Rocks and Wall Alignment:

Large rocks are incorporated in several terrace walls. Wall Avii appears to have a kink at the location of a WD (Avii(b)-1), redirecting it towards a large rock rather than trying to avoid it.

Sequence of Construction:

The line of a battered corner with squared blocks appears in a continuous wall of Inca construction at the meeting of walls Ax and Aix (Plate 78, and marked as a *construction line* in Fig. 5:14). The batter inclination is towards the east, and stones of the western continuation rest upon it. Hence, the western length of wall Ax was a later addition. The additional wall, like Avii, passes through a large boulder.

20 m further east there is an almost vertical joint line, between features Ax-3 and Aix-3. Surrounding stones are closely bonded, so it is not a WD closed by lateral pressures. Four basal eastern courses were built to a squared corner and one western-side stone relies for support upon the eastern corner. This conforms with work progressing from east to west.

The *eastern builders* brought their wall to a squared end of the kind used in a WD. The location does not align with other WD above or below, but almost perfectly bisects the distance between the lower steps of the WS to the east and west of it (9.0 and 9.25 m, respectively). The builders may have thought a WD was required between the WS on either side.

Water Drops and Water Distribution:

WD features were located on six lines through Sector A levels (numbered 1 to 6, from west to east), and a seventh on Sector B walls.

The complex segmented area containing WD alignments 3, 4 and 5 is the highest part of Sector A, where water first entered the terraces. A very narrow bench terrace is attached to wall Avi. The bench surface descends 0.59 m between the wall base at features Avii(b)-4 and Avii(b)-3. It probably retained a channel which carried water westward, from WD line 4 of the segmented area, to the terrace below.

The lower western walls of Sector A and eastern walls of Sector B run upward. Water would not have drained off the terraces in those directions. It had to be channelled through the system. WD Av-1 and Aiii-1 were needed within

a short distance of WD alignment 2 because upslope terracing prevented the latter from providing water to the western end.

The eastern levels of Sector B could not have been irrigated by water passing through WD alignment 7. They are more vegetated, eroded and stony than the other half of Sector B and are separated from it by a standing rubble wall.

(ii) Sector C (Fig. 5:15):

Key elements of Sector C are a retaining wall with small niches (*Niche Terrace*), and a rectangular space of 0.32 ha bounded on three sides by an extremely elaborate retaining wall (*Kancha*). The road between Sectors A and B, and Sector C has retaining wall lengths below and above. One wall contains a WD of shaped and partly dressed stone. Many houses of Markawasi Cooperative members, the former hacienda buildings and sugar cane processing facility are located in this area.

(b) The Kancha (Component AM1-3) (Fig. 5:15):

AM1-3 comprises a rectangular depression faced with Cusco Inca masonry on three sides. The open end faces the peak of a low mountain (*Qoriwairachina*). It is built of the most thoroughly dressed and carefully fitted masonry facade at AM1, of uniformly grey-coloured volcanic rock in blocks up to 0.75 m. The space behind the facade is filled with rubble (Plate 80). The depression is in a drainage feature and a shallow well in the centre of the Kancha is used to obtain small amounts of drinking water.

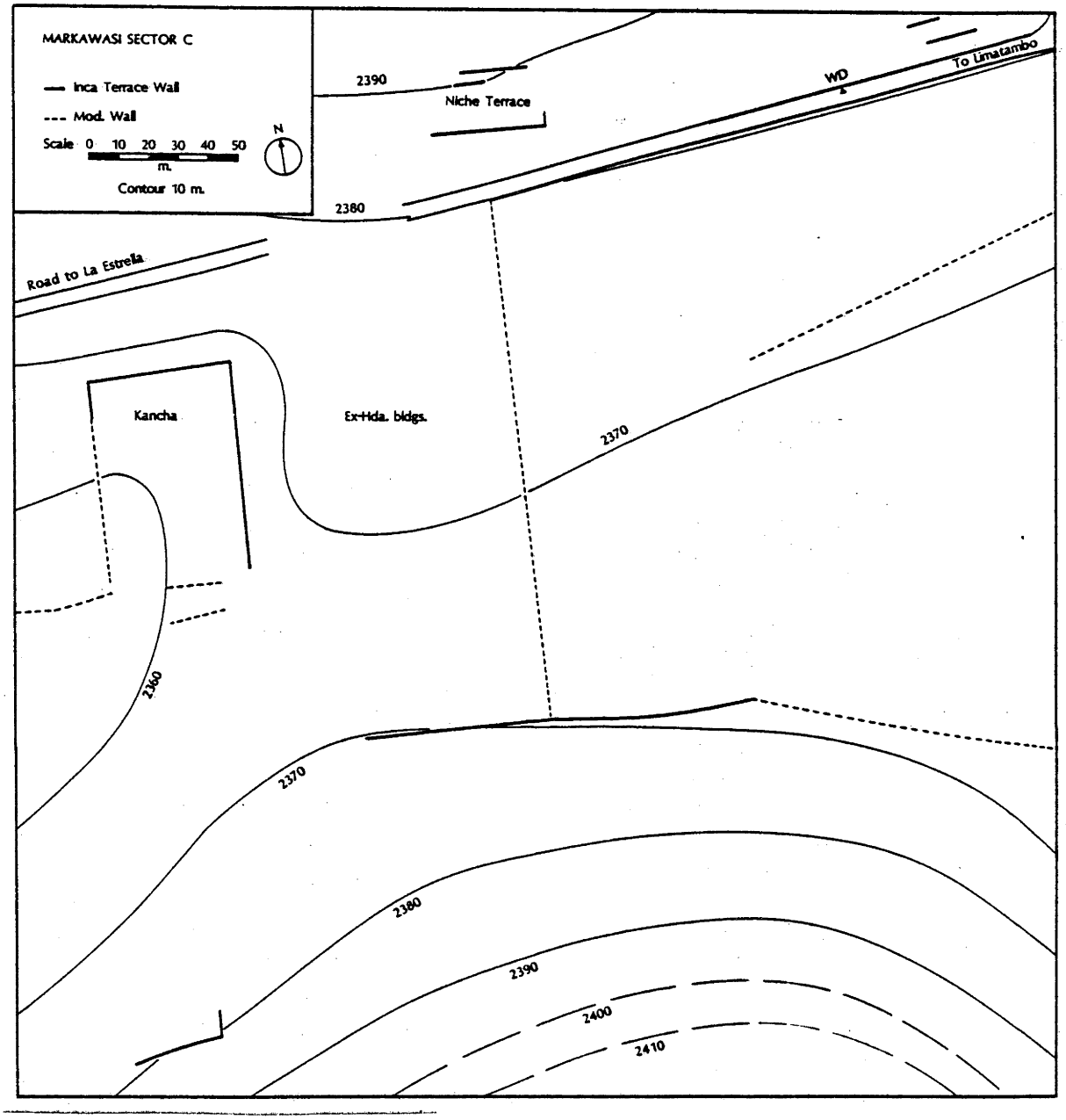


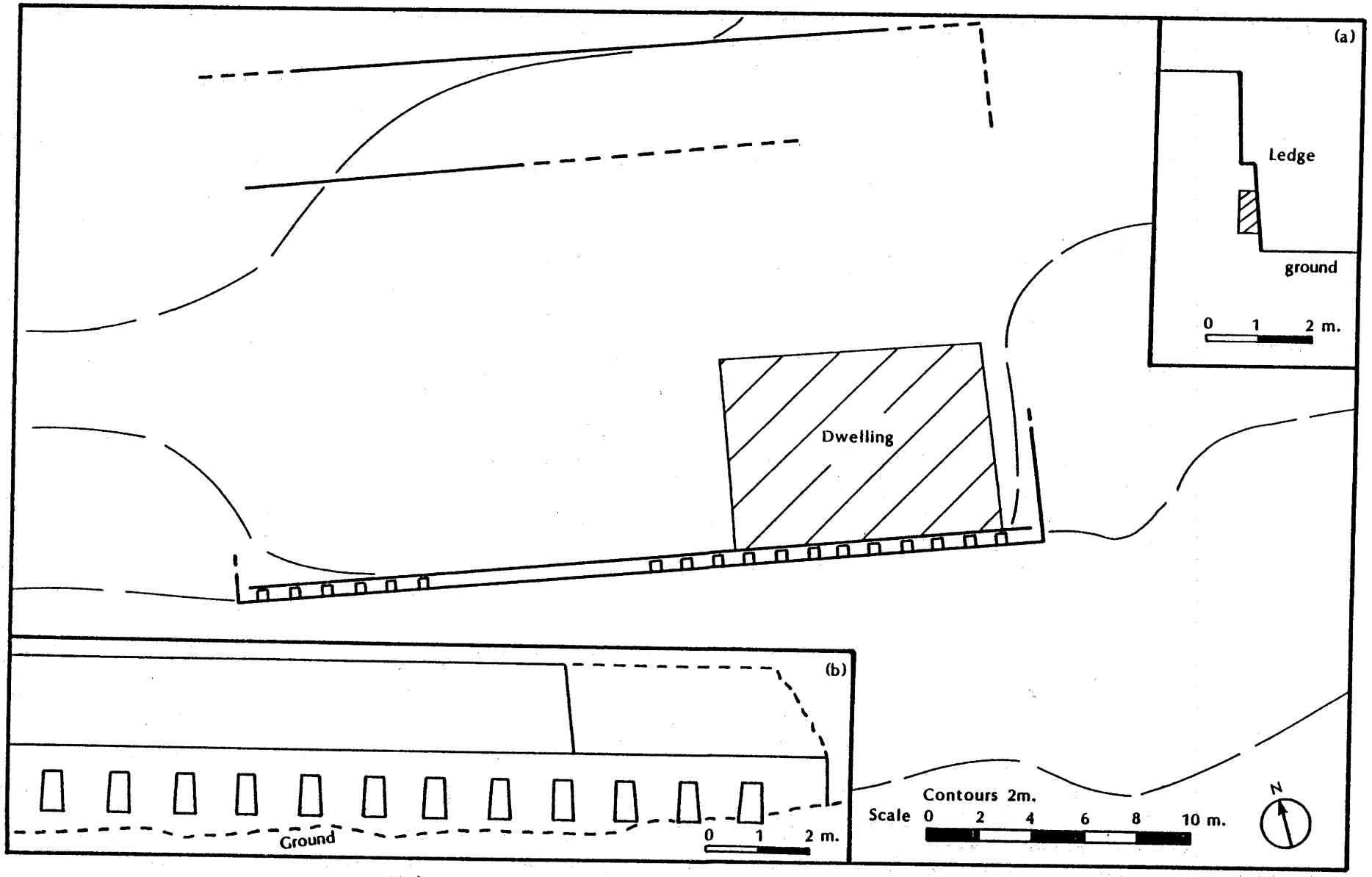

FIG. 5:15 Site AM1, Sector C.

(b) The Niche Terrace Zone (Component AM1-2) (Fig. 5:16):

AM1-2 contains three retaining walls (numbered 1,2 and 3 from lowest to highest). They define a rectangular platform (ca. 600 sq.m) containing a modern dwelling. Walls 2 and 3 are less than 1 m high, mostly reduced to foundation courses of dressed and very carefully fitted stones. Wall 1 is up to 3.2 m high and contains 18 small trapezoidal niches, in a western group of 6 and an eastern set of 12. The former are covered by a house built against the wall (removed in 1985 but since replaced).

The eastern niches have mean upper and lower widths of 35.5 cm and 42.5 cm respectively, and a mean height of 76.3 cm. They are more deeply recessed at the base (mean = 38.9 cm) than at the top (mean = 36.1 cm). Niche bases commence about 40 cm above ground, but the eastern area is partly buried by slope wash. One niche was excavated to 15 cm for purposes of measurement.

Facade blocks of Wall 1 are percussion shaped and partly dressed. Rising and lateral joints are carefully but not tightly fitted (Plate 79). Examination of the upper courses shows that the wall rose above platform level. It is double-stone in the upper courses. The low remaining courses of the northern facade are well fitted. An Inca building or balustrade, as at Tarawasi Wall II, may have risen above the terrace wall. A battered construction line of squared blocks, located in upper courses 5 m west of the SE corner, is consistent with the placement of a building in the direction of batter inclination (Fig. 5:16 (b)). An analogy is the Inca installation at Vilcashuaman where exterior niches were placed on terrace levels below the present church site, an area which also supported Inca structures [Gonzalez et.al. 1981:66].




Markawasi Sector C : Niche Terrace (a) Section (b) Elevation: E. niches

FIG. 5:16 Site AM1

The southern facade of Wall 1 features a narrow ledge recessed 23 cm behind the lower courses at a present height of about 1.3 m above ground level (Fig. 5:16 (a)). Such ledges are visible at high locations on walls of well preserved Inca buildings at Ollantaytambo, Machu Picchu and other sites, and they probably served to support the floor of a second storey. Wall 1 may have been the rear wall of a structure or structures extending southward in an area of deposition.

(c) Sculptured Stone:

A large hammer dressed rock which sits on a field surface between Sectors A and C is known to Markawasi residents as *Intiwatana* (Plate 81). It is roughly rectangular, 1.62 m long, 1.22 m high and 0.67 m wide. The width is pierced by a hole of 0.27 m diameter, but which widens 0.1 m on each end. This indicates that it was pecked out from either end, to form two cones which meet in the centre. Two seat-like depressions were also pecked on one surface. The pecking spots appear to be from a stone hammer rather than a metal chisel.

The stone is said to have been moved by tractor from a site in the Kancha. An old report states that seven conical stones, called *Intiwatana* by Wagner [1937:239-240], were located at the *castle of Marcahuasi in the valley of the Apurimac*. Wagner's report contains no proper locational information and a rough pen sketch of a conical stone. However, the Sector B terraces are named *Castiluyoq* (castle place) at Markawasi, so he may have been talking about the same site.

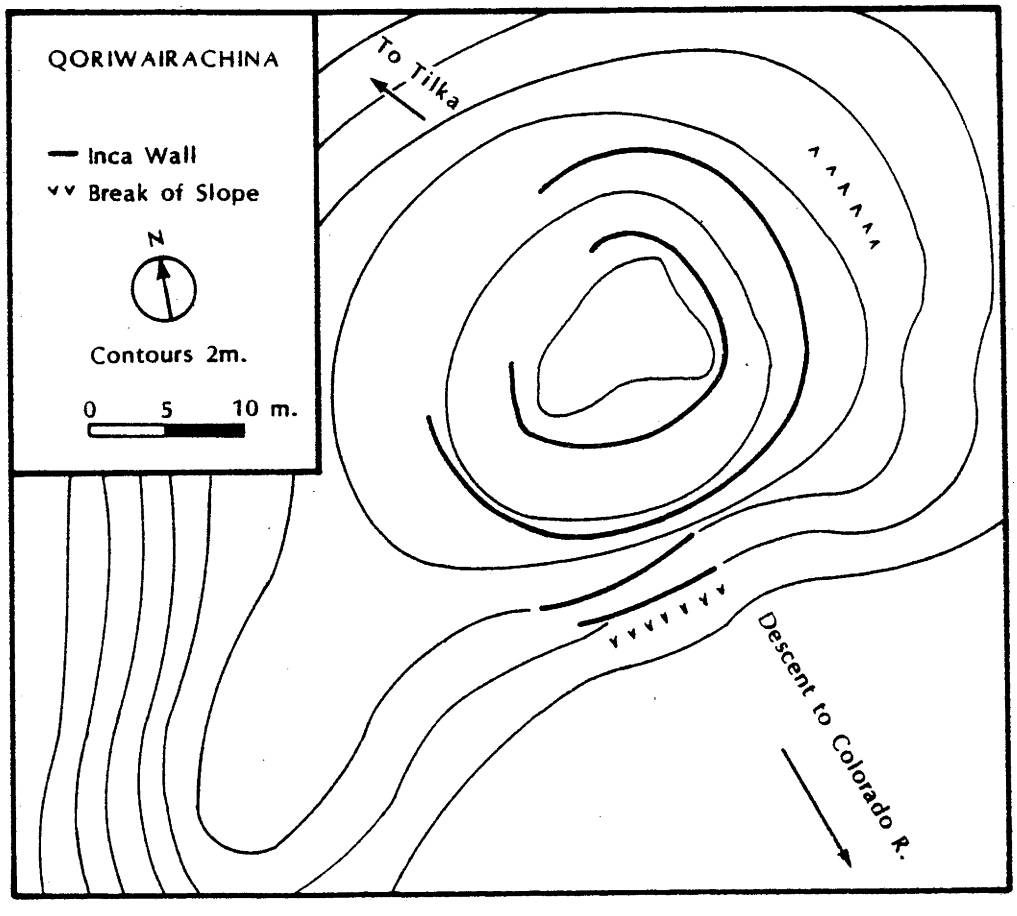
(iii) Sector D (Fig. 5:13, see Plate 34):

Sector D comprises three contour terraces at the base of Qoriwairachina . The lowest retained level, which contains a functioning canal, is 3 m wide. The upper two are 15 m wide. Wall 1 (the lowest) is poorly preserved, but the others are 1.9 m to 2.5 m high, of polygonal volcanic stone blocks up to 0.5 m diameter. They are shaped or partially hammer-dressed, and well fitted. Two sets of wall steps were placed along the upper wall.

Site AM2, Qoriwairachina. (Figs. 5:13 and 5:17)

AM2 is site of a roughly circular mountaintop platform with 4 stone retaining walls and surface pottery. It overlooks all sectors of Site AM1, and the confluence of the Colorado-Blanco and Apurimac rivers.

FIG. 5:17 Site AM2.



Walls are poorly preserved at lower levels and were not as well constructed. The top wall is 1.7 m high and 0.85 m thick, built of fine grained volcanic blocks about 0.25 to 0.4 m diameter. They were partly shaped or selected to facilitate good fitting (Plate 82). The terrace below is 2.7 m high, 0.7 m thick and of similar stone. Blocks are 0.35 m to 0.50 m diameter, less well fitted and with less attention to evenness of the facade. The third wall is 0.8 m high, of less uniform stone sizes (0.2 m to 0.8 m), poorly fitted and of uneven facade. The lowest wall is 2.5 m high, also poorly constructed.

The upper two levels are within the range of Inca wall construction quality but the lower ones are no better than walls in Sector A of AL39 and other Late Prehistoric Tradition sites. Both Cusco Inca and LPT pottery is located on the surface of the site (Chapter 4).

Site AM3, Tilka.

AM3 is located at high altitude on the summit of a massive mountain (Fig. 5:18, Plate 83). Access is only possible from the less abrupt northern side. It is divided into 4 sectors (Fig. 5:19).

(a) Sector A:

This contains a circular platform about 6 m in diameter, raised above a linear granite outcrop (*Platform 2*). It is surrounded by three retaining walls, and overlooks a 100% descent on the southern side. The lowest wall is 1.7 m high, the second 1.2 m and that of the platform, 1.2 m high.

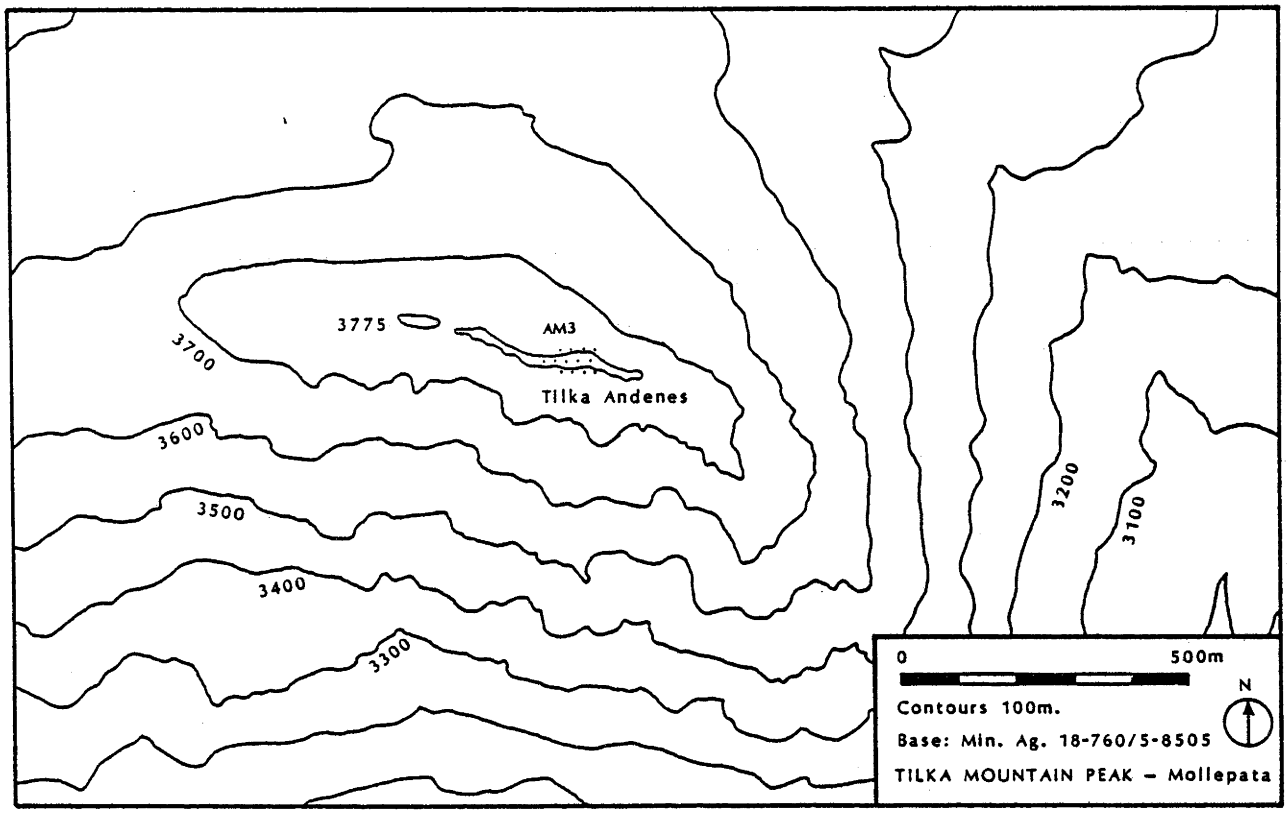



FIG. 5:18 Site AM3.

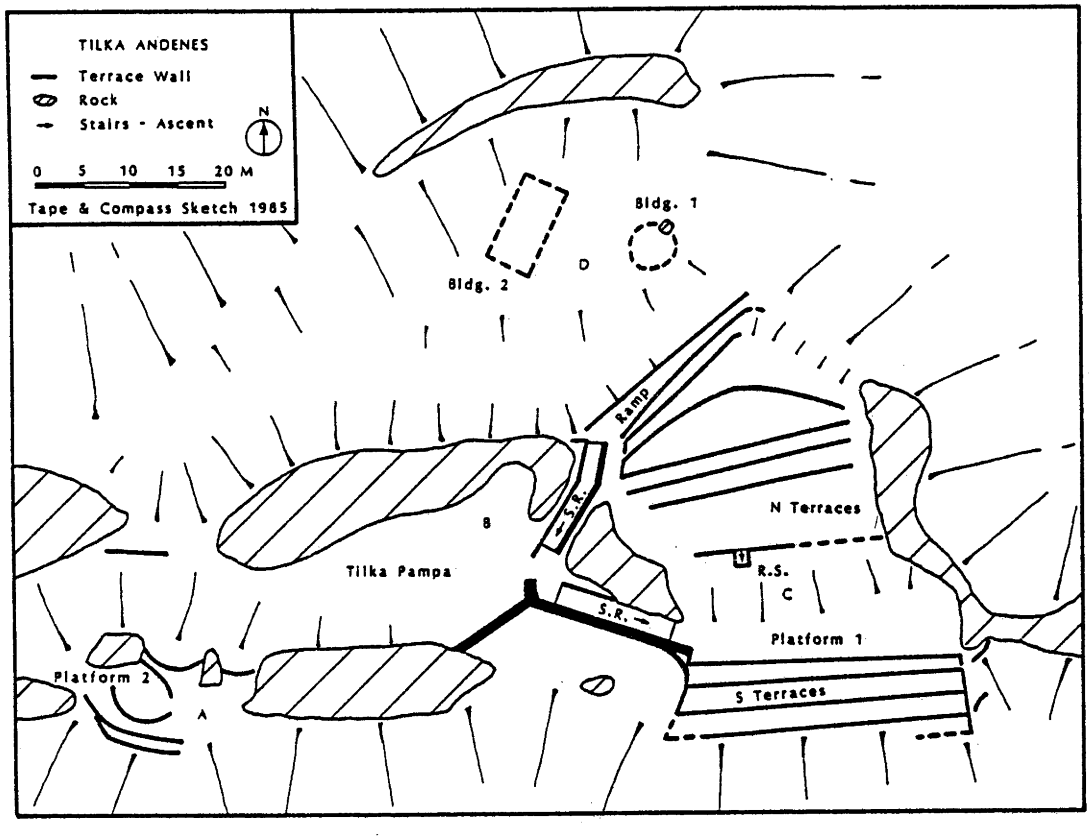



FIG. 5:19 Site AM3 (Detail).

(b) Sector B (*Tilka Pampa*):

This is a sheltered flat bounded by granite outcrops to the north, west and south. It is enclosed by standing walls on the eastern side but an entrance was provided to a point along a *Staired Routeway* (SR).

(c) Sector C (Plate 84).

Sector C is the most complex part of AM3. It comprises the highest part of the ridge (Platform 1), bounded by eight retaining walls forming the *Northern Terraces* and five others of the *South Terraces*. The side walls of the SR define its western boundary. The granite ridge continues at lower levels to the east.

The North Terrace walls, from lowest to highest, ascend 0.5, 2.6, 1.9, 2.8, 2.8, 2.5, 2.1 and 2.0 m. A ninth level may have once existed at the top of the group, but only a linear break of slope is visible. The wall below contains a *Recessed Staircase* (RS) with steps about 29 cm wide and 22 cm high. Its entrance is of trapezoidal form and narrows from 1.35 m near the base to 1.24 m at the top of remaining courses (Plate 4). Levels 5 to 8 are straight, but the lower ones have slight curves. Wall 1 retains a surface which descends toward the northeast. It may have been a ramp between the end of the SR and Sector D.

The South Terraces are very narrow, between 1.7 and 2.2 m. Walls ascend 2.8, 2.6, 2.6, 2.5 and 3.2 m, from basal to top terrace. The batter angle is around 24°.

(d) The Staired Routeway:

Stairs in the lower half are about 1.24 m wide. The western wall contains four drain holes at the base, each about 25 cm square. The upper stairs are 2.3 m wide, retained by a 0.57 m thick wall beside an outcrop on the northern side and a 1.24 m thick ascending wall on the southern side (Plate 5).

(e) Sector D:

This comprises the footings and lower courses of two buildings on a protected slope between outcrops. *Building 1* is approximately circular, of 6.1 m diameter. The maximum remaining height is 0.85 m and walls are 0.55 m thick, of double granite fieldstone in mud mortar. It is poorly preserved and neither entrances nor niches were located. *Building 2* is rectangular, 9.7 by 4.7 m, with good corner bonding in the SW corner. Its walls remain to a height of 1.1 m and are 0.85 m thick. They consist of fieldstone granites, between 0.2 and 0.8 m diameter, in mud mortar. It is also poorly preserved. No surface artefacts were found, but visibility is reduced by vegetated ground and rubble cover.

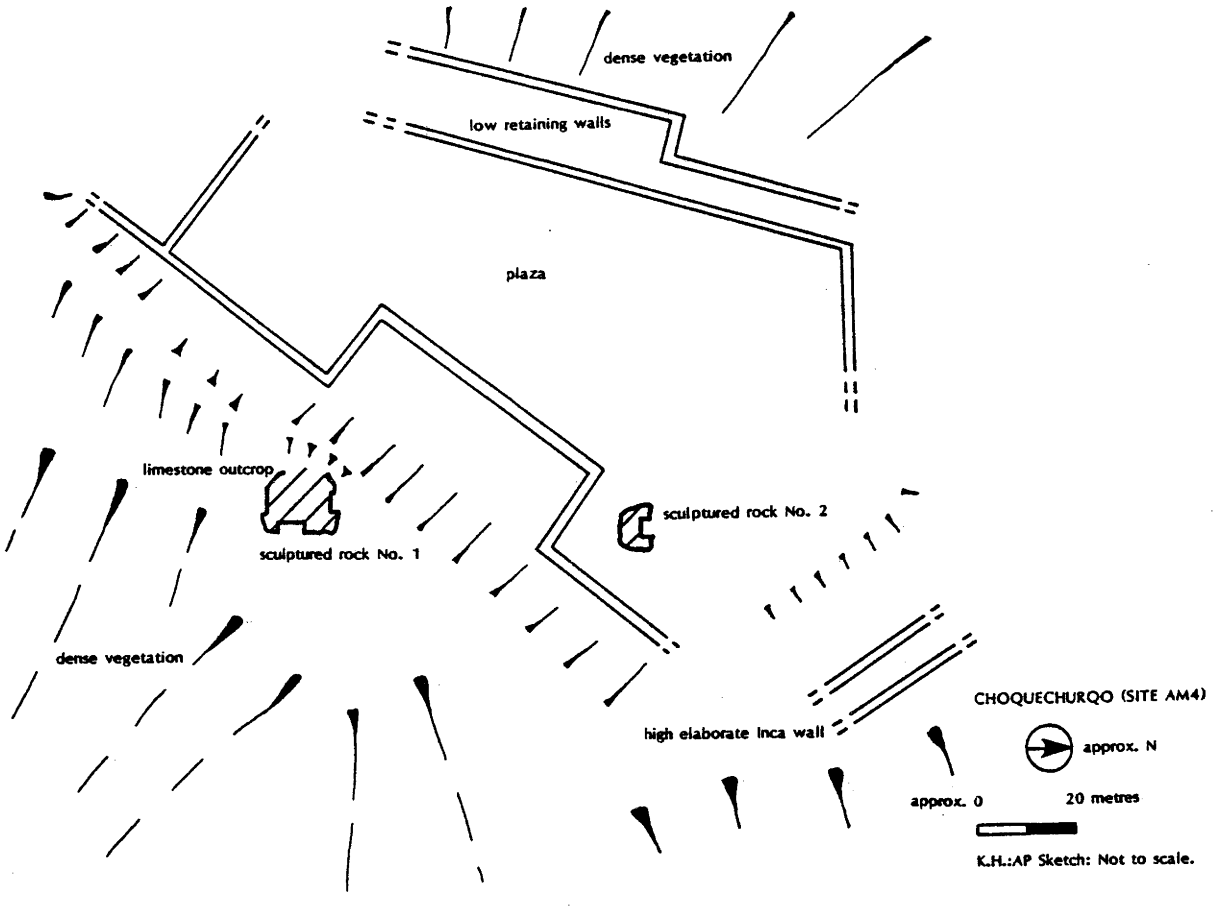
(f) Stone Wall Construction:

There is little variation in the stone walls at AM3. Stone is invariably a white granite which outcrops on the site. It was fit closely but not in Cusco Inca style. Facade surfaces are even and without jutting stones. Blocks on terrace or staircase corners are squared but not dressed. No RPS, WD or WS wall features were constructed.

Site AM4, Choquechurqo.

AM4 comprises a terraced platform and two sculptured rocks on a descending ridge 4 km NNE of Tilka Mountain (Fig. 5:20).

*Sculptured Rock 1* is a limestone outcrop. Shallow recesses were hammered on the northern and southern sides, but the most striking feature is a deep trapezoidal niche hammered from the eastern face. It is 2.2 m high, 2.7 m wide and recessed to a depth of 1 m in the upper part (Plate 85). *Sculptured Rock 2* is also limestone, with a north facing trapezoidal niche about 2.5 m high. Terrace walls surrounding an open area (the *plaza*) are only about 1 m high. The northern walls below plaza level reach 2.5 m high and are constructed of carefully fitted and dressed blocks.



Site AM5, La Estrella.

AM5 is an artefact scatter on a cultivated field of La Estrella Hacienda. Pottery is most abundant near a low uncultivated mound on the edge of a gully, but occurs over a large area of cultivated ground between the mound and a field margin which overlooks the Apurimac River. Some rounded pebbles on the mound appear out of natural context, but no structural remains are visible. A modern wall near the Hacienda buildings, 500 m away, incorporates dressed blocks of Cusco Inca style.

Surface pottery within 25 m of the mound includes many CID and CIP sherds. Only a few were collected (n = 3): One is CID from a thick-walled large vessel, with an evenly fired orange paste containing small white (under 0.5 mm) and black (under 0.25) inclusions (App.II Fig. 18k). A CIP strap handle is of identical fabric (App.II Fig. 18m) and a typical Cusco Inca plate handle has a wholly grey paste with only small white inclusions (App.II Fig. 18l).

Site AM6, Ñawpachaka.

AM6 is an artefact concentration on a vegetated ledge above the right margin of the Apurimac River (Plate 86). It lies beside the ruinous stone and lime mortar pillar of an historic period suspension bridge. Prehistoric architecture was not located but pottery abounds, probably due to extensive looting pits. A variety of sherds (n = 19) were collected from the margins of these.

CID sherds comprise 5 from the flaring neck of a small Inca Shape 'a' jar (App.II Fig. 19a), a highly decorated Cusco Inca plate (App.II Fig. 19d) and 2 body sherds (App.II Figs. 19b,c). A red painted specimen is CIP and another 2 have Inca orange slip. All of these have an orange fabric with either small white or small black and white inclusions. Some also contain mica. 1 orange slipped sherd has a greyed fabric and larger inclusions of the same colours. 2 have small inclusions of white, black and red stones, including an incurving vessel (App.II Fig. 19g). 2 are strap handles of coarser texture, containing mica and larger white inclusions, either chalky and up to 3 mm (App.II Fig. 19e) or in granite pieces (App.II Fig. 19f). A rim, with pale green glaze on the concave surface, is from a Colonial plate. Its fabric contains small black and white inclusions, like Inca ware, without mica. 2 are clear-glazed porcelain.

## 5.5 The Chinchaypuquio Sub-Region.

### Site AC1, Lucre (Pantipata).

AC1 is a terrace scheme located on the narrow valley floor of the Samanca River and beside a ravine (Fig. 5:21, Plate 87). The upper group are designated Sector A, and the riverside group, Sector B (Fig. 5:22). Terraces of Sector A and the riverine flats of Sector B are cultivated.

#### (i) Sector A:

This comprises 8 segmented terrace walls between 1.5 and 3.5 m high, in straight lengths retaining levelled lands. Walls are single or double-stone

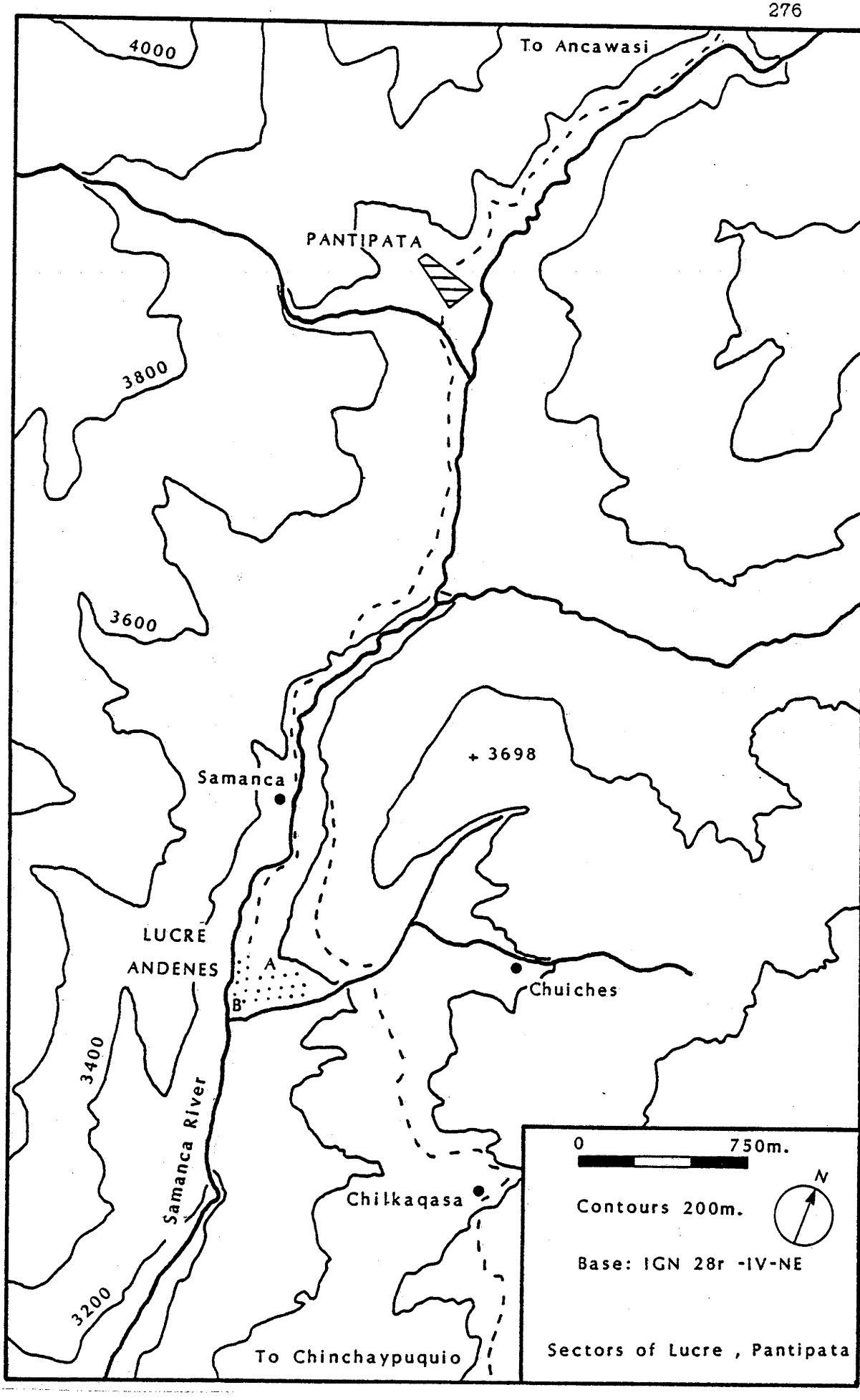
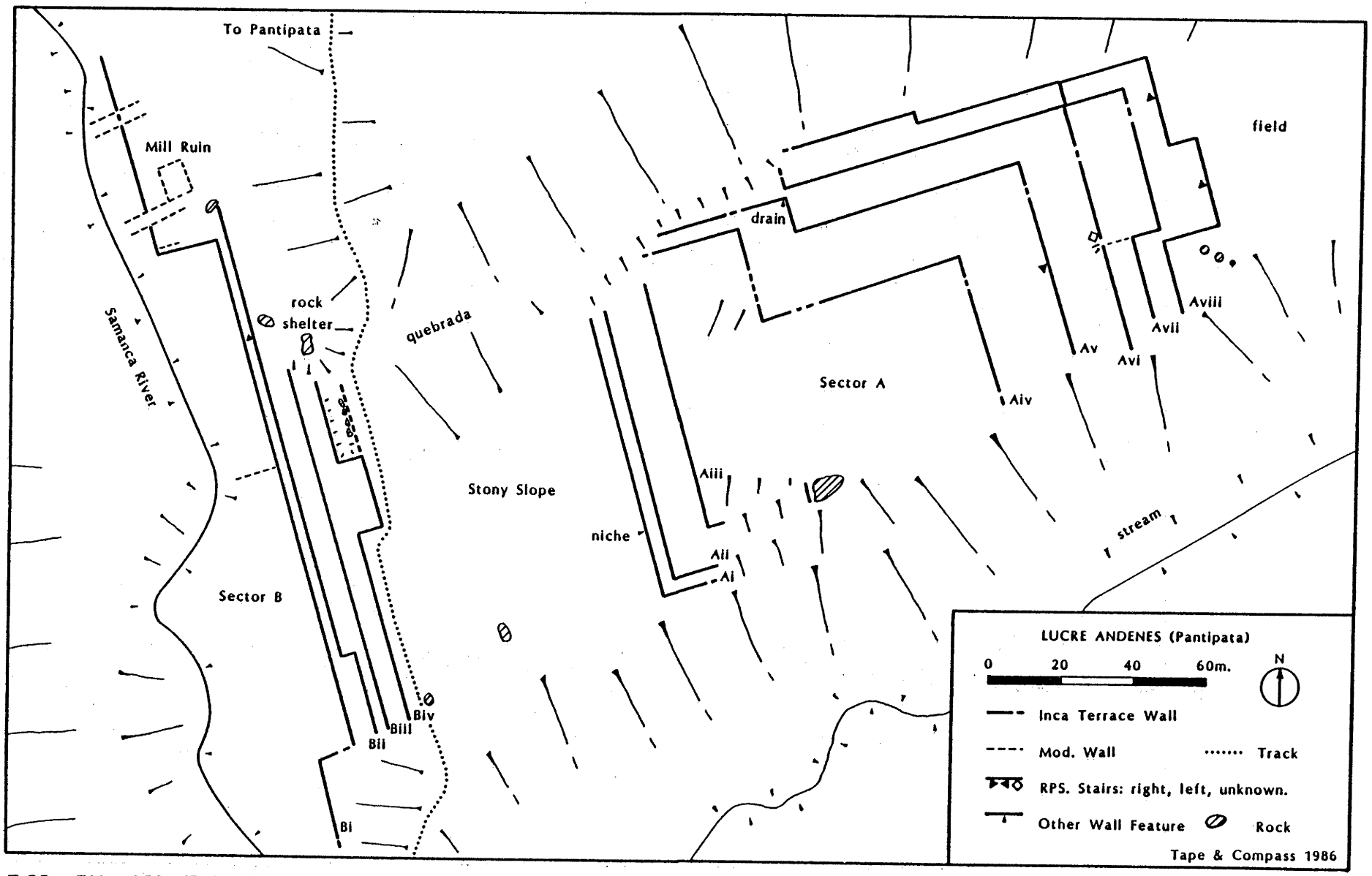



FIG. 5:21 Site AC1.




5:22 Site AC1 (Detail).

with rubble fill behind. Facades were built of unshaped, percussion shaped and occasionally dressed grey andesite blocks between 0.3 and 0.5 m. The andesite occurs on slopes of Watapata mountain to the north, as nodular pieces on the slope between sectors and as semi-angular boulders on and near the terraces. Lateral and bedding joint faces of blocks near segment and feature corners are shaped to enable close but not tight fitting.

A small trapezoidal niche faces outward from retaining wall Ai. It is 0.6 m high, 0.36 m wide at the base and 0.26 m at the top, and is recessed to a maximum of 0.38 m behind the facade.

A small drain hole was left as a gap 0.3 m west of a segment corner on wall Av. It is 0.24 m high, 0.17 m wide at the base and recessed at least 0.43 m. Stones are closely fitted at this location and this may impede drainage and contribute to destructive pressures. Drains are common in tightly fitted Inca masonry in Cusco, Maukallakta of Yaurisque, Tarawasi and in the Tilka staircase wall which was built against a rock outcrop.

Four RPS staircases occur in Sector A walls (App. III Table 1). The southerly example on Wall Aviii is well preserved (Plate 3).

The final southern terrace segments are not filled between Walls Avi and Avii, and between Walls Avii and Aviii. The eastern side of Wall Avii, where a retained soil surface would be expected, stands freely to a height of 1.7 m. The surface drops away to the south (Plate 88). Vegetation growth is dense here, probably because the surface is stony and difficult to cultivate. It is

possible that the surface eroded into the southern ravine, but a similar feature occurs in a more stable part of Sector B.

