G4210: Rise of Andean Civilization
October 27, 1999 T. D'Altroy

The Middle Horizon: Wari and Tiwanaku

Introduction

1. in mid-first millennium AD: two urban powers held sway in the Andean highlands
   a. Tiwanaku: situated in the Bolivian altiplano
   b. Wari: in the Ayacucho Valley of southern Peruvian highlands

2. centers of at least partially coeval polities
   a. their relationship has puzzled Andeanists for decades
      1. their material cultures exhibit similar iconographies
      2. but fieldwork has yielded little material evidence of direct contact
   b. conversely: there is much evidence
      1. for interaction between Wari and other areas in the Peruvian highlands
      2. interaction between Tiwanaku and areas to the south
      3. both established a presence in the coastal Moquegua Valley
   c. over last couple of decades: archaeologists have worked hard to clarify the nature of each urban center and its impacts on its hinterlands
      1. results of the fieldwork are seeing fruition in various publications
      2. but many key questions remain to be resolved

3. Middle Horizon: 600-1000 A.D.
   a. conventionally: MH thought to be time of great regional integration and maybe even imperial development
      1. Wari empire?
      2. Tiwanaku empire?
      3. regional states: Sicán, Cajamarca, Pachacamac, Wari, Tiwanaku
   b. defined on the basis of ceramic and other material culture styles

4. basic question: was there really a Middle Horizon?
   a. i.e., was there a significant series of shifts of power from EIP to MH that coalesced into unified polities?
      1. esp. from coast to highlands
   b. or is a more complex pattern more in keeping with our present knowledge?
      1. continued growth in some areas
         a. e.g., Moche V shift north: continuity into Sicán
      2. long-term development of Tiwanaku?
      3. short-term expansion and florescence of Wari?

Tiwanaku's Setting

1. environment: altiplano
   a. topography, elevation, and cold climate severely constrain agricultural inventory of Titicaca Basin
      1. tubers dominate: potato, oca, ulluco, mashwa
   b. llama and alpaca critical elements of subsistence economy
      1. camelid pastoralism: cornerstone of economy

2. research at Tiwanaku
   a. Tiwanaku has been the center of the grandest-scale, full-time archaeological project in the Andes over the last couple of decades
   b. work at the city actually began a century ago
      1. Uhle/Kroeber: used Tiwanaku as basic ceramic style for defining an era on the coast of Peru at Pachacamac
      2. Bennett: major studies in 1940s
   c. Ponce Sangines: Bolivian archaeologist
      1. has led intensive research at Tiwanaku for about 25 yrs
      2. directed largely to excavating the central, ceremonial part of the site
      3. intent: to describe the layout and improve the chronological understanding of the site's development
         a. goal: improving culture history and explaining the nature of the core society
      4. site is a national symbol for Bolivia
   d. second major team: Alan Kolata and associates
      1. published several important articles and book-length publications
      2. research themes
         a. agricultural foundations of the Tiwanaku polity
         b. its political and ideological organizations
         c. nature of its expansionism

Chronological sequence

1. basic sequence of occupation
   a. 100 B.C.-A.D. 900: Tiwanaku was central to occupation of Titicaca Basin
   b. Tiwanaku achieved basin-wide importance by about A.D. 200
   c. Phase 3: A.D. 100-375
      1. monumental construction projects
      2. agrarian expansion
   d. Phase 4: 375-725: Classic Tiwanaku phase
      1. construction development continued unabated
      2. achievement of true imperial status
      3. establishment of administrative centers
      4. satellite cities
      5. economic colonies

6. sphere of occupation: altiplano, Bolivian selva, coasts of southern Peru and northern Chile

e. Phase 5: 725-1100?
   1. decline of Tiwanaku as urban center
   2. emergence of series of circum-lacustrine ethnic polities
      a. e.g., Qolla, Lupaqa

2. reasons for emergence of Tiwanaku state unclear: Kolata
   a. no real resource advantages over any neighboring region
   b. good agricultural base
      1. but required massive intensification
   c. probable period of aggressive raiding between localized polities before 100 AD
   d. rise to pre-eminence: perhaps consequence of integrative ideology

3. 4-level settlement hierarchy characteristic of pre-industrial state: Kolata
   a. primary center: Tiwanaku
      1. imperial capital
   b. secondary centers: Luqurmata and Pajchiri
   c. tertiary or local centers: major terraced mounds of Pampa Koani
   d. quaternary residential locations: habitation mounds throughout Pampa Koani

4. series of other satellite state-built centers
   a. around entire Lake Titicaca region
   b. e.g., Wankaki, Mocachi
   c. intrusion into northern basin near Puno: Phases 3-5
      1. associated with drained fields

