

**THE EMERGENCE OF INKA DOMINION:
HISTORICAL AND CHRONOMETRIC ASSESSMENTS**

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Abstract

This paper evaluates the evidence for the chronology of Inka expansionism across the Andes, as seen from the information presented in early Spanish documents and from radiometric dates obtained from Inka contexts throughout the former empire.¹ Cabello Valboa's (1951 [1586]) chronology, which is the basis for most modern historical interpretations, suggests that the Inka expansion out of the Cuzco region occurred around AD 1438 and that most of the Andes were conquered after 1463. In this model, the Inka state arose in conjunction with the imperial expansion. In contrast, radiocarbon dates suggest that the Inkas had created a complex, perhaps state-level, society in the southern Andes by 1300, if not earlier, and had established a presence in much of the Andes in the first half of the 15th century. The latter model extends the accepted duration for much of the Inka polity, suggesting that a rethinking of the nature of Inka history as recorded during the Colonial era may be in order. We conclude that the rise of Inka power in the Cuzco region likely took a couple of centuries, and that the imperial era lasted about a century or a little more.

Introduction

The formation of the Inka empire was one of the most remarkable accomplishments of the indigenous Americas. Among the empire's more striking features was its apparent brevity – less than a century according to the chronology that Andeanists have used since the mid-20th century. Many of the early Spanish accounts explained that the Inkas expanded their dominion beyond the Cuzco heartland and established the largest empire of the Americas in three generations. In the process, the Inkas integrated hundreds of ethnic groups, living along the Andes from Ecuador to central Chile, into a single polity. Although historically-oriented scholars have occasionally raised questions about the accuracy of the historical reconstructions, synthesized from accounts that often diverged in significant elements, they have been hesitant to compare the documentary sources with chronometric data. Archaeologists, conversely, have been gradually accumulating information on the Inka occupations of particular regions through radiocarbon dating, with an eye to assessing the timing of the imperial expansion into those areas. This paper examines the emergence of Inka power in light of the two sets of information. When the chronometric information is compared with the historical descriptions of Inka expansionism, enough questions arise that we feel that the issue requires a close reconsideration.

In part because the Inkas did not have a written language that we have been able to decipher, the available historical information comes from texts recorded in the decades after the European invasion, based largely on the testimony of Andean witnesses. By and large, those narratives recounted that the Inka royalty traced their heritage through eleven generations from the mythical ancestor and founder of Cuzco, Manqo Qhapaq, to the last undisputed ruler of the empire, Wayna Qhapaq. His son Waskhar Inka was seated in Cuzco, but was deposed some years later by another son, named Atawallpa. Most of the major early Colonial writers of Peru provided lists of those rulers and sometimes suggested spans for their reigns. Although there is general, although not complete, conformity among the various king lists, the suggested dates and lengths of each reign vary markedly among sources (T. 1).

The Inka chronology in general use today was first proposed in writing in 1586 by the cleric Miguel Cabello Valboa (1951 [1586]). By Cabello's reckoning, the imperial era began ca. AD 1438 when the Inkas achieved a glorious victory over a rival ethnic group called the Chankas, from the Andahuaylas region west of Cuzco. The era lasted essentially through the reigns of three successive rulers: Pachakuti Inka Yupanki, Thupa Inka Yupanki, and Wayna Qhapaq. Inka rule concluded with the civil war between Atawallpa and Waskhar, which drew to a close just as the Spaniards invaded the Andean highlands in 1532. In 1944, lacking any means of determining absolute dates, John Rowe (1944:57) suggested that Cabello's estimates provided the most plausible sequence then available for the imperial era. Rowe's judgment was not an endorsement of a favorite writer, but a cautious recommendation based on a close analysis of many sources. Rowe considered the succession dates for the Inkas who preceded Wiraqocha and his son Pachakuti implausible. He wrote about Cabello Valboa's chronicle, Although his dates for the early Incas give impossibly long reigns, we must remember that, according to our standard version of Inca history, this

period was largely legendary and no permanent conquests had been made. Inca history gets onto a solid footing with the reign of Viracocha [Wiraqocha], and at precisely this point Cabello's dates become reasonable (Rowe 1945:275).

Most scholars have followed his suggestion over the years, despite the introduction of radiometric dating into archaeology in the late 1940's.² For the present discussion, it is most important that Cabello estimated that Pachakuti usurped the throne from Wiraqocha on the eve of the Chanka invasion in the year 1438 (Cabello Valboa 1951 [1586]: Ch. 19, p. 301). That year is often cited as the commencement date of the Inka state (e.g., Rowe 1944:57, 61; 1945:275; 1946:199, 200, 203; 1957:561, 562; 1985:35; Brundage 1963:72; Rivera 1971a; Dwyer 1971:143; Gasparini and Margolies 1980:5; D'Altroy 1981:9; Julien 1982:121; Conrad and Demarest 1984:110; Kendall 1985:250; Patterson 1985:37; Niles 1987:7; Morris 1988:236).

That chronology has been questioned on a number of fronts, however. From the documentary perspective, an early impact came from the work of structural scholars. Zuidema, especially, has argued that the Inka royal narratives are better understood as models of sociopolitical relations than as linear accounts of historical events (Zuidema 1964, 1982, 1983, 1986; Duviols 1979; Urton 1990; cf. Gose 1996). Proponents of this view contend that neither the time frames nor the historicity of event sequences can be trusted to represent the emergence of the empire in a reliable form. In a celebrated challenge to historical interpretations of the royal narratives, Zuidema (1982:173-174) stated that,

I would consider the whole of Inca history up to the time of the Spanish conquest, and even to a certain extent beyond as mythological. Inca "history," then, integrated religious, calendrical, ritual and remembered facts into one ideological system, which was hierarchical in terms of space and time. This Incaic hierarchical ideology should not be confused with the Western linear conception of history imposed by the Spanish. . . An historical chronology, up to the Spanish conquest, will have to be established independently by archaeology.

Although subsequently moderated by Zuidema, this view of the accounts has had a considerable effect, leading many historians to favor one of two interpretations. One sustains a largely historical view of the imperial era narratives (e.g., Niles 1987; Julien 2000), while the other takes the view that Inka history is better seen as a tool used to justify power relationships (e.g., Urton 1990). There is, of course, really a continuum of views on the subject, and Rowe himself emphasized the mythical flavor of many of the accounts of Inka history, even well after the emergence of the empire. Many historians have supported the idea that the narratives were grounded in historical sequences, while noting that accounts told to the Spaniards were modified by different parties to fit the factional interests that characterized Cuzqueñan politics (e.g., Rostworowski 1988; Ziolkowski 1996). Nonetheless, the divide remains between those who see the era of Inka power as the product of three successive Inka rulers and those who see Inka history more as a narrative tailed to justify the power structures that existed in the late prehispanic to early colonial eras.