(ii) Sector B:

Sector B walls are of similar construction to those of Sector A. They are 1.5 to 3 m high. The final northwestern segment of Wall Biv reaches the same height as the southern lengths but is not a filled retaining wall. It contains large boulders and rubble and is not well faced on the inside and is therefore unlikely to have been a building constructed against the terrace wall. No digging machinery is used in the vicinity, and no road yet exists for it to be brought to the site. Erosion, to remove the fill, is unlikely to have left the wall standing. Unless the fill were dug out manually, the evidence suggests that the terrace is half-finished.

A small shelter, under boulders and slabs at the northern end of Walls Biii and Biv, contains no surface artefacts or bone. An RPS staircase lies on Wall Bii, just below the rock shelter and a large boulder (App.III Table 1). The northern end of Wall Bi is cut by two channels from a ruined water mill.

Site AC2, Qolmay.

AC2 is a small complex comprising Inca terraces and structures, many of Cusco Inca masonry, a sculptured rock and an artefact scatter. It lies on a descending ridge beside a saddle, 4 km northwest of Chinchaypuquio (Fig. 5:23).

The western and central sectors are located at the base of a granite outcrop and rockfall zone. They are separated by a steep and vegetated slope from an eastern sector with four terraces (Plate 89, Fig. 5:24).

(i) The Western Sector:

This comprises a platform built against a granite rock face. Large boulders are incorporated into its retaining wall of Cusco Inca polygonal masonry. Spaces between overhanging rocks are walled on two sides to form a chamber (*Rock Shelter 1*) with a trapezoidal entrance, about 2 m high (Plate 90). It contains a rock with sculptured steps and a small channel. A square structure rises above retaining walls at the southern end of the platform. It contains two small trapezoidal windows.

(ii) The Central Sector:

This is separated from the Western Sector by an elaborate terrace wall. It comprises a platform with *Stuctures 2 and 3* on its northern and eastern sides. There is a drop between the southern side of this platform and a parallel wall to the south. This does not appear to be another structure, but may have supported a passage or entrance.

*Rockshelter 2*, beneath fallen boulders on the northwestern corner of the platform, is partially closed by an elaborate wall. The wall has a well finished ending corner and was therefore probably not a permanently closed tomb chamber.

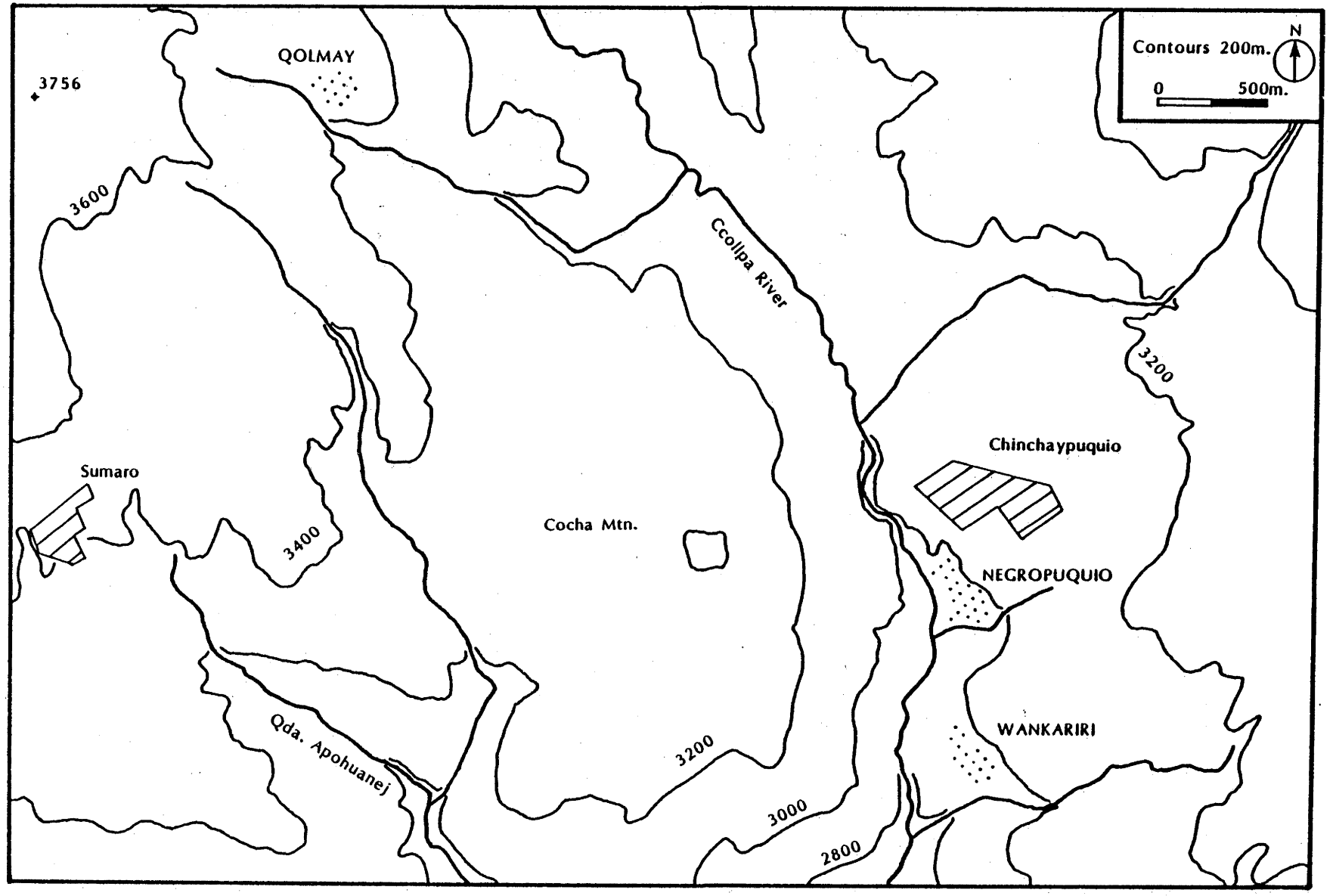



FIG. 5:23 Sites AC2, AC3 and AC4. Qolmay, Negropuquio and Wankariri

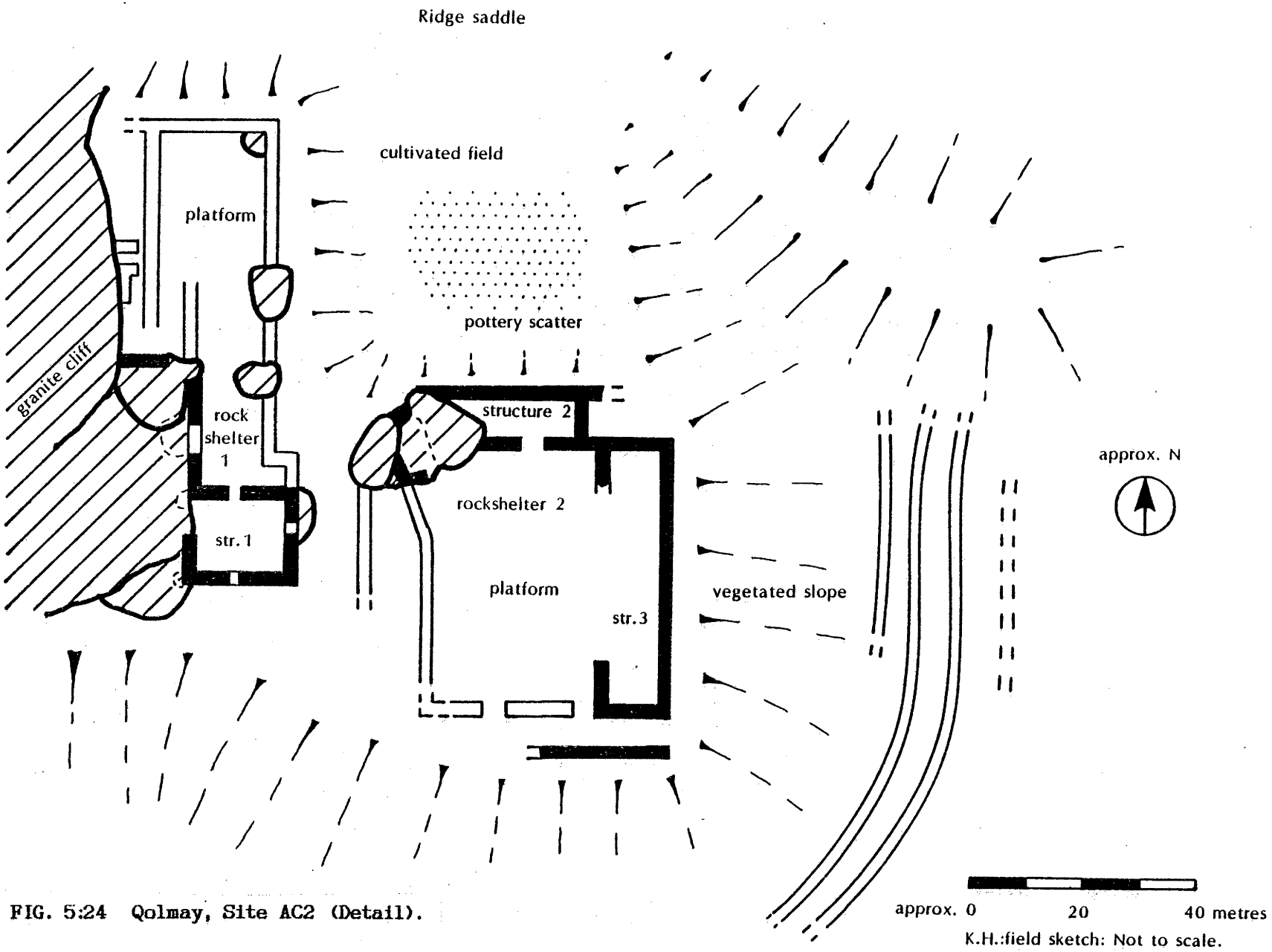



FIG. 5:24 Qolmay, Site AC2 (Detail).

(iii) The Eastern Sector:

The eastern terraces are poorly preserved, about 1.5 to 2 m high and 4 m wide. Some have been cultivated in recent years.

(iv) Pottery:

Pottery sherds were exposed by ploughing on a field to the north of the built area. A few were selected (n = 11) for examination.

One is CID, with red and black painted lines on orange slip. It is 0.92 cm thick, with small white and mica inclusions and probably comes from the rim of a large Inca Shape 'a' jar. 2 are CIP, one painted red and the other, a strap handle from a 0.82 cm thick vessel, is painted black on the exterior. Both have a hard fabric, the former with a grey core and small black and mica inclusions, the latter only small white inclusions. 5 are orange slipped with small white and/or black inclusions and mica specks. The fabric is hard, well-fired and has a grey core in one case. 1 sherd has red-brown slip with the same fabric. 2 have a crumbly dark brown fabric, one with small white inclusions and the other with large red stone inclusions and mica.

Site AC3, Negropuquio.

AC3 is a site of stone-walled terraces and a carved rock on the outskirts of Chinchaypuquio town (Fig. 5:23). The scheme is divided into three sectors (Fig. 5:25).

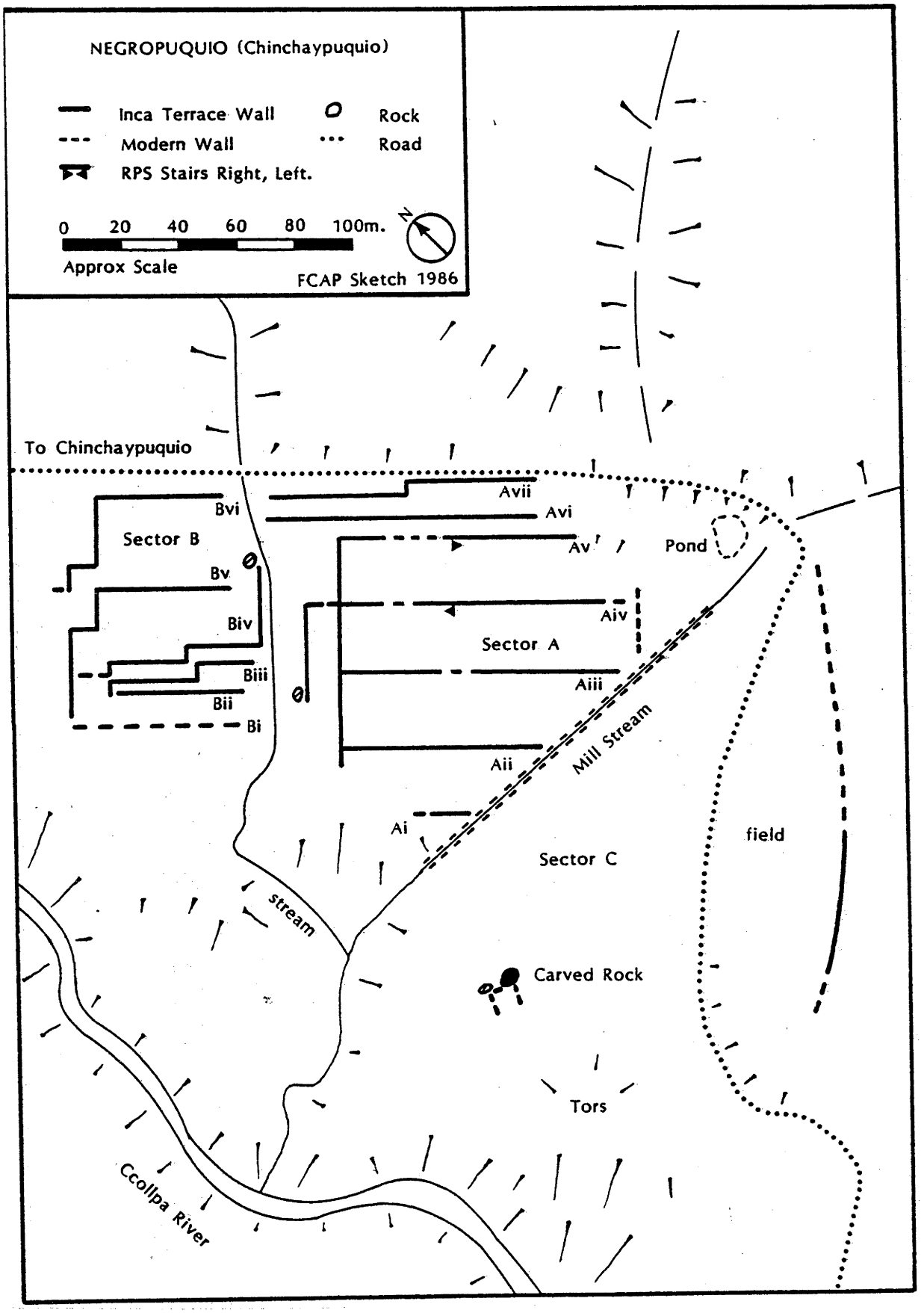



FIG. 5:25 Site AC3 (Detail).

(i) Sector A.

This comprises a set of seven cultivated terrace levels with straight and segmented wall lengths (Plate 91). It is bounded by a small stream on the northwestern side, a stone lined stream for a mill on the southern side and boulder-strewn slopes to the northeast. It is likely that construction of the mill stream has shortened walls of Sector A. Two RPS staircases were located on terrace Walls Aiv and Av (App.III Table 1). Breakouts along other walls may have obscured further RPS.

Original wall lengths have pronounced batter and reach 3 m high. They consist of local volcanic porphyry in blocks around 0.2 to 0.75 m maximum dimension. Some boulders of this stone remain on terrace surfaces. Care was taken to put flat sides on the facade. Segment and feature corners are of carefully shaped blocks.

(ii) Sector B.

The stream between sectors A and B is fairly straight and may have been canalized although no channel wall remains. Sector B comprises 5 levels with straight but segmented wall lengths.

(iii) Sector C.

A contour terrace wall forms the southeastern boundary of this sector. It contains a small platform which is retained on one side by two large rocks. One of these has had steps hammer-sculpted on the western side (Plate 92).

Site AC4, Wankariri.

AC4 is a small terrace scheme located 1.5 km from Chinchaypuquio and 250 m east of the Ccolpa River (Fig. 5:23). The lands are cultivated and lie at the base of a boulder-strewn slope (Plate 93). It is divided by a path into two sectors (Fig. 5:26).

(i) Sector A:

This comprises 7 levels with straight and segmented retaining walls. Construction is of volcanic porphyry in blocks between 0.3 and 0.6 m diameter, but some basal courses incorporate stones up to 3 m. These are carefully fitted. Selected flat or percussion shaped sides face outwards and segment and feature corners are squared. Angular rubble in mud occurs behind the facade course. RPS were found on walls Aii and Avi. WD features occur in the four upper levels of the group (App.III Tables 1 and 3).

Two human crania lie in crevices left by fallen stones in Wall Aiv. They face the field surface. No specific ethnography was obtained about them, but Maxwell [1966:56] records the use of *huaca skulls* from old burials as field guardians in the Cusco region.

(ii) Sector B:

Sector B terraces are gently curved, segmented and of similar construction to those in Sector A. An RPS was found on Wall Biii. Poor wall preservation may explain their absence above and below.

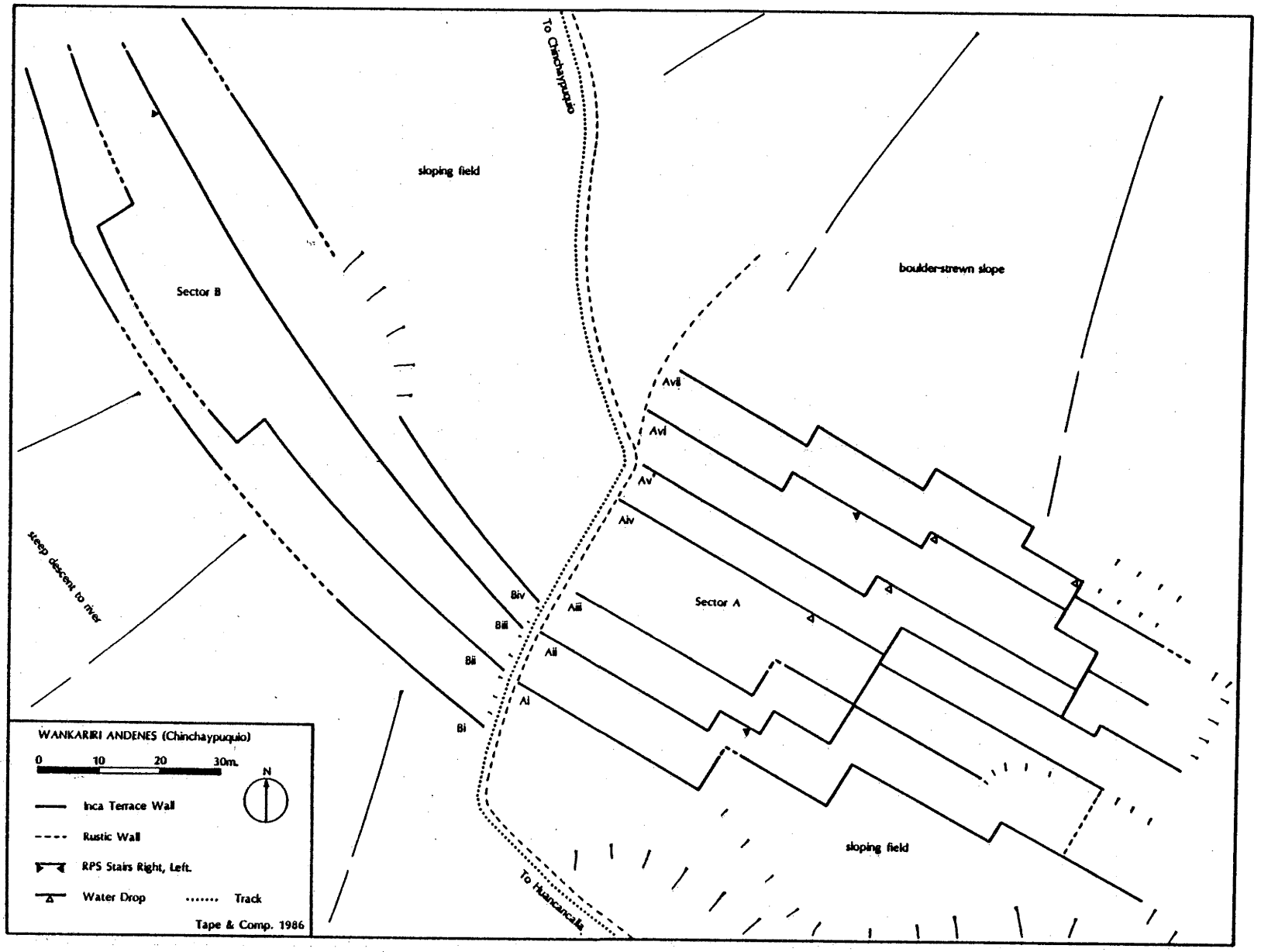



FIG. 5:26 Site AC4 (Detail).

## 5.6 Inca Roads.

Ferdon [1978] described the Inca road from Cusco to Limatambo and the Apurimac River in 1938 when vehicle road construction had just begun its destructive impact on this landscape [Göhring 1935:303]. The road descended gradually from Huillque Pass between Ayavire and Pampaconga lands and then zig zagged down the steep Limatambo *cuesta* to the upper valley floor near Challabamba. Part of the steep platform, about 3 m wide, is visible at 3365 m amidst modern tracks and the gradual curves of successive highways. Its course straightens along the eastern margin of the valley floor. It is about 2 to 3 m wide and deeply cut between Challabamba and the eastern margin of AL8. Stony sections, 3 to 4 m wide, are preserved between Sites AL8 and AL11 (Frontispiece photograph). It is still used by foot and horse traffic. A branch extends northward from AL11, across the Colorado River and into the AL10 terraces (Fig. 5:5). Moreover, a small section of road platform 40 m east of AL6 and the road beside AL2 terraces (Fig. 5:2), indicate that a separate route probably rose from Challabamba to Huillque. This was followed to within sight of the pass, but does not feature paving.

Below AL11, Wall I restricts passage to a 400 m length of road with a rustic wall on the eastern margin of terraces (Fig. 5:7). It is detroyed by a modern road from there to AL12. It probably followed the left bank of the Colorado past AL12 (Fig. 5:9) and the straight wall of AL14 Sector A (Fig. 5:10) until crossing to the right bank near the Colorado-Pisti confluence. As reported by Ferdon [1978:646], it probably rose from near the Colorado-Blanco confluence to AM1, past the Sector A and B terraces (Fig. 5:14), then descended the folds of ravines to La Estrella and Huamanpata before zig-zagging down to a

suspension bridge. The suspension tower at AM6 is not Inca, but the river narrowing, its convenience to AM1 and associated Inca site suggest that it was probably a bridge location.

The path between AC1 Sectors A and B at Chinchaypuquio (Fig. 5:26) is probably on the route of an Inca road, as are broad paved sections of the footroad between AC1 and the pass to Anta Pampa (Fig. 5:21).

## 5.7 Reconnaissance in Adjacent Areas.

Various Inca terrace schemes along the Vilcanota Valley between Sicuani and Machu Picchu (Fig. 2:1) were visited to examine architectural features, including examples from Raqchi, Rumicolca, Tipón, Pisaq, Urco, Yucay, Moray, Ollantaytambo, Upper Tanccac and Machu Picchu, as well as Zurite and Quillarumiyoq on Anta Pampa (Fig. 5:1). Brief visits were also made to lesser known terrace sites in the Apurimac Basin.

In Paruro Province, WS features were located in Inca terraces in *Quebrada Huaynacancha* at 3070 m, beside a road leading to the Inca settlement at Maukallacta (Yaurisque District). The Yaurisque Valley at 3100 m, near Haciendas San Juan de Taray and Manzanares, has a topography resembling the broad central Limatambo Valley. No definite Inca terraces were found in brief reconnaissance, but the land is shaped as if for straight-walled terracing. Several schemes lie along the Molle Molle River Valley which descends southward to the Apurimac between Paruro and the study region. *Manchaybamba*, southeast of the Molle-Molle-Yaurisque confluence, is a large terrace group at 2950 m with relatively straight and well built walls in comparison with interleaving

terraces on adjacent slopes. *Llaspay* (Huanoquite District) is a definitely Inca terrace group at 3000 m and above the western bank of the Molle-Molle. Its limestone and andesite walls are straight and segmented in the lower part, but continue upward as contour terraces with WS. Sloping fields with crude walls occur downstream at Toctohuaylla and Collpa villages, but Inca terraces at *T'ikahuerta* overlook the Molle-Molle-Apurimac confluence from a narrow ridge at 3180 m. These contain WD features. Walls on an adjacent rock outcrop are of Cusco Inca masonry. Other Inca terrace schemes below T'ikahuerta can be seen from *Queroro Orqo* on the opposite side of the valley. *Queroro Orqo*, a hilltop at 3650 m and 1.5 km northwest of Paqariqtambo, is a pre-Inca artefact scatter which features interleaving terraces with conglomerate walls in irregular lines. Several large terrace groups lie within 1 km of Colcha, from 2800 to 3180 m on the western side of the Apurimac River and 11 km from Paruro. They are of the irregular and interleaving type and none have Inca terrace wall features.

In Acomayo Province, large areas of unwalled terraces lie in Quebrada Huachinja at 3000 m, 7 km southwest of Acomayo on the eastern side of the Apurimac River. Stone-walled terraces extend along a 3.5 km length of the western Apurimac River margin, at 2950 m between Pillpinto and Ccapa, 10 km southwest of Acomayo. They are irregular and interleaving.

In Apurimac Department (Fig. 2:1), several brief trips along the Curawasi valley road revealed no large terrace schemes. Terrace platforms at the Inca site of Saiwite do not have RPS, WS or WD features, although recessed staicases were used among structures beside the central carved rock.

# CHAPTER 6

## ETHNOHISTORY OF THE LIMATAMBO VALLEY: Social space of *tambos* on the road to Chinchaysuyu.

### 6.1 Introduction.

This chapter surveys documentary images of Limatambo in the early 16th Century. It seeks the association of landscapes near Pampaconga, Limatambo and Mollepata, with social groups and Inca institutions at the time of European contact.

The first section employs published *chronicles* and *visitas* to establish the early historic geographic and social setting of the Limatambo Valley. The second uses both archaeology and documents to locate the *tambo* of Limatambo. The *tambo* is used as a point of reference in a case study made to identify places and their late prehistoric occupants in surrounding lands.

#### 6.1.1 Toponyms.

Documentary sequences and present toponyms are used to trace spatial contexts through four and a half centuries. *Toponyms*, the written or spoken symbols employed to designate geographical features, assist the attribution of geographic meaning to historic narrative [Dyckerhoff 1984:233]. In Cusco they have been used to locate the probable location of sacred sites within the Inca *ceque* system [Zuidema 1981; Zuidema and Poole 1982:87]. Given the scarcity of early European topographic maps, land title papers provide some of the best

information for this procedure. Survival of toponyms is a product of their incorporation into script, maps and oral tradition.

Landscape features, like *khipus*, can operate as devices which assist the memory of a toponym and associated tradition [Vansina 1965:38]. This occurs frequently in the field and probably happened when chroniclers were collecting information about places in *the time of the Inca*. Greatest toponymic diversity is maintained by the residents of a locality. A community landholding has, among its residents, a multitude of names of river sections, mountains, ravines, fields, villages, ruins and rocks. Only some enter documents, but there are clear reasons for the retention and teaching of those which designate the landscape which sustains personal and community life.

Difficulties of linking oral and documentary toponyms are not confined to orthographic confusion of Quechua terms in the hands of Spanish scribes and errors in copying. These are dealt with as they arise. Many toponyms are repeated, usually because they describe a common topographic form. Sets of toponyms found in boundary documents are therefore important, particularly when the recorder visited and wrote a description of the landscape. It is also important to seek evidence for the continued use of a toponym from the early period of interest through to the present. Complete land titles are rare, but other documents of the 17th to 19th Centuries are useful in this regard. Many boundary markers were trees or other features which cannot be precisely identified. The objective is to obtain points of reference from which to use the directional clues and distances expressed in the source. Modern toponyms, even when they appear to have survived centuries in area, can never be assumed to apply to the exact space they symbolised in an historic document. A common

example is when one early Colonial toponym was adopted as the name of a *hacienda* and other areas with names were subsumed under it.

### 6.1.2 *Encomiendas* and Proprietary Interests in Land.

The *encomienda* or *repartimiento*, an administrative grouping of Indian peoples from whom tribute was obtained for Spanish *encomenderos*, Church and Crown, must be distinguished from landholdings (eg. *haciendas*, *estancias*, *chacaras*, *solares*) of the same name. The area of land in which people of an *encomienda* resided was usually massive by comparison with the blocks in which proprietary interests were granted by the Crown. Transactions and testamentary dispositions eventually led to the growth of some large *haciendas*.

### 6.1.3 Interpreting Facts in Legal Records.

Administrative documents are less emotive than chronicles but are not free of influence from the writer's purpose, position, perspective or even falsification [Stern 1982; Borah 1984]. Since many lists of boundary toponyms are contained in litigation records, it is necessary to consider whether that aspect was contentious and to assess partisan claims or allegations in such sources for what they are. Adversaries chose to present the information which suited their position and chose witnesses accordingly. Judicial and administative officials cannot be assumed to have been impartial and were probably least so when selected from local residents for minor judicial or executive roles. Nevertheless, much of the data in the chronicles and land litigation is descriptive and uncontentious.

### 6.1.4 The Setting of Two Tambos.

The chronicles contain an abstract geography in which sequential toponyms accompany events in time. A Spanish official, Cristóval Vaca de Castro, stayed in Limatambo long enough to write a letter during November 1542, only nine years after the Spaniards arrival in Cusco [Porras 1959:489-490]. In his *Ordinances* for the re-establishment of *tambos* of the time of Guaynacaba, he listed those along the route from Cusco to Los Reyes (Lima) via the Villa de San Juan de la Victoria (Guamanga or Ayacucho) [(1543) 1908:427-430, 442-445]. This list can be compared with corresponding data in the work of Poma [(ca.1613) 1980:1005] in the early 17th Century (Table 6:1).

Most toponyms in Table 6:1 exist as town names in the southern Peruvian highlands (Fig. 2:1). They provide a spatial framework for earlier references. Both Vaca and Poma classified the places represented by toponyms. Vaca separated the *ciudad*, the *tambo* with a *pueblo* and the simple *tambo*. Poma ordered them as *ciudad*, *tambo real* with a *pueblo*, that without a *pueblo*, and finally *tambillo*. Gonzalez Holguín [(1608) 1952:337,690] used the analogy of an inn (*venta o mesón*) to define *tampu* (tanbo or tambo). The Quechua word *tampu* was adopted into Spanish and its usage generalized. A better definition of the Inca *tampu* is open ended, like that of Hyslop [1984:277] who defines it as a state installation on a road, with lodgings and storage facilities and where many activities took place.

TABLE 6:1 Tambo Lists of 1543 and Early 17th Century

| Vaca de Castro | | Guaman Poma de Ayala | |
|---|---|---|---|
| Place | Description | Place | Description |
| Cuzco | (c) | (Cuzco) | (c) |
| Xaquijaguana | (t,p) | Xacxa Uana | (tr) |
| Limatambo | (t) | Lima | (tr) |
| Apurima | (t) | | |
| (Guarina) | (1) | | |
| (Apurimac River) | | (Aporima bridge) | |
| Curaguasi | (t) | Curi Guaci | (tr,p) |
| Abancay | (t) | Amancay | (tr,p) |
| Cabana | (t) | | |
| | | (Amancay bridge) | |
| Cochacajas | (t) | Cocha Caxas | (tr) |
| Curamba | (t,p) | | |
| (Curimba) | | | |
| | | Pingos | (to) |
| Andaguaylas | (t,p) | Anda Guayllas | (tr,p) |
| | | (Guanbo bridge) | |
| Uramarca | (t) | Oran Marca | (tr,p) |
| | | Lurun Marca | (to) |
| Vilcas | (t,p) | Vilcas Guaman | (tr,p) |

c = ciudad (city); tr = tambo real (royal tambo); p = pueblo (village);
t = tambo; to = tambillo (small tambo);
(1) see footnotes in Appendix VI.

6.1.5 Tambos in the Limatambo Valley.

Accounts of Francisco Pizarro's entry into Cusco assist the placement of more detailed toponymic sequences. An advance party with Soto met Indian resistance at *Bilcas* and again at a mountain *with an idol* named *Bilcaninca*. This lay about 5 leagues from Cusco, i.e. about 25 km [Hyslop 1984:296]). From here they went to a large town called *Xaqui-Xaguana*, on a plain, 4 leagues from Cusco [Estete (1535) 1938:389]. The Apurimac River was crossed using local rafts because the bridge had been burned. Pedro Sancho de la Hoz [(1534) 1917:165] supplied the first reference to a settlement on the Cusco side of the Apurimac, a *pueblo* called *Rimac*, one league from the river. The mountain camp of Soto, near Bilcaninca, was 2 leagues from the large town, named *Sachisagagua* [Sancho (1534) 1917:165; Pizarro (1571) 1978:78]. Pedro Pizarro wrote his account of the events decades later, probably with greater experience of the meaning and construction of Quechua toponyms. He named the mountain pass located on the edge of the plain before Cusco as *Vilca Conga*. Soto is said to have reached the base of a mountain and then to have completed half of the one-league climb towards a pass before engaging in battle [Pizarro (1571) 1978:77-79]. As in Estete's account of Bilcaninca, the group subsequently left Vilca Conga for Xaquixaguana and Cusco, although the pass was placed 10 leagues rather than 5 from Cusco [op.cit.:84]. The pass between Anta Pampa and Limatambo is now called Huillque and a peasant community along the foot road there is named *Huamán Chaccona de San Cristóbal de Vilcaconga*.

The *tambo* of Apurima was intended, under Vaca's ordinances, to be the principal *tambo*, wherein the official in charge of *Jaquijaguana, Limatambo, Curaguasi* and *Abancay* was to reside [(1543) 1908:459]. The *reducción* policy

had yet to be systematically executed, but the division of Indian populations into *repartimientos* had proliferated [Matienzo 1967:48-50; Lockhart 1968:11-48; Cook 1975; Hampe 1979:75-77]. Many old installations were already in disarray since Vaca ordered that where *tambo* buildings were destroyed, the materials be used to build new ones. Limatambo was specified as having too few Indians to be able to offer the full services required of other *tambos* [Vaca de Castro (1543) 1908:489-490].

The account of an oracle at a place called *Apurima* past *Vilcas*, by Pedro Pizarro, is of sufficient detail to suggest direct observation [(1571) 1978:81-82]. An associated myth which Pizarro could have collected at any time before writing, relates that the site guardian was a *sister* of the Incas called Asarpay who threw herself into the Apurima River near the Apurima Bridge. Aside from this general association with the river, no indication was given of the oracle's proximity to the *tambo* of Apurima. Cieza, upon crossing the Apurimac River, reports having seen the place where *aposentos* (lodgings) of the Incas were, and states that it was the place where an oracle used to be. He then went to the *aposentos* of Limatambo, the *Sierra de Bilcaconga* and Xaquixaguana Valley [(1553) 1984:256]. His use of the past tense suggests that his interpretation of the ruins was based upon independent information, possibly oral tradition at the place.

Later chronicles add little locational evidence to that contained in those written before 1560. The chronicle of the *Quipukamayoq* confirms that Francisco Pizarro arrived at *Limatambo* prior to ascending *Villcaconga*. The toponymic usages are chronologically uncertain since the initial relation of Inca record keepers, which took place in 1542, was edited in 1608 by Fray Antonio Martínez

[Collapiña et.al. 1974:56]. Poma, whose writing dates to the early 17th Century, did not include the *tambo de Apurima* among those he listed between *Xacxa Uana* and *Cura Guaci* (Table 6:1). It appears to have become unimportant to distinguish between the two main Inca installations found by earlier writers in the Limatambo Valley. Moreover, their toponyms were similar. This may have caused confusion. Pizarro translated *Apurima*, the oracle, as the Spanish for *the lord who speaks* [(1571) 1978:81]. Garcilaso, who was about 4 years old when Vaca's work was written, used the term *Rimactampu* (*tampu that speaks*) to designate *the* tambo of the Limatambo Valley [(1609) 1960: Bk.1, Ch.xx; 1-xxiii; 3-xviii; Durand 1960:20]. He had rationalized a meaning for the toponym *Limatambo* from his knowledge of Cusco Quechua (*rimay* = to speak), and states explicitly that Spaniards often pronounced or wrote the letter *l* where he considered *r* more appropriate [1960:Bk.7, Ch.iv].

The linear abstract geography, along the main route through the Limatambo Valley in colonial accounts, is distilled as follows:-

a. The Apurimac River and a bridge across it,

b. An *oracle* or cult site nearby, connected to the Asarpay myth,

c. The tambo of Apurima or Rimac, about a league from the river,

d. The tambo of Limatambo and

e. A steep ascent or mountain named *Vilcaconga*, with an associated idol, between Limatambo and a pass into the Xaquixaguana valley or plain.

### 6.1.6 The People and *Huacas* of Limatambo, and Relations with Cusco.

Chronicles and *visitas* permit a preliminary expansion of the linear geography into one of people in historical space. It is probable that social and physical space was capable of representation in the arrangement of *huacas* in a way similar to that described for Inca Cusco by Zuidema [1964]. Such organization was not to be confined to that place [Polo de Ondegardo (1571) 1917:52]. Some *huacas* in the study region were described, although there is no detailed listing to enable reconstruction of their conceptual arrangement.

The Apurima oracle and Bilcaninca idol can be compared with a description of known *huacas* of the *Provincia de Quichuas* in cases where the location is sufficiently indicated. Christóbal de Albornoz, in his guide to discovery of indigenous sacred sites, their caretakers and lands, advised that the places be visited and destroyed. *Huacas* he listed in Quichuas include:-

a. *Corauire*, a *cave on the flank of Uilcaconga*, described as a *huaca* of the *Pullacayra* Indians,

b. *Salcantay*, a *very high, snow-capped mountain, which was greatly revered*,

c. *Aporimac*, a rock, *of great superstition* [(ca.1584) 1984:206-207,217-218]

Salkantay, a peak rising to 6271 m, must have been most impracticable to visit. *Corauire* and *Apurimac* conform, by location (Bilcaninca) and name (Apurima), to sacred sites mentioned in the earliest sources. The detail added

by Albornoz is not surprising, since he knew the valley well enough to have purchased lands there in 1588 [2]. Previously unpublished documents show that the Pullacayra Indians resided on the northern slopes of the Limatambo Valley. The name *Rio de Pulla Cayra* was given to the Colorado River near Limatambo in 1579 [3]. During the lands inspection by Diego de Alcazar, in 1645, it was noted that the *ayllu Polla Caira* came from *Pampaconga* village [4]. *Pulla* is a current toponym used by Pampaconga residents for a cultivated area beside Site AL43 (Fig. 4:9, Plate 31). *Corauire* is not an extant toponym but a hacienda in the 1960s, between Pampaconga and Ayaviri community lands, was called *Curavire*. In 1646, *Cura-Mire* was a mountain of the Pampaconga village Indians [5].

Albornoz did not list any of these as *guacas generales*, a term he reserved for those which were provided to or imposed upon peoples by the Inca [1984:194,198]. Corauire and Apurimac may have been *huacas* of local social groups, like the *yllapas* (mummies) revered by a *parcialidad* (social division) or *ayllu* of descendants, or *pacariscas*, (*huacas* which were mythical places of origin) [op.cit.:196-197]. The same author describes Inca legitimation of control by the *rebuilding* or adorning of *pacariscas* and how *mitimaes* placed by the Inca to secure territory, were then given to the service of the *huaca* [op.cit.:198-199]. The acceptance of newcomers through their sufficient devotion to local *huacas* is not an unusual concept in Andean ethnographic literature [Bastien 1978:xxiv]. The *mitmaqkuna* were given to a new, but Inca, origin-place.

This procedure is apparent in foundation myth about Inca Cusco and its periphery contained in a highly structured part of the *Quipucamayoq* relation, likely to derive from early 16th Century oral tradition. The *first* Inca lord, Manco Capac, is said to have ruled the area within ten leagues of Cusco. This

domain was created by *acceptance* of Manco as son of the sun and of his idol and *second person* named *Guanacaure*, a common toponym but also a chief mountain shrine of Cusco [Collapiña et.al. 1974:29]. It is likely that Limatambo belonged to this conceptual domain.

6.1.7 The Citua Domain and Tilka Mountain, Mollepata.

During the Inca *citua* ceremony, described by Molina [(1574) 1943:30-31,143], it was first required that, all foreigners, all those with physical defects and all whose ears were broken leave the area within two leagues of Cusco. This is equivalent to the area which, in a myth recorded by Sarmiento, was depopulated by Inca Pachakuti so that lands could be appropriated for the inhabitants of Cusco [(1572) 1943:179]. Four groups assembled in a Cusco plaza and each marched out in a different direction. Those who went into Chinchaysuyu drove evil to *Salpina*, a league from Cusco, where the pilgrimage was assumed by *mitimaes* from Jaquijahuana. They in turn handed over to the *mitimaes* of *Tilca*. *Tilca* was described as being above *Marcawasi* and about ten leagues from Cusco and its *mitimaes* ritually disposed of the evil by washing in the Apurimac River [Molina (1574) 1943:31].

Tilka summit lies 2½ km northwest of Mollepata, 4 km from Markawasi settlement and Site AM1 and 6 km from Site AM6 (Figs. 2:3 and 5:1). Corresponding to the documentary description, it is about 60 km west of Cusco and contains a monument in Inca style (Site AM5). The toponym *Markawasi* is not a recent attachment to this landscape. In the 1560s it was used to designate a place attacked during the resistance of Tito Cusi Yupanqui and a place producing grapes which was about nine leagues from Cusco along the road

to Lima [Matienzo (1567) 1967:302; Garcilaso (1609) 1960:Bk.3,Ch.xix]. It is appropriately positioned in a map of 1786 [Aparicio Vega 1970: map 9].

*Tilka* is an uncommon toponym. It is not mentioned in the early Quechua dictionaries, unless it is a metathesis of *Ticlla*, a bicolour object, or variant of *Ttica*, a flower [Gonzalez Holguín (1608) 1952:340-341]. It does appear in one version of the name of a son of Huayna Capac, *Paulo Tilca Yupangue*, probably Don Cristóbal Paullu Ynga [Cieza (ca. 1550) 1985:200]. *Ticlla* appears as the name element of a Chanka captain charged with conquest of Antisuyu, in a 16th Century myth analysed by Zuidema for its possible representation of social organization [1964:103-106].

The Inca installation at Markawasi may be the *Rimac pueblo* mentioned by Sancho, and the *tambo* of Apurima listed by Vaca de Castro. It lay on the Inca road from Limatambo and is the equivalent of about a league from a likely bridge site on the Apurimac River (AM6). It is the only Inca site of a size, complexity, and degree of elaboration comparable with major *tambos* in the region, at Vilcashuaman and Ollantaytambo.

*Tilca* was mentioned in the list of *Indios y Pueblos* required to serve in the *tambo* of Apurima [Vaca de Castro (1543) 1908:443]. If Vaca's ordinances were, as intended, based upon replicating the Inca system of *tambo* service which had been disrupted for a decade, then the *mitimaes* of Tilka probably served at Site AM1.

6.1.8 Limatambo-Cusco Relations.

Mythico-historic accounts of Limatambo reaffirm its strong ties to Cusco. Garcilaso identified Mayu, Zancu, Chinchaypuquio and Rimactampu as towns *founded* by Manco Capac [1960:Bk.1,Ch.xx]. Cobo recorded a tradition that the *ninth* Inca, Pachakuti, built temples, forts and palaces in Vilcas, Huarco, Limatambo and Cusco on the model of those seen during conquest of the Titicaca region [(1653) 1964:82]. Only Garcilaso mentions that the Rimactampu *nación* was granted a privilege by the Inca, of the right to wear earplugs made from *chuchau* (a plant common in the low and hot section of Limatambo) [1960:Bk.1,Ch.xxiii]. It is not impossible that Garcilaso saw this adornment on his way to Lima in 1560, but the data are very general.