<u>Tiwanaku: the urban center</u>

1. some misinterpretations of Tiwanaku as empty ceremonial center
   a. focus of pilgrimages from throughout southern Andes
      1. lacking substantial residential population
   b. that interpretation resulted from considering only the most impressive monumental architecture
      1. pyramid of Akapana
      2. major temples: Pumapunku, Kalasasaya
   c. it is true that ceremonial space decreases as one moves away from the center
      1. however, total occupation area: >4 km^2
      2. total population: 30,000-50,000
      3. much larger nonresident population in the rural hinterlands
   d. center surrounded by series of moats
      1. especially well-defined along eastern perimeter

2. layout of center
    a. E-W axial plan
    b. major architectural features shared same orientation
    c. Kolata: infers N-S division as well
        1. N: Akapana
        2. S: Puma Punku

3. Akapana
    a. largest structure at site
    b. 200 m x 200 m x 17 m
    c. 6 terraces
    d. mammoth stone-faced retaining walls: step-like
        1. vertical pillars erected at corners of structures
        2. ashlar masonry between pillars
        3. probably covered with textiles or metal plaques
    e. series of interlinked surface and semi-subterranean drains
        1. designed to collect water and run it through system underneath pyramid
    f. stones held together by copper clamps
    g. series of sacrificial llama burial on top of pyramid

4. Pumapunku
    a. 150 x 150 x 5 m
    b. high-quality ashlar masonry
        1. again copper clamps
    c. also series of underground canals

5. semisubterranean temple: adjacent to Akapana
    a. tenon heads projecting from plaza walls

6. Kalasasaya: large rectangular precinct
    a. also adjacent to Akapana
    b. walls of towering round-cut sandstone pillars
        1. alternated with sections of smaller, rectangular blocks

7. all four: have centrally-placed rectangular sunken courts
    a. characteristic of Tiwanaku and satellite cities
    b. carved stone replica of court: in platform complex called Kantatayita
        1. to east of Akapana
    c. precedent in Early Horizon: Chiripa and Pukara

8. Putuni complex
    a. building complex: constructed of hardstone ashlars

b. has been interpreted as residence of elite
c. now thought to combine
    1. elite residence
    2. public/ceremonial enclosures

9. Palace of Multicolored Rooms
    a. brilliantly painted walls

10. megalithic sculptures
    a. gateways: provided access to sacred precincts
        1. into Pumapunku, Akapana, Kalasasaya
        2. Gateway of the Sun
            a. in NW corner of Kalasasaya
            b. frieze: central figure in elaborate tunic
                1. standing on triple-terraced platform mound
                2. holding two scepters: that end in condor heads
                3. flanked by six rows of winged attendants: each carries condor scepter
            c. may be descendant of Chavín Staff God
    b. free-standing monoliths
        1. 1.5-7.6 m high
        2. some remain in situ
            a. Kalasasaya
            b. semi-subterranean temple
        3. human figures
            a. wearing costumes like those of Gateway
            b. holding scepters, goblets, other ritual equipment
    c. stone stelae and plaques
        1. incorporated in walls of royal residences and religious structures
        2. some featured powerful opposed animal figures
            a. e.g., stylized pumas, condors, mythical composite beasts
        3. tenon heads
            a. naturalistic human heads, skulls, gargoyles

<u>Secondary lakeside settlements</u>

1. Phase 4: Classic Tiwanaku constructions
    a. two major centers established: just west of Pampa Koani

2. Luqurmata: Mark Bermann
    a. on artificially levelled hilltop
    b. fancy dressed-stone architecture
    c. rectangular sunken court, staircases, gateways

d. similar to Tiwanaku itself
e. Bennett: recovered fine ceramics, semiprecious stone pendants, slivers of embossed gold and silver, shattered fragments of stone sculpture

3. Pajchiri: similar site on massive terraces
   a. 8 km N of Luqurmata: on opposite shore of LT

4. two sites probably involved in land reclamation
   a. and administration of agricultural production

5. sharp dichotomy in residential patterns
   a. larger platform mounds
      1. concentrated in clusters
   b. smaller habitation mounds
      1. simple living surfaces
      2. associated with field segments: dispersed
   c. food remains similar in two types of architecture
      1. lots of fish
      2. less camelid meat
      3. hunting tools found in each
      4. finest shipped and groundstone tools: concentrated in large platform mounds
   d. distinctions in artifact assemblages
      1. house mounds: only coarse utilitarian ceramics
         a. mostly bowls and jars
      2. platform mounds: both utilitarian and fine polychrome ceramics
         a. keros, incensarios, drinking cups, bowls, jars
   e. overall: sharp status and functional distinctions between two classes of mounds
   f. reinforced by distribution of metals
      1. platforms: whole copper plaques, copper tupu pins, fragments of silver and bronze
      2. most often associated with seated flexed human burials
      3. accompanied by other luxury items: turquoise or sodalite beads, polished ceramics
   g. maybe some smelting evidence: slag at PK-2 and PK-3