A fair number of archaeologists have taken a different approach to the problem, by accruing chronometric evidence that may allow us to independently assess the value of Cabello's and other historical chronologies. That effort began about half a century ago, with Engel's work on the coast of Peru (see below). More recently, scholars working in both the heartland of the empire and in the southern Andes have expressed doubts about the conventional time frame. Bauer's doctoral thesis and subsequent book (1990, 1992) used 22 carbon dates to suggest that the emergence of a state polity in the Cuzco region may have occurred at least as early as AD 1400. About the same time, Stehberg (1991-92) framed the problem for the provinces, by using radiocarbon and thermoluminescence (TL) dates from Chile to argue that the Inka presence in the south Andes lasted at least twice as long as the 50-60 years allowed by the standard historical chronology. Their work was followed by Adamska and Michczński (1996), who used 37 radiocarbon dates, mostly from Peru, to independently reach the same conclusion as Bauer. Most recently, Covey (2006) has used a new suite of dates from the Cuzco area to suggest that a complex Inka polity was taking form in that area for two centuries before the great expansion, setting the organizational stage for the Inka domination of the Andes in the 15th century. Over the decades, well over 200 radiocarbon dates, of which 246 are presented here, have been taken by archaeologists in an effort to address the issue at a local level. This work has been complemented by a more modest effort, mostly in Chile, to look at similar chronological questions through TL dating of ceramics.

Investigating the Inka expansion through archaeology raises a host of questions, which are examined more fully below. The first concerns when a powerful Inka polity emerged in the Cuzco heartland, which then had the capacity to undertake the grand expansions. Addressing this issue requires defining the relationship between the nature of the Inka polity and its styles of material culture, a problem on which archaeologists have made some recent inroads. A second concerns interpretations of deposits containing objects or architecture in the Inka imperial style. The narrative accounts of Inka history often emphasized that the Inkas tried to assimilate new peoples with a minimum of outright conflict. Instead, they preferred to exchange gifts and create bonds of fealty between the Inka ruler and local leaders, and took up warfare only when diplomatic efforts failed in their objectives. The presence of Inka material culture in some regions may have therefore antedated Inka control by some period of time. Conversely, even where they did establish domination, the application of imperial rule could be staged over a period of decades, so that it may have taken a while to leave remains that would be archaeologically visible. As Morris (1988) has observed, most of Tawantinsuyu therefore lay near a frontier at some point.

The limits of rule that existed in 1532 illustrate the permeability of frontiers, along which political, military, economic, and cultural impacts had differing geographic reaches (Salomon 1986; Dillehay and Netherly 1988). In the southern Andes, for example, objects in the imperial Inka style have been found archaeologically as far as 700 km beyond the last imperial architecture (Dillehay and Gordon 1988). An appearance of Inka material culture in a region thus does not necessarily imply Cuzco's dominion, while state installations along a road system clearly do. Conversely, an Inka

presence or even domination in any region may well have escaped archaeological recognition to date. The dimensions of this problem are becoming increasingly clear, as scholars working toward the margins of the empire are reporting a spate of previously unrecorded Inka sites (e.g., Planella et al. 1992; Schjellerup 1997; Mulvany and Soria 1998; Alconini 2002).

We would like to emphasize that refining our understanding of the chronology of the formation of a powerful Inka polity and its imperial expansion is accordingly not simply a question of pinning down the timing at which different societies were annexed. It is a crucial element in our interpretations of the nature of the polity. Radiometric evidence that the Inka created and state and subsequently established control across most of the Andes only about 70-80 years before the Spanish conquest would support a view of the Inka polity as an extraordinary, but ultimately fragile, formation that lasted but a few lifetimes. Conversely, if the evidence suggests that the Inka polity took centuries to form in the heartland and that the empire lasted even a few decades longer than the accepted chronology grants, our current views of Inka developmental history may be subject to revision.

During their reign, the Inkas dominated over a hundred distinct ethnic groups, built more than 2,000 provincial installations along 40,000 km of upgraded roads (see Hyslop 1984, 1990), resettled perhaps half of the population in some provinces, and developed a vast state economy (see D'Altroy 2002). Exploits of that scale, though still remarkable, would have been less dramatic if spread over a longer period than the traditional sequence allows, even if only by a few decades. Possible division of the Inka era into successive stages would also help us to understand how the strategy of rule may have changed under shifting conditions. In view of this situation, if the radiometric chronology were found to be incompatible with the historical accounts, the implications for the reading of history could be profound.

One other fundamental issue remains to be considered: how to assess the relative utility of different ways of arriving at calendric events for important developments in Inka history. At present, it appears that scholars may be using different standards of assessment for evaluating the reliability of archaeological and written sources of data. The Society for American Archaeology uses a publishing standard for radiocarbon assays that cites 2Φ brackets (i.e., a 95.4% confidence interval). That is a widely accepted, conventional, standard based on a desire to ensure a very high probability that the bracket contains the correct calendrical date for the material being analyzed. Since almost 250 Inka-related radiocarbon dates are now available, use of multiple assays and other techniques can help refine the dating range, but we are still dealing with probabilities in any circumstance.

There is no comparable scientific standard of evaluation – i.e., measures of precision or accuracy – for the evidence presented in documents that are pertinent to Inka history. Some documents (e.g., Cabello Valboa 1951) provided estimated calendric dates for particular events, but it is widely recognized that those were best estimates. Even so, the citation of particular dates may provide a false precision to the historical sources. This issue may be a particular concern here, given that the written sources present oral narratives that are sometimes in conflict or are open to multiple readings. That does not mean that there is no standard, but that historians rely on close readings,

comparison of independent sources, plausibility, and their judgment in assessing the likelihood of a time frame for event sequences.

If we hope to reconcile the archaeological and historical information, at some point we need to ask if it is possible to think about comparing the efficacy of the methods used to evaluate different kinds of evidence. Do we adhere to the accepted 2Φ (95.4%) standard used for radiocarbon evidence? Or would we be satisfied, for example, with saying that a 1Φ radiocarbon error bracket (68.2%) or, say, an 80.0% probability for a particular calendric range (e.g., a peak in a multi-modal distribution) is more likely to reflect an accurate calendrical framework than Cabello Valboa's dates, even though it does not meet the 2Φ standard? How would we justify such an approach? Are those questions appropriate or inappropriate, and if so, on what basis?

This paper therefore has three purposes. The first, most immediate, goal is to present a wide range of historical and archaeological information on the subject. The second is to assess where we stand today in terms of reconciling differing views of the emergence of the empire. The last purpose is to call attention to the need to coordinate efforts to use chronometric techniques to help explain the dynamics of the largest polity of the indigenous Americas. As we will see below, there has been a surge of interest in the problem in recent years, but this work could benefit from further synthesis and coordination. It is our hope that discussing where we stand now will help stimulate careful attention to the problem in the field.