The *Corregidor* of Abancay visited the Limatambo valley, Anta, Chinchaypuquio and Curawasi in 1586, charged with a duty to enquire as to whom the inhabitants *belonged*, their customs and nature of government in the time of the Incas [Jimenez de la Espada 1965:I:87-88]. The answers were applied generally to the Indians living in the *reducción* towns of each vicinity. In Limatambo the towns were San Juan de Patallacta, San Sebastián de Pampaconga, Santa Ana Chonta and Santiago Mollepata, and the responses were given by two Spaniards of long term residence [6]. Limatambo Indians were said to have been *of the Inca and the sun*, governed by a head-man in each village. Tribute to the Inca included chili, maize and services including care of Inca livestock *for the guacas*. They had also fought the Indians of Quito [Fornee 1965:23-26].

The Sierra of Vilcas, said to lie beside Limatambo and 7 leagues from Cusco, was a traditional place of battle between the Inca contenders Huascar and

Atawalpa [Cobo 1964:94]. Highway thieves supposedly found armaments in coca baskets stolen while on the way through Limatambo and are said to have informed the governor of Chinchaysuyu (Apu Achachi) about a plot against Inca Guayna Capac [Cabello Valboa (1586) 1951:358-359; Cobo (1653) 1964:88].

6.1.9 *Mitmaqkuna* and *Yanacona*.

Garcilaso, in the probable addition of an oral or written source to his own memories of topography, asserts that in the *time* of the fifth Inca people from the coastal *nación* of Nazca were chosen to populate hot lands beside the Apurimac River. He said few were so settled because of the steepness and scarcity of land on the river sides, although its value for fruit production was noted [1960:Bk.3,Ch.xix]. This is interesting when taken in conjunction with the report by Fornee that Indians in the *reducción* towns of Chinchaypuquio, Zumaro, Pantipata and Pibil were *criados* of the Inca who had been brought in from other areas [Fornee (1586) 1965:22].

The term *criado* in its 16th Century usage was commonly applied to the *yanacona* who provided personal service to the Sun, the Inca nobility and cult of the deceased Inca rulers. However, *yanacona* was readily adopted as a term for servants or serfs of Spaniards [Zuidema 1964:225; Rowe 1982:98-101]. Here it is associated with transplanted peoples, usually known as *mitmaqkuna*. Espinoza [1973:233] interprets this passage as a reference to *yanacona* (*yanayacos*), suggesting that *mitmaqkuna* designated to work on Inca state or other lands could be also so described, whereas Murra defers to the need for clarification with more specific sources [1978:247-248]. Wachtel points out that in Yucay, but not the Cochabamba or Abancay valleys, further removed from

Cusco and sites of state lands, *mitmaqkuna* were referred to as *yanacona* in Colonial documents. Yucay contained numerous estates of Inca nobility [Wachtel 1977:169, 1982:219-221]. This implies that *mitmaqkuna* who worked on such private property may have been regarded as *yanacona*.

Greater spatial control is required to examine whether all inhabitants of the region were as directly tied to Inca institutions as the 1586 inquiry suggests. It has been possible to position the Pullacayra Indians and their *huaca* near Pampaconga and the Tilka mitimaes and *tambo* of Apurima near Mollepata. The study region, as far as the Apurimac River near Tilka mountain, pertained to a ritual periphery of Cusco. The *tambo* of Limatambo is described with little specificity in standard sources.

## 6.2 The Tambo of Limatambo.

Early background for the area surrounding the *tambo* of Limatambo is contained in the list of Indian *pueblos* which were required to serve in the resurrected *tambo* [7]. Some toponyms survive in much the same form today (eg. Parco, Chonta and Callaraca), and others can be traced through documentary sources (eg. Guallua, Patati, Guamaruru and Picoy). Following the Toledo *visita* of 1572, valley peoples were forced to occupy four Limatambo *reducciónes* named Patallacta, Pampaconga, Chonta and Mollepata [Miranda (1583):167-168]. With the exception of Patallacta, a 1586 description of their climate and topography fits well with the current location of towns with the same names [Fornee 1965].

6.2.1 Identification of Tambo Space.

In 1560 the *cabildo* (council) of Cusco decided to promote the reuse of Inca *tambos* by announcing the public sale of those which lay along the road between Cusco and Lima [Gonzalez P. 1981:266]. Land-title and litigation documents about the vicinity of Tarawasi shed light upon the Colonial toponymy, ownership and location of the *tambo* of Limatambo after this date [8].

The first *tambero* (tambo keeper) known in the area was Alonso Davila, accused in 1574 of trespass upon a six *topo* land holding of Doña Catalina Tocto Usica in the Valley of Limatambo [9]. She was the wife of Don Cristóbal Paullu Inca, a son of Inca Huayna Capac [Temple 1940:57-60,73; 1948:136-139; 1949-50:639,647]. A similar complaint was made against *tambero* Joan Balsa in 1577, when the trespassed lands, called *Hilpa*, were stated to bound with the *tambo* of Limatambo [10]. Two years later, in a formal grant of possession to *tambera* Ysabel Rodrigues, the *tambo* was said to comprise two large, ancient walls of the time of the Incas, a hut built on them and a *quadra* of adjacent land [11].

To resolve the dispute between Usica and the *tamberos*, the *caciques* of Patallacta, Pampaconga and *other places* in the valley were called to testify about ownership of lands near the *tambo*. They are recorded as having said that the terraces, *quadra* and walls had been *baldias* (vacant or uncultivated) since the time of the Incas [12]. Balsa, son of Rodrigues, was put in possession of most of the claimed land in 1582, and of the rest in 1588 following an agreement with the legal guardian of Don Melchior Carlos Ynga (Usica's grandson) [13]. These comprised *lands, an alfalfa field and huts below the high terrace of the royal tambo of Limatambo*. He was still owner during the *visita*

of Maldonado de Torres in 1594, when the lands measured a total of two *quadras*, about 1.93 ha [14].

By 1631, the property was part of that described as the *lands and houses beside the tambo of Limatambo, named Tarayguasi* [15]. It was sold in 1631, by the successors of Doña Luisa Gomez, to Licenciado Pedro Gomez de Espinoza. He retained it during the land inspections of Diego de Alcazar (1646) and Fray Domingo de Cabrera Lartaun (1656). It was subsequently donated to Nuestra Señora de los Remedios convent in Cusco [16]. Considered too small for profitable renting, *Taraguasi* was sold in 1668 to Licenciado Marco Antonio Fernandez de Antezana, who proceeded to construct some buildings on the small plaza of the site [17].

Until 1668 the small block around the *tambo* was under separate ownership to surrounding areas except for a period between 1582 and 1586 when Balsa bought terraces and valley side lands from Usica, only to later agree to resell them to her successors [18]. Fernandez incorporated the adjacent hacienda called *Llamatay-Lucre* into *Taraguasi*, extending it to a boundary with lands of the Indians from San Juan de Patallacta [19].

Records of the taking of possession by Fernandez include the description of a structure with niches, *like cupboards*, to the left of the road as one entered from the direction of Cusco. On this occasion, three crosses of different designs, depicted in the margin of the document, were hammered into stones on three corners of the structure and measurements were taken [20].

Crosses of the forms pecked in 1668 are visible on stones at the corners of the elaborate and niched retaining wall (Wall III) at the centre of the Inca site (AL11, Sector A) at Tarawasi (Figs. 5:7,5:8, Plate 56). The two large walls of Inca times, mentioned in early documents as situated at the *tambo* of Limatambo, can therefore be identified as Walls II and III at Tarawasi.

### 6.2.2 Historic Impact on Physical Evidence at Tarawasi.

A 19th Century description of Tarawasi was given in Squier's journal:-

*We then proceeded to examine the ruins of Limatambo. These consist entirely of terraces, built up in the manner of others that have been described. They are cyclopean in style, faced with finely cut stone, admirably fitted together; the surfaces even with the terraces being accurately cut and levelled. What has been spoken of by some travellers as a palace or temple is really only a terrace, with a niched wall; though a temple or some structure may once have been built upon it; but of this there are now no traces. The outer terrace is 20 feet high and 800 feet long, commanding the valley, which is here very narrow, so that it was probably intended for a fortification.* [1877:535].

AL11 remains much the same, apart from the staircase revealed by excavations [Franco and González 1937]. It was probably not a fort, since it occupies low ground with respect to adjacent valley flanks, but does lie at the top of a discrete area of terraces. The lowest wall of AL11 would have impeded valley-floor traffic by any route except the Inca road. The absence of Inca buildings or footings in the area is confirmed by surface survey.

Decaying buildings of Tarawasi hacienda are located in the northwest corner of the terrace retained by Wall II and ruins of other European structures are located in the southwestern corner. These could overlie Inca construction. The western staircase of Wall II rises to a level now covered by hacienda buildings. Worked stones from the Inca site were reused in them, especially in an arched entranceway and to fill the western staircase. A two-section European structure, like the design of the present buildings, was reported beside Wall II on the southern side of the royal road in 1668 [21], and its dilapidated state is detailed in a document of 1693 [22].

Archaeological work in 1934 comprised removal of vegetation and rustic buildings from the Inca walls and excavation of a 5 m wide, 24 m long trench to uncover the southeastern side of Wall III [Franco and Gonzalez 1937:67]. This had been buried to a depth of 3 m. The eastern and northern sides of Wall II were also uncovered from a deposit about 2 m deep by a trench 8 m wide and 102 m long. The evidence is consistent with the soil coverage having derived from the region of a cliff of red earth about 150 m southeast, on the side of Lambranwayqo. The eastern side of Wall III is the most damaged, and the southeastern end of Wall II appears to continue beneath the depth of excavation.

Much may have already been covered by 1668, because only three corners of Wall III were marked with crosses in order to designate a rectangle. The southeastern (buried?) corner was merely imputed. Earthquakes in Cusco during March and April 1650 caused landslides and road closure, but published documents do not refer specifically to Limatambo [Villanueva 1970b].

6.2.3 Prehistoric Features in Tarawasi Historic Records.

The impact of deposition and Colonial use of Tarawasi places importance upon early land-title descriptions as sources of site information. In 1579, Ysabel Rodrigues took possession of a *buhio* built on the site of the two Inca *paredones* (Walls II and III). *Buhio* appears frequently in 16th Century documents from Cusco, usually describing huts or insubstantial dwellings. Her land, found to have been about 2 ha in total, was bounded by [23]:-

(a) a stream on the Cusco side (the present *Ch'akimayo*, a toponym which first appears in titles dated 1756 [24]),

(b) stony lands on the bank of the valley's large river, called Pullacayra (the Colorado River),

(c) a large stone wall separating lands of Don Melchior Ynga (Wall I).

This is within AL11 Sector A (Fig. 5:7). Balsa, Rodrigues' son, took possession of a *casa* (substantial house?) during 1582, in the *cercado de Limabamba* (*Limabamba enclosure*, which aptly describes Wall II which rises above the terrace level) [25]. According to Usica's scripture of sale (1584), houses of Balsa lay a *harquebus shot's distance* from a cliff located between his land and her own. The cliff is probably the steep southwestern side of Lambranwayqo ravine. Hence, Usica's land was on the valley flank above the southeastern side of the *tambo*. Balsa's land extended, in one dimension, from the river of the Limatambo Valley to the *houses and large walls that were in ancient times of the Inca Indians that are on top of the tambo*; in the other dimension, from a boundary passing through some *ancient burials*, houses that used to be of *Colla mitimaes* and a point on the road (in the direction of Cusco, ie. northeast), and

across to a boundary with lands of Martín Dolmos and Melchior Inca (in the direction of Apurimac bridge, ie. southwest) [26]. Balsa's land included 3 terraces bounding with three terraces of Melchior (in AL11 Sector B), lands and terraces of Dolmos (on the southeastern slopes) and the royal road [27].

Land purchased from Usica in 1584 expanded Balsa's *tambo* holding onto southeastern flanks above the royal road. Its boundary followed the road to a stone called *Morocuxana*, then went uphill to *other boundary markers and edifices*, continuing to a deep ravine which descended to the *tambo below Usica's garden*. After crossing this ravine, the boundary rose to reach old houses and buildings of the Colla *mitmaqkuna*, referred to as a *población* (settlement). A descent was then made past the burials to the royal road and subsequently along the road to the enclosure, alfalfa fields, garden and houses built by Balsa [28].

Importantly, there appear to have been *Inca houses*, not just terraces on the Tarawasi site in 1584, as well as a *mitmaq* settlement and a cemetery which were used as landmarks on adjacent valley slopes.

The *Pulla Caira* River separated land of Captain Diego Maldonado from the *tambo* platform [29]. His land included Inca terraces at the confluence of the Colorado and Parqo rivers, opposite Tarawasi (Fig. 5:5) [30]. Balsa's houses were probably near the present buildings and ruins within AL11 Wall II. The houses and walls of the Inca Indians were said to lie in a direction opposite the river, suggesting that they occupied the extreme south of Balsa's terraces, near Wall III.

By the early 19th Century, Tarawasi was in disputed possession of the postal service [31]. This accounts for the toponym *Correocucho* recorded by Franco and Gonzalez [1937:68]. *Tarawasi* emerged around 1631, and although a fully Quechua toponym, may have derived from Spanish interest in the native *tara* tree (*Caesalpinea sp.*) for tanning. By 1693 *tara* stands could be seen from the arch and pillars of the horse stable entrance at Tarawasi [32].

## 6.3 *Incas, Yanacona, Mitmaqkuna* and *Llaktaruna.*

This analysis examines the early historic spatial arrangement of indigenous society surrounding the *tambo* and its relation to archaeological evidence from late prehistory.

### 6.3.1 Inner Space of the Tambo: Ylpa and terraces

Claims to land bordering the eastern and southeastern sides of the *tambo* are well represented in the Tarawasi Titles from the mid 16th Century onward. In September 1559, Usica received viceregal support for a claim to Indians and lands, executed a year later by *Corregidor* Polo. One claim was to a *chacara* (field or land holding) for chili production, called *Ylpa*, and to a *pueblo* of the same name with its *yanaconas*. These numbered about ten (adult men?) and the principal one was named *Yarochayco* [33]. Such villages had yet to be 'reduced' [34]. Usica alleged that the lands were an *inter vivos* gift from Paullu (i.e. made before his decease in 1549), and that Paullu did not declare the gift in his will because it was not customary for Indians to make scriptures recording such transactions among themselves. *Ylpa* is not a toponym included in Paullu's published will [Temple 1949-50:643], but Don Carlos Inca, son of Paullu and

Usica, included a garden and lands beside the *tambo* of Limatambo in his will of 1582. It was over 15 *topos* in area and bounded with fields of Martín Dolmos and with a stone boundary marker [op.cit.:646]. Carlos is known to have disputed Usica's title to Ylpa [35].

Usica's possession was formalized in 1560 at the *village and huts* named Ylpa, by having *Yaruchaico*, the *cacique*, obey orders in recognition of *encomienda*. The adjacent lands of Ylpa were described briefly [36]. They bounded the royal road, lands of Hernan Brabo in one direction, and those of Doña María, wife of 'Joan' de Olmos, in the other. Brabo was *encomendero* of *Picoy*, intended to be settled into a Spanish town of Limatambo Valley after the 1572 *visita general* [37]. Picoy *pueblo* was placed in service of Limatambo some thirty years earlier [38]. As a toponym or *encomienda* name, *Picoy* is tied to the direction northeast of the *tambo*, the upper valley and Anta plain [39]. The Dolmos lands were located southeast of the *tambo* [40]. They corresponded to the lands and terraces of Dolmos and Melchior Inca that were in the direction of the Apurimac River, by reference to lands of Usica which lay above the road [41]. Therefore they must have included the broad Inca terraces between the Colorado River and foot-road, descending from Tarawasi Wall I.

Melchior's terraces bounded Wall I. Dolmos' bounding lands must have been those on slopes above. Since Dolmos was said to have lands *and* terraces bounding the enlarged Balsa *tambo* holding in 1584 [42], it may be that his property extended down valley to include lower terraces of AL11 or even terraces of Rioja (Site AL12).

From 1584 the southwestern boundary of Ylpa, separating lands of the Patallacta Indians, can be traced closely to the present landscape. Documentary records of toponyms and boundary-mark sequences are summarized in Table 6:2 [43] and historic names and boundaries are marked on Figure 6:1.

The area today called *Ylpa* is at high altitude, not for the chili production with which the name was associated in 1560; this placement conforms to documentary references after 1656 [44]. *Ayaguayco* and *Murucusma* are no longer used, but fortunately the 1671 boundary check states that *Quebrada Honda de Ayaguayco* is the one also called *Yerbabuena*. In local toponymy, *Yerbabuenayoq* is a land area and small settlement beside a place where the valley floor becomes narrow, and where the cross-valley terrace walls of AL11 cease. In 1671 a cross was placed at the base of *Quebrada Honda* near the royal road. Yerbabuenayoq chapel, 10m from the the upper road to Limatambo and at the mouth of a gully, is resting place of a cross that nearby residents carry in procession to Limatambo during the Fiesta of the Cross in May. *Taruibamba* remains the name of a high altitude field along the top ridge of the southern valley flank, on a route between Tarawasi and Choquemarka. *Pilcopuquio* designates a field area between Limatambo town and Choquemarka, beside the flat of Maukallakta and a wooden cross overlooking Limatambo.

The boundary stone named *Murucusma* was probably a *huaca* of prehispanic times. *Muru muru* means something of different colours [Gonzalez Holguín (1608) 1952:252], appropriate to describe mottled conglomerate rocks beside the highway cutting at Quillabamba, near Tarawasi. *Cusma* refers to a type of clothing [Molina (1573) 1943:53]. Other sacred rocks with names incorporating *cusma* are known [Hernandez Príncipe (1621) 1923:29] and Albornoz noted that

TABLE 6:2 A Boundary of Ylpa

| Date | Place Described | Southwestern Boundary Sequence |
|---|---|---|
| 1584... | Ylpa | royal road - Morocuxana (rock in qda. near road) - up to boundary marks and edifices unnamed |
| 1603... | Llamatay etc. | royal road - Morocusma (rock above road - to 'heights', bordering land of Patallacta indians |
| 1645... | Llamatay, Lucre (& other names incl. Ayaguaico, beyond titles) | royal road below tambo - Morocusma deep qda. bounding Patallacta lands - puna of Taruipampa. |
| 1656... | Lucre, Llamatay, Ylpa, Guaichapampa, Ayaguayco etc. | royal road Cuzco-Lima - Morocusma (rocky crag in Qda. Ayaguaico) - up to end of qda. - up to Taruipampa puna and pass bounding lands of 1, Patallacta indians, 2, Montedoy. |
| 1668... | Lucre, Llamatay, Ylpa, Guachopampa etc. | (Essentially as 1656) |
| 1671... | Lucre, Llamatay, Quebrada Honda Yerbabuena | Taruipampa puna (heights) - down, with Montedoy land to left - down to where a cross put, where path in Qda. Honda - down to indian settlement (ranchos de vivienda) - down Qda. Honda to royal road where another cross put - up road to Morocusma. |
| 1698... | Patallacta village land (check of one boundary) | royal road to Cuzco - Murucusma (stone at roadside) - up qda. until molle tree on road to Patallacta village - up between two molles along ridge in straight line from Murucusma - up to top of Taruypampa; bounding lands of 1, indians 2, ex-Montedoy. |
| 1756... | Hacienda Taraguasi | royal road to Lima - Qda. Ayahuaco with Murucusma stone at start - up to end of qda - on same line to Pilcopucio - up to Tardepampa |

qda. = quebrada = ravine

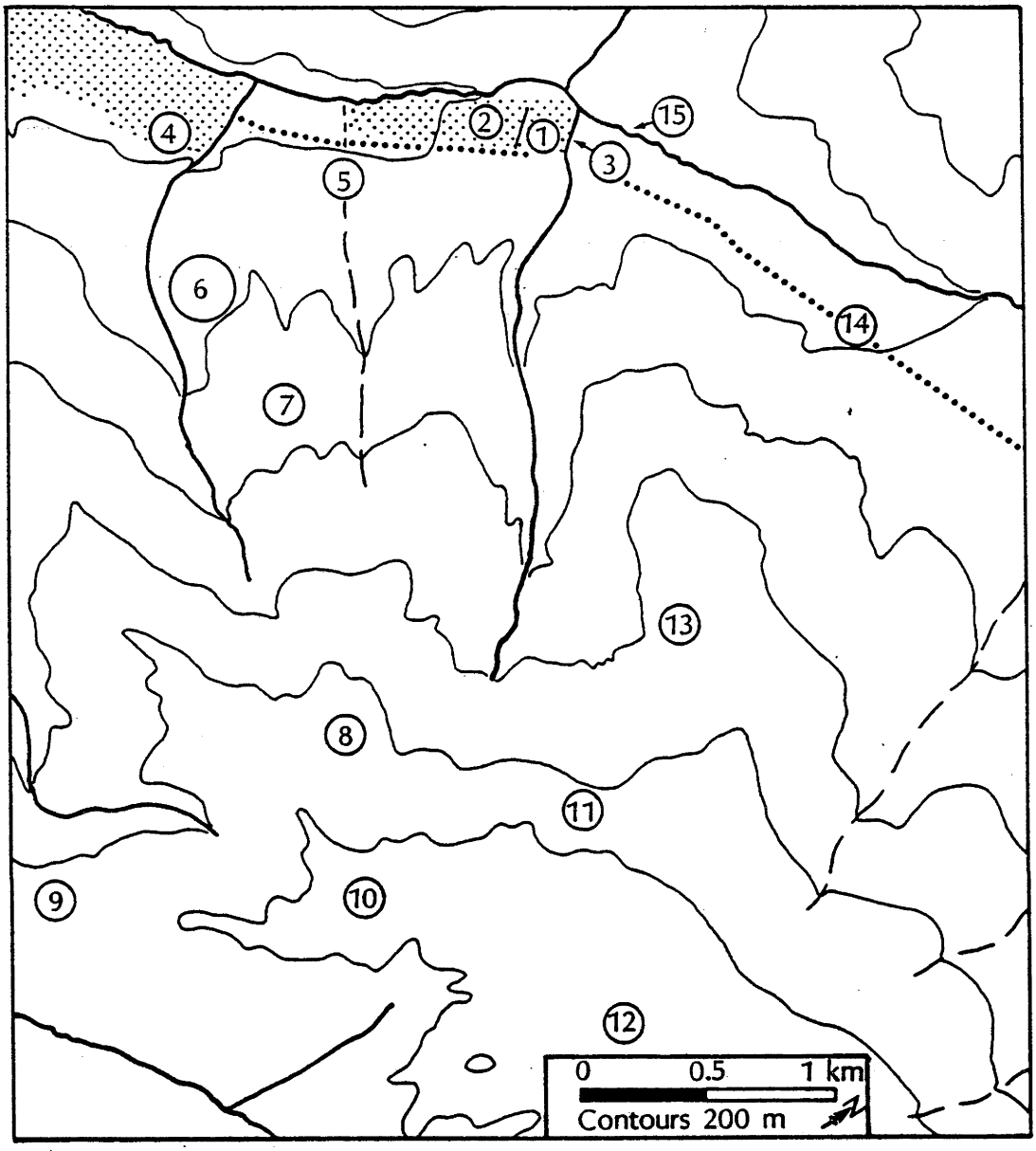



**FIG. 6:1 Historic Boundaries and Toponyms of the Tambo of Limatambo.**

KEY: 1. Tarawasi terraces (shaded) above Wall I (the *tambo*); 2. Tarawasi terraces below Wall I and the royal road (*Guaychapampa* - 1657); 3. Ch'akimayo Stream; 4. Present-day Limatambo town and Rioja terraces; 5. Yerbabuenayoq Ravine and Chapel (*Quebrada Honda-Ayaguaico* and probable site of *Murucusma* stone); 6. Maukallakta-Site AL25 (*San Juan de Patallacta* - 1572); 7. Pilcopuquio land-area (*Pilcopucio* - 1756); 8. Taruibamba land-area (*Taruipampa* - 1645); 9. Choquemarka village; 10. *Murusayhua Q'asa* Knoll; 11. Illpa land-area (*Ylpa* - 1559); 12. T'astachayoq Pampa (probably on *Sinquillay* Ridge - 1656); 13. Llamatay settlement (*Llamatay* - 1603); 14. Mollemarka settlement; 15. Colorado River (*Rio de Pulla Cayra* - 1579).

indigenous *guacas* had clothing of *cumbe* (fine cloth), called *capaccochas* [(ca.1584) 1984:217]. The latter term was mostly used to describe a ceremony similar, if not identical to *citua* [Duviols 1976; Zuidema 1982, 1983]. Clergy were instructed in the late 16th Century to destroy and replace *huacas* with crosses or chapels [Marzal 1969:95, 99-100]. The cross placed at Quebrada Honda in 1671 may have been more than a boundary marker.

The southeastern boundary of lands attributed to Usica ran from Taruibamba along Sinquillay ridge (1656-1671) in a northeasterly direction towards Pampaconga [45]. The northern border descended a ravine to near the site of the old Challabamba hacienda and chapel, beside the present road [46]. The northwestern boundary was the royal road [47]. 120 *fanegadas* were attributed to Usica's deceased estate in 1603 [48]. These were almost entirely valley-side slopes.

The chili field, village and *yanacona* property called *Ylpa* and claimed by Usica in 1559, could be the same as an unnamed 6 *topo* holding with *yanaconas* which she alleged was trespassed by a *tambero* in 1574 [49], and perhaps the garden separated by a cliff from Balsa's lands above the *tambo* in 1584 [50]. Her *yanacona*, Ataopoma *indio*, resided in the garden *behind* the *tambo* [51]. This is consistent with the presentation of Ylpa in the earliest description as a field for special production of a crop which prefers lower altitudes.

The 15 *topos* in Don Carlos' will bounded Dolmos' lands and a stone boundary marker, perhaps Murucusma. They were probably terraces below Wall I of Tarawasi. Three of these terraces were later attributed to his son, Melchior [52]. Four terraces belonged to Albornoz in 1603, and extended below Wall I as

far as Murucusma and lands formerly of Dolmos. The latter boundary was the canal of a mill, beside a terrace wall [53]. Remains of a water mill archway and circular andesite millstone lie near the river beside the southwestern retaining wall of Quillabamba field (Fig. 5.7). Four terraces here were measured in 1645 at 1 *fanegada* and 6 *topos* (with 11 *topos* to the *fanegada*), i.e. 17 *topos*. They bounded with a mill on a fifth terrace [54]. Twelve years later the area, named *Guaychapampa*, contained houses, a garden and four terraces which totalled *five terraces*. The boundary towards *Curaguassi* was still a mill-canal [55]. Firstly it is noted that the area of four terraces at 17 *topos* is similar in magnitude to Carlos' 15 *topo* holding. If Carlos had three terraces like his successor, Melchior, then the 2 *topo* discrepancy may be the area of the additional terrace. By the time the holding became known as Guaychapampa, the house platform may have been referred to as another, fifth, terrace within the same boundaries [56].

It is apparent that both a large area of steep land to the east and northeast of the Tarawasi ruins, and valley floor terraces of Inca construction to the southwest, were all claimed as personal property by Colonial Inca nobility through the original ownership of Cristóbal Paullu (Topa) Inca. It is stressed, however, that the disputes were enacted on the stage of 16th Century Spanish Colonial land law. Paullu could set up a right as son of Huayna Capac to special land or *encomienda* privileges, but his success in having any granted would have been primarily a function of his usefulness as perceived by the new structure of power. In documented instances he had received such privileges from authorities for the same reasons of reward, for services to the conquest, upon which claims of European conquerors were founded [eg. Temple 1940:45-48,55-56,65].

On the other hand, Usica's claim to Ylpa was inconsistent with the Spanish style rights of *mayorazgo* (like an entailed estate) claimed by Carlos and Melchior in succession. She had argued that it was an *Indian* transaction, without records, a claim unlikely to have impressed her progeny who belonged to a generation which only knew Colonial society. There are several areas of land or *encomiendas* which were recorded as having belonged to Paullu but for which there is no mention in published Spanish grants to him (eg. Limatambo, Episcara and Copacabana) [Temple 1940:47]. However, the lands of Episcara were spoken of as those of the Sun in an early document, with the storehouses of *Episcaracolca* for the produce so dedicated [57]. This indicates that those lands were dedicated to the cult rather than a living Inca noble prior to Paullu's possession. Proof that lands had belonged to the Inca or the Sun was customarily argued by Spaniards to establish their reversion to the Crown and hence availability for grant. Paullu's claim to Sun lands must be seen in the same light as contemporary conqueror's claims, rather than as claims based upon ancestral rights of a noble member to lands of his *panaqa*.

Yarochayco or some of the other *yanaconas* of 1574, or even Ataopoma of 1585, may have been attached to the small garden beside the *tambo* by a continuation or inheritance of prehispanic *yanacona* status. Neither of the named *yanacona* of Usica were mentioned using a Spanish baptismal name, distinguishing them from all other Indians referred to in the documents at this time. A possible reason is that the *yanaconas* exemption from tribute obligations, prior to Toledo's reforms, and service to the Colonial Inca rather than Spanish elite, relieved them of doctrinal influences. General servants of Spaniards would be expected to have come under strong influence to adopt their ways. The small number of *yanacona* in groups claimed by Usica is comparable

to those of from 2 to 30 persons claimed in 1552 by *descendants* of Topa Inca Yupanqui in other places around Cusco [Rostworowski 1962:153-159].

### 6.3.2 *Mitimaes Collas*

The site of Colla settlement, mentioned by Usica, is difficult to locate since it is unknown exactly what proportion of the 120 *fanegadas* attributed to her were included in the lands sold to Balsa (Baesa or Baessa) in 1584. The Colla occupation of the houses was put in the past tense, and the houses described as old, so it was not an occupied village in 1584 [58]. The area was resold to María de Esquivel within a month of purchase, before any separate measurement was made [59].

Three bounding sides, the southwestern border with Patallacta, the ridge above and the road below, remained the same during each transaction. Therefore the smaller block was included in the larger one left by Usica to three successors in her testamentary memorial of 1585 [60]. Albornoz bid 1500 pesos for the whole area at a sale in 1588, following Usica's death [61]. Balsa had paid only 230 pesos for the smaller western part in 1584, which indicates a considerable difference in quality or less than a fifth of the area. By 1589, in a compromise with claims by Esquivel, Albornoz was adjudicated two thirds and Esquivel one third of the 120 fanegadas [62]. The boundary between these two blocks was not the same as that separating the small area of 1584 which had the Colla settlement on its boundary. In other words, Albornoz took Llamatay and lands above the *tambo* from the Patallacta border across to the Quebrada of Llamatay. The latter boundary of Albornoz included some *corralones* (corral walls) *of the time of the Inca*, according to the final arbitration of

1603 [63]. The 1584 boundary on this side did not follow a *quebrada*; rather, it crossed over the high part of one, then rose to the old Colla houses, and descended from them towards the burials and then descended to the royal road before going to the houses of Balsa [64].

Two archaeological sites are located in the approximate area of this border. Both lie on the northeastern side of Lambranwayqo and comprise concentrations of stone-lined pits. The closest, within 1 km of Tarawasi, is at 2820 m on Chikchiera Pampa (Fig. 4:1, Site AL26). The Tarawasi site and Sondor valley are visible and stones are mounded on the peak of a hill 75 m to the east, probably as a boundary mark (Fig. 4:13). The second site (AL27) is 4 km from Tarawasi, 200 m from Llamatay settlement and at 3470 m beside *Cruzpata* on a track to Qerabamba and Churu (Fig. 4:12). Clear views are had to Salkantay, Wilkaray and Tilka summits, but Tarawasi is hidden in the valley below.

Usica had attached the ethnic terms *Colla* and *Inca* to other ruins in the 1584 document, but the burials were simply described as *ancient*. That she interpreted them functionally as burials could be a mere guess or inference from contemporary oral tradition. Perhaps bone was observable in the 16th Century. These sites merit further archaeological investigation.

Either site could have been the ancient burial place referred to by Usica because their direction from Tarawasi, placement on the valley flank, relation to ravines, and distance northeast from the opposite Patallacta boundary are in general conformity with the expected boundary location. AL27 is closer to the top ridge boundary and, since the following boundary-corner was on the road, it is probable that this point could be seen from the burials, making AL26 the

most likely candidate. The Colla settlement, which documents indicate was higher on the northeastern side of a ravine, has not been located. AL27 has no architecture or superficial artifacts consistent with a site of habitation, although it must be considered possible that the settlement was dispersed.

It certainly lay on a border of the block sold by Usica in 1584, and was inside the large estate attributed to her in 1603. This was regarded by all claimants as initially the property of Paullu. Therefore, Paullu must have taken control of lands which, in the prehispanic period, had surrounded the *mitmaq* settlement.

From early data, two Indian *pueblos* in service of the *tambo* of Limatambo were called *Aymara* and *Guallua* [Vaca de Castro 1908:443]. Both were of the same *encomendero* and may have occupied contiguous territories [65]. Given the placement of Guallua, discussed shortly, the Aymara probably occupied a sector northeast of the *tambo*. In this place today, the lands of a peasant community called *Ayaviri-Ninamanchi* bound with the eastern side of Pampaconga community along the old Limatambo-Cusco foot-road and with *Challabamba* on the valley floor. In 1656 a hacienda *Challabamba-Ayaviri*, of Santo Domingo monastery, bounded with the royal road to Cusco. Its boundary-marker, called *Chinchaypoya*, delimited lands of Indians in the *repartimiento* of Captain Martín Olmos (Dolmos) [66]. Dolmos' *repartimiento* extended in the opposite direction, towards Uratari and Chonta [67]. The monastery lands were probably the same which bounded with *Lucre-Llamatay-Yllpa* above the *tambo* in 1657, 1668 and 1671 [68]. In 1603 this land was said to be of Hernan Bravo, perhaps reference to prior ownership by the deceased *encomendero* of Picoy, or his namesake [69].

The relationship between the Colla settlement and Aymara village of the 16th Century, and the past and present toponym/anthroponym, *Ayaviri*, is apparent in space around the *tambo* and is consistent with the *mitmaqkuna* having come from a distant region. In the 1570 *visita*, an administrative grouping of Indians and a town called Ayaviri fell within the *Corregimiento* of Urcosuyu in Collao, i.e. in the Inca region of Collasuyu around Lake Titicaca to the south of Cusco [Miranda 1925:152-153]. People from this group were described for tribute purposes as Aymara and Uro [Toledo 1975:100]. Ayaviri, according to Matienzo, was near the northern limit of the territory of the Colla Indian ethnic group [1967:274].

The *Aymara*, resident in Limatambo before 1543, may have been Colla peoples from Ayaviri in Collasuyu who settled in the vicinity of the present area to which the name of their origin-place applies. Some may have resided in the houses of Colla *mitmaqkuna* brought to our attention by Usica. The lands surrounding their settlement were later acquired by Paullu.

6.3.3 Guallua.

Gently sloping and stony lands extend northeast from Ch'akimayo stream, between the old road and Colorado River to the start of a steep ascent to Pampaconga. They were not terraced like valley-floor lands of similar gradient at AL10 (Sondor), AL11 (Tarawasi) and AL12 (Rioja). A small area of eroded Inca terrace land is located where the Colorado emerges from a gorge between Wilkaray and Apaqchiray mountains, at Huertawayqo (Site AL7). Better preserved walls, with an Inca staircase feature, are found near the lands named Ch'anchu, Runkuwasi and Challabamba (Site AL8). These areas present some problems

because of the scarcity of 16th Century references to owners bounding Ch'akimayo. The starting point is again the Tarawasi Titles, but this time the spatial significance of toponyms was a matter of dispute.

Carlos Inca purported to cede a life estate to Usica, his mother, during 1562. It comprised a village of Indians and *estancia* (small-holding) called *Guallua (Gualla)* and was located *next to Vilcaconga*, a toponym which has been shown to point northeast (up-valley) from the *tambo* [70]. By the cession, Carlos hoped to secure for himself the reversion in lands that he complained his mother had given to Felipe Mangotupa, a brother [71]. Despite the apparent limitation of Usica's estate to a life interest, she included *Gualgua* with Llamatay and Ylpa in a testamentary disposition, so that it became the object of sale by her heirs to Albornoz in 1588 [72]. Melchior Inca, as Carlos' heir, took possession of *Gualgua* after 4 more years of dispute [73]. Albornoz then set about distinguishing *Guallua*, which he conceded might have pertained to Melchior, from Ylpa, which he argued was indeed of Usica's deceased estate. He emphasized that Guallua was next to Vilcaconga, *over two leagues from the Limatambo Valley* [74]. If taken as 10 km up-valley from the *tambo*, this arc touches the valley entrance near Huillque pass, marking an area that could include the Inca terraces at Chakllanka (Site AL2).

There is also some toponymic evidence that Guallua included upper valley floor lands closer to Tarawasi. In 1602, Albornoz listed the names of the *estancia*, gardens, lands and terraces claimed by him. These were Challabamba, Rocuguaci, Lucrigualla, as well as Ylpa-Llamatay [75]. The first two toponyms are known from Limatambo *Doctrina* in 1689 (*Challabamba, Runcouasi*) [Villanueva 1970]. They survive as toponyms in flat lands like those described in the

document. *Lucrigualla* may combine the toponym *Guallua* with a toponym more common in later years i.e. *Rucri*, *Lucri*, or *Lucre*. The sequence of usage of toponyms suggests that Guallua was in part substituted by the names Challabamba, Rocuguaci and Lucrigualla [76]. Lucre is only used now to designate lands at the base of the ascent from Challabamba to Pampaconga.

It is suggested that the present area near Challabamba, Runkuwasi and Lucre was within *Guallua* of the 16th Century. The Lucri/Rucri toponym, which dates to at least the first decade of the 17th Century, was appropriate to designate the area of terraces at Ch'anchu-Runkuwasi. Early Quechua dictionaries contain no reference to *Lucre* or *Lucri*, but *Rucri* was descriptive of terraces and the levelling used to construct them [77]. The 1km long strip of land ascending the valley floor from Ch'akimayo, between the old road and Colorado river, is apparently levelled but features earth canal-holding banks rather than stone retaining walls. *Guallua* cannot be traced with any detail to before the ownership of Paullu Inca but was probably the location of the Indian *pueblo* called *Guallua* that was listed in service of Limatambo by Vaca de Castro in 1543. Historic toponymy can only suggest that they resided within an area of 2 to 3 leagues (10-15 km) from the *tambo*, on the northeastern side.

6.3.4 Parqo and Sondor.

Historic data are scarce for lands adjacent to the *tambo* on the right margin of the Colorado River, especially to the south of Parqo stream. That area now contains smallholdings at the Parqo-Colorado confluence, lands of Mamako peasant group and those of Tomacaya community on the slopes above Mamako mountain. Grey andesite from Mamako was employed in the most elaborate

Inca structures of the valley and this must have entailed special Inca resource rights. However, Inca settlement is sparsely represented in the area. On the northern side of Sondor stream, terraced lands pertain to the Sondor hacienda (AL10 Sector A and AL51, along about 1½ km of the valley floor, between Sondor stream and an Inca road), as well as to the Sondor peasant cooperative (Site AL10 Sector B) (Fig. 5:5). The Inca road between them is approximately parallel to the Sondor stream and is part of the Inca terrace scheme. It ascends to Lechería Pampa, Quewincha and past Salkantay to the Lower Urubamba Valley.

Sondor and Tarawasi are connected by a short road which leads to a bridge across a canalized section of the Colorado river. Documents from 1756 mention an alleyway (*callejón*) of Ch'akimayo stream, in 1668 the *quebrada* or *callejón* to the haciendas of Sondor and in 1631 a road towards the houses of the successors of Don Joan Francisco Arías Maldonado (deceased) [78]. His father, Diego Maldonado, had been rewarded for his efforts in conquest with *encomiendas* before 1542 [79]. He was *encomendero* of two Indian villages listed by Vaca de Castro in the service of Limatambo, called *Patati* and *Parco*; elsewhere he is listed as first *encomendero* of *Sallauparco repartimiento*, which passed to his wife, and later reverted to the Crown upon her death [Toledo 1975:115,207-208]. Indians of this *repartimiento* were resettled by Toledo into a Limatambo Valley *reducción* [80]. Despite the Crown reversion, Toledo supported its inheritance by Joan from Diego Maldonado [81].

The toponym Parqo has survived in much the same location for four and a half Centuries. A document of sale, produced in 1870, contains copies of and references to much earlier documentation on Sondor [82]. During the Maldonado

de Torres *visita* in 1594 information was given about lands of the *Mayorasguía Diego Arías Maldonado*. The administrator, Captain Nuño de Mendoza, stated:-

> *Another the said mayorasgo has and possesses in Limatambo, some lands and estancias at a place they say is the seat of the macaconas and lands dedicated to the Sun. This hacienda has its own exclusive entrance, branching from the royal road to the right, straight, to come out at the alleyway of the entrance to the hacienda houses, of ten varas width with the appropriate fences at the sides and its stone bridge on the Bermejo River* [trans. KJH]

Mendoza said the lands were granted to Diego Maldonado by Francisco Pizarro for his services to the conquest, as recorded in a document of 7 April 1540 and a grant of possession on 15 May of that year. This documentation is the probable source for the asserted dedication of part of the Sondor lands to the cult of the sun. The reference to *macaconas* is probably an early copying error for *mamaconas*. The modern toponym *Mamako* may be a derivation from the latter word [83]. The *mamaconas* may have served the sun as producers of cloth and maize beer for use in Inca ceremony, economy and statecraft [Estete (1535) 1938:390-391; Santillan (1563) 1968:396; Molina (1573) 1943:27; Murra 1962; Morris 1974]. Sondor provides relatively large areas of irrigated maize land. The spatial relation of sun lands and *mamaconas* is logical and their placement across the Colorado River suggests that the *tambo* was a dispersed complex of institutions characteristic of Cusco and major Inca centres.

## 6.4 The Outer Core of the *Tambo*.

### 6.4.1 San Juan de Patallacta and Maukallakta.

Beyond the immediate boundaries of the *tambo*, the first objective is to locate *San Juan de Patallacta* village and shed some light on its Indian inhabitants. No town of *reducción* grid-design called Patallacta exists in the Districts of Mollepata or Limatambo and the patron of present Limatambo town is the *Vírgen de la Asunción*. *San Juan Bautista de Limatambo* was the name of the Parish including Limatambo and Mollepata used in Limatambo baptismal records dating from 1890 to mid-1922, and occasionally in other papers until as recently as 1958 [84]. A university essay by a student from the Valley [Ortega 1948:2,14] recorded that the statue of San Juan accompanied the *patrona* during a procession of 15 August, and a continuing oral tradition in the town which points to a place called *Maukallacta* (old town) as the site of previous settlement.

Patallacta was about the same distance as Pampaconga from the Colorado River (a quarter league, or just over 1km) and was on a slope [Fornee (1586) 1965:24-25]. Present Limatambo is situated only about 150 m from the Colorado River on a relatively flat area of Inca terraces on the valley floor (Fig. 5:9). Terraces beneath the town were probably agricultural land in late prehistory although elaborate Cusco Inca masonry walls on the town outskirts at Wallpawasi (Site AL12-7) indicate a site of importance, but not a large settlement.

Maukallakta (Site AL25) is a gently sloping cultivated area within otherwise steep lands 1km southeast of Limatambo town (Figs. 5:1, 5:12). It

conforms well with the likely location of Patallacta Indian lands specified in the Tarawasi Titles and with the distance from the river stated in the 1586 description by Fornee. Archaeological evidence suggests that an early Colonial Spanish town was placed on the location of an Inca pottery-using settlement at the site.