<u>Material culture</u>

1. wide range of portable objects
   a. figures holding scepters, winged attendants, pumas, condors, griffins
   b. metal goods
   c. tapestries, mantles, costumes
   d. wood and stone

1. carved into portrait heads, bowls, beakers, weapons

e. array of ceramics

Models of polity's organization

1. general agreement on importance of ideological features in organizing center
   a. layout follows recapitulation of sacred geography
   b. main principles of social organization
      1. duality
      2. quadripartitioning
      3. cardinal orientation

2. strong central rule: dominant view
   a. many scholars who work at the site share their view of a potent central elite
      1. used their power to maintain dominance
      2. and to undertake monumental architectural and agricultural reclamation projects
   b. viewpoint expressed by Ponce and Kolata
   c. Kolata argues for a totalitarian state
      1. with a complex bureaucracy that organized life at the daily level for a large segment of the population
      2. and exploited subordinate hinterlands

3. alternate model: state as theater
   a. Janusek: central polity was organized around extravagant ceremonial activities
      1. much in keeping with Geertz's view of the Balinese state as theater
   b. i.e., central authorities maintained stature and power through leadership of complex ritual cycles
      1. did not have the wherewithal to maintain their positions through social control or coercion
   c. model downplays central administration and exploitation

Agricultural intensification

1. systems of agricultural intensification: Pampa Koani
   a. vast network of fields associated with Tiwanaku Phase 3 and 4 sites
      1. all drained planting surfaces to permit cultivation
   b. extensive agricultural areas
      1. Pampa Koani: _7,000 ha
         a. occupied as early as 1500-200 B.C.: Chiripa house mounds
         b. land reclamation primarily in Phases 3 and 4

        1. diversion of Río Catari: channelization
    2. Tiwanaku Valley: 6,000 ha
    3. Machaca/Desagüadero: 6,000

2. two major types of fields
    a. extensive raised platforms: 2-15m wide x up to 200 m long
        1. along margins of lake plain
        2. in land subject to annual wet-season inundation
    b. linear ridged fields: 1-3 m wide x 10-100m long
        1. separated by furrows of equal size
        2. 5-30 km from lake
        3. on level and sloping ground

3. productivity: assuming potato cultivation
    a. single crop
        1. Pampa Koani: 120,000-234,000
        2. whole valley: 380,000-741,000
    b. double-crop
        1. Pampa Koani: 240,000-468,000
        2. whole valley: 760,000-1,482,000

4. sociopolitical organization: two radically diverging viewpoints
    a. Kolata: state-managed system, for the most part
    b. Erickson: mostly household-managed system

5. Kolata: top-down organization dominated
    a. scale of project: hallmark of state society
    b. fields associated with large-scale architecture: 9 major terraced mounds
        1. up to 120 x 75 x 3.5 m
        2. rival largest mounds at Tiwanaku itself
        3. fancy goods recovered: ceramics, fragments of copper and bronze, polished stone and bone tools, human and camelid burials
    c. many smaller habitation mounds
    d. scale and organization imply state-level society
    e. control and integration of vast labor pool

6. Erickson: bottom-up organization
    a. raised field farming was organized at the local level
        1. both at its inception
        2. and probably throughout its history
    b. we need to separate out two key issues
        1. the organization needed to carry out intensive agriculture
        2. the causes of agricultural evolution and intensification

c. traditionally: archaeologists have closely associated
    1. intensive agricultural systems
    2. highly centralized political control
d. uses Balinese "water temple" to illustrate that 10s of 1000s of ha of integrated, irrigated agricultural lands can be built and maintained without state control or interference
e. emphasizes small-scale features and efficiencies of raised-field systems: esp. Pampa Huatta
    1. average block size (5-7 fields) in system matches what an individual household of 5 could build and manage in a year (2,300-2,665 m^2)
    2. aggregates of blocks radiate from centers
        a. analogous to zeq'e lines: system of sociopolitical and ceremonial organization
    3. dispersed settlement pattern of about 1,000 multi-house mounds in pampa
    4. labor input is small when calculated over the long term
        a. efficient and sustainable over many years
        b. 8-16 metric tons/ha/yr for potatoes
            1. i.e., 2-3x regular potato farming
f. even large-scale features could have been organized at local level
    1. e.g., canals, causeways
    2. we need to keep in mind that the system evolved over centuries
    3. we may mistake the results of centuries of accretionary development as evidence for centralized planning
g. nonetheless, the state had an enormous interest in the surplus production from the raised-field system
    1. needed to support central elites and political system
    2. does not imply that state designed or managed system
    3. intensification can be induced through taxation, co-option of labor, and tribute demands
    4. system tied farmers to the land: to the state's benefit