THE HISTORICAL CHRONOLOGIES

The ascent of the Inkas to rule the Andes was chronicled in more than twenty major accounts and dozens of other documents. Many were written by Spaniards transcribing or interpreting native narratives (e.g., Cieza de León 1984 [1551], 1967 [1553]; Betanzos 1996 [1557]), although some native Andeans also wrote to explain their history and society to a largely European audience (e.g., Garcilaso de la Vega 1960 [1609]; Santa Cruz Pachacuti Yamqui Salcamayhua 1950 [1613]; Guaman Poma 1980 [1614]). Because Andean peoples had no writing system of their own, most chroniclers synthesized numerous oral versions of Inka history. Sometimes conflicting accounts were assembled into single narratives. Pedro de Sarmiento (1960 [1572]), for example, wrote a composite history of the Inkas for Viceroy Toledo, based largely on interviews in and around Cuzco with about a hundred record-keepers. His work was motivated in part by Spanish crown's interest in showing that Inka rule was illegitimate, and thus had an anti-Inka slant. Sarmiento (1960 [1572]:180) attempted to give his version weight by having it read publicly before 42 of Cuzco's aristocratic descendants, who collectively attested to its veracity, but even Sarmiento acknowledged unresolvable versions of particular events at various points in his narrative.

The mnemonic knot records, called *kipu*, upon which Andean peoples often relied for their histories, accounting, and other purposes were considered to be so exact that the Spaniards allowed them to be read into court records in conjunction with testimony. Because a recording tool is capable of great precision does not necessarily imply that the contents are accurate, however. Such devices may have been used on occasion to impart a false reliability to a particular claim (see Callapiña et al. 1974

[1542/1608]; Duviols 1979; Urton 1990, 2002). What is of particular interest here is that various accounts that drew from *kipu* records presented distinct visions of Inka history.

In the king lists presented in most accounts, and as synthesized by Rowe (1944, 1945, 1946), the mythical Inka dynastic founder Manqo Qhapaq was followed by a succession of ten more rulers. Until the eighth ruler, Wiraqocha, the Inkas' sphere of influence was largely confined to the Cuzco region, where they were enmeshed in sometimes volatile politics, alliances, and conflicts. Wiraqocha reportedly had grander visions and made a foray into the Lake Titicaca basin in an effort to take advantage of wars among the Qolla and Lupaqa, who were the most powerful societies there. Nonetheless, the scope of his domain is generally characterized as though it had been limited to the south Peruvian highlands.

Cabello judged that the imperial era proper began ca AD 1438, when the Inkas under Wiraqocha were attacked by the Chankas. The ruler and his heir designate, Inka Urcon, fled Cuzco rather than contest the assault, but a valiant young prince named Inka Yupanki (called Cusi Yupanki by Sarmiento) led a supernaturally-assisted defense of the town and vanquished the Chankas. Inka Yupanki then assumed the honorific name Pachakuti ("Cataclysm" or "Restorer of the Earth"), usurped the throne from his aging father, and vanquished his brother. Soon after, Pachakuti began a series of ventures toward Lake Titicaca and into the central Peruvian Andes, which initiated the formation of the empire.

According to the major narratives, Pachakuti ceded military command to his young son Thupa Inka Yupanki after some time and focused his attentions on matters in the heartland (see Rowe 1946:203-209; Rostworowski 1988; Pärssinen 1992:85-140 for detailed reviews). Accompanied at first by militarily experienced relatives, the youth led campaigns throughout the northern Andean highlands and Peruvian coast. He subsequently annexed the southern Andes in a grand campaign around the time of his father's death. Cabello estimated that Thupa Inka Yupanki's ascension to military leadership occurred about AD 1463 and to the throne about 1471. The next monarch, Wayna Qhapaq (rule 1493-1526), firmed up the imperial frontiers, expanded the northern domain, and solidified administrative control. His sudden death, and that of an heir designate, in an epidemic of hemorrhagic smallpox, set the stage for the war between his sons. That conflict ended with Atawallpa's adherents triumphant, just as the Spaniards arrived in 1532.

That conquest sequence, or something akin to it, is supported in part by information in local reports, with notable exceptions discussed below. Among them are inspections conducted in 1569-1586 and published in the *Relaciones Geográficas de Indias* (1965), and interviews held on behalf of Viceroy Toledo in 1570-72 in the central Peruvian Andes and Cuzco area (Toledo 1940, v. 2, 3). Witnesses from the Upper Mantaro Valley, for example, testified that their ancestors had been conquered by Thupa Inka Yupanki (Toledo 1940 (2):19, 24, 32). Similarly, in 1571 numerous witnesses in and around Cuzco stated that their *abuelos* (glossed as grandfathers or ancestors) had personally served or had been resettled by Thupa Inka Yupanki, Wayna Qhapaq, and even Pachakuti (e.g., Toledo 1940 (2):65, 101, 108, 112-113, 159).

Collectively, this historical evidence suggests that the span from Pachakuti's era to AD 1532 was less than a century. The historical statements further indicate that the advent of Inka armies outside central and southern Peru and the altiplano occurred no more than 70 years (i.e., post-1463) before the Spanish invasion. Farther south, in Argentina and Chile, the first imperial presence may have occurred no more than 50-60 years before the empire's collapse. In the farthest reaches of the northern empire, the last conquests were reportedly accomplished within little more than a decade of the Spanish invasion. Considering that the reorganization of newly subjected societies was largely attributed to Thupa Inka Yupanki and Wayna Qhapaq, the imperial era potentially lasted little more than half a century in much of the Andes. Two maps of the conquest sequence, prepared by Rowe (1946:205) and Pärssinen (1992:139) on the basis of the documentary evidence, are presented here in Figs. 1 and 2. Table 1 presents six versions of the conquest sequence, based on early written sources.

Concerns with the Historical Chronologies

Despite the nearly universal use of Cabello's imperial-era chronology, researchers have expressed doubts about its accuracy because of historiographic issues. One concern arises from the ways that calendrical dates were estimated by the Inkas and Spaniards, another from incompatibilities among various sources, a third from the purposes of the narrative accounts, a fourth from the ways those accounts may have been modified in recording, and a fifth from interpretations of the relationship between Inka history and social organization. We will treat each point briefly here, referring readers to more lengthy discussions where appropriate.