In the Tarawasi Titles references to San Juan de Patallacta commence in 1579 and cease in 1698 [85], but it was still used during a *visita* of 1712 [86]. By 1746 references are only made to Limatambo [87]. If the name change corresponds to a change in settlement location, then abandonment of AL25 dates to the first half of the 18th Century.

6.4.2 *Collanas* and *Chullanis*: Peoples of Patallacta.

Lands called *Choqquemarca* and *Pilcopucio* were claimed by *Choqquemarca Ayllu* in 1862 [88]. *Pilcopuquio* is the name of lands ascending to the east of AL25. *Choquemarka* is the small settlement of a peasant group with the same name, at 3600 m. and some 3.5 km southeast of Limatambo town (2500 m). It is perched in a saddle between steep ravines and its design is free from the rectangular grid of the *reducción* (Fig. 6:2).

During the Cabrera Lartaun *visita* of the mid 17th Century, lands called *Choquemarca* were claimed on behalf of two *ayllos* by Don Felipe Quiquin, referred to as Principal of the *Ayllo Collanas*. Possession was confirmed to Don Felipe of the *Ayllo Chullani in his name and that of the community of the town of Patallacta of the Ayllo Chullani* [89]. Two Indian social groups in Patallacta at this time were therefore the Collana and Chullani *ayllus*. Don

Felipe, in an apparent contradiction, was ascribed to the Collanas but represented both *ayllus*. This is explicable in terms of social structure. The dual division of Andean communities was recognized in the 16th Century. For colonial administration, the head (*cacique/curaca*) of the upper (*hanan*) division was made the *principal* of both the upper and lower (*hurin*) divisions. The head of the lower was largely autonomous, but known as *second person* [Matienzo (1567) 1967:20]. Don Felipe, as head of the Collana *ayllu*, could represent the Chullani *ayllu* if the former is considered *upper* and the latter *lower* of two divisions of Indians in Patallacta [90].

Two principals of Patallacta, Don Felipe Puique and Don Gaspar Tambo, testified about *tambo* ownership in 1582 [91] and were the *caciques* of Patallacta notified in 1589 of an obligation to provide two Indians for *mit'a* labour to the *tambero* [92]. Probably the same two people, Felipe *Puicon* and Gaspar *Tambo*, entitled *cacique principal* and *segunda persona* respectively, held lands within those of different *ayllus* at Uraca near Chonta in the lower valley during the 1595 *visita* [93]. Puicon's mother was a *Yanacona Ayllo* landholder in Uraca.

Once resettled in Patallacta, the two groups were identified by using the village name, although they were separated when convenient to the colonial administration. For example, the 1589 *mit'a* order demanded two people from Pampaconga, two from Patallacta and one each from Chonta and Mollepata [94]. The person from Mollepata was not provided and by 1591 the *Corregidor* changed the order so as to exclude that town's quota, but required three to come from the Indians of Patallacta *and* the Indians of Chuyane. The order was given to Gaspar Tambo [95], *cacique* of the Chullanis, but second person by reference to

Don Felipe of Collana. The Chullani had a separate identity, but it must have been the Collana who were spoken of as Indians of Patallacta. Were the Chullani group, in some way, less associated with that place?

Present Choquemarka community retains the name of that which in 1862 claimed lands at *Pilcopucio* near the site of old Patallacta. The village of Uratari lies 3km east of Choquemarka, on a ridge at 3900 m, across the Pisti River ravine. It has a similar layout and contains mostly adobe and thatch roofed dwellings of rectangular floor-plan. *Chuño* (dried potato) made there is said to have been exchanged for Choquemarka pottery.

During the Alcazar *visita* of 1646, lands and *punas* in Uratari were sold by the Crown to Alonso Baes. In 1689 they formed the Hacienda Uratari and by 1712 were part of the lands of *Uratary, Chuyani and Ilpa* of José de la Hermosa y Cisneros [96]. Baes intended to use the lands for livestock pasture, which conforms with the high altitude of present Uratari. The lands must have bounded with those of the Patallacta Indians because their *cacique* was summoned to be present at the possession proceedings. It was also a condition of the sale that no trespass be made on Patallacta lands [97]. When Uratari community was officially inscribed in 1977, its name was *Ayllu Chullani Patallacta de Uratari*. It seems likely that their social history stems from that of the *Ayllo Chullani* of the 16th Century.

It is tentatively proposed that, around 1533, the Collana *ayllu* occupied the place known today as Maukallakta (AL25) and surrounding lands, and had access to Cusco Inca pottery. The first Spanish village of 1572 may have taken the name of the Collanas' previous centre of settlement, *Patallacta*. It was

built on the same location, relatively low and near the *tambo*. The Chullani *ayllu* was from an area adjacent to, but also higher and further from both Patallacta and the *tambo* and was probably near present Uratari. They were represented at Patallacta as a result of *reducción* policy. By the early 18th Century, neither group lived on the old site of Patallacta.

Disease had depleted the indigenous population of all four Limatambo *reducciones* by 1586, but especially those of Patallacta and Pampaconga [Fornee 1965:24-25]. This, combined with development of numerous, dispersed and relatively small hacienda enterprises during the 17th Century, each demanding an Indian labour supply, would have affected the viability of *reducciones* in both indigenous and European terms. However, most appear to remain, in combination with small non-Spanish settlements which present an interesting avenue for historic archaeological research.

6.4.3 Pampaconga, Sondor and Parqo.

Patati and Parco *pueblos* of 1543 were found to be tied to lands of Maldonado *Mayorazgo* in the area of present Sondor. *Mayorasgo* land claims in 1594 were extensive. Boundaries rose along the Bermejo (Colorado) River for six and three quarters of a league to its *origin*, then along a snowy mountain ridge for six and a half leagues to Tomacaya Mountain, then finally descended a ridge for seven and a quarter leagues to reach the Sondor/Parqo-Colorado river confluence [98].

When *caciques* of Pampaconga presented titles to the Alcazar *visita* of 1645, the previous *repartición* was held to have left lands to the *Indians of the*

*Ayllu Inquilpata, Patato and Toma-Cajas* [99]. Land measurement was postponed because Maldonado *mayorazgo* also claimed them. Inquilpata was eighth of the twelve named land areas of this claim which lay on the right side of the Colorado river between the confluence and its headwaters [100]. In 1689 it was the name of an *asiento corto* adjoining *hacienda Runcouasi* [Villanueva 1982:210]. *Patato* might have been a version of the toponym *Patati*. *Toma-Cajas* probably refers to residents of Tomacaya mountain, a toponym listed in 1594 [101]. Tomacaya now designates high lands and a peasant group to the northwest of the Sondor-Colorado confluence.

The northeastern slopes of Limatambo Valley were also predominantly unterraced, with the marked exception of Chakllanka (Site AL 2), on the upper Colorado valley floor near Pampaconga. In 1582, three persons from the village were summoned to give evidence about the *tambo*: Don Juan (alcalde), Martín Arma (regidor) and Don Juan Yachai [102]. In 1645 there were 6 *caciques* in the village, who with 89 tribute paying Indians had been granted 373 *topos* of land; the town population included the Ayllu Polla Caira [103]. Village Indian lands were then remeasured at 856 *topos*, 556 of which were removed to the Crown. Within the remaining area, from which *caciques* could select lands, the Ayllu Chancas was also said to have lands [104]. It is possible that the 6 *caciques* represented social units or *ayllus* called Polla Caira, Chancas, Inquilpata, Patato and Toma-Cajas, groups 'reduced' into Pampaconga. The group most closely associated with the town was Polla Caira, and the Chancas appear as an adjacent *ayllu*, from the eastern sector of upper Pampaconga. *Billque* was listed as hacienda of Chanca Indians in a parish report from Zurite in 1690, a listing which followed that of *Tucucaca* (i.e. the Toqoqaqa limestone outcrop with caves beside Huilque mountain) [Villanueva 1982:200; Glave and Remy 1983:320].

References to the Chanca Ayllu here are post 16th Century and it is unknown if they were in any way related to the peoples so designated in Inca tradition. Historic *ayllus* of the same name are known in Huanoquite and distant Chucuito [Diez de San Miguel 1964:317; Poole 1984:134]. Tradition demarcates the conceptual boundary of Chanca influence as along the Apurimac River at the opposite end of Limatambo Valley to Huilque. It was at Apurima that the Chancas were said to have made sacrifices during their march on Cusco, and at nearby *Curaguaxi* that Inga Yupangue gave Tupa Vasco, Captain of the Chancas, a *palla* (Inca noble woman) for a wife when peace was made [Cieza 1985:137]. However, the Pampa de Anta, beside Huilque, is the traditional place of a battle between the Inca and the Chanca [Sarmiento 1943:192-196; Cieza 1985:130-133].

## 6:5 Synthesis.

Early Colonial documentary data and archaeological evidence are drawn together schematically in Figure 6:2. Apparent axes of *tambo* space are firstly the three watercourses with evidence of canalization, the Colorado River and the Ch'akimayo and Parqo streams. The *tambo* was also at the intersection of two relatively broad valleys and was placed along the Inca Chinchaysuyu road. The centrality of the elaborate sector of Site AL11 to the concept of the *tambo* may be indicated by the architecture of the three-sided staircase on Wall II. Its reconstructed form would bear great similarity to the an *ushnu* depicted by Guaman Poma (albeit inspired by Vilcashuaman pyramid) and to a staircase leading into the enormous *kallanka* of Inkallakta (Bolivia), which Zuidema [1980:344-351] argues was part of an *ushnu* complex.

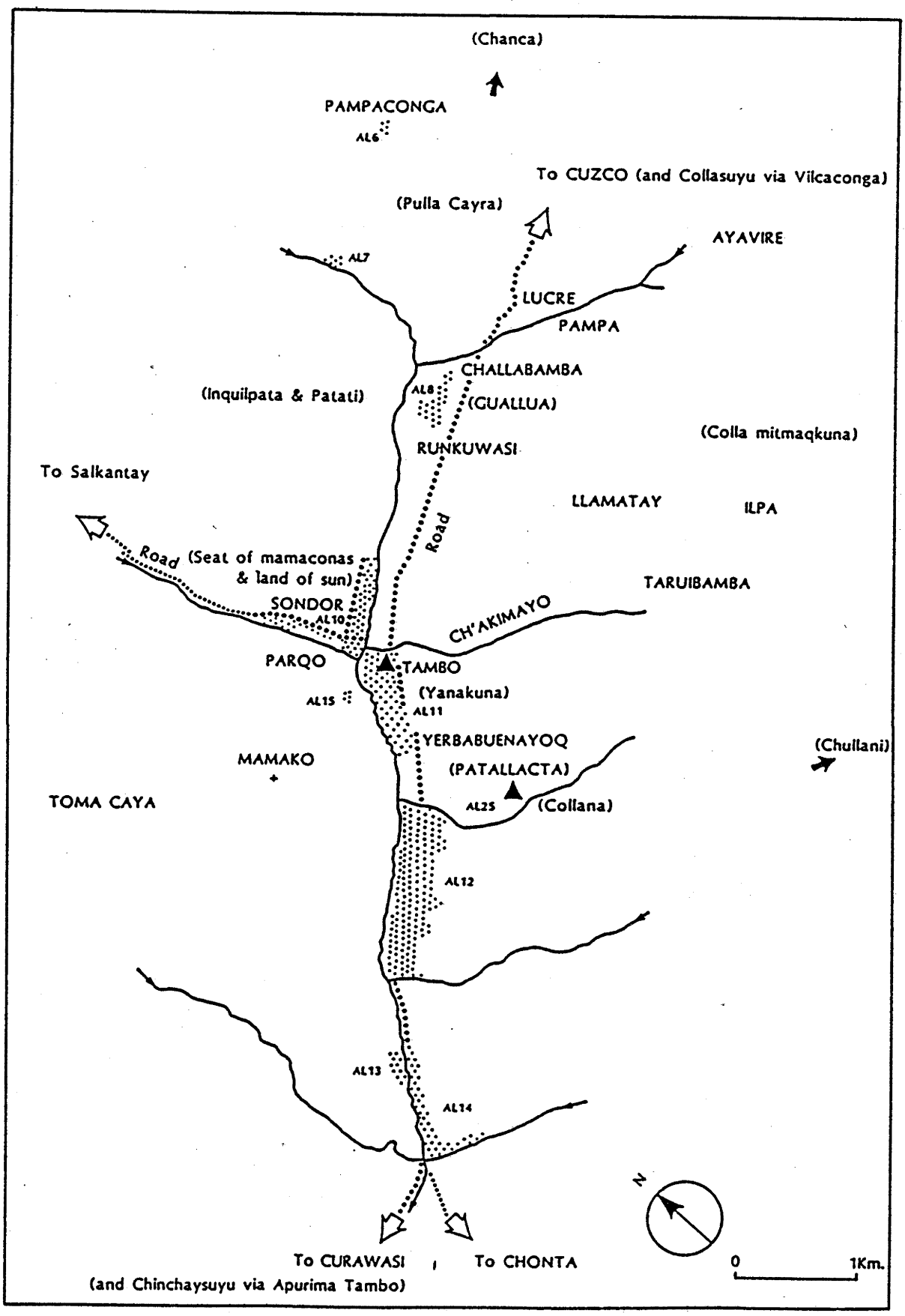



FIG. 6:2 Schematic Representation of Modern Toponyms and Historic Data (in brackets) Near the Tambo of Limatambo.

Early land claims in Limatambo by both Spanish conquerors and Colonial Inca nobility centred upon valley-floor terraced lands, incorporating those of the former Sun cult, *mamaconas* and *mitmaqkuna*. Evidence also suggests that some lands with *yanaconas* may have been formerly estates of Inca nobility. The relationship between *ayllus*, as local groups whose integration was probably expressed in kinship terms by reference to a *huaca* or *topographised ancestor*, and the Incas of Cusco, is seen in their physical distancing from the centre of Inca style construction at the *tambo*. Unfortunately, surrounding groups are unevenly documented.

Collana Ayllu Indians, probable inhabitants in late prehistory of a place later to become Patallacta village, were located close to the terraced valley-floor lands and elaborate Inca constructions at the high limits of Tarawasi and Rioja terraces. Their lands were contiguous with those of Chullani Ayllu, over whose *cacique* the Collana counterpart maintained precedence. Both were joined with *ayllus* of the Chonta area to form the *repartimiento* called Chullani.

*Collanan* is defined in Quechua dictionaries of the period as *first and principal, most principal thing in whatever class* and equivalent meanings [Santo Tomás (1560) 1951:192,267; Gonzalez Holguín (1608) 1952:642]. *Chuyani* (i.e. Chullani) according to Santo Tomás means *a licor which becomes clarified, to be without sediment* and *Chulla* is *odd, opposite of pairs* [op.cit.:272]. *Chullañaui* refers to a person blind in one eye, *Chulla Chulla* to *the uneven* and *Chhulla* to *a thing without companion amongst paired things* [Santo Tomás op.cit.; Gonzalez Holguín op.cit.:119].

Chullani Ayllu is, semantically, an odd companion for Collana Ayllu. An explanatory possibility is raised by the identification of lands adjacent to those of both the Collana and Chullani as having surrounded a Colla *mitmaq* settlement. The lands are steep but covered with relative flats and could be presumed to have been cultivated prior to Inca placement of *mitmaqkuna*. If a local group, extracted to make way for *mitmaqkuna*, were a moiety division of the group known to us as Chullani, the designation meaning *without companion* would make considerable sense.

Expropriation of *ayllu* lands for terrace building, placement of an Inca installation and production to benefit Inca purposes, was facilitated by removal of the original owners and their replacement with people who had no traditional ties to expropriated sections of land. This is shown in the 1555 testimony of a *cacique* about lands reclaimed by river canalization near Calca in the Vilcanota Valley. He said that Inca Topa Cusi Gualpa ordered provincial Indians carry out the works, after which they, rather than local inhabitants, planted and harvested produce for the Incas of Cusco [Rostworowski 1962:140]. Canalization has been archaeologically recorded in this area [Farrington 1983:223].

*Collana* occurs as an *ayllu* name, or part of one, with sufficient regularity to regard it as a generic term, rather than a repeated toponym. Zuidema has analysed such usages in many cases from the past and present of Cusco and Apurimac Departments, alongside its occurrence in a tripartite model of social and spatial division in Inca Cusco [1964:81-84, 114-122]. In the Cusco *ceque* system, 42 lines were conceived of as radiating from Qoricancha, the *Sun Temple*, each with a string of named sacred sites cared for by a particular group from

the settlement. Nine lines pertained to each of three out of four divisions called *suyu*, and 15 pertained to Cuntisuyu. An inherently structured Colonial account of the lines listed them alternately according to the generic ascriptions *Collana*, *Payan* or *Cayao* (or conceptually consistent specific names in a few cases). Three groups of 14 lines were so defined [Zuidema 1964:1-2; 1983:54].

The first line of Chinchaysuyu in a *collana* (*first or principal*) position in the sequence was called *Capac* (*royal*) [op.cit. 1964:4,76]. In Sarmiento's version of Inca origin myth, three of four brothers founded *ayllus*, the *Capac Inca* or *royal dynasty* being attributed to the often mentioned archetype, Manco Capac. Zuidema's theoretical reconstruction of the significance of these terms in Inca myth, posits *Payan* as secondary or in middle place in the hierarchy, associated with assistants of the Collana, progeny of Collana men and Cayao women, and with pre-Inca populations of conquered regions. *Cayao* is representative of the non-Inca or non-aristocratic population and of a marriage class from which Collana men could take secondary wives [op.cit. 1964:41-42, 76]. Therefore, the terms express kinship, social and political degrees of distance from the highest ranks of Cusco. *Collana* indicates the maximum prestige separation from the local *ayllu* level.

Zuidema [1983:54] has postulated that the term *mitimaes* used by Molina for peoples in the circum-Cusco *citua* area (used without reference to a place of origin), may have designated people granted privileges of rank by the Inca, and that *mitmaqkuna* around provincial capitals were of the same class [1983:54]. An ethnohistoric analysis of the Paruro region has found useful the tripartite

model of social and spatial division (Incacona or Inca nobility, Incas-by-privilege and dispersed local *ayllus*) [Poole 1984:97-98].

The status of the Collana Ayllu by comparison with Cusco Inca nobility is uncertain. However, their residence close to the Inca terraces at Rioja and the *tambo* indicates a special relationship with the Inca institution represented there. The documentary data are neither abundant nor specific about Rioja, but its archaeological characteristics are amenable to analysis on a regional level. The rapid European takeover of terraced lands and the archaeology of terrace systems around Limatambo show particular similarity to patterns in the Yucay Valley.

Conclusions.

It has been possible to identify two important Inca installations, described in early documentary sources as *tambos*, along the Inca road to Apurimac bridge in the Limatambo Valley. They are known as the archaeological sites at Tarawasi and Markawasi.

*Yanacona* were most closely associated with valley-floor terraced lands near Tarawasi, followed by *mamaconas*, *Colla mitmaqkuna* and the Collana Ayllu. The social landscape rapidly changed as Spaniards and Colonial Inca nobility claimed blocks of terraced and irrigated land. Some of these areas may have been estates of Cusco Inca nobility, but others were dedicated to the State religious cult.

The local populations residing nearest the *tambo* of Limatambo held lands on the southern valley flank bounding terraced lands. Tarawasi was centre of a *dispersed tambo complex*, which included the Collana settlement on the site called Maukallakta.

*Ayllus* surrounding Limatambo contributed services to the Inca State and cult. Inca style construction on their lands was restricted in area and concentrated in lower altitude and valley floor locations. Towards Cusco, the Pulla Caira Ayllu retained a sacred place, possibly a local or independent *huaca*. Towards the Apurimac River, Tilca mountain was part of a landscape ritually treated as a primary periphery of Cusco in the *Citua* ceremony.

# CHAPTER 7

## ETHNOHISTORY OF THE APURIMAC QUEBRADAS: Chonta, Pivil, Pantipata, Sumaro and Chinchaypuquio.

### Introduction.

The ravines between Chonta and the Chinchaypuquio Valley lay beyond both the Inca road to Chinchaysuyu and the main Colonial road from Cusco to Lima. They appear more remote in early chronicles than the Limatambo Area, but are relatively close to the Inca capital. The Chonta Sub-Region of Limatambo contains substantial Inca period settlements but little Inca terracing. Inca terraces and structural complexes occur in the Chinchaypuquio Area, but the terrace walls comprise only 12% of the total 38 km length recorded in the study region. What was the state interest in this region of steep ecological gradient and how did its influence differ from that along the main Cusco-Chinchaysuyu road?

### 7.1 Chonta.

#### 7.1.1 Social Units.

In 1543 the *pueblo* named *Chonta y Guamaruro y Surinta o Matara* was the *encomienda* of one Mazuelas and was listed by Vaca de Castro among those in service of the *tambo* of Limatambo [fn.1, App.VII]. During Toledo's *visita* of 1572 this *encomienda* pertained to Martin Dolmos. It comprised 952 people, with 164 tribute payers, and was named *Chuyani* [2]. Allocations of lands to the

Indians of *Caillohuano-Chayane, Uraca* were recorded during the *visita* and *repartición* by Maldonado de Torres in February 1595. They belonged to the *encomiendas* of Dolmos (Chuyani or Chullani) and Pedro Cisneros [3]. Cisneros was listed in the 1572 *visita* as the *encomendero* succeeding Juan Diez to the small *Olloguanca Repartimiento* which then had only 5 tribute payers, no leader exempt from tribute and a total of 33 persons [4]. Their populations were among those *reduced* into the Limatambo Valley *reducción* towns [5], almost certainly to the town of Chonta.

The social organisation of people in Chullani Repartimiento who were placed into Chonta is evident in records of the 1595 *visita* [6]. It lists only landholding individuals by name, within named social groups, in order of position (*caciques*, tribute paying men, boys, old men, widows, old women), and it names the lands areas where they have fields, the area in *topo* units, and the names of the bounding owners. The social groups and their number of members, in the order of listing and in the orthography of the typed transcript since no original of this document was studied, were :

1. (Y) Ayllos Yanaconas-Suteloy Huamanruro (an incomplete list of 5 women, plus 17 bounding owners who were not mentioned in other lists);

2. (IA) Ayllo Inga Amansaya (33 persons);

3. (IC) Ayllo Inga Chahuin (31 persons);

4. (IU) Ayllo Inga Urinsaya Sutic (51 persons);

5. (HA) Ayllo Huamanruro Hanansaya (39 persons);

6. (HU) Ayllo Huamanruro Urinsaya (34 persons).

There were 188 persons entitled to land plus an uncertain number in the Yanacona group. Blocks of communal lands were allocated to 3 groupings: The Ayllos Yanaconas, Ayllos Ingas and the Huamanruros (*Hawk Seeds*). Also, a special list of allocations were made of lands in the *pepinales* of Uraca Huaylla, to 30 *Hanan* (= Aman = Upper) Huamanruro members and to 30 *Hurin* (= Urin = Lower) Huamanruro members. These grants were small, given in *sillco* units equalling one quarter of a *topo* each.

The lands *granted* during the 1595 *visita* were already cultivable lands of the communities. The listing according to Andean social categories (Hanan = Upper; Chahuin = Middle; Hurin = Lower) shows that information was obtained by the Spanish registrar from local knowledge, even if the availability of land to choose was limited by external decree.

7.1.2 Relations between Chonta and Patallacta Ayllus.

The *principal cacique* in 1595, of all ayllu heads placed in Chonta, was Don Pedro Illatupa of the Inga Amansaya. The *second person* overall was Don Agustin Incacha, *cacique* of Huamanruro Hanansaya. Thus, the *upper* ayllu of the Inga and Huamanruro groupings took the chief positions.

The Collana and Chullani of Patallacta were also included in the Spanish Repartimiento of Chullani. The 1595 *visita* included a section which specified

lands in the Chonta region for the caciques of both Chonta and Patallacta. Notably, for the Repartimiento as a whole, Don Felipe Puicon, of Collana Ayllu in Patallacta, was named as principal *cacique* and Don Gaspar Tambo of Chullani ayllu in Patallacta was the *second person*.

It is uncertain whether the precedence of the Patallacta *caciques*, and their landholding in Chonta, about 10 km from Patallacta, was a prehispanic practice. However, there is some indication of more long-standing integration of the two areas. Felipe Puicon's mother, Marta Carluca, was listed as a landholder of the Yanacona Ayllu of Chonta and the wife of a Mollepata *cacique* retained rights to land as a member of the Yanacona Ayllu.

In Chullani Repartimiento the hierarchy of *ayllus* in 1595 appears to have been Collana (Patallacta), Chullani (Patallacta), Inga (Chonta) and Huamanruro (Chonta).

A 1791 document from Paruro Province, provides comparative data on the distribution of *ayllus* called *Collana* and *Yngacona* [7]. There were 12 Collana and 4 Yngacona *ayllus* in the 9 repartimientos of Paruro. 4 repartimientos contained a Collana-named *ayllu*, 3 included an Yngacona-named *ayllu* but no Collana, and one had both an Yngacona and a Collana *ayllu*, settled in different villages like the Collana of Patallacta and Inga of Chonta in Chullani Repartimiento. It seems reasonable to consider the *ayllu* names as indicative of a ranking system which was relatively widespread, although the practical significance of the terms is a question for further contextual information in each case.

### 7.1.3 Distinctions in Ayllu-Member Anthroponymy.

An approach to the *Incaness* of *ayllu* divisions is based upon the names of their members in the 1595 *visita*. This is only tentative associational data because the procedure for naming is not known and data on individual household members, like that in the Huanuco *visita* of 1562, are lacking.

Certain male name-elements, *Topa* and *Yupanqui*, and the female name elements, *Ocllo* and *Chimbo*, appear as recurrent generic names or titles of nobility in Inca myth-history [Zuidema 1964:129, 132, 236-238]. Their presence as elements in names listed under *ayllu* groupings at Chonta shows a distinctive pattern (Table 7:1).

TABLE 7:1 Inca Noble Name Elements in Chonta Anthroponyms (1595)

| Ayllu | Number of Persons with Name Element | | | | | |
|---|---|---|---|---|---|---|
| | Topa | Yupanqui | Ocllo | Chimbo | Total Named | % 'Inca' |
| Inga (Hanan) | 9 | 3 | 4 | 0 | 33 | 48.5 |
| " (Chahuin) | 0 | 4 | 0 | 1 | 31 | 16.1 |
| " (Hurin) | 1 | 1 | 3 | 0 | 51 | 9.8 |
| Huamanruro | | | | | | |
| " (Hanan) | 0 | 0 | 0 | 0 | 39 | 0.0 |
| " (Hurin) | 0 | 0 | 0 | 0 | 34 | 0.0 |
| TOTAL | 10 | 8 | 7 | 1 | 188 | 13.8 |

(excluding incomplete Yanacona listing; none of 5 had name element)

*Inca* names are present in all *ayllus* designated *Inga* and absent in Huamanruro lists. Their abundance also correlates with the hierarchy indicated by the terms for upper, middle and lower divisions. The association between *ayllu* and personal names is also found in earlier sources from the Cusco region. Documents from Yucay in 1558, list names of *Indios* (probably all men) in 15 *ayllu* groups within three villages [Villanueva 1970a:59-81]. The two *ayllus* called *Cuzco* in the villages of Yucay and Urquillos had the highest proportions of named members with *Inca* name elements (8 of 49, or 16.3%, and 3 of 40, or 7.5% respectively).

Anthroponymy has been used in *provincial* contexts, to examine Inca-local relations where languages other than Quechua existed [Salomon and Grosboll 1986]. The use of *mitmaqkuna* could also mean that anthroponymy is a reflection of ethnic origin or a mixture of ethnicity and status. In Huánuco Province in 1562, only 2 of 815 local Yacha *ayllu* members had these name elements (0.25%), whereas 41 of 1053 (4.0%) of the *mitmaqkuna*, from the Cusco and nearby Quichuas regions, had them [Ortiz de Zúñiga 1972:II:66-244]. The name-elements were absent in names of members of 37 *ayllus* and 3 villages or other units listed in Acarí Repartimiento of Arequipa in 1593 [Pease 1973:137-188].

7.1.4 Field Arrangement of Ayllu Members Land Plots in 1595.

Was social arrangement according to the Inga-Huamanruro division, or the Hanan-Chahuin-Hurin division significant in physical space? Since the bounding owners of allocated land blocks were usually listed, it was possible to reconstruct the relative placement of individual's contiguous plots within some

named field areas (Fig. 7:1). The outcome is that the plots of Hurin, Hanan and Chahuin division members were mixed.

In contrast, named field areas had a strong association with either the Inga or Huamanruro division, but rarely both (Table 7:2). All of the known Yanacona Ayllu allocations were in Uraca. Were the fields associated with each social group intermingled, or did they have separate agricultural territories?

7.1.5 Location of 1595 Field Areas.

Modern toponyms were obtained from field informants, the 1:200,000 and 1:100,000 National maps and a sketch plan made in 1944 for official inscription of Chonta Peasant Community [8]. Those which are similar or equivalent to 1595 toponyms are listed in Table 7:3 and their locations are marked on Figure 7:2. Further locational details are contained in the 1595 descriptions of plot boundaries (Table 7:4). These assist the placement of extinct toponyms. Four main areas can be discerned from spatially related field names.

The first area contained Casaca, Urubamba, Cotahuaycco and Cotayaco. These places were described by reference to toponyms which survive in the southwestern quadrant of Chonta (Moyoc, Llaktaki and the Bermejo-Apurimac river confluence). The first three fields contained only *topos* of Huamanruro members and 94% of *topos* in the last field were also Huamanruro.

The second area contained Copayllo, Quellon, Tauma, Tancar, Ninapampa, Tauripampa, Sayhuapata Hura, Antacirca, Antabamba and Chacaura. These were associated with toponyms which remain today in the southeastern quadrant of

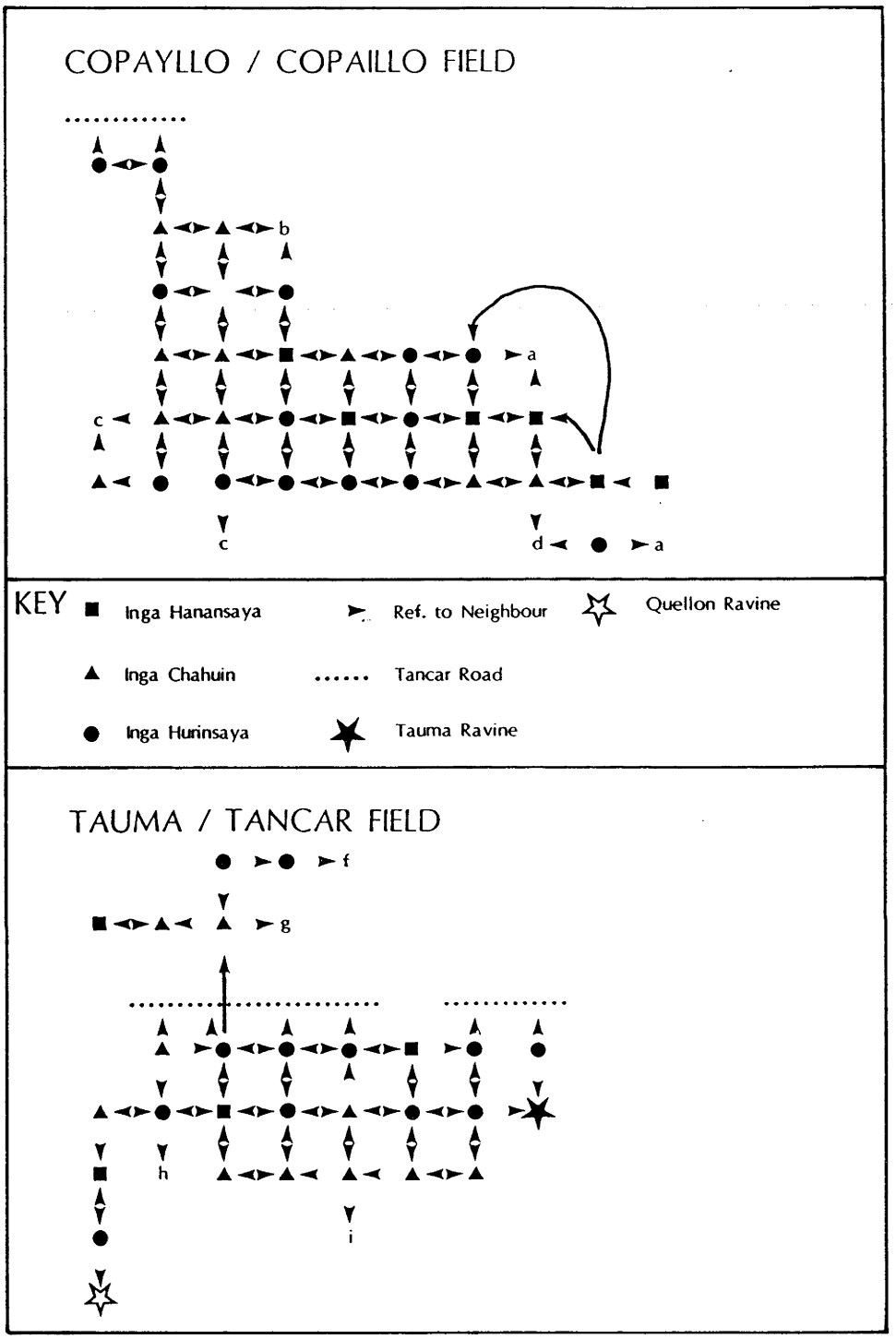



**FIG. 7:1 Chonta 1595: Distribution of Ayllu Members' Plots in Fields.**

NOTES: (1) Letters 'a' to 'i' are adjacent plot-holders whose names do not appear elsewhere in the Ayllu plot-holder lists. (2) References were insufficient to position one Inga Hurinsaya member in Copayllo whose lands bounded with those of 'e' (unknown) and the *sobras* ('excess lands').

TABLE 7:2 Topos (*) of Land of Inca and Huamanruro Ayllus held in Named Fields (excluding pepinales): 1595 Chonta Reparticion.

| Field Name | IA | IC | Ayllu IU | HA | HU |
|---|---|---|---|---|---|
| Acanca/Canca | | | | 7.0 | 4.0 |
| Anccaipahua | | | 2.0 | | |
| Antabamba (Cerro) | 2.0 | | | | |
| Antacarlina | | 1.0 | | | |
| Antacirca | 4.0 | | 1.0 | | |
| Auca (Quebrada) | 1.0 | | | | |
| Cabaniso | | 0.5 | | | |
| Capichantianca | | | | | 1.0 |
| Casaca | | | | 3.5 | 4.5 |
| Ccaccapampa | 1.0 | | | | |
| Circapampa/Circa/Cerca | | 3.0 | 1.0 | | |
| Cocapata | | | | 1.0 | |
| Collcam | | 1.0 | | | |
| Collchacohuayco | | 1.0 | | | |
| Copayllo/Copaillo | 6.0 | 11.0 | 16.0 | | |
| Corcapata/Corca/Corcapampa | | 2.5 | 7.0 | | |
| Cotahuaycco | | | | 1.0 | |
| Cotaya | | | | 1.0 | 2.0 |
| Cotayaco | 1.0 | | 2.0 | 30.5 | 18.0 |
| Cullcate/Ccolccati | | | 2.0 | | |
| Curcachuque | | | | 1.0 | 2.0 |
| Curcapampa/Curca/-Qda | 5.0 | 8.0 | 8.5 | 9.5 | 2.0 |
| Curcapata | | | | 2.5 | 2.0 |
| Curcayuqqui | 0.5 | | | | |
| Cuscapampa | 6.0 | | | | |
| Chacaorcco | | | 1.0 | | 0.5 |
| Chacarhuque | | | | | 1.0 |
| Chacaura/-pata/-Qda | 14.75 | 7.0 | 17.5 | 0.5 | 0.5 |
| Huascaychaca | | | | | 1.0 |
| Inchipampa | | 4.0 | | | |
| Luhuaychalenmitiasca | | | | 1.0 | |
| Lluichusaico | | | | 23.0 | 21.5 |
| Mollepata | | | | | 1.0 |
| (Table 7:2 continued) | | | | | |
| Ninapampa | 10.0 | 6.0 | 13.0 | | |
| Paccha/Ppaccha | | | | 5.5 | 6.0 |
| Pescoyapampa | | | | 1.0 | |
| Pillao | | | | | 1.0 |
| Pillaoccasa | | | 1.0 | 8.5 | 4.25 |
| Pillaohura | | | 1.0 | | |
| Pillauchuqui | 1.5 | 1.0 | 4.0 | 7.0 | 2.5 |
| Pucarapampa | | 1.5 | 2.0 | | 4.0 |
| Pucyupampa | | | 2.0 | 15.0 | 12.0 |
| Quellon | 7.0 | 11.5 | 22.5 | | 1.0 |
| Qquichusayco | | | | 1.0 | |
| Saunapata | 1.0 | | | | |
| Sayhuapata/-hura | 3.0 | 6.0 | 12.0 | | |
| Sinchihuaman | | | 3.0 | 2.0 | 2.0 |
| Tauma | 3.0 | 4.5 | 3.0 | | |
| Tauma/Tancar/Tauma-Tancar | | 1.0 | 2.0 | | |
| Ttancarpata | 1.0 | 4.0 | 7.0 | | |
| Tauri-/Tarhui-(pampa) | 8.5 | 14.5 | 18.5 | | |
| Urubamba | | | | 3.0 | 4.0 |
| Villumpe/Villampe | 2.0 | | | | 1.0 |
| Uracapampa | 1.0 | | | | |
| (Unknown Name) | 3.5 | 2.5 | 3.5 | 2.0 | 1.0 |
| TOTAL TOPOS | 83.75 | 91.5 | 152.5 | 126.5 | 99.75 |

(*) NOTES: The topo used by the visitador at Chonta in 1595 was specifically stated to be 72 varas by 72 varas; the Castillian vara was three Castillian feet (ca. 33 inches) or about 0.835 m. hence, the topo used was about 3614.4 sq.m.; the total area of cultivable land allocated to the 5 ayllus in the above list (554 topos) was 200.2 ha.

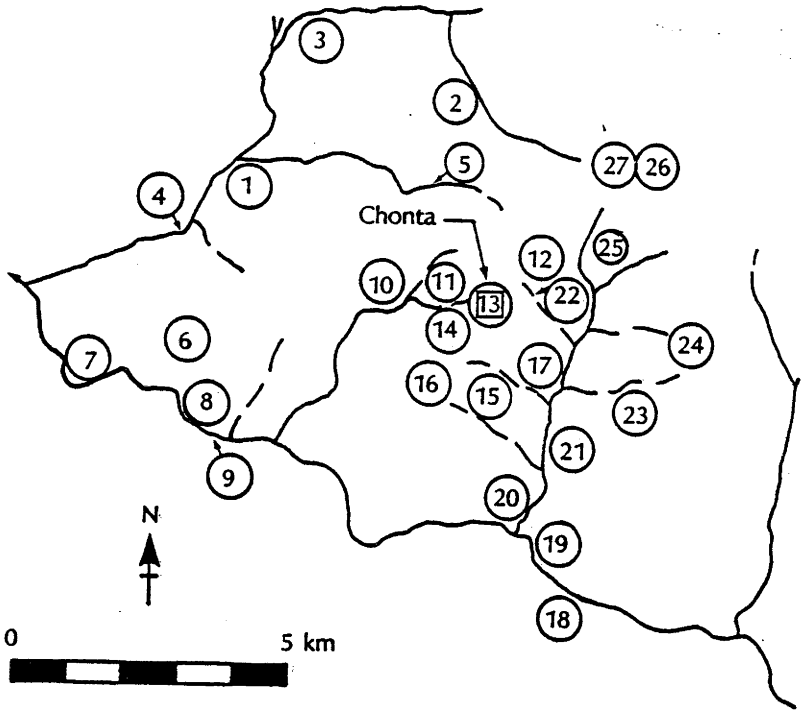



FIG. 7:2 Chonta 1595: Distribution of Modern Equivalents of Historic Toponyms. (Numbers are those given in Table 7:3)

TABLE 7:3 Modern Chonta Toponyms Related to 1595 Toponyms: (located by number in Figure 7:2)

| No. | Modern Toponym | Sources |
|---|---|---|
| 1. | Moyoc | A,B,C,D |
| 2. | Uraca | A,B,C,D |
| 3. | Pichuy Marca/Pichiumarca | A,B,C,D |
| 4. | Rio Bermejo | A,C,D |
| 5. | Quebrada Huaychahuaylla | C |
| 6. | Paco Bamba | A |
| 7. | Llaktaki | D |
| 8. | Inchic Pampa | A,D |
| 9. | Rio Apurimac | A,B,C,D |
| 10. | Puquiopampa | A |
| 11. | Curcapampa | A |
| 12. | Taulipampa | A |
| 13. | Chonta | A,B,C,D |
| 14. | Antabamba | A |
| 15. | Cerro Antasirca | A |
| 16. | Cerro Chonta | B |
| 17. | Tauma Pampa | D |
| 18. | (Fundo) Ccopa | C |
| 19. | Taunacopa | A |
| 20. | Puquioccopa | A |
| 21. | Quellomayo | D |
| 22. | Quebrada Pumapuquio | A |
| 23. | Ayrampo | A |
| 24. | Hacienda Callaracay | A,B |
| 25. | (Fundo) Quellon | C |
| 26. | Piaccasa | C |
| 27. | Pucara | C,D |

NOTES: A = IGN (1:100,000), 28r and 28q, 1967-70; B = IGN (1:200,000), Anta, 1946; C = Sketch Map, A.M.A.-Chonta, 1944; D = Field Survey, local informants, 1985-1986

TABLE 7:4 Information in 1595 Chonta Reparticion which Relates Toponyms

| Field Name | Boundary of Plot in Field Area (or Field Description) |
|---|---|
| CASACA | -descent towards Moyoc; descent to Huancahuaylla Qda.; ridge of Casaca mountain; |
| CHACAURA | -Mount Antabamba slopes and base; Pillau Quebrada; |
| CURCACHUQUE | -Paccha Mountain base; |
| CURCAPAMPA | -Sayuaurco Mountain base; |
| COPAYLLO | -Tancar Road; |
| COTAHUAYCCO | -Llactaqui Road; |
| COTAYACO | -Sayhuacunca Mountain slopes and base; Llactaqui Road; Llactaqui pata as far as Rio Apurimac; Descent to Rio Apurimac; pata of Rio Bermejo and descent to Rio Apurimac; |
| MAYCHA | -Below end of Uracahuaylla pepinales; |
| NINAPAMPA | -Quellon Road; Cabaniso Mountain; |
| PACCHA | -Callespucyo Qda.; descent to Curcapampa; pata at exit from Huamanruro; (next to old town of Huamanruro); |
| PUCARABAMBA | -Chacaura Qda.; Pumapuquio Qda.; Ynchisba/Inchisba Qda. and Road; |
| QUELLON | -Rio Quellon which delimits land of Callaracay, Pivil Road, Quellon riverbank; |
| SAYHUAPATAHURA | -Tauma lands; |
| SINCHIHUAMAN | -Descent to Chacaura; Descent to Curca Qda.; |
| TTANCAR/TTANCAR OR TAUMA | -Ttancar Road |
| TAUMA | -Ttancar Road; end of Tauma towards Quellon Qda.; |
| TAURIPAMPA | -Pivil road; Pomapucyo Qda.; Big quebrada that goes to Quellon; Descent to Ninapampa; Cabanisco Ridge; |
| URACA | -Huancahuaylla Quebrada; |
| URUBAMBA | -(pata, between 2 quebradas, that descends to Moyoc); |

Chonta. They were divided exclusively among Inga members, except Chacaura, where 98% of the *topos* were Inga. *Inchipampa* appears to be a borderline Inga field or outlier on the Apurimac bank.