7. Kolata: revised view
a. drawing from Erickson's work
b. local-level organization could have built and maintained much of the system
c. however, massive constructions imply central direction
    1. esp. because they were built as integrated networks
    2. e.g., systems of elevated causeways, dikes, canals
    3. canalization of Río Catari
        a. and shunting off of excess water flow
        b. reinforced levees
    4. aqueducts at Pajchiri and Lukurmata
d. perhaps through mit'a (rotating) labor tax

8. recent survey along the western margins of the lake tends to confirm elements of both arguments: Stanish, 1994; Stanish and Steadman, 1994
    a. extensive field systems were already constructed before the rise of Tiwanaku as a major power
    b. but the greatest expansion of the raised fields coincided with Tiwanaku's imperial era
    c. general abandonment of the fields corresponded with the collapse of the urban center
    d. from an explanatory perspective: Kolata, Ortloff, and Stanish agree that the greatest expansion of the field systems was part of a political economic strategy undertaken by emergent elites

9. Graffam: however, raised fields continued to be built and used
    a. Late Intermediate Period and Late Horizon
        1. 68% of lands in Pampa Koani were built and used in the LIP: AD 1000-1476
    b. agrees with Erickson on basic principles
        1. kin-based level of organization
        2. effective use of raised fields does not require massive water-management system
        3. small field systems can be managed successfully: by small groups
    c. _140 small house mounds scattered across Pampa Koani
        1. extensive presence of LIP ceramics
        2. concentrated in area of lesser erosion: better land management?
    d. key point: collapse of state does not imply disappearance of society
        1. people continued to live in region
        2. and practice agriculture on the pampa

<u>State expansion</u>

1. economic colonies founded on edge of Bolivian selva: Tiwanaku 3-5
    a. Sina, Niñokorin
    b. in Cochabamba area: Arani, Tiquipaya, Pucara, Perereta
    c. may have produced maize and other warm weather crops: medicinal plants, fruits, etc.
    d. about 80% of decorated pottery in Cochabamba Valley is Tiwanaku-related

2. coastal colonies
    a. e.g., Moquegua-Ilo area
        1. fancy grave stuffs recovered
        2. no direct contact with Wari occupation at Cerro Baul
        3. instead, Tiwanaku colonies remained downvalley until Cerro Baul was abandoned
        4. then Tiwanaku peoples moved into Cerro Baul area

b. main Peruvian sites: Chen Chen, Loreto Viejo, Tacna
c. northern Chile: Pisagua, Chiu Chiu, Quitor
d. NW Argentina: Pcia. Jujuy

3. probably extensive use of long-distance llama caravans

Collapse

1. Tiwanaku collapse: two main theories
   a. agrarian collapse from environmental causes
   b. political revolt

2. Ortloff and Kolata: agrarian collapse
   a. salinization of the fields
   b. loss of ability to sustain the urban population
   c. Quelccaya glacial cap sequences: 200 km NW of Lake Titicaca
      1. wetter periods
         a. AD 610-650, 760-1040
      2. drier periods
         a. AD 760-1040
         b. prolonged major drought: AD 1245-1310
      3. high dust concentrations associated with periods of major earth-moving: including raised field construction
         a. AD 600 and 920
      4. rise in temperature of about $0.5\text{-}1.0^{0}$C
   d. suggest a sequence of impacts on agricultural systems
      1. immediate response to rainfall fluctuations
         a. spring-supplied local systems
         b. rainfall-supplied terraces
         c. canal-supplied river plain agriculture
      2. delayed response to rainfall fluctuations
         a. canal-supplied terrace agriculture
         b. raised fields
         c. cochas: deep groundwater-dependent fields
   e. broadly speaking: sequence of Tiwanaku agricultural failures
      1. coastal spring-fed systems: AD 850-950
      2. highland rainfall-fed terrace systems: post AD 1000
      3. river-irrigated sytems in Moquegua mid-valley: AD 900-1000
      4. canal-irrigated terraces: mostly gone post AD 1000
      5. regional raised-field systems in Tiwanaku hinterland: AD 1000-1100
         a. limited local use continues after AD 1100
      6. post-Tiwanaku agricultural centers around localized groundwater zones using cocha technology: post AD 1000

f. agricultural failure led to political fragmentation
    1. reflected in dispersion of populations out of urban centers
3. political revolt: Berenguer and Dauelsberg
    a. massive destruction of all late Tiwanaku temples and centers on the periphery
    b. infer an iconoclastic uprising of the masses from the outlying zones
    c. Graffam: suggests that the uprising may have occurred in the wake of the collapse of the core
        a. i.e., a consequence of decreased state control
        b. rather than a cause of the demise of the state

The Wari Polity

1. Wari polity has been described in literature as
    a. empire based on an expansionistic and highly militaristic cult: Menzel, Browman
        1. encompassing most of Peru
    b. despotic regime based on intensive social, political, and religious integration of component regions: Lumbreras
    c. extensive, loosely integrated empire covering most of Peru: Isbell, Schreiber
        1. incorporating existing local and regional political and economic structures into the overall imperial structure
    d. one of several competing centers: Shady and Ruiz
        1. regionally dominant through direct of strong control over areas immediately adjacent
        2. looser, hegemonic control in areas of overlapping interest
        3. see also Shimada, Kolata