Prehispanic calendars. Establishing the dates of events that occurred before the Spanish invasion is difficult because there is no evidence that any native South American group established a system for systematically recording the passing of time, beyond internal divisions within a calendar year (Rowe 1945:265). As Rowe (1945:274) wrote at the time that he discussed the chronological problem most closely, "We will probably never be able to date the Incas exactly, for the reason that the Cuzco Indians took no interest in the passage of years." According to Bernabé Cobo (1979 [1653]: Bk. 2, ch. 37, pp. 252-253), a priest who spent most of his adult life in Peru,

They did not count their age in years; neither did they measure the duration of their acts in years; nor did they have any fixed points in time from which to measure historical events, as we count from the birth of Our Lord Jesus Christ. Thus, there was never an Indian who knew his age, much less the number of years that have elapsed since some memorable event. When they are asked about things of the past, if something happened more than four to six years back, what they usually answer is that the incident occurred *ñaupapacha*, which means "a long time ago"; and they give the same answer for events of twenty years back as for events of a hundred or a thousand years back, except that when the thing is very ancient, they express this by a certain accent and ponderation of their words.

Even so, some evidence suggests that the Inkas may have made some effort to keep track of the life spans and reigns of at least the most recent rulers. Several

witnesses interviewed in and around Cuzco in 1570-72 for Viceroy Toledo were asked specifically about the ages of the rulers at death. Two royal descendants of Pachakuti and Thupa Inka consulted a marked wooden board and *kipu* and then reported that Pachakuti died at the age of 100, Thupa Inka Yupanki at 58 or 60, and Wayna Qhapaq at 70 (Toledo 1940 (2):173, see also 140). The age cited for Pachakuti is most likely a rounded figure indicating that the ruler had lived to a grand old age, as befit the founder of the empire. Other Toledan witnesses variously stated that Thupa Inka Yupanki died young, between youth and old age, and old (Toledo 1940 (2):118, 140, 148, 157-58). There is a little more agreement on Wayna Qhapaq, who was said to have died at about 60 or 70, very old, or with some grey hair (Toledo 1940 (2):140, 148, 157-58, 166). They also stated that he had died anywhere from 2 to 10 years before the arrival of the Spaniards (Toledo 1940 (2):92, 118, 158, 200, 202, 203). Because Sarmiento's account drew information from the witnesses for Toledo's inspections, their accounts coincide fairly well for the emperors Pachakuti, Thupa Inka Yupanki, and Wayna Qhapaq.

Those accounts cannot be fully reconciled with Cabello Valboa's history, because they report either the length of emperors' reigns or their age at death, but not both for all emperors. Even taking those difficulties into account, the figures do not coincide at all well. Faced with a choice among chronologies of questionable veracity, Rowe opted for the more conservative estimates and that has become the standard by which we judge the duration of the empire. The crucial succession dates (i.e., AD 1438, 1471, 1493, 1525) suggested by Cabello Valboa remain problematic today, because we know nothing of his informants (Rowe 1945:275), even though it is presumed that he drew on indigenous sources. In light of these observations, the citation of Cabello Valboa's dates of dynastic succession in terms of specific years lends a deceptively concrete appearance to our current state of knowledge.

Differences among sources. Commentators from the earliest colonial years to the present have been well aware that versions of Inka history varied markedly. Chroniclers sometimes commented that they were told distinct, incompatible versions of Inka history, or that the royal narratives were periodically reworked (e.g., Cieza 1967 [1553]:173; Betanzos 1996 [1557]:3). Because those differences could be substantial, scholars who see the variations as discrepancies in describing a single history must make choices about the timing and sequences of particular events in the expansion of the empire. We do not want to exaggerate the differences, because there were considerable parallels among many of the major accounts. Nonetheless, the major indigenous chroniclers, such as Garcilaso, who carried considerable weight before Rowe's influential analyses, and Guaman Poma, placed many of the important expansions much earlier in the king lists than did Spanish writers. While they may have been exaggerating to impress a European audience, rejecting a relatively early date for aggressive Inka action out of hand may not be the most productive approach.

We cannot address the issue fully here, but observe that one fruitful line of inquiry has been to compare local testimony from the provinces with that of the Cuzco-centric and grand scale discussions. Pärssinen (1992:85-140) has reviewed the correspondences, and we refer readers to his work for the details. He disagrees with Rowe on certain points, such as whether Chincha was first dominated under Pachakuti's or Thupa Inka's reign. Nevertheless, he finds much evidence to support the notion that

the empire was created from the time of Pachakuti onward. A key point is that the provincial sources correspond well with the major chronicles in the sense that the local documents outside the immediate Cuzco area do not report conquests preceding the reign of Pachakuti. It may be especially telling that Wiraqocha Inka was not called a conqueror by the societies of the Titicaca basin, but merely a great chief. If we accept the notion that only three emperors reigned from the inception of the empire to the mid-1520s, then there is much support for a century-long run for the empire

A second point emphasized by Pärssinen is that a number of the provincial sources suggest that some regions may have been brought under Inka sway one ruler earlier than Rowe's synthesized version suggests. He pays particular attention to the Chíncha Valley, of Peru's south coast, suggesting that it was first brought under Inka sway during the reign of Pachakuti. He makes a similar argument for the southern altiplano, pointing out that both Sarmiento and Betanzos state that armies sent out during Pachakuti's reign engaged in battles as far south as Charka, Chicha, and Chui territories, which lay in southern highland Bolivia (Pärssinen 1992:120-21). He also cites local sources that suggest that peoples as far south as the Quillaca participated in the conquest of the nearby Charkas (e.g., Ayavire y Velasco et al. 1969 [1582]:24).

History and Power. In Inka politics, controlling the content of royal history implied controlling the right to rule. The dynastic narratives in particular authenticated the ruler's legitimacy and the stature of his supporting kin groups. In the time of the Inkas, it seems to have been public knowledge in Cuzco that the dynastic histories were liable to revision and that both the past and Inka social structure were periodically retailed to fit relations of power. Cieza (1967:32) pointed out that the king lists glossed over some individuals, perhaps even after the start of imperial expansion. In a general discussion of Inka rulership, he explained that the mnemonic specialists (*kipu kamayuq*) charged with publicly recounting Inka annals deliberately underplayed, or even omitted, deficient rulers when citing the royal histories.

...and if among the kings one turned out indolent, a coward, given to vices and a homebody without enlarging the domain of his empire, it was ordered that of such [kings] there be little remembrance or almost none at all; and they attended to this so closely that if one [king] was found [in the histories] it was so as not to forget his name and the succession; but in the rest they remained silent, without singing the songs [as they did] of the others who were good and valiant.³

Cieza's comment suggested that poorly regarded monarchs may have been largely effaced from public memory by the early Colonial era, with only the more transcendent rulers retaining an important place in the histories of the imperial expansion.