The third area comprised fields named Pillao/-ccasa/-hura/-chuqui, Pucyupampa, Curca/-pampa/-pata/-quebrada/-yuqqui, Sinchihuaman and Pucarabamba. These names are associated with toponyms which survive between the first and second areas. They were near Chonta village, particularly the western outskirts, as well as on the mountain called Piaccasa or Pucara which lies at the highest point of Chonta community territory. In 1595 each of these fields contained both Inga and Huamanruro plots. Two fully Huamanruro fields, Paccha and Curcachuque, were also in the vicinity of Chonta village.

Uraca, the northern part of Chonta, was the fourth area. A large block (50 fanegadas) pertained to the *encomendero*, Martin Dolmos, and other plots were allocated to the Patallacta and Chonta Inga *caciques* and 5 women of Yanacona Ayllu. Huamanruro *pepinales* were also in Uracahuaylla.

The place of Uraca as an enclave of Spanish land ownership suggests that it may have been claimed as vacant *Sun* or *Inca* land, but there are no independent historic data on this point. The placement of *Yanacona Ayllu* landholdings nearby is also suggestive of the presence of Inca *yanacona*. However, at this late date, constituents of such a group were probably diverse and any people who were adult *yanacona* in late prehistory would have been at least eighty years old.

7.1.6 1595 Land-Use.

Inga and Huamanruro territories radiated out from the highest part of Chonta. Their common boundary passed through the vicinity of the *reducción* town and descended to hot riverine margins.

The 1595 *visita* specified little land cultivated at low altitude, on the Apurimac and Bermejo river margins. Pichiumarca, a sugar cane hacienda this century, was affected by *chucho* (fever, probably malaria) during a lands inspection of 1646 [9]. Introduced disease probably had a significant effect upon the choice of settlement and land-use locations, although cane-field labour worked there. *Copa*, in Chonta jurisdiction, was the site of an enterprise (*ingenio*) in 1629 [10] and certainly produced sugar cane by 1690 [11]. It appears that irrigable lowlands, suitable for sugarcane, were among the first expropriated from Chonta *ayllu* territory in the Colonial period.

One native crop cultivated near the Apurimac River is indicated by the toponym *Inchipampa* (Inchi-flat). Present *Inçhicpampa* is a small flat on the banks of the Apurimac river, near Site AL37. *Ynchic/Inchik* means peanut [12]. Other warm climate crops produced in the Limatambo Valley in 1586 included the fruits of *pakay, lucma*, passionfruit, *guayaba* (guava, *Psidium guajava*) and *pepino* (*Solanum muricatum*) [13].

The small size of 1595 plots at the *pepinales* of *Uracahuaylla* suggests they were a special resource. *Uraca* refers to a bird and *huaylla* to an untilled grassland or meadow [14]. Gonzalez Holguín (1608) translated *pepinar* as *cachunchacra* (cachun-field). *Cachuni* is *to eat green things, fruits, or that*

*which sounds in the mouth. Cachhucuni* is *to harvest or collect herbs* and *cachhu* means *the forage and food of animals, (or) yuyo, that of men* [15]. *Yuyo* now usually means *Brassica*, an introduced plant which is collected for food but not cultivated. It may have applied more widely to 'casually' collected herbage in the 16th Century. However, *Yuyochacara* was a translation given by Santo Tomás, in 1560, for the Spanish word for *garden* [16]. The *pepinales* were probably for cultivation of vegetables or fruits.

7.1.7 Historic Information and Late Prehistoric Settlement.

Francisca Pasña and Pedro Ticllabillca were allocated *topos* in 1595 beside the *old village of Huamanruro*, in Paccha field. All Paccha cultivators were Huamanruros. The plot of Juana Villacarba bounded with a *pata* (bench? high flat?) which descended to Curcapampa. *Curcapampa* is a toponym which survives on the western side of Chonta village.

Four days of reconnaissance and land measurement were carried out by Diego Enrriquez de Morales during the Alcazar *visita* in 1646 [17]. He noted that there were *ancient stone walls* near Sayhuaconga-orcco, a place he described as lying between a ridge and pass, and Pacobamba (Table 7:3). Juan Perez de Vargas mentioned *redondes* and *rings of stone of the time of the Incas* during an inspection of Hacienda Cotayaco in 1650 [18]. They lay near a pass which led to the *Moyoc River*, down *Accopata* ravine, and to the Apurimac River, beyond *Pacopampa*. The archaeological features described by Enrriquez and Perez were probably the walled fields in Site AL34 but they give no indication of their use at the time.

The *Llaktaki Sites* (AL37 and AL45) lay within Huamanruro lands in 1595. AL40, at Qopa, was within Inga Ayllu land, but AL39 and AL41 were in *Callaracay*, a land area separated by the Quellon River from that of concern to the 1595 *visita*. The Inga Ayllu may already have been divested of lands which were distant from the *reducción*, especially given the early Spanish interest in Qopa.

The available data is too late to permit the identification of actual Inca *mitmaqkuna* in Chonta, but it is possible that some descendants remained. Inchipampa was worked by Miguel Napute Yunga, of Inga Chahuin Ayllu in 1595. The name *Napute* is very unusual for the area, and *yunga* is a term which was commonly applied in the 16th Century to the hot lowlands and its inhabitants, particularly those from the coast of Peru [Cieza 1984:124, 142].

7.1.8 Summary.

The Chonta and Guamaruro *pueblos* (peoples or villages) in the service of Limatambo in 1543 may have been ancestral to the Inga Ayllus and Huamanruro Ayllus which were distinct at the end of the 16th Century. The other *pueblos* of Mazuelas' *encomienda, called Surinta o Matara*, are not traceable in the Chonta region. They may be terms for peoples of Chullani *encomienda* who occupied the eastern side of the Bermejo-Colorado River between Chonta and Limatambo. The Ingas and Huamanruros had access to the full range of local production zones, although the lower ones were rapidly expropriated following conquest. Cusco Inca pottery is common at late prehistoric villages of Chonta situated in low-altitude resource zones near the western margin of Inga territory. On present data, it appears to be scarcer in Huamanruro territory.

7.2 Callaracay - Pivil.

The Inga's eastern neighbours, a group called *Callaraca* in 1543, were also placed in service of Limatambo [19]. The *encomienda* of these people had passed from Ojeda to Gomez de Tordoya before the Toledan *visita* of 1572 [20]. It was then called *Callaracay* and had a population of 123 persons of whom one *cacique* was exempted from tribute obligations. This size and arrangement suggests it was a group similar to the Inga or Huamanruro of Chonta.

Miranda's summary of the Toledan *visita* states that people of Pantipata and Callaracay *repartimientos* were resettled in a town named *Nuestra Señora de la Encarnación de Chinchaipuquio* [21]. People from the nearby Apurimac Valley *repartimiento* of Chinchaypuquio were resettled in two towns called *Sant Anton* de Chinchaypuquio and Nuestra Señora de la Visitación de Sumaro [22]. There are no longer two towns called Chinchaypuquio. *La Encarnación Chinchaipuquio* was probably renamed *Pantipata* because the patronal prefix *La Encarnación* was attached to Pantipata village by 1586 [23].

Callaracay inhabitants were probably not resettled in Pantipata. Another Spanish *reducción*, *Santiago Piuil*, was not mentioned in the original Toledan plan but had emerged before 1586 [24]. It was much closer to the lands of Callaracay, as suggested by the location of a recent *hacienda* of the same name and by reference to its placement on the boundary of Chonta territory in the 1595 *visita*. In 1690 Pivil village comprised 150 *originarios* (local people) and 263 *forasteros* (people from other parts). *Hacienda Callaracai* produced wheat

about a league from the town, *Huancariri* was crop and pasture land above, and *Cocha* was a sugarcane *hacienda* below [25].

Sites AL49 and AL42 were probably located within the lands of the Callaracay group in 1543. The latter site does not contain ceramic or architectural evidence of strong Inca influence in late prehistory.

7.3 Pantipata.

Pantipata Repartimiento was not mentioned by Vaca in 1543 and was probably beyond the catchment for service at Limatambo. Its 1572 population was 823 and two *caciques* were exempted from tribute [26].

Only a very incomplete copy of the 1595 *visita*, a summary dating to 1697, was examined [27]. It named the *cacique principal* of Pantipata town, and 9 others called *caciques* of *parcialidades* and *ayllus* of the Palomino *encomienda* [28]. There was a Hanan-Hurin division, since the place named *Cancaocassa* was described as containing a large boundary stone of the *indios Hanansayas*. Pantipata was of a size and complexity of organisation comparable with Chullani Repartimiento.

The 1595 *visita* listed 28 boundary markers or boundary toponyms and 11 field names. Some of these are sufficiently similar to existing toponyms to permit a general assessment of Pantipata territory at the time (Table 7:5, Figure 7:3).

TABLE 7:5 Pantipata Toponyms of 1595 and Modern Correlates (located by number in Figure 7:3)

| | 1595 Toponyms | | Modern Toponyms |
|---|---|---|---|
| No. | Toponym | Order in list of borders | (Source: IGN 28r) |
| 1. | Cancao Cassa | ( 1) | Cerro Cancaro |
| 2. | Acocalla | ( 2) | Cerro Acocalla |
| 3. | Vaina Pincollana | ( 9) | Cerro Pinculina |
| 4. | Tincoc | (13) | Tincoc |
| 5. | Chivairu | (15) | Quebrada Chihuaurco |
| 6. | Rocotto Pucyo | (18) | Rocoto |
| 7. | Carcoc Cassa | (20) | Carco |
| 8. | Vaman Ruro | (21) | Cerro Huamanruro |
| 9. | Oscolla Cassa | (22) | Oscolloccasa |
| 10. | Samanca | (separate field name) | Samanca |

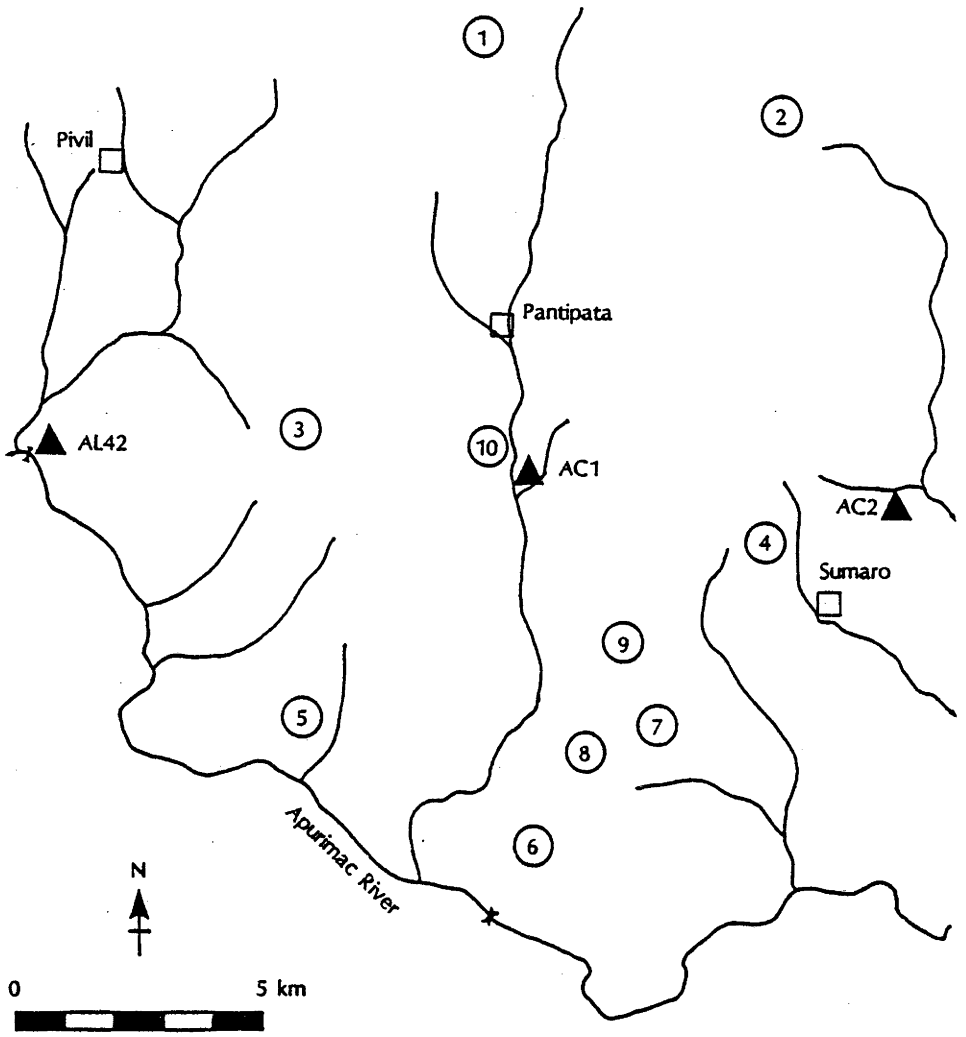



FIG. 7:3 **Pantipata 1595: Distribution of Modern Equivalents of Historic Toponyms.** (Numbers are those given in Table 7:5)

Spanish ownership had almost certainly reduced Pantipata lands by 1595. No Spaniards were reported by the parish priest to be residents of Pantipata in 1690, but Yvinbamba, a sugarcane *hacienda* notable for fruit gardens, was said to be the residence of an entire Indian *parcialidad* (group) [29].

Inca Site AC1 lay in the centre of Pantipata territory, at an intermediate altitude for the area. Broad valley floor lands at higher altitude were not terraced. Such lands were unavailable along the narrow section of the Pantipata river gorge at lower altitude.

## 7.4 Chinchaypuquio.

### 7.4.1 Social Units.

Chincha y Puquio Repartimiento had a population of 2758 persons in 1573 and was the second largest in the *Corregimiento de Abancay*. Six *caciques* were exempted from tribute [30]. It had been *encomienda* of the Monastery of Santo Domingo (Cusco) but was vested in the Crown more than a decade before Toledo's *visita* [31]. The towns of *reducción* for these people, Sant Anton Chinchaypuquio and Sumaro, were established by 1586 [32]. The large population and number of tribute exemptions suggest that this *repartimiento* incorporated several major territorial groups of the kinds found in Chullani.

The *doctrina* (parish) of Chichaypuquio and Sumaro was subject of a report in 1689 [33]. Chinchaypuquio contained 7 Spanish *haciendas* [34], 8 *estancias de indios* (described as *punas* for potatoes and pasture) [35], and 12 *ayllus*. The latter were divided into *parcialidades* of 6 *Hanan* and 6 *Hurin ayllus*. There

were 7 more *haciendas* in Sumaro, with names indicating placement on the boundary with Pantipata lands [36], and 2 *punas* of Indians with pastures [37]. Four *ayllus* were listed in Sumaro, without information on their social organisation [38].

A petition was presented in 1699 by the *caciques* of Sumaro and Chinchaypuquio to the lands inspector, Don Francisco de Elso y Arbizu [39]. They claimed that Tamborada Hacienda had encroached upon their territory. The Hacienda based its counterclaim upon changes in ownership allegedly confirmed in the *visitas* and *revisitas* under Francisco Ramires del Saz, Diego de Alcazar and Domingo de Cabrera. The *caciques* founded their position upon the earlier *repartición* by Maldonado de Torres and therefore presented that information.

The *caciques'* petition of 1699 contains a summary of the lands allocated to them by Maldonado de Torres which had since been affected by the expansion of haciendas. The *ayllus* that received the allocations were listed. Comparison of the information from 1595 with the *ayllus* listed in 1689 shows that the former list of lands was ordered into Hanan and Hurin *ayllu* holdings, although that social division was not explicit (Table 7:6).

7.4.2 Location of 1595 Lands (according to summary of 1699).

Descriptive information on the *ayllu* field toponyms and their associations with modern toponymy indicate the probable distribution of Indian lands in the late 16th Century (Table 7:7, Table 7:8 and Figure 7:4).

TABLE 7:6 Chinchaypuquio Ayllu lists of 1595 (in 1699 Petition) and 1689

| Ayllu in 1595 Reparticion (in order of listing, 'a' to 'm') | | Ayllu in 1689 Parish Report (listing order is 'A' to 'L') | |
|---|---|---|---|
| a. | Aylloapucuna | G. Apocona | (Hanansaya) |
| b. | Ayllochinchaypuquio | (*) ? | |
| c. | Ayllochiuaco | I. Chiuaco | (Hanansaya) |
| d. | Ayllococha (incl. Hanan 2nd Person) | (*) ? | |
| e. | Ayllomisca | (*) ? | |
| f. | Ayllo Ancaraquispa | K. Ancara | (Hanansaya) |
| g. | Ayllo Pomavanca | L. Pumaguanca | (Hanansaya) |
| h. | Ayllo Hurinsaya (incl. Pumapata lands) | A. Pumata | (Hurinsaya) |
| i. | Ayllo Coto | E. Coto | (Hurinsaya) |
| j. | Ayllo Chalas | F. Chalas | (Hurinsaya) |
| k. | Ayllo Usno | B. Uzno | (Hurinsaya) |
| l. | Ayllo (donde dicen) Parcosiqui | D. (?) Parcati | (Hurinsaya) |
| m. | Ayllovaillaro | C. Guayllaro | (Hurinsaya) |

NOTES: (*) Ayllus of 1689 not identified in the 1595 list are (H) Tuparimachi Ayllo and (J) Quesua Ayllo; In 1689, Ayllus of Sumaro jurisdiction were (M) Chacha, (N) Guata, (O) Sunchubamba and (P) Cumbi.

TABLE 7:7 Chinchaypuquio Hanansaya Ayllu Field Toponyms (1699 Summary of 1595 Reparticion) and Modern Toponyms (Ayllu Letters and Field Numbers Placed in Figure 7:4)

| Ayllu | Field (in order of listing) No. | Name (other data) | Modern Toponym | Source |
|---|---|---|---|---|
| a. Apucuna | | | | |
| | 1. | Parobamba (near reduccion) | (Chinchaypuquio) | IGN 28r |
| b. Chinchaypuquio | | | Chinchaypuquio town | " " |
| | 2. | Somomarca | | |
| | 3. | Seancariri | ? Wankariri (land) | Field |
| | 4. | Acavirai | Akavirar (mtn) | IGN 28r |
| | 5. | Panca | Panca (land) | " " |
| | | | Pancapampa (hamlet) | |
| | 6. | Vasuro | | |
| c. Chiuaco | | | Chiuaco Mayo (river) | " " |
| | 7. | Panpaña | | |
| | 8. | Pongoura | | |
| d. Cocha | | | (many, too general) | |
| | 9. | Amantoy | Amantuy (Qda, & hamlet) | " " |
| | 10. | Ñuñunya | | |
| e. Misca | | | | |
| | 11. | Misca | Misca Huayco (Qda) (? general) | " " |
| | 12. | Haimap Incan | | |
| | 13. | Machamacha | | |
| | 14. | Villcabamba | Vilcabamba (mtn). | " " |
| | 15. | Chucanbamba | | |
| | 16. | Tanamachay | | |
| | 17. | Tastapata | | |
| | 18. | Coyocvailla | | |
| | 19. | Vayllaquepa | | |
| | 20. | Llollocha | | |
| f. Ancaraquispa | | | | |
| | 21. | Mollopongo | | |
| g. Pomavanca | | | | |
| | 22. | Quimara | | |
| | 23. | Champacancha | | |

NOTES: Qda. = quebrada; mtn = cerro = mountain;

TABLE 7:8 Chinchaypuquio Hurinsaya Ayllu Field Toponyms (1699 Summary of 1595 Reparticion) and Modern Toponyms (Ayllu Letters and Field Numbers Placed in Figure 7:4)

| Ayllu | Field (in order of listing) No. Name (other data) | Modern Toponym | Source |
|---|---|---|---|
| h. Hurinsaya | | | |
| | 24. Pumapata | Pumapata (mtn) | IGN 28r |
| | 25. Vancariri | Wankariri (land) | Field |
| | 26. Marancucho | | |
| | 27. Rocococha | | |
| | 28. Calaoyo | | |
| i. Coto | | | |
| | 29. Coto | ? Hda. Paucarcoto | IGN 28r |
| | 30. Vuayllabamba | | |
| | 31. Pacocancha | ? Pacopata (hamlet) | " " |
| | 32. Llamac Racay | | |
| | 33. Vayunca | | |
| | 34. Huchuncui | | |
| j. Chalas | | | |
| | 35. Chalas | Challas (land) | " " |
| | 36. Vantarro | Hda. Huantaro | " " |
| k. Usno | | | |
| | 37. Vsnobamba | | |
| l. Parcosique | | Parcotica (v. & r.) | " " |
| | 38. Pancapuquio | Panca (land)/ Pancapampa (hamlet) | " " |
| | 39. Sumchobamba | Sunchumarca (hamlet) | " " |
| | 40. Siquerracai | Siquipampa (hamlet) | " " |
| | 41. Ycho Collpa | | |
| | 42. Churavailla | Churcuhuaylla (Qda./hamlet) | " " |
| | 43. Allacbamba | | |
| m. Vaillaro | | | |
| | 44. Sumchobamba | Sunchumarca (hamlet) | " " |

NOTES: Hda. = hacienda; Qda = quebrada; v. & r. = village and river section; mtn = cerro = mountain

TABLE 7:9 Chinchaypuquio Fields: Allocated Areas and Agricultural Use (from 1699 Summary of 1595 Reparticion, in order of listing).

| Hanansaya | | | | Hurinsaya | | | |
|---|---|---|---|---|---|---|---|
| Ayllu Code | Field Name | Area (topos) | Agric. Use | Ayllu Code | Field Name | Area (topos) | Agric. Use |
| a. | Parobamba | 7 | M,I | h. | Pumapata | 8 | M,I |
| | | | | | Vancariri | 5 | W |
| b. | Socomarca | 8 | ? | | Marancucho | 8 | P |
| | Seancariri | 4 | ? | | Rocococha | 4 | P |
| | Acavirai | 8 | ? | | Calaoyo | 2 | P |
| | Panca | 4 | M,SF | | | | |
| | Vasuro | 3 | ? | i. | Coto | 40 | M,W,NI |
| | | | | | Vayllabamba | 20 | M,NI |
| c. | Panpaña | 32 | P | | Paco Cancha | 10 | P |
| | Pongoura | 8 | P | | Llamac Racay | 10 | P |
| | | | | | Vayunca | 20 | P |
| d. | Amantoy | 6 | P | | Huchuncuy | 20 | P |
| | Ñuñunya | 2 | ? | | | | |
| | (of Anton Quispe) | 27 | W,P,NI | j. | Chalas | 12 | ? |
| | | | | | Vantarro | 8 | M,NI |
| e. | Misca | 35 | M,I | k. | Usnobamba | 20 | M,W,I |
| | Haimap-Incan | 6 | M,I | | | | |
| | | | | l. | Pancapuquio | 3 | ? |
| | Machamacha | 6 | ? | | Sumchobamba | 1 | W |
| | Villcabamba | 30 | P | | Siquerracai | 15 | P |
| | Chucanbamba | 10 | P | | Ycho Collpa | 8 | P |
| | Tanamachay | 20 | P | | Churavailla | 20 | P |
| | Tastapata | 10 | P | | Allacbamba | 8 | P |
| | Coyocvailla | 10 | P | | | | |
| | Vayllaquepa | 10 | P | m. | Sumchobamba | 1 | M |
| | Llollocha | 10 | P | | | | |
| f. | Mollopongo | 20 | P | | | | |
| g. | Quimara | 20 | P | | | | |
| | Champacancha | 20 | P | | | | |

NOTES: M = maize, P = potatoes, W = wheat, SF = Spanish Fruits, I = Irrigated, NI = Not Irrigated (explicit reference)

No obvious spatial division emerges from the distribution of modern toponyms related to the Hanan and Hurin divisions and field names (Figure 7:4). This was also found in Chonta at the same time. Territory was not defined by Hanan or Hurin status, but rather, according to supra-ayllu groups containing units of both designations.

If people from both Hanan and Hurin divisions worked the same fields, as at Chonta, correspondence would be expected in the lists of field toponyms associated with *ayllus* from different divisions. This is not apparent, aside from the possible correspondence of *Seancariri* of Chinchaypuquio Ayllu and *Vankariri* of Hurinsaya/Pumata Ayllu (Tables 7:7, 7:8). Too few toponyms are known to precisely assess the territorial arrangement of individual Chinchaypuquio social groups. The sample of toponyms, listed for the purposes of particular litigation, may be small in comparison to the total.

In several cases the *ayllu* name is the same as the first field toponym listed for it (Misca, Coto, Chalas, Usno-Usnobamba). This formed the basis of my tentative identification of *Hurinsaya Ayllu* in the Maldonado *visita* with *Pumata Ayllu* in the 1689 report (on the assumption that *Pumata* was representative of the toponym of the first listed Hurinsaya Ayllu lands, called *Pumapata*) (Tables 7:7 and 7:8). The 4 independent cases may indicate a territorial concept of the *ayllu*, or that generic *ayllu* names (like *Apucuna*, and the macro-division, *Hurinsaya*) were simply being replaced by toponyms of particular places where the people worked or lived. An understanding of the primacy of these places can be obtained from information about land-use.

7.4.3 Land-Use.

Agricultural lands allocated in the late 16th Century were listed in an apparent order: Irrigated maize land came first, followed by unirrigated maize land and then potato lands. Introduced crops were grown on both maize and potato fields (Table 7:9). The high altitude of potato lands is indicated in some cases by toponyms taken from zonal vegetation (*tasta*, a tree, *llollocha* (llullucha algae) and *ycho*, bunch grass). Maize lands were specified for 5 *ayllus*, potato lands for 4 *ayllus*, and both crops for the remaining 4. The list is probably incomplete. The correspondence between *ayllu* name and the first toponym of its listed lands tends to occur when the list starts with maize lands, and never occurs when it starts with potato lands. The maize lands of some *ayllus* may be missing from the list. Haciendas had acquired some areas.

The present distribution of toponyms associated with haciendas listed in 1689 indicates areas of land lost to local subsistence (Figure 7:4). Lands called Unasguailla and Marcanca had been declared *vacant* by Alcazar in 1647. They were later sold to the owner of Tamborada Hacienda and registered by him during Cabrera's *visita* in 1657 [40]. *Unos Guaylla*, lands located beside a crossing of the Apurimac River on the route from Sumaro to Cotabambas, had been the subject of sale between Europeans as early as 1613 [41]. In 1619 Usno Ayllu was divested of lands named Usno and Curipurqui. These abutted a road to *Parcotiqui*, probably Parcotica, about 6 km north of Chinchaypuquio [42].

Further data on agriculture in the Apurimac regions are contained in a 1586 report on Chinchaypuquio, Zumaro, Pantipata and Pivil villages. Its informants were a *cacique principal*, Don Gerónimo Quepqui, the Chinchaypuquio

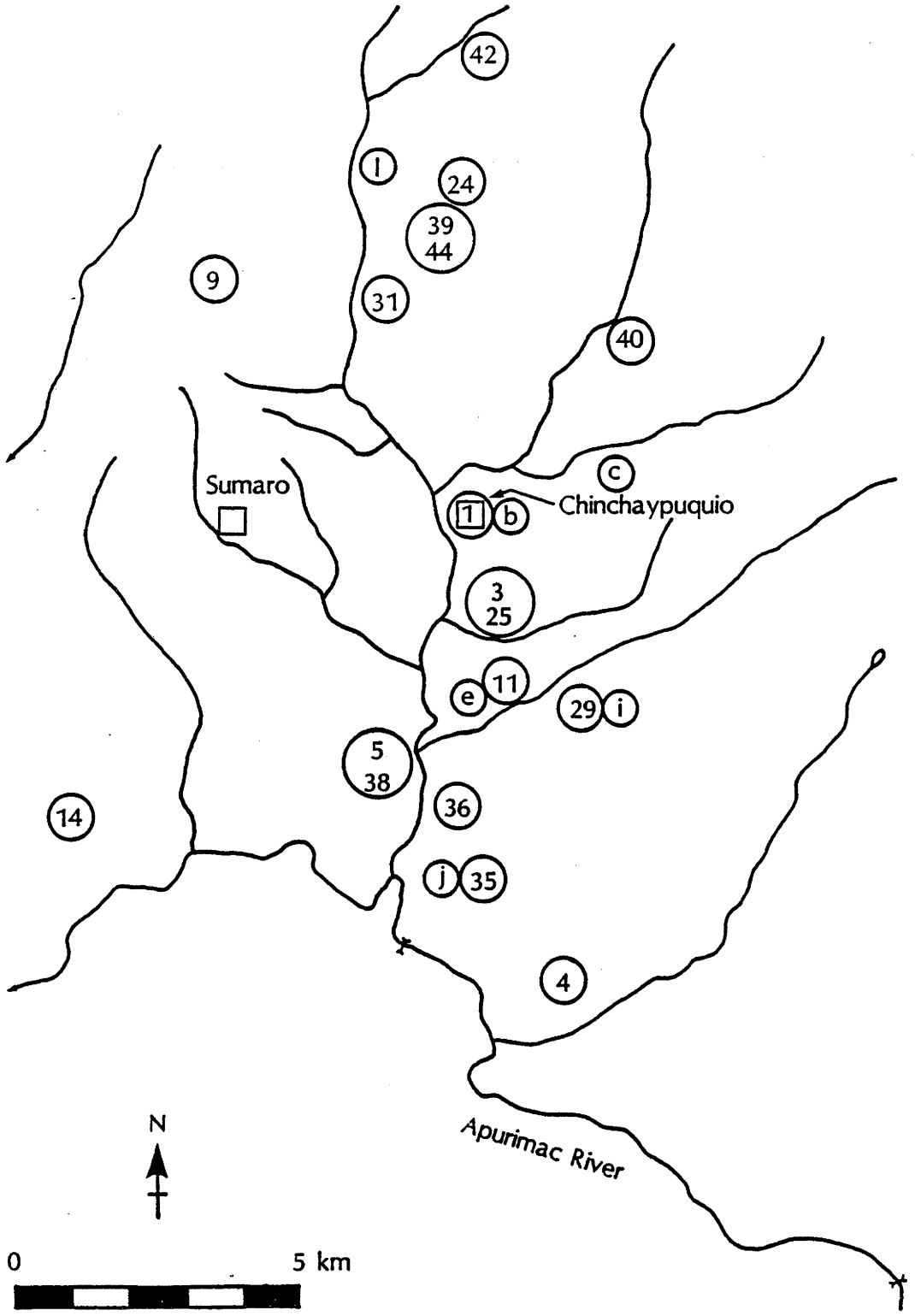



FIG. 7:4 **Chinchaypuquio and Sumaro 1595/1689: Distribution of Modern Equivalents of Historic Toponyms.** (Fields are numbered and Ayllu names lettered as in Tables 7:7 and 7:8)

priest, who had spent 16 years in the *doctrina* and another Spaniard [43]; Foods of the Indian population were said to include highland crops (potato, *quinoa, oca*), *yuyo*, maize and chili, as well as definitely lowland cultigens (sweet potato, manioc and peanuts). Fruits, including *pakay* and *guayaba*, were planted along the Apurimac River. The latter field and orchard crops provide a reasonable hypothesis for late prehistoric land-use at terraced lowland sites, such AL49, below Pivil, and AL37, AL41 and AL45 in Chonta.

7.4.4 Inca Archaeology and Land Tenure in Chinchaypuquio.

Don Carlos Inca, grandson of Huayna Capac, claimed in his will of 1582 to own 20 *topos* of land and 7 or 8 *yanaconas* at *Poma Guanca* in Chinchaypuquio [44]. The size of the holding and number of *yanacona* are similar to the Inca *royal land holdings* claimed in the Yucay Valley. This presents an interesting possibility because the terraces at AC3 are located beside a carved rock, (probably a *guanca*) and they, like terraces at AC4, incorporate staircase features and straight-walled design like the Inca-style terraces of the Yucay Valley. *Pomavanca/Pumaguanca* Ayllu only had potato lands in the late 16th Century list (Tables 7:6-9). The question emerges whether its maize lands were those that had fallen into the hands of this member of the Colonial Inca nobility. Unfortunately, the location of Don Carlos holding is yet to be precisely identified.

Lands which were explicitly stated to lie near the town were irrigated maize fields called *Parobamba*, allocated by Maldonado to Apucuna Ayllu (Tables 7:7 and 7:9). The word *Apucuna* is the Quechua plural of *apu*, and thus means *great lords, or chief justices, or first chiefs* according to Gonzalez Holguín

[(1608) 1952]. The toponym of Site AC4 (*Wankariri*) is identifiable in land toponyms of the late 16th Century *Hurinsaya Ayllu* and may be represented in Chinchaypuquio Ayllu lands by a toponym mispelled or miscopied (*Seancariri*, a word making no sense in Quechua) (Table 7:7).

The Maldonado *repartición* also made a special allocation of 3 *topos* at *Colpa* in Chinchaypuquio for Don Garcia Sapitupa, said to be *greatgrandson of Vaina Capac* [45].

Two *topos* were allocated by Maldonado to Juan Yupangui, entitled *cacique de pachaca* (*leader of one hundred*), a designation adopting the Inca decimal nomenclature [46]. The lands were in *Chaucalla*, a place said to border with Pumapata Quebrada, possibly near Pumapata mountain (Figure 7:4, No. 24). Currently, Pumapata Peasant Group have lands which bound with the Parcotica ravine on the eastern side of Site AC2 [47].

The 1586 report states that the 4 *pueblos* of Chinchaypuquio, Zumaro, Pantipata and Pivil were *of the Inga, governed by a capitan* placed by the Inga, that they were *criados* of the Inga, brought from other places, and had fought for the Inca in Quito. They served the Inca as livestock pastoralists and as cultivators of fruit *chacaras* [48].

*Criados* could refer to *yanacona* and there is also corroboration for the presence of *mitmaqkuna* in the testimony during Toledo's *visita* by an old *cacique principal* of Chinchaypuquio, Domingo Carquin [49]. He stated that his grandfather had been brought from Chachapoyas and had received lands from Topa Inga.

Chinchaypuquio contained a *guaca general* (*guaca* placed by the Inca), called *Apoguanic*, described as a cave below Chinchaypuquio towards the Apurimac River in Quichuas Province [50]. A ravine of similar name, descending from Sumaro to the Cheche River, is located 3 kilometers southwest of Chinchaypuquio [51]. The masonry-elaborated cave and Inca architecture at Site AC2 would seem to fit the ethnohistoric image of such a place. However, AC2 overlooks Chinchaypuquio town and lies to the north of present *Quebrada Apohuanej*. This is away from the Apurimac River by reference to Chinchaypuquio.

7.4.5 Summary.

Historic data suggest that social organisation and land tenure in late prehistoric Chinchaypuquio was similar to that known in the Yucay and probably Limatambo Valleys. The architecture of Inca terraces near Chinchaypuquio *reducción* is also similar to examples in Yucay and Limatambo, although built on a smaller scale. Documentary references point to the vicinity of the town as site of primary irrigated maize lands of *Apucuna Ayllu*, associated semantically with lords and high chiefs. Some local landholders in the late 16th Century claimed descent from Huayna Capac Inca. A *hanan ayllu*, which took the name of the town, as well as the *Hurinsaya Ayllu*, the first listed *hurin ayllu* in 1595, had lands which appear to share the toponym now applied to an Inca terrace scheme.

Elaborate Inca terrace complexes were placed in mid-valley locations. Tributary obligations emphasised fruit production, in the deep ravine of the Apurimac River, and camelid herding, in the less-broken bunch grass pastures of high altitude where they are herded today.

7.5 The Inca in Apurimac Quebradas Near Cusco.

Socio-spatial information used for the Apurimac Quebradas is not as detailed and early as that for the Limatambo Valley. It was not until the 1590s that Spanish lands inspectors began to carry out major *fieldwork* in Indian landholdings, as part of the process which allocated lands of depleted communities to *haciendas*. Land claims by Inca nobility, as well as early Spanish landholdings associated with *yanacona*, point to locations of Sun and Inca lands and possibly estates of Inca nobility. These include holdings at Uraca in Chonta and at Chinchaypuquio.

Inca terrace schemes at Chinchaypuquio, Pantipata and in poorer preservation at Uraca are small and lie in relatively scarce terrain of moderate declivity and moderate absolute altitude.

*Mitmaqkuna* were placed in the region but terraces of the architectural style found at Markawasi, associated with the *mitimaes* of Tilka, do not feature in the local record. However, Markawasi was on the principal highland Inca road. The Qopa settlements' material culture indicates strong ties to the state. This would be expected in enclaves of *mitmaq* or *Incas by Privilege*. Anthroponymy of the Inga Ayllus is markedly *Inca* by comparison with the Huamanruro of Chonta, but it is uncertain whether they were *mitmaq*, Incas-by-Privilege or both, or whether any of their number could have expressed relations to Cusco Inca nobility in close kinship terms.

The facts that *old Huamanruro town* existed within territory allocated to the Huamanruro *ayllus* of Chonta in the late 16th Century, and that local social

terminology was used for land allocation, suggest that the spatial distribution of *ayllu* lands followed a prehispanic pattern despite the excision of tracts for haciendas. The Huamanruro were certainly a social unit of separate name in the list of Vaca, made within a decade of conquest.

Local socio-economic units retained control of a wide range of altitudinal production zones prior to hacienda formation. In Chonta, and probably Chinchaypuquio, the territorial social units cut across the division of society in the Hanan/Chahuin/Hurin terminology. Inca access to resouces of the area relied mainly upon local and *mitmaq* labour and territory, rather than expropriation of lands for Inca terraces. *Inca* and *Sun* lands and livestock were probably dispersed throughout community territories. Produce could have been transported to nearby Cusco storehouses in the manner that it was taken to provincial administrative centres.

Apurimac settlements probably aided security along a natural frontier in the region of the Inca capital and permitted cultivation of certain crops, usually associated with warm coastal and *montaña* valleys, within easy reach of Cusco.

# CHAPTER 8

# LATE PREHISTORIC SETTLEMENT AND LAND-USE PATTERNS IN LIMATAMBO.

## 8.1 Introduction.

Many questions emerge from literature comparing the final few Preconquest centuries of Cusco with contemporary regional Andean prehistories. Some have been approached from the perspective of scattered ethnohistoric information, but three are particularly amenable to a preliminary assessment by quantitative analysis of the landscape archaeological data:

(a) Was Limatambo, prior to Inca state formation, a world of chronic fighting and disorder?

(b) To what extent was land removed from local communities and vested in the state?

(c) Did Inca-controlled land-use increase agricultural production, redistribute it, or both?

### 8.2.1 Late Prehistoric Tradition Sites: Function, Life Zone and Topography.

The sum of Late Intermediate Period and local Late Horizon (L.P.T.) site areas is 68.4 ha, or about 0.15% of the Limatambo Area.

(a) Function.

L.P.T. sites are divided into the very broad functional categories of *settlement, burial* and *agricultural* sites. Their areas are subdivided if multiple functions are represented (Table 8:1).

(i) Settlements:

Settlements are regarded as sites containing evidence of the construction of shelters or long term preparation and presentation of food. Sites with abundant artefacts, especially cooking pottery, and/or large circular or rounded structures (CS) are included. These comprise over half of the recorded sites, but represent only 15.5% of the sum of site areas.

There is evidence that some CS were built in whole or part of sod, mud brick or other perishable materials (eg. AL28, AL29, AL30 and AL21). Agricultural re-use and plant growth usually reduce the visibility of such sites, whereas places which are covered with old building stone seem less attractive to cultivators. Stone used to build CS is located nearby. The amount used and hence the visibility of sites, may be affected by its availability in suitably sized blocks.

In good conditions of preservation, CS were found in association with domestic pottery and utilised stone artefacts. Small CS may have had a storage function or multiple uses, as do some present village structures visited in Limatambo.

TABLE 8:1 LATE PREHISTORIC TRADITION SITES: Functional Analysis of Site Areas.

| Site No. | Function Group (Area in ha) | | | |
|---|---|---|---|---|
| | Settlement | Burial? | Agriculture | |
| AL4 | 1.200 | | | |
| AL5 | 0.400 | | | |
| AL19 | 0.040 | | | |
| AL21 | 0.136 | | 0.004 | |
| AL23 | | 0.003 | | |
| AL24 | | 0.020 | | |
| AL26 | | 0.150 | | |
| AL27 | | 0.450 | | |
| AL28 | 0.160 | | | |
| AL29 | 0.050 | | | |
| AL30 | 0.100 | | | |
| AL31 | | | 0.100 | |
| AL33 | | | 1.040 | |
| AL34 | | | 4.000 | |
| AL37 | 0.270 | | 0.800 | |
| AL38 | 0.060 | | | |
| AL39 | 2.680 | | 31.720 | |
| AL40 | | | 8.800 | |
| AL41 | 1.425 | | 1.500 | |
| AL42 | 0.470 | | 3.000 | |
| AL43 | 1.000 | | 5.000 | |
| AL44 | | 0.010 | | |
| AL45 | 0.162 | | | |
| AL46 | 0.450 | | | |
| AL47 | | 0.020 | | |
| AL48 | | 0.001 | | |
| AL49 | | | 1.190 | |
| AM2 | 1.000 | | | |
| | | | | TOTAL |
| TOTAL (ha) | 10.601 | 0.654 | 57.154 | 68.409 |
| % | 15.50 | 0.96 | 83.55 | 100.0% |
| No. Sites | 16 | 7 | 11 | 28 |
| Mean Area (ha) | 0.663 | 0.093 | 5.196 | 2.443 |

Half of the 16 recorded settlements were between 0.45 and 2.68 ha (AL4, AL28, AL39, AL41, AL42, AL43, AL46 and probably AM2). Judging from the best preserved sites, they contained from 15 to around 55 CS.

Another 5 settlements cover between 0.1 and 0.44 ha (AL5, AL21, AL30, AL37 and AL45) and most appear to have contained about 8 to 10 CS.

*Hamlets*, up to 0.1 ha in area, occur in three places (AL19, AL29 and AL38) and contained up to 5 CS. The largest sites are most archaeologically visible. Few sites of small size were recorded.

(ii) Burial Sites:

Cylindrical stone-lined subterranean pits (CSP) are tentatively interpreted as places of burial. Current storage traditions and food-processing technology in Cusco provide no hypothetical parallel for the use of such structures.

Chicha malting depressions seen in Limatambo are shallow and associated with houses, not isolated and in clusters. Stone structures for manufacture of *moraya* (white freeze-dried potato), are mainly above ground and located in watercourses. *Chuño* (brown freeze-dried potato) is certainly placed in high places to dry, but is spread out on a flat. Many CSP are at absolute altitudes too low for its manufacture, although not for its storage.

CSP are not placed within larger circular structures and therefore do not resemble household storage facilities. Many CSP are so closely spaced that there is no room for a concentric structure. The stone corbelling used to seal

the better preserved CSP examples is not designed to permit regular removal of items from within.

A total of 123 CSP occur at the 7 sites in groups of between 1 and 62. Isolated CSP would have provided a very small storage volume by comparison to the size of modern single family potato harvests seen in higher parts of Limatambo. Potato storage is usually in straw covered clamps near fields and houses, common to many parts of the world [Nash 1978:188-190]. Fieldside clamps are often guarded by the occupant of a temporary shelter. In contrast, CSP are rarely accompanied by occupation refuse and are usually at some distance above the nearest evidence of prehistoric settlement.

The only associated pottery consists of a few sherds from very thin ware in an uncertain surface context (AL26). These may be from miniature vessels, known as offerings burials at Sacsaywaman in Cusco. CSP are also located in relatively high locations, like those used for current community cemeteries with extended burials, and are sometimes interpreted as burial places by nearby residents.

If this interpretation is correct, burial sites represent 0.96% of the sum of L.P.T. site areas and 25% of their number.

(iii) Agricultural Facilities.

The working distinction between stone-walled terraces attributed an agricultural function, and those regarded as settlement platforms, is based upon the presence of structures or abundant pottery on terrace levels.