2. site of Wari: initially seen as focal point of Tiwanaku Culture
    a. based on wide distribution of material remains of similar style
        1. ceramics, textiles, murals
    b. thought to be distribution center for Tiwanaku culture

3. suggested mechanisms for development and expansion
    a. Bennett: expansion of religious ideology
        1. cited iconographic evidence
    b. Menzel & Browman: adopted idea of proselytizing religious system
        1. accompanied by political expansion of Wari city-state
        2. Menzel: adopted idea of military conquest and annexation
            a. suggested that religion was primary impetus for expansion
    d. Lumbreras: accepted religion as key element
        1. but only part of complex system: including economic and politics

4. Menzel's sequence of development

a. Epoch 1: intrusive pottery of sierra origins made first appearance in the Ica and Nasca Valleys
    1. two ceremonial styles: Conchapata, Robles Moqo
        a. found in ceremonial offerings
        b. e.g., Pacheco on south coast
    2. three non-ceremonial styles: Chakipampa, Ocros, Black Decorated
2. Epoch 2: series of major styles
    a. subdivision into 2a and 2b: based on ceramics
    b. empire went through severe crisis
        1. expansion to greatest extent
    c. great urban site at Chakipampa occupied
    d. depopulation of Ayacucho Valley: may be associated with concentration of population at Wari
    e. great influence exerted on coast: e.g., in Nasca
    g. greatest extent in 2b
        1. construction of Viracochapampa and Pikillacta
        2. special relationships with Pachacamac and Cajamarca
    h. empire fell at end of Epoch 2b
        1. Wari almost abandoned: complete by Epoch 4
        2. no interruption at Pachacamac
            a. but Cajamarquilla and Maranga (old part) were abandoned
        3. end to tradition of urban settlement in Ayacucho area
        4. disintegration of political power
            a. accompanied by depopulation and economic depression in area around capital

<u>Formation of the Wari polity</u>

1. antecedent EIP settlement data: 300 BC - A.D. 650
    a. 93 sites: total 3255 ha
    b. no modality
    c. perhaps attributable to smoothing of histogram over large block of time
    3. I&S: no political centralization apparent at this time

2. Ayacucho Valley settlement patterns: MacNeish's survey
    a. Period 12: 680-850
        1. combines part of MH Epochs 1B, all of 2, and some of 3
        2. in MH: first- and second-order settlements
    b. nature of settlements
        1. 1 true city
        2. 7 administrative towns
        3. 2 small administrative centers

4. 7 hamlets
5. 6 open camps
6. 4 caves

c. results suggest settlement hierarchy
   1. but data are equivocal
   2. based on architecture: not site size

3. Isbell and Schreiber: reanalyzed MacNeish's data
   a. reduced sample to 17 sites
      1. got rid of Conchapata (Chakipampa) and caves, some hamlets, and open camps
   b. sites ranged from 1-300 ha
      1. totalled 564 ha
   c. histogram of settlements shows clear modality
      1. at least two levels above main habitation sites
      2. second-order sites are distributed around Wari

The Site of Wari

1. setting
   a. located in cluster of hills
      1. that separate Huamanga and Huanta basins
   b. no source of water on the hills
   c. today: dry farming
   d. near good sources for ceramic clay: Arnold

2. Wari archaeological zone
   a. multiple archaeological deposits over 15 km^2
   b. multi-component deposits

3. site of Wari: scale
   a. urban core: 250 hectares (625 acres)
      1. periphery of similar size: 250 ha
   b. population: 50,000-100,000
      1. hard to estimate: site grew by accretion

4. organization of Wari
   a. layout complex: not haphazard
   b. huge walls divided site into sectors
   c. consisted of massive architectural compounds
      1. 70-80 walled compounds
      2. rectangular or square outline
      3. 100-400 m per side

4. possibly residence of occupational specialists
    1. e.g., concentrations of turquoise manufacture

d. multi-level buildings: rare in Andes
e. extensive terracing within core
    1. obsidian manufacture

5. general sequence of construction development
    a. occupied from Early Horizon on
        1. EH sector: on east side
    b. EIP: Huarpa
        1. on lowest western edge of Wari Archaeological Zone
        2. overlooking irrigated valley bottoms
        3. at least 4 separate residential areas
    c. MH 1A-early 1B
        1. becomes ceremonial and residential center
        2. series of temples built
        3. some dressed-stone architecture pertains to this era
    d. Late MH 1B
        1. urban grid emerges
        2. walled compounds surrounded by streets
        3. urban plan more apparent in N half of Wari
        4. S half: more irregular development
        5. enormous amount of architectural remodeling
            a. Patio Group construction Phase
    e. Late MH 2
        1. era of the construction of the Great Walls
        2. areas of town cleared for construction that never took place