Spanish authors also helped to amend history by selecting among differing narratives. In his introductory letter to the Viceroy Mendoza, for example, Betanzos (1996 [1557]:3) wrote that he favored the accounts told by the oldest and most respected among his native witnesses. He disparaged accounts by common Indians as credulous, and discounted reports that contradicted his own by arguing that their authors and even the translators had misunderstood their witnesses. Instead, he relied on what were probably epic poems told among Cuzco's royalty and nobility (Hamilton 1996:xi). In so

doing, he may have favored the views of his in-laws, for he had married the widow of Atawallpa, Pachakuti's great-grandson.⁴

Flexibility in the narratives allowed each ruler to justify the shifting basis of power among Cuzco's competing aristocratic factions. The importance of controlling history may be seen in two native accounts said to have been dictated directly from *kipu* records. In 1569, the descendants of Thupa Inka Yupanki filed suit in Cuzco to reclaim estates that they had lost in the bloody aftermath of the dynastic war between Atawallpa and Waskhar and the Spanish conquest, which followed on its heels (Rowe 1985b [1569]). The lawsuit was filed because many of Thupa Inka Yupanki's descendant kin group (*Qhapaq Ayllu*), along with virtually all of Waskhar's kin, had been wiped out in a slaughter in Cuzco by Atawallpa's forces, and the survivors could not hold onto their ancestral lands. In their deposition, the litigants claimed a wide range of conquests for Thupa Inka Yupanki. Significantly, they did not distinguish between conquests often attributed to armies under Thupa Inka Yupanki's titular generalship, during Pachakuti's reign, and those achieved during Thupa Inka Yupanki's reign. That point is important because a chronicler relying on that account might have downplayed the accomplishments of Pachakuti, who is described elsewhere as the driving force behind the empire's creation, including the conquest of most of the northern half of the empire.

The structure of the *kipu* account presented by *Qhapaq Ayllu* exemplifies why it has been so difficult to translate Andean methods of recording historical events into sequences that make sense in a European calendrical framework. The Inka empire was made up of four parts, centered at Cuzco. Those parts were ordered hierarchically in a clockwise fashion, moving from the northwest part, called Chinchaysuyu, through Antisuyu, Collasuyu, and Cuntisuyu. The *kipu* account was similarly structured. That is, ethnic groups and forts assimilated by the Inkas were listed sequentially within one part at a time, not successively as they might have occurred in the empire as a whole. Thus, anyone attempting to put events into a single order would need additional information.

A second account, known most widely as the *Quipocamayos de Vaca de Castro*, is more problematic (Callapiña et al. 1974 [1542/1608]). The earliest reliable date from which the document is known is 1608, at which time it was used to support a claim to the Inka throne. Duviols's (1979) and Urton's (1990) analyses show that the royal claim itself was at least partially fraudulent (see also Julien 2002). Most of its substance concerns testimony said to have been given in Cuzco in 1569 to sustain a claim to nobility by a member of the Callapiña family. That testimony contained extracts from accounts of royal genealogy and conquests, purportedly given in an inquest held by the Lic. Vaca de Castro in Cuzco in 1542 (Duviols 1979; Porras Barrenechea 1986:748; Urton 1990:45). According to the testimony reportedly recorded in 1569, record-keepers came out of hiding in the hills south of Cuzco. They related that Atawallpa's victorious generals had tried to kill all the historians they could find in Cuzco in 1532, declaring that it was time to begin history anew. The survivors' account attributed extensive conquests into the central Peruvian highlands and southern Bolivian altiplano to Yawar Waqaq and their ancestor Wiraqocha, somewhat reducing the exploits of Pachakuti or Thupa Inka Yupanki. In the *Quipocamayos* account, Wiraqocha began the grand reorganization of societies drawn into the empire, which was then followed up by his

descendants. It did not mention the Chanka war, which was so pivotal in most histories. By phrasing Inka history in this manner, the litigants in 1608 could help forward a claim to the throne that might otherwise have been seen as spurious.

With respect to the chronological sequences cited in the *Quipocamayos* document, Pärssinen (1992:122, n. 195) makes the interesting observation that “... the account of Quipocamayos may reflect the view of the Suczu *panaca* [i.e., the descendant kin group of Wiraqocha], and that everything that happened during the lifetime of Viracocha [Wiraqocha] was recorded in his favor (even though he was retired from office).” What is most intriguing about this argument is that several chroniclers reported that Wiraqocha lived for some time after losing the throne. Betanzos (1987 [1551]: ch. 9, pp. 35-41), for example, wrote that Wiraqocha lived thirty years after Pachakuti took effective control of the empire. Pachakuti was enthroned only after a considerable length of time in that position, which included twenty years spent building Cuzco (ibid.: ch. 10, pp. 43-47). Above, we just saw that the descendants of Thupa Inka claimed for him all expansions that he directed militarily, during his father’s reign. Pärssinen’s observation suggests that Wiraqocha’s descendants did him a reciprocal service. That is, conquests that occurred during Wiraqocha’s lifetime, but directed by Pachakuti, were later claimed as Wiraqocha’s for a particular political end.

We cannot resolve such issues in this paper, and fully recognize that the degree to which the *Quipocamayos* document contains a true royal Inka account or was essentially a later fabrication is an unresolved subject. What is crucial for this paper is that testimony given in two lawsuits in Cuzco, based on *kipu* accounts ostensibly from the early colonial era, could differ so radically in their content. Clearly, history was remade to suit the times.

Contested successions. The uncertainties of royal succession also presented opportunities for brief reigns that may have been played down in the royal annals recorded in the Colonial era. Some years ago, María Rostworowski drew attention to the infighting described for virtually every succession in the royal line.⁵ At various times, competition for the throne entailed regicide, fratricide, thwarted or successful palace coups, usurpation, voluntary cession of claims to the throne, civil war, or some combination thereof. It is important to be aware that the Inkas and other highland societies passed power from one generation to the next through customs that selected for robust leadership. Frequently, an Andean lord passed authority to his most able son, regardless of birth position, but it was not uncommon for a number of able brothers in a generation to hold office successively.⁶ Among the Inkas, the selection process meant that successful aspirants won the throne through political intrigue, murder, and sometimes war.

The royal narratives named several individuals who effectively held or tried to seize the reins of government, but did not find a place in the standard list. They were described to the Spaniards as displaced kings, interim rulers, adult co-regents to underage paramounts, failed aspirants, or heirs designate who never took the throne.⁷ Inka Urcon, son of Wiraqocha Inka and elder half-brother to Pachakuti, stands out in this respect. The sources agreed that Inka Urcon was chosen as Wiraqocha’s successor, but disagreed beyond that point. Cieza (1967 [1553]: ch. 44, p. 148) accepted the word

of some informants who said that Inka Urcon was actually a legitimate ruler deposed by Pachakuti. Inka Urcon's descendants asserted the same story to Sarmiento (1960 [1572]: ch. 25, p. 229), but it was denied by other Cuzqueñan aristocrats, perhaps because it would have called their status into question. Betanzos, who had the position of Atawallpa's family to protect, would not grant that Inka Urcon had been invested, but asserted that Wiraqocha merely had his favorite son treated *as if* he were ruler.⁸ In any event, Inka Urcon's name does not figure in the standard king list, nor did his line generate a descendant royal kindred that was incorporated into Cuzco's royal hierarchy.