Agricultural terraces and field walls comprise 57.2 ha of the L.P.T. sites, or about 83.6% of the sum of L.P.T. site areas. As in the case of stone buildings, L.P.T. terraces are constucted of locally available stone. Apart from a universal association with sloping lands, abundance of fieldstone may be a factor in their distribution.

Terraces do not, however, occur on all stony slopes. Many are close to settlements (AL21, AL37, AL39, AL41, AL42 and AL43). This probably indicates both a specific interest in improving land near settlements and labour availability, although the timescale for their construction is unknown. Some, especially those near settlements with abundant Inca pottery (AL39 and AL41), probably expanded during the Inca period.

(b) Environmental Associations of Settlements.

Ceramic and architectural evidence at surface L.P.T. sites in the Limatambo region indicates occupation mainly during post-Wari prehistory. The combination of L.P.T. settlement pattern data therefore represents an aggregate of about 300 to 500 years of activity and decision making.

The starting proposition may be that there was an equal preference for settlement in all environments of the Limatambo Area during that period. If so, site occurrence should be proportional to the size of each *life zone* in the study region (Fig. 2:2). These areas are estimated from the national ecological map [ONERN 1976]. The expected numbers and sum areas of the sites expected in each zone are compared with the field survey results in Table 8:2.

Wet Uplands locations are under-represented in the actual figures. Humid Forest settlements are fewer and cover less area than predicted. More sites occur in the Dry Montane Forest than predicted but site area is nearly as expected. The Dry Forest Zone is over-represented in total site area, although not in site numbers. The Thorny Woodland Zone is over-represented in both its number and total area of sites. The Chi-Squared value of observed and expected settlement frequencies in life zones is 3.5, with 4 degrees of freedom. This neither confirms nor denies the possibility of chance differences between expected and observed L.P.T. site frequencies in life zones.

If equal ranges of altitude are examined (Table 8:3), the 3000-3400 m range contains most sites. However, the sum of settlement areas in each altitude range shows concentration in two ranges. The first is at about 3000-3400 m, across the DMF-HF ecotone. The second focus is in the 2200-2600 m range, over the DF-DMF ecotone. More large settlements (exceeding 0.4 ha) occur in these altitude ranges than in any other.

(c) The Relative Topographic Placement of L.P.T. Settlements.

Of the 16 settlements, 13 are located wholly or in part on ridges or peaks (Table 4:1). Three of these are considered readily defensible. AL28 probably predates Cusco Inca pottery, AM2 was affected by Inca construction and was probably abandoned in the Inca period and AL45 contains evidence for Late Intermediate and Inca period occupation.

Six other ridge or peak settlements would probably have been more difficult to defend, because they are on broad and relatively low hills (AL4,

TABLE 8:2 L.P.T. Settlements and Settled Areas in Limatambo Area Life Zones

| Life Zones as % of Limatambo Area of the Field Region | | | Expected Site Distribution | | | Actual Site/Area Distribution | | |
|---|---|---|---|---|---|---|---|---|
| ZONE | Zone Area (sq.km) | Area % | n | Area (ha) | n | Area (ha) | n % | Area % |
| WU | 31.7 | 6.9 | 1 | 0.7 | 0 | 0 | 0 | 0 |
| HF | 235.8 | 51.7 | 8 | 5.5 | 6 | 2.9 | 37.5 | 27.4 |
| DMF | 113.0 | 24.8 | 4 | 2.6 | 6 | 3.2 | 37.5 | 30.2 |
| DF | 53.7 | 11.8 | 2 | 1.3 | 2 | 2.8 | 12.5 | 26.4 |
| TW | 22.0 | 4.8 | 1 | 0.5 | 2 | 1.7 | 12.5 | 16.0 |
| TOTAL | 456.2 | 100.0 | 16 | 10.6 | 16 | 10.6 | 100.0 | 100.0 |

TABLE 8:3 L.P.T. Settlements and Settled Areas in 400 m. Altitude Ranges

| | metres above sea level | | | | | |
|---|---|---|---|---|---|---|
| | 1800-2200 | 2200-2600 | 2600-3000 | 3000-3400 | 3400-3800 | TOTAL |
| Sites over 0.4 ha (n) | 1 | 3 | 1 | 2 | 1 | 8 |
| Sites 0.4 ha and under (n) | 2 | 0 | 2 | 2 | 2 | 8 |
| All Sites (n) n = | 3 | 3 | 3 | 4 | 3 | 16 |
| %n | 18.75 | 18.75 | 18.75 | 25.00 | 18.75 | 100.0 |
| All Sites (area) Area (ha) | 1.855 | 4.150 | 0.550 | 2.310 | 1.736 | 10.60 |
| Area (%) | 17.5 | 39.1 | 5.2 | 21.8 | 16.4 | 100.00 |
| Mean Site Area (ha) | 0.62 | 1.38 | 0.19 | 0.58 | 0.58 | |

AL5, AL37, AL 42) or places with a less-steep or descending approach (AL43 and AL19). None appears to have had much Inca influence. AL4 and AL5 were not Cusco Inca pottery-using settlements. AL43 continued in occupation from the Late Intermediate to the Inca periods.

Four are located on ridges or low peaks with a descending approach or low position with respect to nearby topography. Three of these appear to predate Cusco Inca pottery (AL29, AL30 and AL38). AL39 had ready access to it, although initial occupation predates the Inca Period.

Three sites are located in places which show little concern with defence. Two are on valley floor locations. One has some evidence of Inca Period occupation (AL46), the other ample evidence of it, in both pottery and some architecture (AL41). AL21 is on a valley-side flat with a decending approach.

The most defensible L.P.T. settlement (AL28) may have been abandoned before the Inca Period. The two settlements with most evidence for continued occupation into the Inca period were not apparently defensible on the approach from Cusco (AL39 and AL41). However, settlements in relatively poor sites for defence, but located near expanses of relatively level ground, also appear among sites with no Cusco Inca pottery (AL29, AL30, AL4 and AL5).

### 8.2.2 Inca Sites: Function, Life Zones and Topography.

The sum of Inca site areas is 138.6 ha, which is 0.18% of the study region. Corresponding figures for the Limatambo Area and Chinchaypuquio Area are 130 ha and 8.6 ha, or 0.29% and 0.03% of their respective surface areas.

(a) Function.

For comparison, Inca sites are placed in functional groups of similar definition to those used for L.P.T. sites (Table 8:4).

(i) Occupations:

Inca *occupations* are defined as sites, or parts of sites, containing Cusco Inca or plain Inca pottery and/or buildings of Inca rectangular architecture.

The 21 sites or components in this group contain 8.3% of the sum of Inca site areas. 13 are primarily artefact concentrations, between 0.002 and 3 ha (AL9, 12-1, 12-1.1, 12-4, 12-5, 17, 25, 35, 39, 45, AM2, 5 and 6). 5 contain rectangular buildings (AL20, 22, 41, AM3 and AC2), two in association with Cusco Inca pottery. These probably also existed at AM1 (Sector C, *Niche Terrace*).

Cusco Inca pottery is associated with retaining walls which rose above the levelled surface at AL11, AM1 (Sector B) and AC2. The upper platform at AL12-7 is collapsed but surrounding walls are as elaborate as those at AL11 and AC2. Dressed and selected stone was also used in part of AL14. These elaborate masonry zones are at high places overlooking Inca terraces, although they are few at AC2. Pottery at AL9, AL12-4 and AL12-5 is similarly located.

The association of elaborate masonry and Cusco Inca pottery is evident at 5 sites or components (AL12-1, 12-1.1, 12-7, 11 and AC2) and probably at AL25 and AM5 where elaborate blocks are not in their original fitted walls.

A pottery concentration at AL12-4 is surrounded by terraces but not buildings. Its proximity to a large rock is paralleled by the placement of RPS stairways on terraces near such rocks (AL2, AL12 and AC1). These are regarded as sites of ritual attention rather than occupation.

Without excavation it is a high abstraction to compare the occupation of L.P.T. building clusters with that of the few buildings in Limatambo Inca *installations*. Both architectural styles occur at AL41, but L.P.T. architecture predominates. Sites AL20 and AL22 are small built complexes unassociated with terraced lands and only small terraced areas accompany AC2 and AM3.

(ii) Burial:

One burial area was found (AL50). Burials in cliffs and remote places are least likely to be recorded and most likely to suffer from erosion. Walled chambers at AC2 may have been mummy-storage places but this is not demonstrated. CSP occur near both L.P.T. sites (AL46 to AL43) and Inca sites (AL23 to AL22, and with greater separation, AL26 to AL11) but lack the pottery common in Inca rock-crevice burials.

(iii) Agriculture:

Terrace retaining walls occur at 21 sites, in groups covering between 0.008 and 47 ha. Their total area (122.1 ha) is 88.1% of total Inca site area.

They feature carefully fitted high walls, in parallel, continuous and segmented wall lines. Field surfaces are more level than L.P.T. terraces. A

general plan for construction was maintained over large areas and in alignments of long and massive walls, despite obvious additions (AM1 Sector A) and incompletion (AC1). Formally similar wall features occur in many schemes and these are aligned in alternating patterns in walls separated by levelled fields. All provided cultivable surfaces but elaboration of the schemes is difficult to regard as wholly necessary for land improvement by stone removal, levelling, soil reclamation and water management.

Four schemes (AL3, AL6, AL15 and AM3) are very small and distant from other Inca sites and are surrounded by unterraced lands of similar gradient. Terraces associated with artefacts at AM2 are also unusual. Sites AM2 and AM3 are on unirrigable and stony peaks with shallow soils.

Most retaining walls were built of stone available nearby, but material was obtained with greater effort for most Cusco Inca walls (AL11, 12-2, 12-3, 12-6, 12-7).

(iv) Other Sites:

Two sites evidence the procurement and working of andesite (AL16 and AL17). Elaborate construction at AL11-A distinguishes the area between Wall I and the Ch'akimayo canalization from other terraces on the valley floor. A similar case exists at AM1 *Kancha*. Walled outcrops, walls surrounding Tilka Pampa and the staired routeway at AM3, evade inclusion in the preliminary function groups, as do carved rocks and platforms or bounded plazas at AM4 and AC3. These sites and components represent 3.6% of the total Inca site area.

(b) Environmental Association of Inca Occupations and Terraces.

(i) All Inca Sites:

Inca sites are under-represented in the high altitude zones (Wet Upland and Humid Forest) in both site numbers and total site area (Table 8:5). The opposite occurs in the Dry Montane Forest. The Dry Forest is slightly over-represented in number and area of sites. Thorny Woodland environments contain more sites than expected but they cover less than the expected area. The Chi-Squared value for this site distribution is 25.7, with 4 degrees of freedom. The disproportionate selection of DMF locations is highly significant.

(ii) Occupations:

The same general trend is repeated in the distribution of occupations in both the Limatambo Area (Table 8:6) and study region as a whole (Table 8:7). The number of DMF sites is more than expected, but their total area is slightly less. Lower altitude zones are greatly over-represented. This follows the trend in L.P.T. settlement location, although the variation was not statisically significant. Chi-Squared values for Inca occupations in Limatambo and the study region (Tables 8:6 and 8:7) are 11 and 10.1. There is less than a 5% probability that this is chance variation from expected site distribution.

(iii) Terrace Schemes:

Most Inca terrace schemes and 81% of their total area are in the DMF zone. None occur in the highest or lowest zones (Table 8:8). The Chi-Squared value

TABLE 8:4 INCA SITES IN LIMATAMBO-CHINCHAYPUQUIO: Functional Analysis of Site Areas

| Site No. | Function Group (Area in ha) | | | | |
|---|---|---|---|---|---|
| | Occupation | Burial | Agriculture | Other | |
| AL1 | | | 0.500 | | |
| AL2 | | | 8.685 | | |
| AL3 | | | 0.008 | | |
| AL6 | | | 0.250 | | |
| AL7 | | | 0.390 | | |
| AL8 | | | 3.300 | | |
| AL9 | 0.200 | | | | |
| AL10 | | | 17.895 | | |
| AL11 | 0.600 (1) | | 20.155 | 3.460 (2) | |
| AL12 | | | 46.970 | | |
| AL12-1 | 0.002 | | | | |
| AL12-1.1 | 0.040 | | | | |
| AL12-4 | 0.010 | | | | |
| AL12-5 | 0.090 | | | | |
| AL12-7 | 0.188 (3) | | | | |
| AL13 | | | 1.150 | | |
| AL14 | | | 7.030 | | |
| AL15 | | | 0.015 | | |
| AL16 | | | | 0.250 | |
| AL17 | 0.060 | | | | |
| AL18 | | | | 0.001 | |
| AL20 | 0.200 | | | | |
| AL22 | 0.018 | | | | |
| AL25 | 1.000 | | | | |
| AL50 | | 0.004 | | | |
| AL51 | | | 1.540 | | |
| AL32 | | | 0.850 | | |
| AL35 | 0.020 | | | | |
| AL36 | | | 0.180 | | |
| AL45 | 0.160 (4) | | | | |
| AL39 | 2.680 (5) | | | | |
| AL41 | 1.425 (6) | | | | |
| AM1 | 0.180 (7) | | 5.820 | 0.320 (8) | |
| AM2 | 0.045 (9) | | | | |
| AM3 | 0.018 (10) | | 0.119 (11) | 0.613 | |
| AM4 | | | | 0.300 | |
| AM5 | 3.000 | | | | |
| AM6 | 0.250 | | | | |
| AC1 | | | 2.250 | | |
| AC2 | 1.345 | | 0.225 | | |
| AC3 | | | 3.905 | 0.015 | |
| AC4 | | | 0.910 | | |
| TOTAL | 11.531 | 0.004 | 122.147 | 4.959 | 138.641 |

TABLE 8:4 continued

NOTES:

( 1) Area contained by AL11 Walls II and III.
( 2) Area between AL11 Wall I, Ch'akimayo, foot road and modern road
( 3) Area of AL12-7 top platform
( 4) Area also included in L.P.T. site area
( 5) Sector A only; also in L.P.T. area
( 6) Sector A; also in L.P.T. area
( 7) Area of Niche Terrace (0.06 ha) plus pottery concentration on upper three levels of Sector B (0.12 ha)
( 8) Area of 'Kancha' in Sector C
( 9) Area of summit terraces only
(10) Structural area (Sector D)
(11) Terraces of Sector C.

TABLE 8:5 Life Zone Distribution of Inca Sites - Limatambo-Chinchaypuquio

| Life Zone as % of the Study Region | | | Expected Site Distribution | | Actual Site Distribution | | |
|---|---|---|---|---|---|---|---|
| ZONE | Zone Area (sq.km) | Area % | n | Area (ha) | n | Area (ha) | Area % |
| WU | 109.97 | 14.2 | 5 | 19.7 | 1 | 0.018 | 0.01 |
| HF | 379.57 | 49.1 | 18 | 68.1 | 8 | 12.263 | 8.85 |
| DMF | 162.33 | 21.0 | 8 | 29.1 | 19 | 105.295 | 75.95 |
| DF | 99.10 | 12.8 | 5 | 17.7 | 7 | 19.390 | 13.99 |
| TW | 22.02 | 2.9 | 1 | 4.0 | 2 | 1.675 | 1.21 |
| TOTAL | 772.99 | 100.0 | 37 | 138.6 | 37 | 138.641 | 100.0 |

TABLE 8:6 Life Zone Distribution of Inca Occupations: Limatambo Area

| Life Zone as % of the Limatambo Area | | | Expected Site Distribution | | Actual Size Distribution | | |
|---|---|---|---|---|---|---|---|
| ZONE | Zone Area (sq.km) | Area % | n | Area (ha) | n | Area (ha) | Area % |
| WU | 31.7 | 6.9 | 1 | 0.7 | 1 | 0.018 | 0.18 |
| HF | 235.8 | 51.7 | 8 | 5.3 | 2 | 0.218 | 2.14 |
| DMF | 113.0 | 24.8 | 4 | 2.5 | 6 | 2.235 | 21.94 |
| DF | 53.7 | 11.8 | 2 | 1.2 | 5 | 6.040 | 59.30 |
| TW | 22.0 | 4.8 | 1 | 0.5 | 2 | 1.675 | 16.44 |
| TOTAL | 456.2 | 100.0 | 16 | 10.2 | 16 | 10.186 | 100.0 |

TABLE 8:7 Life Zone Distribution of Inca Occupations: Limatambo-Chinchaypuquio

| Life Zone as % of the Study Region | | | Expected Site Distribution | | Actual Size Distribution | | |
|---|---|---|---|---|---|---|---|
| ZONE | Zone Area (sq.km) | Area % | n | Area (ha) | n | Area (ha) | Area % |
| WU | 109.97 | 14.2 | 2 | 1.6 | 1 | 0.018 | 0.16 |
| HF | 379.57 | 49.1 | 8 | 5.7 | 3 | 1.563 | 13.55 |
| DMF | 162.33 | 21.0 | 4 | 2.4 | 6 | 2.235 | 19.38 |
| DF | 99.10 | 12.8 | 2 | 1.5 | 5 | 6.040 | 52.38 |
| TW | 22.02 | 2.9 | 1 | 0.3 | 2 | 1.675 | 14.53 |
| TOTAL | 772.99 | 100.0 | 17 | 11.5 | 17 | 11.5 | 100.0 |

TABLE 8:8 Life Zone Distribution of Inca Terraces : Limatambo-Chinchaypuquio

| Life Zone as % of the Study Region | | Expected Site Distribution | | | Actual Site Distribution | | |
|---|---|---|---|---|---|---|---|
| ZONE | Zone Area (sq.km) | Area % | n | Area (ha) | n | Area (ha) | Area % |
| WU | 109.97 | 14.2 | 3 | 17.3 | 0 | 0.0 | 0.00 |
| HF | 379.57 | 49.1 | 10 | 60.0 | 6 | 9.8 | 8.01 |
| DMF | 162.33 | 21.0 | 4 | 25.7 | 12 | 99.3 | 81.32 |
| DF | 99.10 | 12.8 | 3 | 15.6 | 3 | 13.0 | 10.67 |
| TW | 22.02 | 2.9 | 1 | 3.5 | 0 | 0.0 | 0.00 |
| TOTAL | 772.99 | 100.00 | 21 | 122.1 | 21 | 122.1 | 100.00 |

for this data is 21.6, with 4 degrees of freedom, which indicates a 99.9% probability that the difference between observed and expected terrace distribution is not the result of chance. There appears to have been a very strong emphasis upon the DMF in the selection of sites for Inca terrace agriculture in the study region.

(c) Relative Topography of Inca Sites.

(i) Occupations:

Of 21 occupied sites or components, 4 are located on summits. Two appear to be easily defensible and overlook an extensive area (AM2 and AM3). AL45 stands below an adjacent ridge, but provides excellent views of the Apurimac gorge upstream and downstream. AL39 also has a descending approach.

Two sites are on ridges (AL22 and AC2). The former is in the hollow of a broad ridge and the latter has a descending approach.

Seven sites (AL9, AL17, AL25, AL35, AM1, AM5 and AM6), and two components of AL12 (4 and 5), are on valley-side flats. AM6 lies on a narrow ledge at a river-narrowing beside the ruins of an historic suspension bridge. It may have been the location of a previous bridge. The others are all beside cultivated lands of moderate declivity.

Two sites (AL11 and AL41) and three components of AL12 (1, 1.1 and 7), are located on the valley floor or its margin. All are adjacent to extensive lands of gentle gradient beside the Colorado or Apurimac rivers.

(ii) Terraces:

Eleven of 21 terraced sites are located on alluvial-colluvial valley floors (AL1, 2, 7, 8, 10, 11, 12, 13, 14, 36 and 51). They cover 107.8 ha, or 88.3% of terraced lands. Six incorporate river or stream control walls.

Seven schemes (AL15, 32, AM1, AC1, 2, 3 and 4) are on valley-side flats or their moderately sloping margins. They cover 14 ha or 11.4% of terraced lands. These features provide the most level land in narrow valley sections and ravines, such as those surrounding AC3 and AC4 of Chinchaypuquio.

Three small sites, covering 0.03% of terraced area, are located on moderate to steep slopes (AL3, AL6 and AM3). Only AL6 is presently cultivated.

Inca terraces are overwhelmingly concentrated on valley floors or flanks of relatively moderate declivity and at moderate altitude in the DMF Zone.

(d) Labour Investment in Inca Terraces.

Field data permit an order of magnitude to be calculated for labour investment in Inca terrace construction in the study region. The tasks involved are inferred from field observations.

(i) Digging Terrace Wall Lines:

Eroded terrace profiles indicate that an area behind terrace walls was backfilled and that excavated rubble was sorted and placed in lenses. This is done in present terrace construction on stony slopes in Limatambo (Plate 94). Inca terrace wall lines are straight or very evenly curved, are continuous, contain much fill and were designed to maintain a plan. This is evident in the concentric circular terraces in karst dolines at Moray in Urubamba where some walls were built against rock (Plate 95) and in the mapped Limatambo terraces.

The volume dug to establish wall lines is estimated as that of a right-triangular prism which extends behind the terrace wall for a distance equivalent to wall height. Measurements from 1:1000 plans and field estimates show that 38,262 m of Inca terrace wall remain in the region (Table 8:9). Wall height measurements throughout these (Appendix III: Tables 2 and 4) indicate that an average figure of 2.5 m is reasonable. The cross-sectional area of the average triangle is 3.1 sq.m and the volume behind the total wall length is 119,569 cu.m of stony soil.

TABLE 8:9 Measurements of Terrace Retaining Walls: Limatambo-Chinchaypuquio

| Site No. | Fieldstone Wall (Length (metres) | Cusco Inca (metres) | Part Dressed (metres) | Terrace Width Groups (sq.m.) Broad | Narrow |
|---|---|---|---|---|---|
| Pampaconga Sub-Region | | | | | |
| AL1 | 400 | | | | 5000 |
| AL2 | 3163 | | | 86850 | |
| AL3 | 32 | | | | 80 |
| AL6 | 260 | | (260) | | 2500 |
| AL7 | 89 | | | 3900 | |
| AL8 | 551 | | | 33000 | |
| Limatambo Sub-Region: | | | | | |
| AL10 | 3187 | | | 178950 | |
| AL11 | 1728 | (425) | | 242150 | |
| AL12 | 15543 | (184) | | 405500 | 67500 |
| AL13 | 297 | | | 11500 | |
| AL14 | 1914 | | ( 13) | 59100 | 11200 |
| AL15 | 16 | | | | 150 |
| AL51 | 204 | | | 15400 | |
| Chonta Sub-Region: | | | | | |
| AL32 | 180 | | | 8500 | |
| AL36 | 280 | | | | 1800 |
| Mollepata Sub-Region: | | | | | |
| AM1 | 5296 | (131) | ( 91) | | 6320 |
| AM2 | 145 | | | | 450 |
| AM3-C | 379 | | | | 1190 |
| AM4 | 508 | | | 3000 | |
| Chinchaypuquio Sub-Region: | | | | | |
| AC1 | 1614 | | | 19400 | 3100 |
| AC2 | 570 | (315) | | 13400 | 2300 |
| AC3 | 661 | | | 39200 | |
| AC4 | 1245 | | | 4500 | 4600 |
| TOTAL | 38262 | (1055) | (364) | 1124350 | 106190 |

Erasmus [1965:285] found that 2.6 cu.m of soil could be excavated with a digging stick and put into cans in a 5 hour man-day, which is the length of *worker-days* (w/d) used in this analysis. His figure is acceptable as an estimate for work with the Andean chakitaklla, but rubble was thrown and soil manipulated within a small area rather than placed in cans. This work consumed 45,988 w/d.

(ii) Obtaining Wall Stone:

Most Inca terrace walls were of fieldstone. Perhaps half was obtained in excavation along wall lines. Inca terrace surfaces contain little or no large stone. It is reasonable to assume the rest came from digging and levelling their surfaces and in surrounding lands at an average distance of 50 m.

Single-stone facade thickness is a minimum of 0.3 m and about 70% is solid rock and 30% rubble and soil. Ordinary walls are 37,207 m long, 2.5 m high and 0.3 m thick, or 27,905 cu.m in total volume. Rock is 19,534 cu.m of this. Using the specific gravity of andesite (2650 kg/cu.m) [Pozorski 1980:103], the rock weighed about 51,764,239 kg. To carry half (25,882,119 kg) of this for 50 m would require a man-day for each 3.5 tonnes [Erasmus 1965:Fig.2], or a total of 7395 w/d.

(iii) Moving Special Stone:

Cusco Inca andesite facades at AL11 and AL12 are 609 m long and average about 2.5 m high. They can be assumed to be solid stone for a minimal thickness of 0.4 m, giving a volume of 609 cu.m. The andesite stone mass is

1,613,850 kg. This had to be transported about 400 m from Mamako mountain on the opposite side of the Colorado River. Raw blocks were probably larger than those in the facade since andesite chips in fill at AL12-1 and AL12-7 indicate that some shaping was done on site.

Erasmus' found that 520 kg of stone could be carried each man-day over that distance, calculated for a constant half-time load of 25 kg [1965:287, Fig.2]. Movement of andesite thus adds 3104 w/d. This is very conservative, given the Limatambo terrain and size of andesite blocks used. Niche lintels at AL11 Wall III and larger blocks in Walls I and II are probably in the range of 450 to 1300 kg. Less than a quarter would be as light as 25 kg. Movement of a *ton* on moderately sloping ground requires coordination of more workers, perhaps 8 to 10 at a time [Atkinson 1961:297].

(iv) Field Levelling and Topsoil Movement:

Narrow terraces on steep slopes usually contain a high proportion of rubble fill. Broad terraces on the valley floor contain fill near the wall but not throughout. Topsoil without large stone is about 0.3 to 0.8 m deep, and 0.4 m would be a reasonable average. Unfilled terraces at AC1 indicate that fill was brought in, as do rubble piles beside a small terraced sector at Moray. A higher proportion of capping soil was probably obtained for narrow terraces on steep and stony slopes than for valley floor ones.

It is assumed that half of the topsoil of *narrow terraces* (less than 10 m wide, perpendicular to the wall line) was moved, and 10% of that of broad terraces, over an average distance of 25 m. A 4 cm depth over broad terraces

covering 1,124,350 sq. m (Table 8:9) is 44,974 cu. m, or 60,715 tonnes (at 1350 kg/cu.m). A 20 cm depth on narrow terraces covering 106,190 sq.m (Table 8:9) is 21,238 cu.m, or 28,671 tonnes of topsoil.

To dig the total of 66,212 cu.m of soil at 2.6 cu.m per man-day [Erasmus 1965:285] requires 25,466 w/d. Baskets may have been used to carry soil. Their manufacture is now a village industry at Huanca Huanca, on slopes of the Apurimac Valley between Limatambo and Paruro. Moving 89,386 tonnes of soil 25 m could be done at the rate of 5 tonnes each w/d, giving 17,877 w/d. This would increase exponentially with increases in average distance of movement. A conservative estimate for digging and soil carriage during terrace levelling is 43,343 w/d.

(v) Raising Walls:

The volume of ordinary Inca terrace walls is 27,905 cu. m, assuming single-stone construction, facade thicknesses of 0.3 m, a length of 37,207 m and average height of 2.5 m. Erasmus estimated that wall raising used from 2 to 8 man-days per cu.m [1965:291-292]. Four w/d is reasonable for ordinary Inca dry-stone walls, giving a total of 111,621 w/d.

Experimental work on Cusco Inca masonry supports the hypothesis that tight fitting was achieved by repeated placement and removal of stones during hammer-dressing [Protzen 1985:177-180]. Four times as long, or 16 w/d per cu.m, would seem appropriate for such work, pending further replicative experiments. A further 446 m length of Cusco Inca walls at AM1 and AC2, or 334.5 cu.m of wall (2.5 m high and 0.3 m thick) can be added to the 609 cu.m at AL11 and

AL12. The 943.5 cu.m of elaborate wall represents 15,096 w/d, giving a total of 126,717 w/d for wall raising.

(vi) Shaping and Dressing:

Protzen [1985:174,179] used stone hammers to square and dress an andesite block (25 by 25 by 30 cm) on three sides, in 90 minutes. A further 90 minutes were used to hammer-dress a tight bedding joint with one other block. If the dressing of lateral and bedding joints of each stone, to give the semblance of a tight fit, took as long as facade dressing, a 25 by 25 cm facade can be taken to represent 450 minutes work. Without adjustments for differences in dressing larger blocks, 1 sq.m of facade represents about 120 hours or 24 five-hour w/d. Erasmus estimated 30 eight-hour man-days for dressing 1 sq. m of facade at Uxmal in Yucatan [1965:293].

A conservative estimate for dressing 1055 m length of elaborate wall, 2.5 m high (2637.5 sq.m), is 63,300 worker days. A further 364 metres of wall, excluding dressed stone corners beyond terraces, is partly dressed. This is about 910 sq.m of facade and probably required about 12 w/d per sq.m, or an additional 10,920 w/d. Thus, 74,220 w/d are attributed to hammer-dressing.

(vii) Special Wall Features:

Careful fitting of stone at 62 WS, 31 WD and 19 small niches in terrace walls may have added 1 worker day in each case, or a total of 112 w/d. The alignment of corners and construction of side walls for 28 large niches and 74

RPS, as well as bedding of steps in the latter, may have added 5 days an instance to construction, or a total of 510 w/d.

(viii) Summary of Terrace Construction Labour Investment.

The construction of terraces along extant Inca walls in the study region may have required the following tasks and labour investment: digging along wall lines (45,988 w/d), obtaining further wall stone (7,395 w/d), moving special stone (3,104 w/d), terrace levelling (43,343 w/d), raising walls (126,717 w/d), shaping and dressing (74,220 w/d) and addition of special wall features (622 w/d). The total is 301,389 w/d or 826 worker years.

Destruction of terrace walls could be in the order of 20%, and it is unlikely that wall builders were excluded from participation in ceremonies during the year. Modern environmental and land use data suggest that many tasks would also have benefitted from seasonal scheduling, eg. burning and clearance of vegetation, or crossing rivers with stone in the dry season. Rain would have softened the ground for digging but also increased weight for soil carriage. Since the work was carried out at many different sites, larger groups in labour forces may have been needed to carry out jobs requiring many people at the one time, as well as further supervisors or planners if work was simultaneous with that of the many other Inca projects. If a working year was 270 days and 20% destruction is presumed, the figure obtained is 1340 worker-years. Thus, 200 workers plus supervisors might have carried out the projects in about 7 years, or 100 in 14 years.

It is also possible that whole families contributed to construction through associated tasks such as food supply and preparation. The figure is conservative and only indicative of an *order of magnitude* for labour investment in Inca terraces of the region. Overall, the figures suggest that very large labour encampments may not have been necessary, even if terracing was concentrated in relatively short periods. The burden could have been spread over social units of the sizes locally recorded in the Toledan *visita* but labour could have come from elsewhere. No large town of Inca architecture appears to have existed for their occupation, even near the great concentration of terracing around Limatambo. However, valley-side pottery concentrations, without much evidence of structures, may represent settlements of transient workforces (AL17, AL9 and AL12-5).

## 8.3 Settlement Topography and the Disorderly World?

Most L.P.T. settlements are on relatively high topographic features and most Inca occupations on valley-side benches or the valley floor. Few in either group are in *fortress-like* positions. All valley-floor L.P.T. settlements were occupied in the Inca period (Table 8:10).

If hilltop and ridge locations were chosen for security, then it was a more important factor in L.P.T. sites without evidence of a concentrated Inca period occupation. The only probable prehistoric weapons seen during survey were ring-shaped club heads of dense stone [Morris and Thompson 1985:Fig.8]. According to Fornee [(1586) 1965:25], *macanas* (clubs) were among arms used by Limatambo soldiers in the Quito wars. One had been found by a ploughman 2 km southeast of AL11 and the other is on the surface at AL39 Sector A.

TABLE 8:10 Relative Topography of L.P.T. and Inca Sites in Limatambo

| | L.P.T. | | L.P.T./Inca | | Inca Period | |
|---|---|---|---|---|---|---|
| Relative Topography: | (n) | Site | (n) | Site | (n) | Site |
| Abrupt Ridge/Peak | 1 | AL28 | 2 | AM2,AL45 | 1 | AM3 |
| Hill (broad/descending approach) | 5 | AL4,5,19, 37, 42 | 1 | AL39,43 | 1 | AL22 |
| Ridge with descending approach | 3 | AL29,30 38 | 0 | | 0 | |
| Valley-side Bench | 1 | AL21 | 0 | | 10 | AL9,12-1, 12-5,17, 20,25,35, AM,1,5,6 |
| Valley Floor | 0 | | 2 | AL41,46 | 4 | AL11,12-1 12-1.1, 12-7 |
| TOTAL | 10 | | 6 | | 16 | |

Defensive aspects of the high sites are only the natural topography and terrace walls. None have the ring-ditch defences known in late prehistoric fortifications on the Ecuadorian frontier of Tawantinsuyu at the time of conquest. The high locations are also well-drained, unlikely to be affected by landslide deposition and overlook fields and the movements of livestock. Existing villages are similarly positioned and defence cannot be regarded as the only consideration in site placement.

Most L.P.T. settlements and Inca occupations lie near relatively large tracts of *cultivable* (moderately sloping) land. Inca occupations usually have more restricted views than the former but most are on terraced lands, or on adjacent flats overlooking them. Only five such sites are further than 2 km from large Inca terrace schemes. AM6 was on the main Inca road. AL20 and

AL22 are well above the floor of the valley and may have regulated inter-valley movement and maintained a state presence in high altitude production zones. Evidence for permanent occupation at AM2 and AM3 is uncertain. Both contain small terrace flights and provide only small dwelling areas. The architectural complexity of AM3, on Tilka summit, as well as the ethnohistoric role of *Tilca* social unit, resident there in 1543, encourage further appraisal of site function.

## 8.4 Interaction of Local and Inca Settlements and Production Systems.

L.P.T. settlements, whether local or *mitmaq*, represent a different level of socio-political organisation to that of state installatations in ethnohistoric sources. The late preconquest population and landscape distribution of each level provides a method for assessment of Inca presence in the Limatambo Area.

### 8.4.1 Late Prehistoric Population Projection.

(a) Historic Information:

The study of toponymic survivals indicated that the Limatambo Valley was occupied in 1572 by 7 *repartimientos* which were resettled in Pampaconga, Patallacta, Mollepata and Chonta villages, as well as Callaracay *repartimiento* which was placed in Pivil. Their combined population was 2499 in Toledo's *visita*. This is adjusted to 2511 because of discernible errors in the record. The categories for different classes of population were under-counted for Pampaconga (2 persons) and Chuyani (10 persons). Sallauparco was listed with a higher population than the sum-of-categories, but this is probably correct. It

can be traced, by comparison with other category/total population ratios, to the exceedingly low figure for the *boys* category (probably 116 rather than the 16 stated) [Toledo 1975:157-210].

A review of population estimates for late prehistoric Peru has been produced by Cook [1981, 1982]. Assuming that population change between 1520 and 1570 mirrored that found in 1570-1600 census data, Cook [1981:93-96] firstly projected a decrease of population from 1,131,820 to 595,528 by 1570, for a Southern Highlands area which includes Limatambo. The incidence of epidemics, civil war, rebellion and conquest led him to posit a rate twice as high, giving a regional decline from 1,977,220 in 1520 to the 1570 census population. Periodic population fluctuations were not merely a Colonial phenomenon [Smith 1970:460], but the proportional regional decline is the best available means to estimate late prehistoric Limatambo population. The Limatambo figure of 2511 persons in 1572 indicates a population of about 8337 in 1520. The roughly corresponding districts of Mollepata and Limatambo now have 11,094 residents [I.N.E. 1981:I:55].

(b) Roofed-Space Requirements of Late Prehistoric Population:

How much shelter would a settled population of 8337 people require? A minimum is probably that needed to sleep and prepare food, perhaps 2 sq.m per person. This would mean a requirement of 1.67 ha for the historically-derived 1520 population. *Roofed space* per person in a village of 29 people in Paucartambo, Cusco, was found by Lyon to be 9.4 sq.m [cited in Cook 1981:32]. This would lead to an expected 7.84 ha of roofed space for Limatambo in 1520.

The sample was increased by information obtained during 1986 in Choquemarka village, Limatambo [Fig. 8:1]. A map was made of the 66 buildings in the settlement. These have a mean roofed space of 28 sq.m., or 27.3 sq.m excluding a school built by the community (72 sq.m). According to an informant, 10 of them, including the two smallest, were only used for storage (mean roofed space of 21.3 sq.m). Eight were used as cooking areas or for both cooking and storage, but not sleeping (mean 28.8 sq.m and SD 9.8). Five were abandoned (mean 20.3 sq.m and SD 2.7). The other 42 were all *dwellings* used for sleeping and usually cooking and storage as well (mean 29.3 sq.m and SD 7.2). In 1981, Choquemarka settlement had a census population of 180 persons and 42 *occupied dwellings* [I.N.E. 1981:II:732]. On the 1981 figures, occupied dwellings provided 6.8 sq.m per person. If the village were treated as a *site* of 65 similar structures (excluding the school), then 180 persons *used* 65 structures with a roofed space of 1776.6 sq.m, or 9.9 sq.m per person.

The Choquemarka ethnography is only a very general guide in its application to prehistory but provides a glimpse of the complexity of a modern village. Choquemarka structures are smaller on average than those at AL39, but much larger than those nearby at AL28 (Table 8:11). They suggest a preconquest population requirement of 8.3 ha of roofed space.

(c) Roofed Space in the Archaeological Sample:

The total roofed space of L.P.T. settlements is estimated as 7918 sq.m, and ceramic evidence indicates that 6 L.P.T. sites, with 4817 sq.m of roofed space, were occupied in the Inca period (Table 8:11).

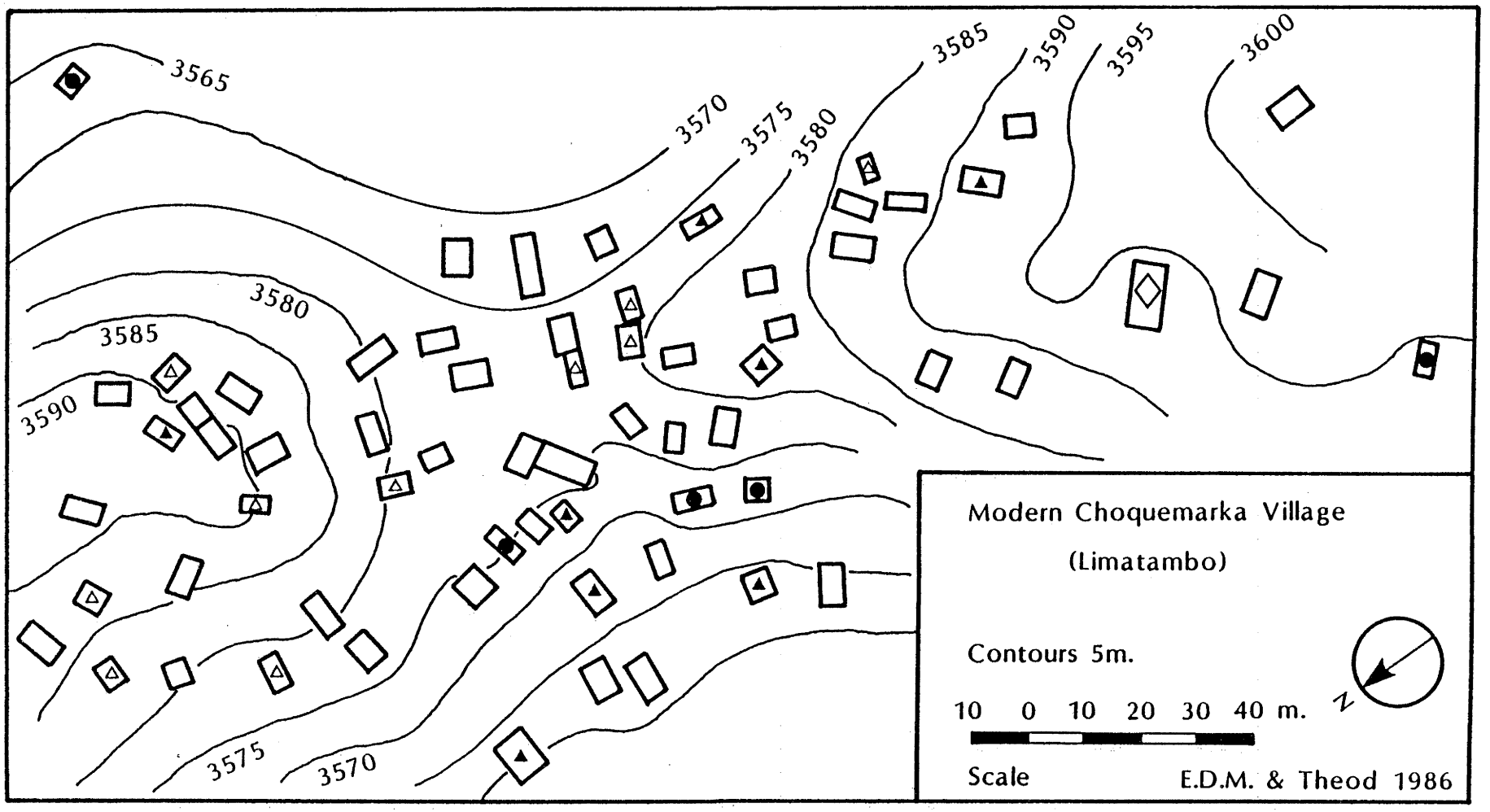



**FIG. 8:1 Modern Choquemarka Village.**

KEY TO STRUCTURE USE: Occupied Dwellings (open rectangle), School (diamond), Storage Only (open triangle), Storage and Kitchen (solid triangle), Abandoned (dot).

Site destruction and uncertainty about function, without excavation, present difficulties for the estimation of roofed space Inca sites. The small pottery scatter at AL12-4 may only be a shrine associated with a large stone *huaca*. My impression is that large scatters of Cusco Inca pottery represent settlements similar in built density to L.P.T. sites occupied in the Inca Period (AL39, AL41, AL45 and AL46) which have an average built density of 927 sq.m per ha of *site*, but with lesser dispersal of artefacts on flatter site locations (around 1400 sq.m per ha, in the upper range for L.P.T. sites).

It is assumed that a quarter of the high elaborate masonry platforms was occupied by buildings. These are *AL11 Sector A*, where historic data indicated a building, *AM1-Sector C-Niche Wall*, where a construction-line suggests a structure as well as *AL12-7*, by analogy with placement and architecture of the former two. The assumed ratio is not unreasonable in comparison with the reconstructed roofed-space ratios of other platforms, at the top of terraces, with large exterior niches. For example the *Sun Temple* at Vilcashuaman (1341 sq.m of 6128 sq.m, or 21.9% roofed) [Gonzalez et.al. 1981:66-67, Fig. D16-H5] and on the *Atrium Terrace* at Chinchero (445 sq.m of 1120 sq.m roofed, or 39.7 %) [Alcina 1976:II:Figs. 23, 25]. The Limatambo estimates give a total roofed space of 8017 sq.m (Table 8:12).

Total roofed space for the Inca period is 12,104 sq.m, including the areas of 6 continuously occupied L.P.T. sites but only the Inca period area of AM2. This is 14.6% of the estimated roofed-space requirement of the 1520 population.

Many factors are likely to lead to under-representation of sites. Total recovery is not expected in mountainous terrain, but other questions are raised.