6. Moraduchayuq compound: excavated
    a. modular construction unit: patio group
        1. large open area: square, rectangular, or trapezoidal
            a. building arrayed around it
        2. Moraduchayuq has at least 7 such groups
        3. most architecture: rough stone walls
    b. may have been partially residential
        1. midden recovered from some
            a. but a lot of secondary deposition
        2. probably multi-family dwellings
        3. 3-4 domestic hearths found
        4. sub-floor cists were common
    c. perhaps ceremonial feasting or hospitality
        1. high proportions of serving vessel rims in secondary debris
            a. 90% of material in cultural dumps

2. Jargampata: 50% of assemblage same forms

d. semi-subterranean temple
    1. sectors of dressed-stone wall
    2. some walls retain traces of red paint
    3. mortarless, fitted stone
    4. uneven shapes: up to 1 m on a side
    5. charcoal date of AD 580±60
    6. dressed stone floor later added 1.9 m above base of stone walls
e. series of cist caches
    1. looted
    2. but still contained gold, shell inlay, _12,000 shell beads
f. construction sequence
    1. illustrates planning in grid pattern
    2. standardized internal divisions
    3. units and elements added over time: e.g., corbels as second-storey supports
    4. sub-floor canals under entire compound
g. dense concentration of bluish chrysacolla: 26.7 kg/m^3 in one building
    1. possibility of craft manufacture
    2. or possibly concentration of materials used in religious offerings
h. compound looted in prehistory
    1. apparently at the time of its abandonment

5. modular unit reproduced at Wari provincial sites
    a. Viracochapampa
    b. Pikillacta
    c. Jincamocco
    d. Jargampata

<u>Craft production at Wari</u>

1. obsidian production: important craft industry at Wari
    a. probable local use of the products
    b. no evidence of obsidian workshops yet found
        1. but the site has not been fully surveyed
    c. locus of primary tool manufacture: probably outside Wari
        1. perhaps near mine at Quispisisa: 150 km away

2. obsidian materials recovered at Wari
    a. working tools: hammerstones and waste flakes
    b. 7,000,000 lbs of obsidian imported into Wari
    c. shift over time to increased use of microblades
    d. increase in standardization and quality of lithic tools over time

1. reflected in uniformity of size and workmanship
2. suggests a high degree of coordination of industry

e. but little evidence of trade of tools out of Wari
1. clearly primarily consumed there

3. possible uses of obsidian tools
a. butchering camelids
1. tools found with bones
2. perhaps state herds

b. shearing camelids for wool
c. outside of Ayacucho Basin: many woolen textiles with "Tiwanakoid" motifs found
1. may have been mark of status

4. trade and transport
a. llama corrals associated with craft production areas at contemporaneous sites
1. e.g., Moche: V Galindo
2. Sicán: Pampa Grande

b. may have been administered trade
1. or entrepreneurial

5. ceramic manufacture
a. Ayacucho core region for Dean Arnold's (1975, 1984) ceramic ecology hypothesis
b. key point: fancy ceramic styles appear to have been developed in regions with a particular confluence of environmental and social factors
1. minimal resources: good clay, water, and fuel
2. scheduling and weather also crucial
3. the ecological zones that are marginal to good farmland tend to yield good clay sources
a. i.e., erosion and weathering help produce good raw materials for ceramic manufacture
4. so that people who live in those locations may be induced to develop potting as a risk reduction strategy
5. the fancy pottery style at Wari may therefore be partially attributable to groups' efforts to develop an alternative to an uncertain subsistence base
6. i.e., the production of fancy crafts was a cottage industry response by a marginal populace to an increasing urban population

c. explanation contravenes many other explanations for development of craft industries
1. esp. those that posit that the production of fine ceramics was underwritten or controlled by elites for their own consumption and distribution
2. see Costin 1990

d. evidentiary problem at Wari
1. locations of ceramic production not yet clearly defined

2. nor is the nature of the labor organization

e. despite enormous interest in the iconographic content of Wari pottery
   1. we still do not understand the nature of the industry

Wari as an expansionist state

1. most scholars accept that Wari was in some sense an expansionist state
   a. what is debated are
      1. the nature of the central polity
      2. the form of the expansion
      3. and the nature of relations between Wari and subsidiary regions
   b. general tendency
      1. people who work at or near the core see a more formally structured state with fairly direct rule through a network of administrative centers
      2. people who work in posited subordinate regions see more independence in the hinterlands

2. criteria often used to identify states archaeologically
   a. hierarchical decision-making structure
      1. often identified by nodes in a settlement hierarchy
         a. e.g., Wright and Johnson suggest that there should be four levels
      2. successively higher nodes of decision-making generally associated with larger settlements
      3. sequence of state center, regional centers, smaller facilities, local communities
   b. presence of specialized institutions
      1. implied by specialized architecture
      2. specialized administrative artifacts
         a. e.g., seals
         b. systematic recording systems