The next two successions were also indirect. The first included a "governor" named Yamque Yupanki, Pachakuti's brother, who ruled in Cuzco for 10 years between the frail old age of Pachakuti and the investiture of Thupa Inka Yupanki.⁹ Several sources also reported that Pachakuti had initially named Amaru Thupa as his successor, but the heir fell short of expectations. The king then named a younger son, Thupa Inka Yupanki, ostensibly with the assent of all parties.¹⁰ Sources for both Cabello's and Murúa's histories claimed that Thupa Inka Yupanki was ultimately assassinated, either by being poisoned or shot with an arrow. According to Murúa, a son named Qhapaq Wari had been designated for the throne, but was thrust aside in a palace coup by Wayna Qhapaq's kin. As Wayna Qhapaq was too young to rule at the time, two elder relatives were successively appointed as "co-regents". The first of them unsuccessfully tried to usurp power, but was ousted by another uncle who then co-ruled until the youth could assume the throne alone.¹¹ Such circumstances lead us to wonder how Atawallpa and Waskhar's positions would have been treated fifty years down the road had the empire not fallen to Pizarro's men.

History and social structure. The written record also makes clear that not just the histories were malleable. The social hierarchy in Cuzco was periodically modified, to accommodate the addition of new kin groups that were generated through a practice called split inheritance. In this convention, a ruler passed the throne to one son, but none of his accumulated resources. The remaining descendants created a corporate kindred, called a *panaqa*, who were charged with venerating the deceased emperor through a cult focused on his mummy, supported by his resources. In 1532, ten such kindreds were incorporated into Cuzco's hierarchy, five in Upper Cuzco and five in Lower Cuzco. In theory, those represented the entirety of royal descendant kin from the founding of the dynasty to the time of Wayna Qhapaq.

Rostworowski (1983:141-45; 1988:53-59) points out, however, that Cuzco's royalty included at least fifteen kin groups that had the status or name of *panaqa*, not ten. What happened to the other five? One was Wayna Qhapaq's kindred, *Tumipampa*, which had yet to be incorporated into the structure. Rowe (1985:35-36) plausibly suggests that the disruptions caused by the last dynastic war postponed its investiture. Rostworowski (1960:418; *op cit.*) suggests that, in the other cases, Inka royal histories and social structures were reordered to accommodate changes brought about by succession conflicts. There may have been rulers who were not on the official list, some *panaqas* lost their places through factional infighting, or there may have been kings who preceded the Inka conquest of Cuzco.

The kindreds left by Thupa Inka and Waskhar provide graphic examples of how *panaqas* could lose their positions in the formal hierarchy. At the tail end of the last

dynastic war, Atawallpa's army under Quizquiz dragged Thupa Inka's mummy into the streets of Cuzco and destroyed it. His panaqa (*Qhapaq Ayllu*), the most prestigious in Cuzco's social order, was virtually wiped out (Sarmiento 1960 [1572]:269-70; Murúa [1613]:202-03). Those acts suggest a concerted effort to efface both the most potent symbolic legacy of his reign and the living people who maintained it. At the same time, Waskhar's kin in Cuzco were methodically slaughtered, eradicating the *panaqa* (*Waskhar Ayllu*) that would have venerated him. As Rostworowski (op cit.) and Gose (1996:391) emphasize, those acts effectively illustrate that the structural reformation and removal of panaqas from the social order may have been integral to Inka politics.

Summary Comments on the Inka Histories

In this discussion, we have touched on some of the most important elements of interpretations and problems with the royal Inka narratives and other documents pertinent to explaining the rise of the empire. No one doubts that there is an enormous amount of useful, although partially conflicting, information on Inka history in the Colonial accounts. Even so, three essential questions concerning the royal histories need to be disentangled. One concerns the accuracy of the standard king list with respect to the succession of office holders. A second concerns each ruler's contribution to expanding the empire. A third concerns the time frame within which those acts occurred and the degree to which Cabello's widely-used reconstruction is a fair representation.

From our perspective, the narratives very likely had a significant basis in a truth that was tailored to meet particular political interests. We agree with Rostworowski's (1988) view that the Inkas could not simply have invented their past, since there is too much evidence, historical and archaeological, that the empire was created relatively quickly in late prehistory. We part company, however, with the view that the Inkas arose as a power only after 1438. Three rulers may have dominated the imperial era, but the notion that Cuzco was essentially an autonomous town from which the empire sprang forth in the mid-fifteenth century seems implausible. The accounts are filled with evidence that Inka history was more complicated and that an expansionist era that began with a heroic defense of Cuzco ca. 1438 and really got rolling in the subsequent decades may have compressed a longer process.

Overall our view is that taking the royal narratives as even codified accounts of events in the Western European sense of history is therefore fraught with complications. Under such circumstances, an independent means of estimating the chronology of the Inka expansion would be of great value. For that purpose, we can consider radiocarbon dating.

THE RADIOCARBON EVIDENCE

Over the years, many scholars have been reluctant to consider a radiocarbon chronology for the Inka era, largely for four reasons: 1) formation of the Inka polity and its expansion apparently encompassed such a short period; 2) the error terms of individual assays often bracket more time than the presumed length of the empire and include dates from the Colonial era; 3) relatively recent dates are involved; and 4) the Spanish chronicles claim to have recorded actual events in Inka history (e.g., Kendall et

al. 1992; Schreiber 1992:52). Even so, archaeologists have been reporting radiocarbon assays from Inka-era deposits or architecture since Engel's (1966) pioneering work of the 1950s on the Peruvian coast. Within the last two decades especially, enough unexpectedly early dates associated with Inka activities have been reported that some scholars have begun to question seriously the accuracy of the historical chronology.

As noted earlier, in a study of the emergence of the Inka state, Bauer (1992) published 22 calibrated carbon dates from the Cuzco region, compiled from the work of several researchers. Collectively, those assays suggested that the Inka pre-imperial era, called either the Late Intermediate Period (generally) or the Killke Period (locally), began about AD 1000. That estimate is about 200 years earlier than the date usually assumed for early state development in the region. The imperial era dates were also earlier than would be expected from the historical accounts. Reserving judgment on some anomalously early imperial dates, Bauer suggested that the transition to the imperial era occurred in the heartland at least as early as AD 1400, that is, about four decades before the conventional historical date. His inferences about an early phase of Inka state formation and major expansions in Peru ca. 1400 were later independently reached by Adamska and Michczyński (1996), who analyzed 37 radiocarbon dates. Covey's (2006; see also Bauer and Covey 2002; Covey 2003) subsequent analysis of the development of the Inka state provided considerably more information on this scenario, and reached a comparable conclusion. The extension of the imperial era beyond a century made it difficult, though not impossible, to accept the notion that the empire endured through the reigns of only three emperors. An alternative, perhaps more likely, possibility was one or more rulers earlier than Pachakuti were involved in expansionist ventures.