TABLE 8:11 L.P.T. and L.P.T./Inca Settlements: Roofed Space Estimates

| L.P.T. Site No. | Built Area (ha) | Structure Area Range (sq.m.) | Mean Structure Area (sq.m.) (sq.m.) | No. of Structures | Roofed Space (sq.m.) | Roofed Area per ha |
|---|---|---|---|---|---|---|
| AL4 | 1.20 | | | | (888) | (a) |
| AL5 | 0.40 | | | | (296) | (a) |
| AL19 | 0.04 | | | | (30) | (a) |
| AL21 | 0.14 | 15.6-40.7 | 23.3 | 9 | 210 | 1498 |
| AL28 | 1.16 | 4.7-18.8 | 11.7 | 43 | 502 | 433 |
| AL29 | 0.05 | 7.0-12.5 | 10.3 | 4 | 41 | 820 |
| AL30 | 0.10 | ca.5.0-10.8 | 7.9(b) | 8 | 63 | 630 |
| AL34 | 0.04 | | | | (30) | (a) |
| AL37 | 0.27 | 10.8-28.3 | 21.9 | 9 | 197 | 730 |
| AL38 | 0.06 | | | | (44) | (a) |
| AL42 | 0.14 | | ca.32.0 | ca.25 | 800 | 1702 |
| L.P.T. and Inca | | | | | | |
| AL39 | 2.68 | 17.7-76.7 | 34.1 | 32 | 1090 | 407 |
| AL41 | 1.43 | | (c) | ca.50 | 1705 | 1192 |
| AL43 | 1.00 | | | | (740) | (a) |
| AL45 | 0.16 | | (d) | ca.10 | 219 | 1369 |
| AL46 | 0.45 | ca.15.2-29.2 | 22.2(b) | ca.15 | 333 | 740 |
| AM2 | 1.00 | | | | 730 | (d) |
| TOTAL | | | | | 7918 | |

NOTES: (a) Roofed Area per ha. as at AL46, at similar altitude.
(b) Median figure of observed size range.
(c) Size observed similar to AL39.
(d) Assumed as AL37, nearby.

TABLE 8:12 Inca Occupations: Roofed Space Estimates

| Inca Site Number | Site Component Area (ha) | No. of Structures | Roofed Space (sq.m) | Roofed Area per ha. |
|---|---|---|---|---|
| AL9 | 0.200 | | (280) | (a) |
| AL11 | 0.600 | | 1500 | (c) |
| AL12-1 | 0.002 | | (incl. AL12-1) | |
| AL12-1.1 | 0.040 | | 56 | (a) |
| AL12-4 | 0.010 | | ? | |
| AL12-5 | 0.090 | | (126) | (a) |
| AL12-7 | 0.188 | | (470) | (c) |
| AL17 | 0.060 | | (56) | (b) |
| AL20 | 0.200 | 6 | 357 | 1785 |
| AL22 | 0.018 | 2 | 178 | N/A |
| AL25 | 1.000 | | (1400) | (a) |
| AL35 | 0.020 | | (28) | (a) |
| AM1 | 0.180 | | (318) | (a) for 0.12ha (b) for 0.06ha |
| AM2 | 0.045 | | (42) | (b) |
| AM3 | 0.018 | 2 | 75 | |
| AM5 | 3.000 | | (2781) | (b) |
| AM6 | 0.250 | | (350) | (a) |
| TOTAL | | | 8017 | |

NOTES: (a) Assumed 1400 sq.m./ha
(b) Assumed 927 sq.m./ha
(c) Assumed one quarter of platform area

How can the occupants of Inca governing installations be enumerated and which complexes of Inca architecture can be treated as settlements comparable with nucleated villages of late prehistoric tradition? Some Inca pottery scatters could be evidence of transient *mit'a* labour encampments and there is evidence of small hamlets which are most likely to be under-represented in site surveys.

(d) Pre-Inca L.P.T. and Inca Period Populations:

The total roofed space of Limatambo Area L.P.T. sites is 98.7% of the figure for *Inca occupations* and 65.4% of Inca period settlements including continuously occupied L.P.T. sites.

The stable or exposed and eroding locations of L.P.T. sites may have increased their representation by comparison to Inca sites in lower depositional zones and along Inca roads which were used in Colonial and modern times. On the other hand, greater age, cruder construction and the impact of Inca earthworks must also have reduced the representation of earlier sites. The raw data do not suggest an increase in population during the Inca period in this area.

8.4.2 Changes in Zonal Settlement Distribution.

The trend towards *relatively low* positions, for L.P.T. settlements with evidence of Inca occupation (Table 8:3), is consistent with that suggested by Kendall [1976:99] for sites with more late Killke pottery in the Urubamba Valley. This may mean that some local settlements occupied at the time when

Cusco Inca pottery reached the valley were in such positions. Change in absolute altitude of settlement and land-use is a separate issue.

Inca interest in parts of the Limatambo Valley environment, represented by the location of site area, can be compared with that of L.P.T. settlements (Table 8:13). Both show an emphasis upon the DMF and lower altitude zones. The L.P.T. group includes many small sites at higher altitudes and the Inca pattern indicates a special interest in the Dry Forest.

Early historic records indicating community territories and their subsistence crops in Limatambo, as well as the zonal distribution of sites, support the proposition that multi-zonal agriculture was the norm at local level in late prehistory. The Inca shared the L.P.T. interest in lower enviroments, but little Inca occupation-area is at high altitudes.

TABLE 8:13 L.P.T. Settlements and Inca Occupations: Site Area as % of Limatambo Life Zones

| ZONE | | L.P.T. Settlements | | | Inca Occupations | | |
|---|---|---|---|---|---|---|---|
| | Zone Area (sq.km) | Site Area (ha) | n | % of Zone (by 0.01) | Site Area (ha) | n | % of Zone (by 0.01) |
| WU | 31.7 | 0.00 | 0 | 0.00 | 0.18 | 1 | 0.57 |
| HF | 235.8 | 2.89 | 6 | 1.23 | 0.22 | 2 | 0.09 |
| DMF | 113.0 | 3.18 | 6 | 2.83 | 2.24 | 6 | 1.98 |
| DF | 53.7 | 2.84 | 2 | 5.21 | 6.04 | 5 | 11.25 |
| TW | 22.0 | 1.70 | 2 | 7.73 | 1.68 | 2 | 7.61 |
| | 456.2 | 10.61 | 16 | | 10.36 | 16 | |

### 8.4.3 The Structure of Inca Presence in Limatambo Environments.

The data on settlement distribution across environmental zones is not in itself amenable to enquiry about the extent to which different resource zones were controlled by the Inca and removed from local-level subsistence. Archaeology cannot provide a measure of labour investment in cultivation of Inca lands without knowing their extent, nor can it quantitatively reconstruct the flow of goods to the state, especially when Inca storage structures are absent from the record. Site context and content do enable assessment of the different modes of Inca resource control:

(i) The most complex and elaborately constructed Inca sites, *tambos*, were placed along the Inca road from Cusco to Chinchaysuyu (AL11 and AM1, in the DMF and upper DF zones) and large Inca pottery-using settlements lay nearby, in the DMF, DF and TW zones (AL25, AM5, AM6).

(ii) Greatest labour for Inca terrace construction was invested on valley-floor lands along the same route (AL2, AL8, AL10, AL11, AL12 and AL14). All but AL2 are in the DMF zone or DF-DMF boundary.

(iii) Small Inca installations were placed at high altitude on the northwestern side of the valley, isolated from the main Inca road and without terraced lands in the HF and WU zones (AL20, AL22 and AM3).

(iv) One large terrace scheme (AL2), the Chakllanka-Pampaconga canal and several small terrace schemes (AL1, AL3 and AL6) were scattered around the

northeastern slopes of the valley, near roads from Cusco. They may represent a more direct but dispersed Inca control of high agricultural lands than in the northwestern HF zone.

(v) The southeastern valley and Apurimac ravines contain little Inca-style construction, but nucleated settlements in the local tradition received a wide range of Cusco Inca pottery vessels. The settlements were neither transitory, nor apparently directed to major Inca terrace construction. It is likely that they were tied to the Inca resource-acquisition system and capable of historic designation as either *mitmaqkuna* or *Incas-by-privilege*. This indirect resource control is represented at sites AL39, AL41 and probably AL45. All are at low altitudes in the TW, DF and lower DMF zones, associated with warm-climate crops in the 16th Century.

8.4.4 Specific Resources: Salt and Stone.

Two groups of Inca sites were probably the result of a desire to control or obtain localised resources. Pichiumarka (AL35) lies beside a place now renowned as a source of rock salt, although it was reported in 1586 that salt had to be brought from Cusco to Limatambo [Fornee 1965:26]. Some salt fields in the Yucay Valley were said to have belonged to the *Sun* according to a 1551 document [Villanueva 1970a:40].

The hornblende andesite used in construction of Cusco Inca walls at many sites near Limatambo was not found on the sites themselves or adjacent slopes (AL11 Sector A, AL12-2, 12-3, 12-6 and 12-7). It occurs in outcrops and as boulders on the slopes of Mamako mountain, on the opposite side of the Colorado

River [Heffernan 1987]. Mamako contains little evidence of Inca terracing, apart from AL15, but AL16 and AL17 were probably sites of stone procurement and stoneworking and AL17 may have been a settlement for persons engaged in administration or execution of such work.

## 8.5 Direct Inca Land-Use Control in Limatambo and Chinchaypuquio.

Inca terraces comprise 122 ha of the total of 139 ha of *Inca site* in the study region. Labour invested in terraces far exceeded that for other Inca construction. Over 80% of their surface area was concentrated in the DMF zone and almost 90% was on valley floors. The evidence is overwhelmingly against the proposition that these terraces were built for the purpose of reclaiming lands which were *marginal* or uncultivable *because* of a relatively steep gradient. This does not mean that terracing, river canalization and irrigation canals did not improve aspects of the chosen lands.

### 8.5.1 Function of Inca Land Modification Works.

Functions suggested for terraces include:

(i) Improvement of field water retention on slopes in places with a pronounced dry season and reduction of erosive run-off on planted fields [Reynolds and Coldwell 1938:95; Keeley 1984:325]. This probably makes provision of irrigation worthwhile, or more efficient.

(ii) Improvement of depth, structure and composition of soils. Alluvial-colluvial terraces and side-stream alluvial fans are commonly stony and steep

slopes are thinly-soiled. Terracing can be used to relegate stone to lower fills and walls and concentrate best soils on top [Drosdoff et.al. 1960:99-100; Wright 1962:97; Field 1966:427-429]. Work with the *chakitaklla* is impeded by presence of large stones.

(iii) Retention of the advantageous properties of water and cold-air drainage on slopes [Keeley 1984:332] and promotion of microclimatic effects such as frost-inhibiting air turbulence and field temperature changes through re-radiation from walls [Field 1966:430; Earls 1978].

(iv) Provision of bounds to a stable locus of agriculture which restricts the entry of weeds and animals [Field 1966:440; Patrick 1977:290].

Inca river canalization schemes facilitate both reclamation of poorly drained valley floors and protection of adjacent terraces from river meander [Farrington 1983:227-228].

The security of crops and absolute production were probably increased by terracing in combination with irrigation and canalization. Irrigation in Limatambo today enables double annual cropping and provides security by decreasing dependence upon rainfall. The concentration of study region Inca terraces in the DMF zone, the present day and 16th Century focus of maize production, is consistent with the ritual, social and economic importance of that crop in the Inca state value system [Murra 1960]. It cannot be assumed to have been the only crop of terraced lands and particular interest attaches to the problem of archaeologically verifying the prehistoric crop complexes at L.P.T. and Inca terraces at low altitude in the study region.

### 8.5.2 Terraces and Symbolism.

Agroeconomic factors are a partial explanation of Inca terracing. Most of the advantages described are equally applicable to less elaborate stone-walled terracing recorded at L.P.T. sites (AL39, AL40 and AL42), although the stony fills behind Inca terrace walls appear to provide drainage which contributes to their better preservation than L.P.T. terraces. Their continuous walls also form greater barriers to movement. Highly distinctive architecture in Inca terrace layout and wall building suggests that they were an overt expression of *Incaness*.

Inca terraces and their production almost certainly pertained to social, political and religious institutions of the Inca state, whose architectural symbols were built into them. When Spanish and the Colonial Inca nobility began to claim *Inca and Sun lands* as exclusive property under Colonial Spanish land law, the terraced lands of Limatambo appear to have been taken most rapidly. This may not merely reflect the choice of lands in areas of benign climate [Villanueva 1970a], but also the choice of lands least likely to be disputed by communities with their subsistence base in surrounding territory. In other words, lands were chosen which had, for some time, been divested from community control by Inca state institutions.

### 8.5.3 Agricultural Infrastructure and *Intensification*.

There is no evidence for a large Inca period increase in the Limatambo Valley population. Inca terraces did not extend far onto valley sides beyond the Inca road. Such agricultural infrastructure does not appear to be

*intensification* in response to locally generated pressure upon lands. It is best characterised as the improvement of land which supplied the needs of state institutions, including the *tambos* of Limatambo and Apurimac and probably Cusco too. The specific crops which Limatambo Valley residents were reported to have provided to the Inca are maize and chili [Fornee (1586) 1965:25]. Both are products of the DMF zone, the present and 16th Century foci of their production and also the focus of Inca terracing projects.

## 8.6 Conclusions.

The topograpy of L.P.T. settlements is consistent with a greater interest in security than at Inca occupations. However, few are distant from large cultivable areas. The mythico-historic characterisation of pre-Inca populations as constantly warring, in the light of field evidence, is imbalanced and fails to appreciate stable elements in the socio-economic landscape of Limatambo. There was probably a small shift in population to lower relative topographic locations, and to lower altitudes, but multi-zonal exploitation remained the local-level norm.

Historic data described the Limatambo population as *of the Inca and the Sun*. Archaeology, and specific history tied to the landscape, show how little that reflects the varied nature of Inca presence in different parts of a fairly small valley near Cusco. Most Inca settlements straddled the Chinchaysuyu road, as did their highly visible agricultural projects. The latter, which constitute lands most thoroughly removed from the local-level subsistence base, were relatively small when compared to the total landscape. In fact, the extent of Inca terraces in the Limatambo Area is only 0.25% of its surface area.

Inca control in most resource zones probably depended upon the negotiation, enforcement and encouragement of local *mit'a* quotas to work them and bring goods to the state, *mitmaqkuna* with some dependence upon the state, and *Incas-by-privilege*, whose status depended upon the state.

It is unknown whether valley floors with Inca period terraces were *prime*, *marginal* or *not too bad* in the estimation of local residents prior to terrace contruction. With *chakitaklla* plough technology, instead of the historic bullock ploughs which require fairly level terrain, stony and unirrigated valley floors may have offered few advantages over similar valley-side flats. Data are lacking on the prehistoric variation of soils, but valley-floor canals are now regarded as less difficult to build and more stable than those on steep slopes. Valley floors were only one small part of the landscape used for local subsistence, but large areas of them in Limatambo were at altitudes with wide land-use options. Relatively broad riverine flats near Pantipata and Sumaro are at high altitude and were not terraced.

The exigencies of Inca relations with local communities, on the one hand, and the demands of state endeavours and elite consumption, on the other, may have been balanced by state expropriation of small, defined areas to be made highly productive and/or securely productive. The effect of coercive labour demands and movement of communities from ancestral lands can rarely have been compensated by state redistribution, but the extent to which coerced labour was concentrated in land improvement suggests an attempt to satisfy state requirements while reducing the absolute areas taken, at substantial political cost, from circum-Cusco communities. The same landscapes were chosen for labour-costly saturation with Inca architectural symbols.

# CHAPTER 9

# INCA TERRACES IN SOCIAL LANDSCAPES SURROUNDING CUSCO.

## 9.1 Introduction.

*Inca terraces* comprise over 88% of the total Inca period site area in the study region. They occur in miniature schemes of under 100 sq.m to vast and continuously terraced landscapes reaching 469,700 sq.m. Field studies elsewhere in Tawantinsuyu indicate that such architecturally distinct terraces are primarily a phenomenon of the circum-Cusco valleys and a small number of other highland Inca sites. Their elaborate walls and design are not fully explained as investment in agricultural infrastructure and it is proposed here to further explore their archaeology and its implications for social prehistory in the Cusco region.

### 9.2.1 Distribution Pattern of Terrace Wall Features in the Study Region.

Most Inca terraces appear to have been irrigated. Their walls often contain vertical channels (WD) which reveal a plan for water distribution from level to level, as described for AM1 Sectors A and B. The risers form substantial barriers to movement, unlike the widespread *interleaving and intermittent* terraces. A plan for human access between levels is represented in many schemes by various staircase types, principally wall steps (WS), Recessed Parallel Staicases (RPS), Recessed Staircases (RS) and Staired Routeways (SR) (Appendix III). WS and RPS were published in figures early this Century [Bandelier 1910:226, 261-2, Pls. LXXIV, LXVIII] and WS and WD were photographed

by Rowe [1944:Pl. VII]. WS were marked in detail on maps by Fejos [1944:37,Figs.10,12] who considered their great frequency at Inty Pata as beyond utilitarian needs. Valencia [1982:74-76] distinguished between various staircase types at Yucay, including RPS. Discrete terrace schemes in the study region are distinguished by different combinations of these features:

(a) Only WS and WD are present at AM1 and AL36, in the western Limatambo Valley.

(b) RPS are only present at AL2, AL8, AL12, AC1 and AC3.

(c) RPS and WD occur at AC4.

(d) Terraces with RS and SR access occur at AM3, but unlike the schemes above, are very small in area, show no signs of having been cultivated in the recent past, are impossible to irrigate by canal and are at relatively high altitude.

(e) AL11 Sector A, Tarawasi, has unique and elaborate staircases on Wall II, most comparable to the *exterior* staircase at Huanuco Pampa *Ushnu* [Gasparini and Margolies 1980:Figs.94,95], but with a recessed portion too, as well as a length of the Inca road running beside the terraces.

(f) Terraces with no visible wall features are numerous (AL1, AL3, AL6, AL7, AL10, AL11-B, AL13, AL14, AL15, AL51, AL32, AC2 and AM2).

Terraces with no wall features could in some cases be entered from terraced ramps or roads built into the scheme (AL10, AL11). Many terrace walls are poorly preserved, so absence from the record is not definitive (AL6, AL7, AL11-B, AL13, AL14, AL15, AL32, AL51 and AM2). AL1 and AL3 are distinguished by their small size, high altitude location and lack of ending walls.

9.2.2 Terrace Access Architecture in Cusco and Tawantinsuyu.

RS and SR at Southern Highland Inca sites frequently pass through terraces to standing Inca buildings within them, lie between buildings (streets) or give entry to them and rise to platforms with elaborate masonry placed centrally in open space (*ushnu*). Examples are the long RS and SR features at Ollantaytambo, between *Manyaraccay* plaza and the *fortaleza-religious sector*, RS and SR to a structure surrounding an outcrop above, and RS at Vilcashuaman *Ushnu* and *Sun Temple* [Gasparini and Margolies 1980:Figs.52, 98], RS and SR to buildings at Phuyu Pata Marca, Sayac Marca, Inty Pata, Chachabamba and *Choquesuysuy* [Fejos 1944:Figs.3,9,10,11], Espiritu Pampa [Bingham 1914:186, 192], Tampumachay, Pukara and Kenko [Franco 1935:212-230], as well as Lakko and Lanlakuyoj [Franco 1937b:212-230]. Many RS and SR were used at Machu Picchu, to give access to buildings and terraces and to Huayna Picchu mountaintop [Bingham 1930:Fig.219]. SR and RS rise through the mountainside terrace groups named *Huimin* and *Qoriwairachina* at Pisaq, on a route to ridge-top elaborate buildings and a masonry-encircled rock.

WS and RPS were, in contrast, rarely employed beyond terrace walls. WS occur on the upslope walls of Inca buildings with very small entrances, probably used for storage [Kendall 1985:35]. Examples include Huayhuakunka, a

site of eleven such structres visited near Huaraypata in the Vilcanota Valley. A pair of RPS were used in a retaining wall below a Cusco Inca masonry platform at Ingapirca in Ecuador [Gasparini and Margolies 1980:Figs.285-289]. Another pair, visited at Salapunku in the Lower Urubamba Valley, have a stone-vaulted roof and two double-RPS at Yucay are deeply recessed and enclosed behind terrace walls.

WS and RPS in the Cusco region were recorded between June and December 1982 for my report to the Vilcanota Valley Project of Farrington. He has kindly permitted its tabulation here along with data on other sites recorded since then. Sites in Anta, the Upper Vilcanota and Apurimac Valleys were sought and recorded between December 1984 and July 1986 and several months in 1988. These data support the distinction made between discrete terrace schemes which feature RPS and those with WS (Table 9:1), leaving aside, for the moment, schemes with neither.

RPS and WS occur within the same continuous terrace scheme at three recorded sites, but are only known to occur on the same wall lengths at Urco, where the wall with both separates terrace risers with RPS from those with WS. WS sets appear to be far more numerous than RPS and more likely to occur in schemes at greater distance from Cusco, excepting outliers at Koati Island on Lake Titicaca and at Ingapirca (Fig. 9:1).

### 9.2.3 Comparability of Access Feature Types.

The mean RPS lengths, in a sample of 9 out of 14 sites (Table 9:2), overlap at one standard deviation. Mean RPS recess depths, at 7 out of 13

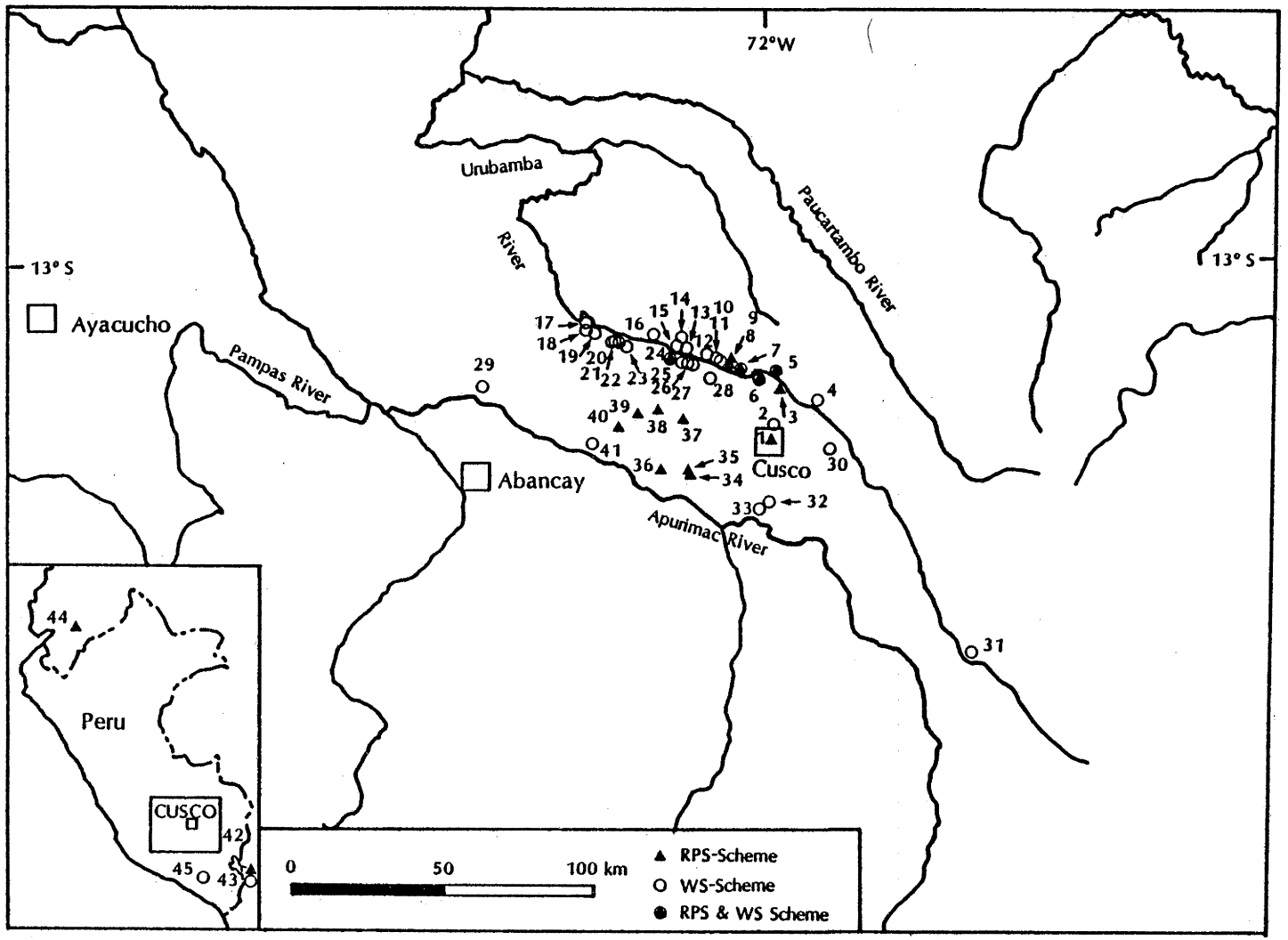
TABLE 9:1 Wall Features in Selected Inca-Style Terrace Schemes

| LOCATION | WALL FEATURES WS | RPS | RS | WD |
|---|---|---|---|---|
| VILCANOTA-URUBAMBA V. | | | | |
| 1. Pisaq | * | - | * | * |
| 2. Urquillos | * | * | * | - |
| 3. Urco | * | * | - | * |
| 4. Yucay | * | * | - | * |
| 5. Urubamba | - | * | - | * |
| 6. Chicon | - | * | - | * |
| 7. Porron | * | - | - | - |
| 8. Pumawanka | * | - | - | - |
| 9. Yanawara | - | - | - | * |
| 10. Pisonayniyoq | * | - | - | * |
| 11. Pachar | * | - | - | * |
| 12. Ch'allaraccay | * | - | - | * |
| 13. Choqana | * | - | * | - |
| 14. Ollantaytambo | * | - | * | * |
| 15. Patakancha | * | - | * | * |
| 16. Simapuquio | * | * | - | - |
| 17. Ch'ilka | * | - | - | - |
| 18. Machu Q'ente (1) | * | - | * | - |
| 19. Wayna Q'ente (2) | * | - | * | - |
| 20. Q'ente-Media-Luna (3) | * | - | * | * |
| 21. Tunasmoqo (4) | * | - | - | - |
| 22. Inty Pata (5) | * | - | * | - |
| 23. Choquesuysuy (6) | * | - | * | * |
| 24. Machu Picchu | * | - | * | * |
| UPPER VILCANOTA-CUSCO V. | | | | |
| 25. Raqchi | * | - | * | * |
| 26. Tipon | * | - | * | * |
| 27. Tampumachay | * | - | * | * |
| UPPER URUBAMBA-PAMPA DE ANTA. | | | | |
| 28. Huchuy Qosqo (7) | - | * | - | * |

TABLE 9:1 continued.

| LOCATION | WALL FEATURES WS | RPS | RS | WD |
|---|---|---|---|---|
| 29. Moray Andenes | * | - | - | * |
| 30. Chinchero | - | - | * | * |
| 31. Zurite | - | * | - | * |
| LIMATAMBO | | | | |
| 32. Chakllanka | - | * | - | - |
| 33. Runkuwasi | - | * | - | - |
| 34. Rioja | - | * | - | - |
| 35. Markawasi | * | - | - | * |
| CHINCHAYPUQUIO | | | | |
| 36. Negropuquio | - | * | - | - |
| 37. Wankariri | - | * | - | * |
| PARURO | | | | |
| 38. Huaynacancha | * | - | - | - |
| HUANOQUITE | | | | |
| 39. T'ikahuerta | - | - | - | * |
| 40. Llaspay | * | - | - | - |
| VILCABAMBA | | | | |
| 41. Choquequirao (8) | * | - | * | - |
| TITICACA ISLAND | | | | |
| 42. Chucaripu (9) | * | - | - | - |
| KOATI ISLAND | | | | |
| 43. Inak Uyu (10) | - | * | - | - |

NOTES: (1) Farrington 1980:54-55; (2) op. cit.; (3) Farrington pers.comm.; (4) op.cit. (5) Fejos 1944:33, fig.10; (6) op.cit.:37, 41, 48, figs. 11, 12, pl. 73; (7) Farrington pers. comm.; (8) Bingham 1910:517; J. Zapata R. pers. comm.; (9) Bandelier 1910:226, pl. LXVIII; (10) op.cit.:261-262, pl. LXXIV;




1. Cusco; 2. Tampumachay;
3. Huchuy Cusco; 4. Pisaq;
5. Urco; 6. Urquillos;
7. Yucay; 8. Quispeguanca (Urubamba); 9. Chicon;
10. Pomaguanca; 11. Porron;
12. Yanawara; 13. Pisonayniyoq;
14. Patakancha (west flank);
15. Ollantaytambo (between town and Vilcanota R.);
16. Ch'ilka; 17. Machu Picchu;
18. Inty Pata; 19. Choque-suysuy;20. Machu Quente;
21. Huayna Quente; 22. Quente - Media Luna; 23. Tunasmoqo;
24. Simapuquio; 25. Choqana;
26. Ch'allaraccay; 27. Pachar;
28. Moray; 29. Choquequirao;
30. Tipon; 31. Raqchi;
32. Huaynacancha; 33. Llaspay;
34. Wankariri; 35. Negropuquio;
36. Lucre; 37. Zurite;
38. Chakllanka; 39. Runkuwasi;
40. Rioja; 41. Markawasi;
42. Iñak Uyu; 43. Chucaripu;
44. Ingapirca;

**FIG. 9:1 Distribution of Inca Terraces with RPS or WS.**

NOTES: Sources are from field observation or as referenced in Table 9:1 and: No.1 - Farrington (pers. comm.); Schemes Nos. 20 - 23 are depicted in Kendall 1985ii:Map 3; No. 44 - Gasparini and Margolies 1980:296-298.

TABLE 9:2 Mean RPS Measurements from Limatambo and the Cusco Region

| Province | Site Name | Length (m) | | | Recess Depth (m) | | | Column Width (m) (if double) | | | Height (m) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | SD | n | RD | SD | n | CW | SD | n | H | SD | n |
| A | Rioja | 3.2 | 0.4 | 41 | 0.86 | 0.12 | 50 | 1.6 | 0.2 | 6 | 2.4 | 0.4 | 47 |
| A | Chakllanka | 3.2 | 0.2 | 3 | 0.77 | 0.08 | 7 | | | 0 | 2.6 | 0.7 | 9 |
| A | Runkuwasi | | | 0 | 0.70 | - | 1 | | | 0 | 2.2 | - | 1 |
| A | Negropuquio | 2.7 | 0.4 | 2 | 0.78 | 0.04 | 2 | | | 0 | 3.0 | 0.0 | 2 |
| A | Wankariri | 2.4 | 0.2 | 3 | 0.55 | 0.10 | 3 | | | 0 | 2.2 | 0.2 | 3 |
| A | Lucre | 3.0 | 0.5 | 3 | 0.79 | 0.05 | 4 | | | 0 | 2.5 | 0.8 | 5 |
| A | Zurite | 4.5 | 1.6 | 6 | 0.70 | 0.07 | 10 | | | 0 | 3.4 | 0.6 | 10 |
| U | Urquillos | 3.9 | 0.1 | 2 | 0.60 | - | 1 | 1.6 | 0.1 | 2 | 1.8 | 0.1 | 2 |
| U | Urco | 4.6 | 0.6 | 8 | 0.92 | 0.03 | 7 | | | 0 | 4.3 | 0.7 | 7 |
| U | Yucay | 4.2 | 1.0 | 77 | 0.68 | 0.13 | 64 | 2.3 | 0.7 | 34 | 4.0 | 0.9 | 91 |
| U | Quispewanka | 4.1 | 1.6 | 9 | 0.55 | 0.07 | 2 | 2.8 | 0.3 | 3 | 3.3 | 0.8 | 7 |
| U | Oqepalpa | 3.6 | 0.7 | 17 | 0.63 | 0.02 | 12 | 2.4 | 1.0 | 8 | 3.3 | 0.0 | 2 |
| U | Chicon | 3.4 | 1.0 | 4 | 0.67 | 0.05 | 4 | | | 0 | | | 0 |
| U | Pumaqchupan | 3.0 | 0.5 | 3 | 0.73 | 0.18 | 2 | 3.1 | 0.4 | 2 | 2.8 | 0.2 | 3 |
| U | Simapuquio | 7.1 | 1.2 | 6 | 1.11 | 0.07 | 6 | | | 0 | 3.3 | 0.3 | 5 |

Provinces: A (Anta) U (Urubamba)

sites, overlap at one SD. Many samples are small. For 7 sites, each with over 5 RPS, only Simapuquio lengths stand apart at two standard deviations.

Wall Steps at AM1 are similar in number to a whole-site sample from Moray terrace scheme in Urubamba District (Table 9:3, App.III:Table 4). Both sites show the attempt of builders to alternate the direction of ascent of WS, on both the same wall and rising levels. This explains the similar number of sets rising to the left and right. A considerable difference between batter angles may be the result of lower overall wall height at Moray or unmeasured engineering requirements (Table 9:4). However, the extent to which steps were made to project out from the terrace wall is similar at both sites.

TABLE 9:3 WS-set Direction of Ascent, AM1 and Moray

| Site | Direction of Ascent (n) L | R | unknown | Wall Step Sets (n) | Individual Steps (n) |
|---|---|---|---|---|---|
| AM1 | 31 | 25 | 8 | 56 | 175 |
| Moray | 51 | 53 | 23 | 114 | 214 |

TABLE 9:4 WS-set height, Batter and Step Projection, AM1 and Moray.

| Site | Mean Height | | | Mean Batter Angle | | | Mean Step Projection | |
|---|---|---|---|---|---|---|---|---|
| | m | (n) | SD | % | (n) | SD | cm | SD |
| AM1 | 2.5 | (55) | 0.4 | 19.3 | (52) | 4.5 | 37.7 | 4.2 |
| Moray | 1.5 | (117) | 0.5 | 9.3 | (28) | 5.2 | 38.7 | 6.1 |

It is reasonable to conclude that, with few exceptions, WS and RPS were repeated types of architectural features built into the retaining walls of discrete land surfaces. Their respective distribution pattern in the landscape does not appear to be aleatory. Other attributes tend to distinguish terraces with RPS and WS too. The terrace walls which contain RPS are very straight, in horizontal plan, by comparison to those with WS. Such *RPS-schemes* tend to lie on valley floors, alluvial fans and valley-side flats, rather than on steeper slopes. Contour terraces, on steeper slopes, tend to have WS features. A good example of this comes from a comparison of the AL12 and AM1-A site plans (Figs. 5:9 and 5:14).

9.2.4 Prevention of Access.

Why do some terraces of equivalent wall construction, scheme-design and sometimes Inca pottery or buildings, have no WS or RPS? Clearly there are cases where roads and RS or SR provided access to all levels, but in some cases abrupt terrace risers were probably used to exclude people, or to direct them through specific routes of access.

AM1-B (*Castiluyoq*) is an effectively divided landscape (Fig. 5:14). Once within the terraces, it is necessary to scale high terrace walls to reach an adjacent level, or to make a lengthy passage around wall lines. It is doubtful that the terraces were defensive since the slope below is at least as steep as the terraces themselves, access is possible from either side, parallel to the contour, and terrain on the northern side is above the site. One hypothesis is that the embodied plan was to restrict access by cultivators on one level to the adjacent terraces. In contrast, free movement was facilitated from level to

level throughout Sector A at AM1. Vertical alignments of WS, as well as alignments of WD features, are fairly regularly spaced with respect to each other and to corners of walls. Regularity is reported in measurements of Inca terraces in the Vilcanota Valley [Farrington 1984:10-11] so that detailed quantitative comparison, as the reported sample increases, may provide a further avenue for analysis of their regional variation, standardization and perhaps chronology. It is also possible that terraced space was conceptually divided into blocks designated by sets of such features.

## 9.3 Explaining Architectural Variation in Inca Terrace Schemes.

### 9.3.1 Chronology.

Both RPS and WS were contemporaneous features at some time in the period of Inca-style terrace construction since they alternate on one wall at Urco, with no apparent change in stonework. Both occur in walls of stone which has been partially hammer-dressed to achieve a fairly close fit. Were they virtually simultaneous in origin?

Incomplete terrace construction at AC1, an RPS-scheme, is not necessarily indicative of a late date, although it is probable that Spanish conquest was the reason for cessation of work. Moreover, piles of evenly-sized rubble and uneven surface planes in the small *Kuchimuyoq* sector at Moray, a WS-scheme, suggest it was also unfinished in prehistory. Its two circular terraces are visible, but unlabelled, in the air photograph published by Donkin [1979:116-118]. Radiocarbon dating for occupation refuse in the RPS-scheme at AL12-1 is

consistent with a late 15th or early 16th Century date, but within an overly broad range at high confidence level (Appendix IV).

Inca terraces with WS and WD overlap the lower part of local-level or pre-Inca interleaving terraces on the western Patakancha valley flank, between Ollantaytambo and Pumamarka Inca site complexes, but this does not assist refinement of intra-Inca chronology.

There are mythico-historic accounts about the rulers or architects responsible for building terraces and probably less legendary testimonies by witnesses in early Colonial times about work they had done for the Inca. Both are marred by lack of specificity about the exact schemes which were built and the former is problematic, because of the need to untangle residual historicity from the structural form of myth. When architects and rulers are *named* in the chronicles, or even given a genealogy, the linear-temporal historicity of the statement remains uncertain. Patterned generic concepts are frequently contained in lists of names in recorded Inca myth-history [Zuidema 1964]. Testimonies of builders or their relatives in the Colonial period are also unlikely to resolve the outstanding question, which is the temporal priority of one or the other terrace type.

An *age-area* model, centred upon Cusco and for the Department of Cusco alone, does suggest the priority of the widespread and abundant WS-schemes as opposed to RPS-schemes, concentrated within 60 km of the capital (Fig.9:1). However, this is tempered by both the need to explain outlying occurrences of both features and the fact that, by the time of conquest, the state was in a position to direct construction of its familiar symbols at places throughout

Tawantinsuyu. Both date to a time when it could mobilise the labour forces needed for large and elaborate terracing projects and when the resources at its disposal were drawn from an area much larger than the nuclear portion of the Cusco Valley.

### 9.3.2 A Status and Land Tenure Hypothesis.

The strong presumption is that work gangs in Cusco in the last few preconquest decades could expect to be directed to build either RPS or WS, but rarely both, in the walls they built for Inca masters. We have the clue that WS and RPS features were primarily attached to improved, cultivable lands. Control of land and labour maintained the Inca state and the stratified society encountered in 1533 by the Spanish in Cusco. A rudimentary understanding of extant land tenure was useful to Spaniards in early Colonial Peru, when the likely resistance to their attempts at resource acquisition had still to be calculated in terms of a more limited capacity to enforce them.

Attempts to interpret the social significance of architectural variation necessitate the assumption that the forms were symbols, and symbols with specific and ascertainable meaning. Uneasiness with this assumption, and the choice of a structure for the meaning of symbols, are obvious reasons for the situation noted by Hodder [1987:139] that structuralism has mainly provided models for archaeology of historic periods.

It is not difficult to posit all Inca terraces as evidence of differential access to energy, and broad valley-floor terraces with RPS as symbol of a further degree of *high status*. Each RPS would almost certainly have required

more energy to build than a set of projecting steps. More stepping stones had to be placed side by side and further squared corners were built for the recess. The highest walls are known in RPS-schemes and a special effort was made to *straighten* the landscape. Some RPS occur in walls between 5 and 6 m high at Yucay and Urco, whereas WS probably reach their highest, about 4 m, in the Sunchupata sector of Yucay. In general, the construction of numerous narrow terraces, with low walls, requires less soil movement for levelling than broad terraces with high walls on the same slope. However, the choice of moderately sloping lands for RPS-schemes facilitated the levelling of broad surfaces. Great energy was also invested in narrow Inca contour terraces, with WS, to maintain the regularity of curve. Comparative estimates of prehistoric labour input are only general and RPS occur in risers separating both narrow and broad terrace levels. WS are not exclusive to the former and exist in straight walls at several sites.

Archaeological research has the capacity to elucidate the productive functions of terrace schemes and day-to-day activities at their associated settlements, and the broad limits of energy inputs in construction. Historic records reveal early Colonial patterns of land tenure and testimony to its late prehistoric use. These are the additional data for modelling land tenure in late prehistory and its likely correlates in the physical landscape.

### 9.3.3 Social Associations of Terraced Lands.

Documentary information is rarely so unequivocal, precise and equally detailed for the entire landscape as to permit attachment of an event or social fact to bounded space, but attempts to do this are essential if historic and

archaeological facts are to be made commensurable. Documentary sources are variably distanced by time from late prehistory, hence the implications of facts contained in them for the final preconquest decades require critical distillation.

The spatial analysis of early historic data, in Chapters 6 and 7, maintains the following conclusions:

(a) AL11-A, containing the largest amount of elaborate masonry and unique staircase forms of the Limatambo Valley, was regarded in very early history as a *tambo*, or in some way central to that concept.

(b) AL10 lay within an area, not tightly defined, attributed to the prehispanic Inca institutions of *mamakuna* and Sun. Its terrace walls are not known to incorprate RPS or WS, but an integral road system provided access to levels.

(c) AL12, an RPS-scheme, is not unequivocally described in available sources, but a nearby Indian settlement was occupied at the time of *reduccion* and probably before it, by a group with a name indicating high rank. Was this ranking made by reference to Inca elite or a local hierarchy? It is only known that Inca-style artefacts were available to them and that their *cacique* was the principal one among the various *ayllus* contained in Chuyani Repartimiento. AL12 was also within or beside lands of Indians of this Dolmos *repartimiento*, but also in the vicinity of terraced lands known to have corresponded to Dolmos himself. Did they reach Dolmos together with succession to the Chuyani

*encomienda* from his wife's first husband, Mazuelas, from a pre-Toledan claim to *Inca and Sun* lands?.

(d) Lands on the poorly preserved terraces of AL11-B were obtained by Colonial Inca nobility in early history, which suggests actual or alleged *Inca and Sun* status.

(e) Lands attached to the *tambo* of Limatambo, possibly terraced, were site of *yanacona* in early history. This strengthens their relation with the concept of Inca elite property in late prehistory.

(f) *Mitmaqkuna* resided on sloping, unterraced lands beside AL11.

(g) AM1 terraces contain WS features. It was a *tambo*, served in late prehistory by people called *Tilka* and designated as *mitmaqkuna*. Resettled peoples provided security enclaves and also workers for *Inca lands*. *Mitmaqkuna* could probably also be designated as *yanacona* to emphasize their service-retainer function and independence from ties to groups of origin, but history still has much to demonstate on the intricacies of such terminology. The word chosen to designate the Tilka people in Molina's account of *citua* was *mitimaes*, thus emphasizing their role as people in service of the state, rather than as personal retainers of the Inca elite or labourers on their estates.

(h) Small terrace groups at higher altitudes (AL1, AL3 and AL6) appear to have been islands, and were surrounded by Indian community lands in early history.

(i) Circumstantial evidence links terraces near the *reduccion* town of Chinchaypuquio (known examples of which are RPS-schemes) with a highly-ranked social group, but further historic data are needed for spatial precision.

Documentary and archaeological information on Limatambo terrace schemes leads to recognition of similarities with the Inca presence in the Vilcanota Valley. Some terrace schemes have been identified, based on toponymic survivals from early documentary references founded in field survey, among 1551 claims for lands of the Inca, Sun, named Incas and their wives [Villanueva 1970a:13,37, 46,52-53]. RPS terraces in Urubamba township appear to be an integral part of a rural estate and palace complex which belonged to Inca Huayna Capac in late prehistory [Farrington 1986,1989]. RPS-schemes rather than WS-schemes tend to figure within the specific claims. Chronicle references to estates or retreats of Incas, their mummified corpses or *panaqas* are, in contrast, often equivocal and all spatially afloat.