2. network of settlements: road system implied
   a. major Wari settlements located along lines of principal Inka road system
   b. sites lie adjacent to roads
   c. some roads run through the middle of sites
      1. e.g., Pikillacta, Viracochapampa
      2. architecture not disturbed by roads: i.e., roads integrated into plan of sites
   d. presence of probable storage facilities at road settlements
      1. small rectangular enclosures
      2. also found at small Ayacucho Valley settlements
         a. Cerro Churu: 3 km south of Wari
         b. Incaraqay: north end of valley

3. standardization of architecture
    a. key line of evidence for interregional integration
        1. room shapes
        2. architectural plans

<u>Evidence from the hinterlands</u>

1. Viracochapampa
    a. near modern Huamachuco
    b. layout
        1. walled enclosure
        2. 30 ha
        3. central avenue
    c. two major kinds of buildings
        1. 19 niched halls: large rectangular buildings with rounded corners
            a. similar to those at Pikillacta
        2. galleries
            a. 6x as long as wide
            b. tall
    d. resulted in patio complexes
    e. Topics: site never really completed or occupied
        1. e.g., walls intruded into trenches, but never finished
        2. architecturally: Wari-Huamachuco hybrid
        3. settlement was a joint venture between Wari and Huamachuco elites
        4. not an forcible intrusion

2. however, there were other Wari constructions around Huamachuco
    a. Cerro Amaru: 24 storerooms
        1. probably also oracle: fineware ceramics
    b. La Cuchilla: major earthwork
    c. at Marca Huamachuco: possible mausoleum

3. Pikillacta: in Lucre Basin, just south of Cuzco
    a. southern limit of Wari constructions
        1. natural pass south toward altiplano
    b. intrusive settlement: 60 ha
    c. functions
        1. probably administrative center
        2. some residential midden deposits
    d. cache of 40 figurines
        1. each garbed distinctly
        2. unclear what their significance is

a. deities?
b. ethnic leaders?

4. Azángaro
   a. in Huanta Valley: 10^{+} km NNW of Wari
   b. major planned architectural sector
      1. 7.8 ha: 175x447 m
      2. flagstone paving, corbels, niches
   c. irregular sector: scale unclear?
   d. 6 major building phases
      1. generally: setting out of large enclosure
      2. subdivision and building of architectural units
      3. extension of east sector
   e. Anders's interpretations
      1. planned administrative center
      2. calendrical/ceremonial layout

5. Carhuarazo Valley
   a. outside boundaries of pre-expansion core area of Wari empire
      1. 6 days south of Wari
      2. no materials from Ayacucho prior to Wari expansion
   b. pre-Wari occupation
      1. 6 small villages: each 1-2 ha
         a. at 3300-3600 m: in the tuber catchment zone
         b. round houses set in mud mortar
         c. spaced throughout valley
   c. local settlement under Wari occupation
      1. first occupied in MH 1B
      2. two small villages at 3400 m at either end of valley
         a. atypical architecture and artifacts
      3. villages shifted to ecotone between tuber and grain-producing zones: i.e., below 3300m
         1. suggests increased reliance on grain production: maize?
      4. much of valley terraced at this time
   d. Jincamocco: most notable Wari facility
      1. Schreiber suggests that it was a probable administrative center: 15 ha
      2. rectangular enclosure: 3.5 ha
      3. throughout MH: addition of rectangular constructions around perimeter
      4. wide range of activities: administration, storage, residence
      5. generalized administrative center
   e. three other Wari sites in valley
      1. each: small rectangular enclosure: 80 x 100 m
      2. exclusively MH ceramics: local and Wari polychrome styles

3. two paired with local villages: at ecotone
4. compounds may have been storage facilities for local produce
    a. control of access into and out of valley along major trails
5. third compound also paired with local village
    a. located at strategic point where major road enters valley from the north

f. major road: probably also Wari construction
1. from Jincamocco SW past atypical site
    a. eventually to Nasca
    b. later used by Incas
2. past other Wari facilities in valley: on to Wari

g. summary of Wari occupation
1. shift in settlement location: villages found at lower elevations
2. change in subsistence strategies
    a. maize cultivation more important than before
3. superimposed Wari administrative system
    a. major center
    b. three satellite centers
    c. major road connecting valley with south coast and Wari core area