METHODS

We rely on two principal sources of information to summarize the current state of radiocarbon dating of Inka materials in the Andes. First is an extensive review of the published literature on Inka archaeology, including dates published in the journal *Radiocarbon*. Second, colleagues have made available to us unpublished dates from their research. We have taken a conservative approach to presenting and interpreting the data. In total, 248 samples assigned to the Inka era are listed in Table 2.

Regrettably, reporting has been inconsistent. Many dates were originally reported without mentioning (1) their laboratory number; (2) the half-life used; (3) whether the dates have been corrected with a lab error term and, if so, what correction factor was used; (4) whether ¹³C corrections were included, or (5) for calibrated dates, whether the Southern Hemisphere reservoir correction was employed. Where we have been able to obtain missing information, we have included it.

All of the radiocarbon dates discussed here were calibrated and plotted using the Oxcal 2007 program (v4.0.2), using the Southern Hemisphere reservoir correction. The effect of using the reservoir correction is to shift calibrated dates more toward the modern era, since it reduces the estimated length of time that the sample's radiocarbon has been decaying without replacement. Our calibrated dates are therefore somewhat more recent than those reported by Bauer (1992) and Adamska and Michczyński (1996). We also take note of the many other factors cited as confounding for radiocarbon dating,

many of which yield dates that are earlier than is accurate for the time frame in which the dated materials were used (see, e.g., Michels 1972; Stuiver and Reimer 1993). Among the factors of principal concern are errors in radiocarbon analytical procedures, in sample collection, and in identification of cultural contexts. Because radiocarbon decay is a probabilistic process, an error term is inherent in the counting itself. Similarly, because of the ways in which the amount of radiocarbon in the atmosphere has varied over time, the calibration procedure often results in multiple peaks in the probability distributions. The authors of this paper cannot control lab errors but, as illustrated below, we may sum multiple dates from controlled contexts to gain a better understanding of the time frame involved. In addition, recent technical advances can provide greater measurement precision and thus tighter error terms.

Other errors can occur as a result of sampling inappropriate materials or from misidentifying contexts. In the desertic and high elevation environments found in many parts of the Andes, woody plants often grow slowly and are at a premium. Such conditions could result in the dating of “old wood,” as older architectural materials may have been reused by the Inkas. Lintels or beams provide special problems, because their exterior layers may be trimmed (heartwood problem) or the entire piece reused. Thus, samples taken from annuals, from animal wool, or human hair may be of special interest. A related problem, which we have not been able to control here, lies in the possible misidentification of contexts as belonging to the Inka era. The continued occupation of many Inka sites for at least half a century into the colonial era and the later reuse of sites appears to have mixed Inka and later materials in a number of cases.

We further note that it is difficult, if not impossible, to separate early and late imperial-era deposits in most provinces on the basis of ceramic or architectural evidence. Seriations of Inka ceramics or architectural styles based on stratigraphic and carbon-dated deposits from Cuzco are just now starting to be useful, even though various archaeologists have spent a great deal of effort trying to sort out the sequences. The Killke assemblages of the Cuzco region are now well-distinguished from the classic imperial assemblages (e.g., Rowe 1944, 1946; Dwyer 1971; Bauer and Stanish 1990; Bauer 1992; Kendall 1996; Covey 2006). The two types are frequently mixed contextually, however, and few pure Killke contexts have been excavated and dated.

Moreover, the Cuzco polychrome assemblage itself has often been treated as though it appeared largely intact and was not modified through the imperial era. An exception may be found in Julien’s (1983) two-stage division of the Inka occupation Hatunqolla, Bolivia, but we do not feel justified in extrapolating her results to the entire empire. Kendall’s (1996), Bauer’s (e.g., 1992), and Covey’s (2006) work may be helping in this regard. Efforts have also been made to assign chronological order to features of the Inka architectural style in the heartland (e.g., Kendall 1974, 1985, 1996; Niles 1980; Hollowell 1987; Kendall et al. 1992; Protzen 1992; Covey 2006), but they are not yet sufficiently refined to help the present study outside the heartland. A final confounding factor is that, at least in parts of the Inka heartland, imperial Inka style and Inka-related ceramics seem to appear in the archaeological record well before the classic architectural style (Kendall 1996:124; Covey 2006). As a consequence, archaeologists have encountered problems in systematically distinguishing early from late imperial

occupations based on ceramic or architectural evidence, the two hallmarks of the Inka presence throughout the Andes.

Chronometric dates therefore potentially stand as the most valuable source of information on the imperial Inka chronology in comparison to the early Spanish documents. In an effort to provide as reliable a suite of dates as possible, we have chosen to discuss the chronology based on dates taken only since 1970. Setting aside earlier assays eliminates most problems of solid carbon counting, assays lacking ¹³C corrections, and incomplete reporting. For the most part, the samples that we have set aside come from the Peruvian coast, especially from the Lurin and Chilca Valleys (Table 2: samples 97-104), although sample 117, from Puno, should also probably be removed.

RESULTS

The distribution of calibrated dates from Inka and Inka-related contexts covers a wide range of dates, and there are anomalous results, but some trends do appear in the patterning. The most important findings are as follows. First, the transition from late Intermediate Period (Killke) deposits to early Inka-style pottery and architecture in the homeland appears to have been underway throughout much of the 14th century (Covey 2006). This process occurred not just in the Cuzco Valley proper, but also at more distant sites such as Pukara Pantillijlla and around Ollantaytambo. Second, imperial-era dates outside the greater Cuzco region point to the Inka expansion as a 15th century phenomenon, generally in accord with the historical accounts. The one area that has unusually early materials is the Lake Titicaca basin, a circumstance that bears closer examination. Other regions, however, have a number of samples that appear to antedate Cabello's framework by several decades. To illustrate these points, we provide a brief description of the dates according to region. Given that there is a fairly wide error for quite a few samples, it will be worth examining suites of dates from specific sites more closely to see if we can refine our understanding.