Why are RPS terraces located at Iñak Uyu on Koati Island of Lake Titicaca? Murra, basing himself on Murua (1590), suggests that Lake Titicaca sanctuaries were virtually unique among Inca establishments with *mitmaqkuna*, in that priests and officials there pertained to the dynastic *ayllus* of Cusco, rather than to privileged groups, like the Anta from near the capital, who were sometimes spoken of as *from Cusco* [1978:254]. It is unknown if Atawallpa Inca directed construction of Inca-style landscape works near the northern centre of his factional influence at the end of prehistory. Colonial documents indicate that *Cusco mitmaqkuna* were placed between Tomebamba and *Hatun Cañar*, identified as the Ingapirca archaeological site, in Ecuador [Hyslop 1984:26], that Quito

contained *recreational houses* of ruling elite, and that his relatives in Quito drew income from exclusive estates [Salomon 1986a:147,169-171].

The general conclusion remains a relatively strong hypothesis, examinable by the combination of archaeological data and spatially confined documentary sources, as they are brought to light. The RPS-schemes can be explained as the chief expression of exclusive estates which supported the subsistence of elite social groups of nuclear Cusco, and were likely to be designated in documents with the name of their Inca-founder or royal-personage. It has not been possible to distinguish private lands held by rulers under male-founder based *ayllu* descendence, from the lands held by the *panaqas*, probably a group based upon sister-brother relations [Zuidema 1964:99,184-5; Sherbondy 1982:19]. However, the fact that primary wives were supposed to be sisters may mean that the designation of estates by the name of Inca's wives in Colonial land claims was an attempt to present the *panaqa* in understandable form to the Spaniards.

Zones of elaborately finished terrace walls on the high points of RPS-schemes, like AL12-7 and AL14, were probably sites of elite rural residence, although only Quispeguanca of Urubamba has received detailed attention [Farrington 1986] and such sites await excavation.

In contrast, many WS-schemes surround Inca *urban-like* complexes and/or *ceremonial centres* with concentrations of standing structures, such as at Pisaq'a, Ollantaytambo, Machu Picchu, Maukallacta (Yaurisque), Tipón and Raqchi. These may have been the core territory of production for state-maintenance and have been residences of Inca elite insofar as administration was the role of people actually related to the Inca rulers, or permitted to express their status

by reference to them. Recently, the WS-scheme at Tipón has been posited as a possible site of lands for Inca state maintenance worked by *mitmaq* described in a Colonial land dispute [Burkheimer and La Lone 1987:55-60]. As seen in Limatambo, terraces are not representative of all resource zones which were tapped by late prehistoric Inca society, only of the lands where labour input was concentrated and about which Inca settlements were centred in the Cusco region.

The association of WS-schemes with large Inca settlements conforms with the ethnographic model of Mayer [1985:66], in that present village nuclei of settlement are located near the lands *needing* the greatest labour inputs. Present value systems lead to a dual pattern of maize-potato boundary settlement and field crop-pasture boundary settlement. Translated to the Inca state pattern, energy was directed to terraced landscapes in the area of maize production and settlement was concentrated nearby.

Beyond the core lands, both the Inca elite and state-maintenance system relied upon the existence of communities, whether *local* or *mitmaq*, to provide the labour which gave access to pastures, highland crops, wool and other dispersed resources. Certain pastures near Cusco were improved by irrigation [Sherbondy 1982:11], and the small terrace schemes and canal in Pampaconga of Limatambo may represent the same dispersed and community-reliant access to non-maize production zones.

TABLE 9:5 Mean WD Measurements From Limatambo and the Cusco Region

| District | Site Name | Wall Height (m) | | | WD Recess Depth (cm) | | | WD Width (cm) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | H | SD | n | RD | SD | n | W | SD | n |
| L | Markawasi | 2.2 | 0.5 | 22 | 22 | 5 | 22 | 18 | 4 | 20 |
| Ch | Wankariri | 2.2 | 0.1 | 4 | 21 | 5 | 3 | 17 | 7 | 3 |
| Pi | Pisaq-(Huimin) | 2.1 | - | 1 | 14 | - | 1 | 15 | - | 1 |
| Hu | Urco Hac. | 3.3 | - | 1 | - | - | - | 28 | - | 1 |
| Ur | Yucay | 4.3 | 1.1 | 18 | 31 | 8 | 9 | 27 | 5 | 25 |
| Ur | Quispeguanca | 2.7 | 0.6 | 2 | 23 | 6 | 6 | 29 | 9 | 6 |
| Ur | Oqepalpa | 3.2 | 0.6 | 2 | 35 | - | 1 | 29 | 11 | 5 |
| Ur | Chicon Q. | 2.9 | - | 1 | 28 | 3 | 4 | 32 | 6 | 4 |
| Ur | Yanahuara | 1.9 | 0.1 | 2 | 30 | - | 1 | 38 | 11 | 2 |
| Ma | Moray | 1.3 | 0.6 | 22 | 9 | 3 | 17 | 14 | 2 | 23 |
| Co | Chinchero | 1.9 | 0.3 | 5 | 23 | 5 | 5 | 16 | 2 | 4 |

Districts: Limatambo, Chinchaypuquio, Pisac, Huayllabamba, Urubamba, Maras, Chinchero

## 9.4 Inside Elite Landscapes: Huacas, Spatial Division and the Landscape Khipu.

Strong evidence that Inca terraces were products of an overall plan carries the implication that they may be readily regarded as representations of the Inca conceptual world extracted in synchrony from the chronicles. A similarly planned body of terraces in an Asian landscape has been named the *sacro-economic unit* [Wheatley 1965:135-6,143].

Coincidence of staircase forms with a socio-economic distinction in ownership of terraced lands in Inca Cusco does not explain the precise location of wall features according to their practical function. Sculptured rocks are found in both RPS-schemes (AC3) and WS-schemes (Pisaq *Intiwatana* and Choqana in the Vilcanota Valley). Several cases are noted where RPS align beneath the sites of large unsculptured boulders (AL12-4 and AL12-staircase row BI:1-5; AL2, RPS 9; AC1, Wall Bii). These may have been particular *huacas* within terrace systems, like *huacas* on the ceque lines of Cusco. There is also a superficial resemblance of radiating alignments of wall features, at schemes like Markawasi, with knots on the open *khipu* string-record. It is unknown if the Colonial role of the Murucusma rock near Limatambo continued a prehispanic boundary function, but its likely location at the junction of an Inca road and a gully bounding the end of an Inca terrace scheme is suggestive of this.

Water Drops show a general consistency in dimensions, but not great standardization, in various RPS and WS terrace schemes of the Cusco region (Table 9:5). Ideally, they appear to fix a system of water passage through terraces. The *ceque* system of Cusco appears to have had the ideal of dividing canal systems or *irrigation districts* for specific *ayllus*, and water rights were

integral in the land tenure system [Sherbondy 1982:80]. Alignments of Water Drops in both RPS and WS terraces may thus indicate small-scale land division.

## 9.5 Conclusion.

Most Inca terraces in the Limatambo Valley and some near Chinchaypuquio, were apparently dedicated to production for the Cusco elite. This appears similar to land tenure in late prehistoric Yucay. The distribution of such identifiable core-lands, over which exclusive rights of Inca *ayllus/panaqas* were exercised, does not lend weight to Conrad and Demarest's conclusion [1984] that the quest for lands dedicated to elite-ancestor worship was a principal driving force for expansion of Tawantinsuyu into Ecuador and Central Chile. They are a major component of Inca sites in certain places, but are small in comparison to the total agricultural landscape, as were the specific Colonial claims to Inca estates. Inca terraces had not reached a total coverage even in the parts of valleys with topographic and environmental conditions demonstrably preferred for their placement. This is consistent with documentary studies by Wachtel [1982:229-231] on Cochabamba and Espinoza [1973:251-252] on the Abancay Valley, where such environmental conditions exist, but where the data are indicative of *mit'a* or *mitmaq* rather than *yanacona* labour forces.

# CHAPTER 10

# TILKA AND MOUNTAIN-SUMMIT INCA SITES: SITES AS SYMBOLS.

## 10.1 Introduction.

Why were extraordinary and miniscule sets of Inca terraces built on unirrigable peaks of Tilka Mountain (3780 m) and Qoriwairachina Hill (2510 m)? The answer scarcely lies in their potential for settlement or agricultural production, and raises the possibility of roles as lookouts, generalized ceremonial facilities, symbolic monuments, or a combination of these.

Early Colonial documentary accounts from Cusco abound with references to mountains as *huacas* (sacred places), as residences of idols or deities and as foci of ritual activity [Molina (1573) 1943; Albornoz (ca. 1584) 1984:198-199, 204-206; Cobo (1653) 1964:169-186]. However, other topographic features were also sacred places and the archaeology of Cusco mountain summits has not received sufficiently detailed attention to indicate the abundance and diversity of Inca sites in such locations.

*Post-processual* approaches to archaeological interpretation suggest that findings of *structured* historical meanings are facilitated by the evaluation of *con-text* in archaeological data, which, it is assumed, embodies (recognizable) material effects of meaning [Hodder 1984:154-5]. Processual archaeology emphasizes the formulation of procedures for recognizing or learning the implications of archaeological data for general theory about human behavior [Binford 1988:876]. The degree to which ethnohistoric data can inform on the

meaning of *patterned* static materials is dependent upon the sources detail, its temporal and spatial specificity with respect to the problem at hand and the interpretation given the facts it contains.

A starting point, not exclusive of the need for excavation archaeology to refine and develop models of past activities at such locations, is to examine the comparative archaeology of similar sites and ethnohistoric sources which shed light on structures of meaning within which particular sites were conceived.

The archaeology of mountain summits is best known in the southern Andes. Extremely high archaeological sites have been reported throughout the Andes of Argentina, Bolivia, Chile and southern Peru. The first above 6000 m was found in 1905 and over 50 are now known at altitudes between 5200 m and 6273 m [Fernandez 1982:167-169, Reinhard 1985:300-301].

Cusco summits are environmentally distinct from those at similar altitudes in the southern Andes [Hastenrath 1967:541] and are less likely to contain sites. The highest, Auzangate (6384 m) and Salkantay (6271 m), are perenially glaciated. The lower glacial limit of Salkantay is about 4600 m [Pulgar Vidal 1981:149]. This is more than 1000 m below that of mountains in Arequipa and over 2000 m below the highest unglaciated peak with prehistoric structures in Chile. The appropriate parameter for comparative research is therefore the relative topographic placement of sites rather than their absolute altitude.

## 10.2 Topography and Site Type.

### (a) *High* and *Low* Sites in Mollepata.

Inca sites in the Mollepata sub-region of the Limatambo Area can be divided into two groups. The first are on flats or moderate slopes (AM1, AM5 and AM6) and the second on summits or ridges (AM2, AM3 and AM4). The former are between 1850 and 2340 m above sea level and the latter are higher, between 2510 and 3780 m. Their relative placement in local topography gives rise to restricted views from the *low* sites and extensive ones from the latter group.

The low sites lay along the Inca route from Limatambo to Curawasi. The largest, AM1 and AM5, are distinguished by their proximity to extensive areas of irrigated agricultural land at altitudes suitable for maize cultivation. AM1 Sector C contains the most elaborate Inca style masonry in Mollepata. Pottery at AM1 Sector B, AM5 and AM6 suggests they were *living sites*, and architectural differentiation at AM1 indicates a potentially wide range of activity patterns. AM6 lies deep in the Apurimac Valley at a site with very limited agricultural potential but beside a narrowing in the river and ruin of a Colonial suspension bridge, possibly site of an Inca bridge.

Components of the high sites are built on or adjacent to rock outcrops. All have terraces retained by stone walls but these are of minor extent, relatively narrow and unirrigable by canal at AM2 and AM3. Access from terrace to terrace was probably a minor concern in construction, since no WS occur on their retaining walls. Two staircases at AM3 rise through terraces, from a structural sector to the highest platform, and at AM2 the highest level was

distinguished by more elaborate masonry. No formal route of access to the top of AM2 was found, but could be obscured by rubble and wall collapse on the northwestern side of the site.

AM2, AM3 and AM4 appear to have had little to do with direct agricultural production or communcations, although the high ground, terraces and views which characterize AM2 and AM3 are consistent with the purposes of defence and observation. However, AM3 is within cloud for much of the wet season, a point noted at less elaborate high-platform sites elsewhere in Cusco [White 1987:135]. AM4 also gives wide views of the Blanco River valley and is near a path to the adjacent Urubamba valley via a high pass, but it can be approached from above and sculptured rocks are not well explained in a *strategic* model.

(b) Mollepata and the Upper Limatambo Valley.

The northeastern Limatambo Valley received much more extensive Inca period terrace construction than Mollepata. Over 100 ha of broad levelled terraces retained by stone walls are concentrated on the Colorado River valley floor between 2400 m and 3500 m, avoiding the dry hot southwestern valley floor below Markawasi. These correspond to the main area of current maize production. Terrace schemes with stairs in the upper valley (AL2, AL8 and AL12) all have RPS, rather than the WS known at AM1. RPS have yet to be found on mountain summit terraces.

High altitude sites of the upper valley include AL20, site of a group of long and narrow rectangular Inca structures beside a large rock at 3710 m. It is relatively *low*, placed on the side of a ravine near a stream. AL22, at 3900

m, comprises a pair of Inca rectangular structures near a small lake on the broad part of a ridge which runs northward from the peak of Wilkaray mountain (4070 m). Pottery scatters on low hills near Limatambo are in most cases completely pre-Inca (AL4, AL5 and AL19) as are ridge top villages or hamlets (AL28, AL29 and AL30).

From a valley wide perspective the sample of Mollepata Inca sites remains highly varied. Thus, comparisons are extended to sites reported and visited in the region of Cusco.

(c) A Topographic Perspective on *High* Inca Sites in Cusco Department

At this level of comparison, Tilka and Qoriwairachina become examples of a widely repeated pattern of association between site type and topography. Elements of comparison can be specified at several sites:

(i) Huayna Picchu features very narrow terraces surrounding a peak of rock, several hundred metres above Machu Picchu settlement. In Machu Picchu the *Intiwatana* (Sector 6) comprises a rectangular building and a sculptured outcrop with a vertical pillar on a terraced hill [Bingham 1930:Figs.219,30b,32].

(ii) Ollantaytambo *Intiwatana* complex consists of a rectangular building and a terraced platform containing an apparently unmodified outcrop surrounded by a structure with large, outward-facing niches. It lies on a ridge eminence overlooking Ollantaytambo Inca settlement, terraces and *religious sector* [Gasparini and Margolies 1980:69,fig.52]. An eminence higher on the same ridge is surrounded by poorly fitted terrace walling.

(iii) Pisaq *Intiwatana* comprises a group of rectangular buildings and an outcrop with a sculptured vertical pillar surrounded by a curved wall on a platform [Gasparini and Margolies 1980:81,Pl.66]. It lies above both the building group called Pisaq'a and WS-terrace schemes.

(iv) T'ikahuerta (Huanoquite, 3200 m) is a towering rock on the lower end of a ridge at the confluence of the Apurimac and Molle Molle Rivers. This is decorated with miniature terraces, too narrow to retain much soil, of Cusco Inca masonry. Only traces of a staircase platform remain on the tallest part of the outcrop. Larger terraces, with WD features, flank both sides of the ridge below the rock.

In each case Inca terraces flank a peak or ridge with natural or sculptured rock and with views to the Vilcanota or Apurimac rivers. An SR and/or RS leads to the *high* site but the terraces near it rarely have access features in the walls. Those below have WS and/or WD features but no RPS are present.

At Markawasi, Ollantaytambo, Machu Picchu and Pisaq, complex site areas including Cusco Inca masonry are located in a saddle below the mountaintop terraces. Placement of buildings in ridge saddles is also seen at some present villages and many pre-Inca sites in the Cusco region [Kendall 1976:99,106].

Four ridge sites, comprising between one and three platforms and sometimes in view of small Inca building complexes, are reported in the Punkuyoq range [White 1987:135-136]. These lie at 3800-4350 m and appear to only comprise platforms with stonework resembling that at AM2.

Sculptured vertical pillars on rocks are known elsewhere. A 9 cm high example occurs on the top of Pumaorqo (3275 m), a low limestone outcrop and hill adjacent to the elaborately constructed Inca settlement of Maukallacta in Yaurisque. Below Pumaorqo, the Huaynacancha Quebrada contains WS-terraces. A terrace group called Qoriwairachina and Incaraccay, about 100 m from an elaborate rock carving (*Quillarumiyoq*, 3400 m), contains several sculptured rocks including a small sculpted pillar at the top of a rock on a terraced platform. This site lies on a boulder-strewn colluvial/alluvial fan beside the Inca road from Zurite to Huillque Pass, and thus appears to be relatively *low* [Fig. 5:1]. The figuratively sculptured boulder called Saiwite (3560 m), between Curawasi and Abancay, lies on a terraced platform on a mountain slope. In Cajamarca, a rock sculpted with *seats* (*Silla del Inca*) is located at the edge of a hilltop at 2700 m [Ravines 1985:53,92].

Choquechurco, with a plaza and sculptured outcrops on a ridge, can be compared with the more complex example at *Qolmay* (Site AC2) overlooking the town of Chinchaypuquio [Figs. 5:20, 5:24]. AC2 (3450 m) lies beside an enormous outcrop and rock fall and includes a courtyard bounded by terraces and rectangular buildings, a terrace between the outcrop and courtyard and a small square building with trapezoidal windows. A chamber among the boulders is partially sealed with Cusco Inca masonry and contains a sculptured rock. Ruins below the summit of Guanacaure, one of the most important mountains in Cusco myths of origin and ritual, were reported to consist of seven rectangular structures arranged about a courtyard, although no sculptured rock was found [Rowe 1944:42].

Sculptured rocks, including *Intiwatana* pillars, are therefore frequently elevated on a platform or plaza, but the platform-rock element may occur in valleys and on summits. The association between extremely narrow terrace walls on rocky mountaintops or ridges, and Inca occupations surrounded by WS-terraces, appears to form a more coherent, but still partially subjective, landscape model of Inca rural presence. Apart from the Cusco Inca masonry and architecture, there is a clear analogy between the Inca settlement-terrace unit and the layout of some L.P.T. settlement-terrace units (eg. Sites AL39 and AL46).

Mountain summits and ridges are ubiquitous in Cusco, but relatively few received state investment in landscape works, so that each can be regarded as the product of a *selection* process.

(d) Tilka Compared with Southern Andean Summit Sites.

Tilka shares two basic features which are regarded in Raffino's review [1981:137-138] as typical of much higher summit sites in the southern Andes. These are artificially filled platforms of rectangular and circular-elliptical plan, and a *central* monolith. The latter is, however, a common natural feature of summits in the Cusco area. Many of the southern sites have been dated by architectural and artefactual associations, and a few by radiocarbon, to the Inca period, but others lack either [op.cit.:137; Reinhard 1985:301-302,314,fig.11].

## 10.3 Tilka and the Conceptual Geography of Cusco.

The role of real places in conceptual images is as applicable a theme in the study of Australian Aboriginal, Apache and Ancient Chinese worlds as in that of the Inca [Wheatley 1971:225, 414-428; Prince 1971:24-44; Sallnow 1987:11-12].

Hundreds of *huacas* in the vicinity of Inca Cusco were named and briefly described, according to their placement on *ceques* or lines conceived of as radiating from the main temple of that settlement, in a 17th Century chronicle by Bernabé Cobo [(1653) 1964:169-186; Zuidema 1964]. Names of parishes used to describe places in the list suggest that the information was recorded between 1559 and 1572 [Rowe 1981:213]. Many of the sites were springs, rocks and mountains (frequently said to have 1, 2, 3, 5, or 10 stones on top), as well as caves, ravines, rock falls, flats and even roads and buildings.

Cristóbal de Albornoz [(1584) 1984:205-206] provided remarkably frequent references to *huacas* outside Cusco with the name *Guanacauri*, said in some instances to have been *huacas* in memory of their namesake in Cusco. Most were also rocks on mountains, reflecting a toponymic parallel to perceived topographic repetition in the landscape. *Guaypon guanacauri*, in Xaquixaguana, was a rock near a lake, perhaps Lake Huaypo near Chinchero, where the ears of the *indios cuzcos* were pierced [op.cit.:206]. It is not known if the latter was on a mountain. If not, it is possible that the toponym was transferred to a *huaca* which shared a role in the ear-piercing ritual of the nobility which was also associated with Guanacauri of Cusco [Molina (1573) 1943:47]. A shrine in Huánuco also shared this name, although its custodial *mamaconas* were not

declared in a 1549 *visita*, only in 1562 when most of the population was baptised [Murra 1982:245]. Recent ethnography from Huanoquite draws special attention to the boulders on a sacred mountain called *Wanakauri* [Seligmann 1987:152].

The wide range of topographic associations of sacred sites which can be derived from ethnohistoric sources, despite emphasis on particular natural features such as rocks, springs and mountains, presents difficulties for archaeological interpretation except where artefacts or monumental sculpture are directly associated with them and not reasonably explicable as the manifestation of other activities.

Adequate documentation can also demonstrate the continuity of toponymic usages needed to locate, within varying bounds of precision, the places referred to in early historic sources on *huacas*. This has been done for a number of sites in Cusco within the *ceque* system, to the extent that sightline analysis has been able to contribute to a clarification of many varied chronicle references to the Inca system of horizon astronomy [Zuidema 1981, 1982; Aveni 1981; Van de Guchte 1984].

A fortunate documentary reference to the Mollepata area from the 16th Century enables some specificity in its preliminary interpretation.

(a) Tilka and Markawasi

Cristóbal de Molina [(1573) 1943:29-30] wrote an account of the Inca ceremony called *citua*, said to have occurred in August at the time of the first

rains, in order to drive from Cusco the illnesses which accompanied them. Part of the ritual required the gathering of some four hundred members of different Cusco ayllus, armed as if for war, in a Cusco plaza. Groups of one hundred marched out in the direction of each quarter of the land, making loud shouts that the illnesses go away. Of those who went westward towards Chinchaysuyu, Molina wrote:

> *...salían dando las mismas voces, y éstos eran de la generación Capacayllo, Atun ayllo, Vicaquirao ayllo, Chavite Cuzco ayllo y Arayraca ayllo, y otros de Uro. Y éstos llevaban las voces hasta Salpina, que será del Cuzco poco más de una legua; y éstos las entregaban a los mitimaes de Jaquijahuana, y ellos las entregaban a los mitimaes de Tilca, que es encima de Marcahuasi casi diez leguas del Cuzco; éstos las llevaban al río de Apurímac, y allí las echaban, bañandose y lavando las lanas y armas...[op.cit.:31]*

> [...they left making the same cries, and these were of the lineage Capacayllo, Atun ayllo, Vicaquirao ayllo, Chavite Cuzco ayllo and Arayraca ayllo, and others of Uro. They took the cries as far as Salpina, which would be just over a league from Cuzco; and these passed them on to the mitimaes of Tilca, that is above Marcahuasi, about ten leagues from Cuzco; they carried them to the Apurimac River, and there threw them in, bathing themselves and washing their clothes and weapons...] [my trans.]

Juan de Betanzos wrote about two ceremonies in the month of *cituaiquis*, which he placed in September, one with the element of bathing and another in which sacrifices were made at the junction of two rivers flowing through Cusco [(1551) 1880:104]. Two canalised rivers bounded the space in Cusco which

contained the greatest concentration of elaborate Inca buildings and Inca nobility in the Cusco Valley [Sherbondy 1982:8].

As found in Chapter 6, *Tilca* and *Marcahuasi* are toponyms that remain in use to describe the locations of sites AM3 and AM1. *Tilca* was used as early as 1543 to describe people in service of Apurima Tambo, probably Site AM1. Molina's list-like account of *citua* almost certainly derives from oral tradition, and it specifies the role of *mitimaes de Tilca* in the relay-pilgrimage.

Thus, ethnohistoric interpretations of *citua* are particularly relevant to an understanding of the Tilka mountain summit site. Moreover, topographic symbolism is evident in the ritual, since the march in each direction ended with washing in a large river. Molina said this was because it was believed that these would carry the ills away to the sea [(1573) 1943:32]. The other destinations were the Quiquijana River (Collasuyu), the Pisa River (Antisuyu), and the Cusibamba River (Contisuyu). Toponymic continuities indicate that these are particular lengths of the Vilcanota and Apurimac rivers [Zuidema and Poole 1982:88].

The role of Tilka in *citua* and its archaeology, and that Molina's account had the Cusco *ayllus* commence this pilgrimage but hand over to *mitimaes* on the outskirts in each direction, raises a possibility that archaeological site complexes similar to Tilka and Markawasi marked the other three locations where pilgrimage routes ended. Several sites beside those rivers share a similar layout and terrace features, but not all similar sites correspond to the locations where toponymic survivals suggest that the known *citua* routes finished.

(b) Cusco and the Periphery: *Citua* and *Capacocha*

Important elements of *citua* as described by Molina [(1573) 1943:29-46] suggest that it was symbolic of the relationship between Cusco and outlying areas of its influence:

(i) statues from sacred places as far north as Quito and from Chile in the south were reportedly brought to Cusco,

(ii) only native Cusco people were permitted in the central area of Cusco during most of the ceremony,

(iii) privileges were granted to principal lords who had come with offerings from distant places, and gifts were given for them to take back, including servants and wives, and

(iv) *citua* was also said to be celebrated concurrently by Inca governors at principal provincial centres.

Another Inca ritual, called *capacocha*, shared many characteristics of *citua*. It was celebrated on occasions of uncertainty as to the health, power or succession of the Inca ruler [Duviols 1976:11-12]. Villages or social units from the provinces came to Cusco with sacrificial offerings, such as figurines of gold and silver, cloth, crushed shell and humans, although the latter was reserved for only the most sacred places. The offerings were then divided and returned in order to be taken to the principal sacred sites in the provinces. Huanacauri in Cusco and provincial mountains were among sites which received

human sacrifices [Hernández Príncipe (1622) 1923:62-63]. Offerings were taken by people of Cusco to *Sacalpiña* (cf. *Salpina*? in *citua*) where they were received by Anta Indians, and so on into the provinces [Molina (1573) 1943:69-70].

*Capacocha* appears to have been based upon the linear movement of offerings from central Cusco, following *ceques*, with the object that delegation would ensure all sacred sites received part of the sacrifice. If such a place was inaccesible, the delegate or messenger (*cacha*) was to use a sling to throw a portion of the sacrifice towards it [op.cit.:72]. Salkantay Mountain, highly sacred according to early historic sources [Albornoz (ca.1584) 1984:206-207], probably required this symbolic treatment. *Capaccocha* was used by Albornoz to describe the fine clothing of *huacas* [op.cit.:217]. However, reports which list indigenous sacred sites that were discovered in central Peru used the term specifically for human sacrifice. These include lists of persons (or personages who had acquired mythical status) sent for sacrifice to Cusco, Quito, Huanuco, Titicaca and Chile [Hernández Príncipe (1622) 1923:27-30,32,34,41].

These rites have been found, in more thorough analyses, to have emphasized the role of Cusco as *centre*, to have been a stage for the ritual definition of status between the Inca, regional and provincial elite, and at the same time to have given the Inca state an opportunity to show *generosity* and to plan the production of tribute it would require from provincial social groups [Duviols 1976:11,23-37; Zuidema 1982:428-432, 1983:54].

(c) Andean Summit Sites: Models for Meaning

Ethnohistoric and ethnographic sources have founded the interpretation that Andean ritual and offerings to mountain deities are largely explained by a continuity or *substratum* of belief that they control meteorological phenomena [Maxwell 1966:55,62; Reinhard 1985:314]. One of the essential offerings in Inca ceremony at springs and after planting to seek regularity of rainfall was, according to the Cobo [(1653) 1964:], sea shell called *mullu*. The presence of *Spondylus* shell in the materials of statues found in many very high Southern Andean summit sites may support the case of continuity of associated belief systems [Reinhard 1985:313]. This inference may not explain all occurrences of that species, which began to enter sites and artistic representations in Peru, from its habitat in coastal Ecuador, several thousand years ago [Paulsen 1974:601-605]. In Molina's accounts of Inca ceremony using *mullu* it was part of a set of offerings which included maize, coca and camelids. One of these feasts, *Inti Raymi* was placed in May, at the beginning of the dry season; another occurred in July, during the driest part of the year; and the last was during *capacocha*, held in times of uncertainty [Molina (1573) 1943:26,29,76]. The timing generally coincides with the dry season when crops need irrigation and with the harvest of the previous wet season (major) crop.

If the ethnographic literature on mountain deities is considered as a whole, there are numerous other associations which could be derived. The highest mountains in the Cusco and Apurimac areas are believed to be the abode of a *roal* (creator spirit), and Salkantay is a major example [Nuñez del Prado 1970:144-146]. In Qotobamba community alone, major mountain deities (*apus*) include Kuribian, protector of livestock and enemy of rustlers, Intiwatana,

mediator of harmony between communities under its control, Kunturpuñuna, related to health, and two others which are said to be unspecialized. Spirits of lower mountains are often called *auki* (*grandfather*) [op.cit.:152-154].

Similar hierarchies of mountain deities exist in Ayacucho, and some mountains contain prehistoric settlements and funerary ruins [Earls 1981:82]. Complexes of sacred mountains take special significance as points on the earth-sky boundary in Misminay community cosmology and one, Apu Saqro, is reported to have masonry terraces on the summit [Urton 1981:129]. In Kaata community of highland Bolivia, Bastien [1978:xxiv] found that the mountain of dispersed settlement was described in the anatomical terms of a human body, which required ritual feeding, and that this metaphor symbolized the social and territorial unity of Kaata with settlements above and below.

A facet of the Inca concept of the mountain contained in early historic sources is its representation of the local inhabitants and, in most cases, their submission to the expanding sphere of Inca influence. The narrative of Inca conquest by Santacruz Pachacuti often mentions groups of people alongside the names of their sacred sites or idols; the Inca built *usnus*, but some deities had been banished in mythical time to mountain summits such as *Sallcantay*, *Aosancata* and *Pitosiray* [(ca.1613) 1927:147,166,180-189,210].

Albornoz relates that the Inca *rebuilt* many of the sacred sites called *pacariscas* and placed *mitimaes* in their service. *Pacariscas* were the places from which peoples claimed descent and a defeated sacred site was called *atisca* [(ca.1584) 1984:198-199,217]. A major reason given for the unwillingness of Indian peoples to move to Spanish towns in the early 17th Century was that

they would have to leave their *pacarina* (*pacarisca*) [Marzal 1969:103]. Molina described Tilka by reference to its distance from Markawasi and placement above it. Were the *Mitimaes de Tilca*, mentioned by Molina, in the service of an Inca built site on the summit of Tilka mountain, as well as in service of the Inca tambo of Apurima?

The summit of Tilka is still the object of a yearly pilgrimage, albeit of a local kind, for the residents of Mollepata village and surrounding settlements. The ascent is made on the day following the feast of the cross (4 May) to return a large wooden cross, from its vigil (*cruz velakuy*) and church ceremony, to a resting place, beside the Tilca ruins, which overlooks Mollepata town. A myth of origin about Tilka Cross relates that it became too heavy to move during its passage to Cusco [Morote 1953:89-90], much like *tired stones* in historic and modern myth analysed by Guchte [1984].

10.4 Conclusion.

Descriptions of Inca ceremonies in early history contain many elements of symbolism common in the ethnographic present over a large area of the Andes and local beliefs were probably as complex and varied then as they are today. However, the specific cases of monumental architecture in Inca style on mountain summits may be better explained by reference to the conceptual system of the society which directed labour to their construction. The appropriate ethnohistoric evidence for this is contained in *official* or political Inca myths about conquest. It remains to be determined whether elaborate Inca mountain-summit sites, such as Tilka, were constructed over the ceremonial centres of other communities and to investigate what activities took place in them.

There also appears to be a pattern of Inca sites comprising miniature terraces and platforms beside rock outcrops on certain high points overlooking the Vilcanota and Apurimac Rivers. The Tilka case tentatively suggests that some of these may have been shrines in a particular ritual and pilgrimage which followed the *ceque* system of spatial division and which both symbolised and reinforced the administrative power of Cusco.

# CHAPTER 11

# SYNTHESIS AND CONCLUSIONS

## 11.1 Late Prehistoric Settlement and Subsistence Systems.

At the onset of Inca expansion, Late Intermediate Period settlements were dispersed over most of the Limatambo Area from Thorny Woodland to Humid Forest environments. Multi-zonal land-use patterns were probably well in place, although social connections between altitudinally separated settlements are difficult to demonstrate for the period. The occurrence of *Qopa B* pottery indicates locally shared material culture at two sites along the Apurimac River, but *Killke-like* vessel forms and decorative motifs were widely distributed in pottery used throughout the valley. Large local settlements occurred most frequently in the 2200-2600 m and 3000-3400 m altitudinal ranges, at the upper and lower ends of the maize production zone.

Settlements were few and small in the Humid Forest (3200-3800), but low numbers may reflect lesser archaeological visibility, especially in view of evidence for use of adobe or sod in construction. They probably represent a mixed highland-crop/pastoral adaptation. The effects of prehistoric land-use on the environment have not yet been carefully traced. Forest at this time may have been more extensive in the present HF grasslands of eastern Limatambo and have extended to lower altitudes in the Salkantay foothills. Settlements were frequent and relatively large in the Dry Montane Forest (2400-3200), about average in number but very large in the Dry Forest, and both frequent and large in the Thorny Woodland. Therefore nucleated settlements gave access to both

maize and potato zones, a familiar pattern in the region. However, an additional settlement focus lay on the maize/lowland-crop *production-ecotone*. This zone was largely removed from local community control during the early Colonial period, but historic documentation indicates its importance for production of many native prehistoric domesticates, such as manioc, sweet potato, peanut, guava, chirimoya and other fruits.

The function(s) and chronology of subterranean stone-lined pits remain to be tested, but their small size, the small number present at some sites, evidence of capping stone, separation from prehistoric settled locations and generally looted appearance, suggests they were primarily for burial rather than storage. They were common in the Limatambo Valley site survey and may prove useful as visible elements within a dispersed settlement pattern.

## 11.2 Inca Occupation in the Limatambo Valley.

Ridges and peaks beside areas of moderately sloping land were the preferred location for settlements of late prehistoric architectural and ceramic tradition. Local-style settlements with abundant Cusco Inca surface pottery were more often sited on valley floors. Inca occupation may have reinforced pre-existing settlements in such places, as at Qopa Playa and Paqchak (AL46). The three ridge-top Wamanmarka sites were apparently abandoned at or before Inca occupation and do not feature the vast adjacent terraced lands known at Qopa, nor neatly circular and relatively large stone dwellings. However, loose stone is less abundant at Wamanmarka and it is in a cooler ecozone. The Tambowilka settlements were near an Inca road, canal and terrace groups and do not appear to have continued as occupation nuclei during the Inca period. This

may reflect Inca state-induced population dispersal in the region of Pampaconga town, where local groups were required to aggregate in 1572.

Inca occupation sites cluster on valley floors or valley-side benches, primarily along the Inca road and on the margins of elaborate landscape works. Few occur on ridges or summits. Of these, Qopa Alta was a previously established settlement. AM2 and AM3 offer little area for settlement and AM3 appears better explained as a shrine during the Inca period.

Inca period settlements in the Limatambo Area covered a similar total site area and had a similar environmental distribution to late prehistoric local settlements. High altitudes (3200-4200 m) were sparsely occupied by small installations, whereas 81% of occupation area was concentrated between 2000 and 3200 m. The Dry Forest and Thorny Forest contained relatively large site numbers and site sizes. This suggests that Inca occupation was attached to the pre-existing pattern of settlement and land-use, but placed a special emphasis upon maize and lowland production zones.

The five largest Inca settlements (over 0.4 ha) are between 2000 and 2800 m in the lower DMF and DF zones. Several straddle the main Inca road (AL11, AL25 and AM5), but two were distanced from it (AL39 and AL41). The latter contain local village architecture, except for one sector of rectangular buildings, but feature a remarkably high surface density of Cusco Inca pottery. They probably represent either local settlements with close links to Cusco, or a *mitmaq* reoccupation of pre-Inca settlements. Close affinity with Cusco is reflected in the anthroponymy of the local Chonta *ayllu* designated *Inga* in 1595. The *mitmaq* interpretation is supported by the wide variety of Inca

vessel forms of both Cusco utilitarian and painted ware present in the sites. Documentary sources also indicate that this part of the Apurimac received colonists.

The total roofed-space of *Late Prehistoric Tradition* settlements is roughly the same as the figure calculated for settlements established in the Inca period, and about 65% of the figure for all occupied during the period. Differential preservation of sites is a function of geomorphic processes at site locations and, for this area, high topography appears more likely to preserve settlements than low placements. Since few Inca occupations are in high topography, Inca occupancy may be underestimated. However, Inca structures and pottery are highly visible and an impact of subsequent Inca terracing works on L.P.T. settlements can be inferred from the surface data (eg. AM2) and knowledge that some L.P.T. sites did occupy the margins of valley floors. It is also probable that the application of *settlement-like* occupancy figures to Inca buildings is an overestimate for edifices with *public* or intermittent official functions. The time scale for L.P.T. sites is approximately 500 years, compared to perhaps under 100 years for Inca occupation.

Surveyed Inca settlements are calculated to have provided less than 20% of the roofed-space needed by the late prehistoric population, as estimated from historic data and reverse projections. Overall, there is no clear evidence of a significant increase in the study-region population nor of a major state-induced urbanization process during the Inca period.

## 11.3 Inca Impact on Local Economy.

Inca terrace schemes were a direct impact of Inca expansion upon the agricultural landscape available to local communities. They were not as dispersed as state or state-influenced local settlements and show a strong correlation with valley-floor locations and the DMF zone between 2400 m and 3200 m in the study region.

Mid-altitude crops, such as maize, were apparently the prime targets of production. Terrace location also indicates that most were not so much designed to reclaim steep slopes as to improve other characteristics of the lands of least gradient, such as stone content, water infiltration and drainage. Irrigation canals were invariably incorporated in major schemes and probably enabled increased production and/or greater crop security. Water was readily available for valley-floor fields from side streams or rivers.

Terrace schemes also represent the great bulk of labour input in regional Inca construction. About 38 km of retaining walls, averaging more than 2 m high, were originally built. About 122 ha of land was levelled and over 1,400 metres of wall comprises elaborately hammer-dressed masonry. This represents perhaps a decade of work for 200 full-time labourers as well as planners, although it is unknown over what period the terraces were built. Detailed mapping enabled Inca terrace schemes to be analysed as an integral part of Inca presence in the region, and as sites meriting specific analysis. The same basic plan was followed from start to completion of such schemes. This cannot be said for terrace aggregations which abut late prehistoric local settlements.

Inca agricultural terraces covered a far greater percentage of the Limatambo Area (114.9 ha, or 0.25%) than the Chinchaypuquio Area (7.29 ha, or 0.02%). Chichaypuquio does not contain broad valley floors in DMF zone altitudes. The main Inca highland road also passed through the Limatambo Valley, and whether this was a locational parameter of equal significance invites a regional comparison.

The Central Vilcanota Valley fits the predicted requirements of *prime locations* for Inca terraces. It did not lie on a major trunk route into provincial Tawantinsuyu but appears to contain schemes which far exceed terraced area in Limatambo. However, their proportion in the regional land area is unknown. Inca terraces also appear to occur primarily in the hinterland of Cusco, although there are outliers and more could well come to light. This, combined with the altitudinal/topographic model would lead to the prediction that any valley within about two or three days walk of Cusco, with a broad valley floor in the 2400-3200 m range, would be highly likely to contain substantial areas of Inca landscaping. The presence of topographically similar unterraced lands adjacent to terraces in Limatambo and elsewhere confirms that the limits of terrace extension had not been reached in the Cusco region. What other factors guided the initial choice of lands for terracing?

Absences of terracing in *prime locations* could also indicate pockets of (tolerated or privileged?) local resistance to direct Inca land acquisition and the extension of its direct mode of agricultural production. Since population extractions and *mitmaqkuna* placements were probably used to facilitate the Inca acquisition of ancestral community lands, then they would be the logical group to postulate as inhabitants around terraced landscapes. Conversely, resilient

local communities, under strong Inca influence in the circum-Cusco area, would be expected in the hinterland and only tenuously in control of unterraced *prime lands*.

## 11.4 The Socio-Economic Implications of Inca Presence in Limatambo.

Inca control was represented in the northwestern slopes by small installations of Inca architecture. These were absent in the southeast, although political ties with local community structures and probably *mitmaq* were strong, especially near the Apurimac River. Archaeology and documents in combination show that the southwestern valley was controlled by a major *tambo*, roadside installations and settlements. *Mitmaqkuna* who served at the *tambo* of Apurima had a special role in an Inca ritual-pilgrimage which embodied a concept of *centre and periphery*. A useful image of this pattern is a mosaic of local social groups and *mitmaqkuna*, responsible for their own subsistence but subject to a variety of *mit'a* obligations and duty to move goods produced on *Inca* parts of their lands to the valley *tambos* for their maintenance and for transport to Cusco. It replicates the indirect economic control commonly used by the Inca throughout Tawantinsuyu. Interzonal exchange probably continued unabated at local level and some demonstration of this occurs at the Qopa sites. Large rounded granites were transported from the Apurimac River, near site AL41, for the manufacture of artefacts and use at site AL39.

The Colla *mitmaqkuna*, placed near the *tambo* of Limatambo, probably had a special role in service to that installation, but this also put them next to both Inca terraces and *prime* unterraced Limatambo Valley lands. Socio-economic organization on valleysides adjacent to terraces, such as those to the east of

Limatambo and Rioja where the Collas and high-ranking Collana Ayllu resided, was probably transformed by the Inca. The dispersed *tambo* complex also included lands dedicated to maintenance of *mamaconas* and the sun cult. It had certain aspects of a ceremonial centre in a wider ceremonial landscape. Few elements of this can be convincingly drawn together or put on the ground, but documentary and landscape evidence enable an approach to understanding the role of sacred sites such as *Murucusma* and the mountain-summit of Tilka. The archaeological associations of certain large rocks within terrace schemes also suggest a special importance which is not apparent from their unmodified form.

Finally, early Colonial documentation was analysed to extract land-tenure information in identifiable locations and then combined with knowledge of the physical landscape in an attempt to explore the social implications of Inca terraces in Limatambo. These lands benefitted Inca institutions, but discrete architectural and layout assemblages distinguish scheme types in the Cusco hinterland. It is uncertain what this pattern represents, but the correlation of documentary images and landscape evidence suggests that Inca terraces featuring *recessed parallel stairways* were among those which pertained to the highest ranking nobility and socio-political groups in late prehistoric Cusco. They were often worked by special servants designated *yanacona*. Most terraces around large complexes of Inca structures in the Cusco region have simple *wall steps* or *recessed staircases* among buildings. RPS-schemes were dispersed throughout the study region and various circum-Cusco valleys, especially the Yucay section of the Vilcanota Valley. They do not overlie WS-schemes and tend to occur in flatter topography. Radiocarbon dates from Rioja Andenes in Limatambo are consistent with late 16th Century construction of RPS-schemes.

Inca occupation in Limatambo and Chinchaypuquio was predicated upon the reinforcement of extant local production systems, despite the long duration of Inca influence. It differs from the common Tawantinsuyu pattern in that selected tracts of land were subjected to large construction projects which improved their agricultural potential, but also set them apart from surrounding lands. These tracts were relatively small in comparison to lands which supported community and wider state objectives. It is unlikely that such works represent population pressure on land and an impetus to state expansion over thousands of kilometers of Andean South America. They appear to represent a social or political ordering in Cusco which was reinforced by the resources, security and power which that expansion had achieved by the time of conquest. The modified landscapes were endowed with distinctive architecture and became visual symbols of Inca influence in the periphery of Cusco.

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*Sondor Document*

*Testimonio sacado de los originales que estan en la Capital de Lima, contiene las cedulas reales e instrumentos de la Mayorasguia Diego Arías Maldonado en el Departamento del Cuzco.....* This document was kindly made available by the late Sr. Sergio Díaz of Sondor, Limatambo, for photographic copy.

**T.1-T.200 (The *Tarawasi Titles*).**

Documents described and partially transcribed in Appendix V.

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