6. oracles and offerings
a. Conchopata: near modern Ayacucho
1. deposit #1: Tello, 1942 dig
    a. 3,000 fragments in one pit
    b. half unpainted
    c. depictions: two versions of Staff Deity, 5 profile attendants, various human forms
        1. imagery most similar of any Wari style to Gate of the Sun at Tiwanaku
    d. all oversize urns
    e. all smashed in situ: to the face of mythical deity?
2. deposit #2: Isbell, 1977 dig
    a. another pit (2x3 m; depth?): disturbed
    b. 22-25 oversized face-neck jars: portraits of different individuals?
    c. combined Nascoid and Tiwanakoid features

b. Ayapata: 30 km NW of Wari
1. 5 superimposed levels in same area
2. multiple vessel forms: mostly oversized urns
    a. smashed in situ?
3. no habitation evidence found

c. Cerro Amaru
1. Huamachuco region
2. high density in small area: 1 m across

d. Pacheco: Nasca Valley
1. Tello in 1927 excavations

2. 3 tons of sherds
3. several oversize urns: two forms of central deity depicted
4. numerous other vessel forms also

e. Maymi
1. Pisco Valley
2. immense deposit: ceramics with elaborate decoration

a. Wari Willka

7. contemporaneous sites on the coast
a. Pachacamac
b. Cajamarquilla
c. Cerro Baul: see below

<u>The Wari-Tiwanaku relationship</u>

1. relationship between Wari and Tiwanaku: one of the mysteries of Andean prehistory
a. two cultures shared
1. symbolic motifs
2. styles of megalithic architecture
b. but ceramic styles are distinguishable
c. little firm evidence for
1. trade
2. warfare
3. political interaction

2. views of relationship
a. two urban centers
1. non-belligerent rivals
2. each focused away from the other in its expansion
b. Wari was subsidiary of Tiwanaku
1. gained independence
c. two cities: dual capitals of one polity
1. as were Cuzco and Tumipampa: in Inka empire
d. views challenged by scholars who see Wari arising autonomously from local antecedents
1. esp. Chiripa

3. Moquegua Valley: clearest locale for interaction
a. first occupied by Tiwanaku
1. 30^{+} Tiwanaku-related sites
2. multicomponent midvalley complex of sites around Omo
a. probably dates AD 375-750

3. Loreto Viejo and Chen Chen
    a. have Tiwanaku ceramics indistinguishable from Tiwanaku V
    b. 750-1100
4. early sites open and undefended
5. later sites
    a. defensible locations
    b. protected by walls and ditches

b. Wari occupation
1. Cerro Baul
    a. 600 m above wide base
    b. above Río Osmore
    c. largest complex of monumental architecture in the valley
        1. resembles Wari itself
    d. contains three architectural sectors
    e. probably established and abandoned during short epoch: 600-700
2. Cerro Mejía
    a. on nearby hill
3. objectives of occupation unclear
    a. Watanabe: lapis lazuli, obsidian, or copper

c. ca. AD 650 Cerro Baul and associated sites were abandoned
1. settlers using Tiwanaku-related culture then moved in

Concluding comments

1. note general patterns of Middle Horizon
    a. rise of urban centers
        1. internally differentiated architecturally
        2. large populations: vastly exceeding early states in Mesopotamia
        3. massive craft specialization
    b. subsidiary centers: expansion and intrusion into new regions
        1. e.g., administrative and monumental sites associated with both Wari and Tiwanaku
    c. changes in local organization as a result: e.g., Carhuarazo Valley
        1. shift to new settlement locations
        2. shift to maize agriculture
    d. means of expansion still unclear
        1. military
        2. economic relations
        3. religious prostelytization
    e. evidence for extensive interaction between coast and highlands
        1. apparent pairing between coast and highlands
            a. e.g., north coast and Cajamarca

    b. Wari and Nasca
    c. Tiwanaku and Moquegua-Ilo
  2. possible imperial economic colonies in varied ecological regions

2. the nature of core society in both regions is still poorly understood
   a. social organization: likely stratified, but unspecified beyond that
   b. political structures: centralized leadership, but unclear in detail
   c. balance among various sources of power in organizing leadership: social, ideological, military, economic, political

3. nature of the research and the data examined raise some fundamental questions about archaeological interpretation
   a. e.g., is there a necessary relationship between
      1. distribution and dissemination/adoption of style or iconographic content
      2. and political, social, or economic organization?
   b. does pottery style immediately reflect social change?
   c. what is the relationship between producer vs. consumer
      1. in ideology?
   d. how do we account for the widely distributed centers with Wari ceramics and architecture, but no sites between?
      1. Olmec-Oaxaca model
         a. elite-elite material exchange
         b. imitation of state by lesser elites in hinterlands
         c. does not fully account for architectural similarities
      2. trading centers?: Shady and Ruiz
      3. military outposts: Lumbreras
      4. full empire with administrative outposts
         a. Schreiber
      5. economic colonies that maintained peaceful relations with indigenous groups?

4. at the end of the day, we are still left with crucial relationship between the two urban centers still unresolved
   a. how could two urban formations so close to one another share such similar iconographies and other elements of material culture?
   b. but apparently not be involved in direct economic, political, or military relations?