Cuzco region. In the Cuzco region, the pre-imperial Killke Period and the imperial Inka Period are both of special interest to scholars studying the development and expansion of the Inkas, but the data are still limited for the crucial eras.¹² Currently, there are 62 dates from the Cuzco region that have been extracted from materials associated with either Killke or imperial Inka materials; 6 more come from what were apparently colonial era or contaminated deposits (Table 2: dates 1-68). Fifteen samples come from deposits or architecture identified as Late Intermediate Period or Killke (Table 2: dates 1-15). Among them were the samples used by Bauer (1992:46) to date the pre-expansion period of the Inka to around AD 1000 to 1400. In a more recent analysis, apparently without using more chronometric data, Kendall (1996) put the transition to architecturally classic Inka and politically expansionist phase in the mid-14th century or perhaps even decades earlier. Covey's study (2006) supports the idea that the Inkas were developing as a regional power in the 13th and 14th centuries AD. He argues that, by 1300, the Inkas were well along the way to dominating their neighbors, through a combination of political and marital alliances, largesse, and militarism. During the 14th century, there is architectural evidence for the imposition of Inka rule at sites such as Pukara Pantillijlla, outside the Cuzco Valley (see dates 39-53).

Three dates from the site of Pumamarca (T. 2: 54-56), located approximately 60 km by air from Cuzco, are also pertinent (Hollowell 1987). Pumamarca is important

because its terminal Late Intermediate (Niles 1980) or proto-imperial through classic imperial architecture (Pardo 1956; Hollowell 1987) should be expected to yield transitional dates (Kendall 1996:126-28). The 2Φ brackets for all three samples of wood fall between 1255 and 1402. Hollowell's sample of aliso wood from early Inka architecture from the nearby quarry site of Kachiqhata provides a further assay with a 2Φ bracket of 1276-1410.5. Although those assays may be relatively early because the lintel samples that were dated possibly contained heartwood or reused timber, Hollowell reported that his samples came from materials that belonged to the end of the life span of the plants. The possibility must therefore be considered that the basic canons of imperial Inka style architecture in the Cuzco region were starting to develop more than 100 years earlier than has conventionally been thought (Bauer 1992:47).

Three other surprisingly early Inka dates from the Cuzco region come from Machu Picchu. We have doubts about the utility of those dates (T. 2: 30-32), for several reasons. They were taken from skeletons excavated by Eaton early in the 20th century, enormous error terms are involved, and the recovery contexts are not clear; contamination may also be an issue. Even so, the two samples taken from carbon samples are more in keeping with the chronology seen elsewhere in the greater Cuzco region. The materials from Juchuy Cossco / Caquia Xaquixaguana (T. 2: 20-23, 28) are also intriguing, since that site was reputed to have been an estate remodeled for Wiraqocha by his son Pachakuti, precisely at the transition into the imperial era (Betanzos 1996 [1557]:74-80; Kendall et al. 1992; Kendall 1994). Covey's four recently taken samples of grass taken from architecture indicate that the remodeling that was dated did not occur before the middle decades of the 15th century. These samples are among the best in accord with the historical chronology.

The remaining sequence of Cuzco region dates culture ranges from the mid 14th into the 17th centuries. The later part of that patterning may be evidence of the continuing indigenous occupation of the Urubamba Valley, near Cuzco, through the imperial era and well into Colonial times.

Overall, the array of dates taken in the Cuzco region is moving us to a better understanding of the appearance of the Inka ceramic and architectural styles and the emergence of a nascent Inka polity. It is noteworthy that the transition from pre-imperial era to proto- or early imperial-style materials seems to have occurred in the 14th century, not in the 15th, as Cabello's time frame suggests. Even so, it is clear that more work would be useful in sorting out the developmental sequence in the region.

Peruvian coast. Of the assays taken since 1970, there are 29 calibrated dates in our sample from the Peruvian coast. They display a wide range of distributions, but all include a part of the 15th century in their 2Φ probability ranges. For this discussion, the dates from four sites will be considered: Cerro Azul, Túcume, Lo Demas, and Pachacamac. These sites were chosen because they have multiple samples or assays that were taken recently. The dates from the first three cases are problematic and raise questions of interpretation that are also seen elsewhere. For example, the three samples from Cerro Azul have calibrated 2Φ brackets that span 240 years or more, extending into the 17th century, while the 1Φ brackets span the 15th century. This squarely places in front of us the question of what level of precision we are willing to work with. From

the perspective of the archaeological standard of 2Φ , these samples may be of marginal use.

The samples from Lo Demas are even more problematic, as all 8 samples have 1Φ brackets that encompasses virtually the entirety of the 15th century, through the 16th, and into the 17th. And the 2Φ ranges are obviously far broader. They may therefore be of little use for the present discussion.

The samples from Túcume have calibrated 2Φ brackets that are narrower. The probability distributions of 4 of 5 samples are earlier than one would expect, concentrated in the first half of the 15th century. The other date (BGS-1604) has a 50.2% probability range of 1423-1509 and 18% of 1580-1620, together comprising the 1Φ bracket; the 2Φ brackets cover 1317-1636. The first four dates are decades earlier than might be expected from the historical chronologies and may reflect use of materials from the late pre-Inka period into the Inka era or an Inka occupation earlier than previously thought.

We may also consider the two recent dates of Inka material from two burials at Pachacamac, reported by Michczynski et al (2003). The 1Φ bracket of these two samples are both encompassed within the 15th century. The earlier date has a 2Φ bracket of 1421-1480. The later date has a broader 2Φ bracket of 1419-1627, but an 63.9% probability of 1418-1524. Both of these samples fit the historical chronology very well.

Highland sites north of Cuzco. Few radiocarbon dates from Inka contexts have been reported for the sierra north of Cuzco. Twelve have been taken from central and northern Peru, and there are 10 reports of Ecuadorian dates. The latter are most likely only four or five that have been repeated in different ways. The khipu dates (samples 105-111) are extremely interesting. The first (sample 105: T12821A) is anomalously early and it is not clear what to do with it. The 2Φ brackets for the other four dates, however, all begin after the mid-15th century. Given that the khipu were likely made from annual materials (wool? cotton?), these samples may help to establish a date before which Inka khipu were not used, at least among the people who occupied this social position.

The other highland dates provide a mixed bag of information. Four of the five dates reported have probability distributions that generally fit comfortably with a view of the imperial occupation as having begun in the first half of the 15th century and continuing into the 16th century. The fifth sample, from a storehouse in the Upper Mantaro Valley, yielded a calibrated date well into the Colonial era. The first four dates come from two Inka storehouses in the Huamachuco region, from a local occupation at Patamarca, and from a Late Horizon level at the Xauxa town of Hatunmarca. From the perspective of 2Φ brackets, however, span a much greater period of time, running essentially from the early 14th or 15th centuries into the 17th century.

The carbon dates from Ecuador taken from sites with Inka materials are problematic on several grounds. The samples assigned to Cashaloma and Intihuaico appear to be two different reports of the same materials. Similarly, three of the Pilaloma samples appear to be reports of the same thing. Further, the samples may have been taken from deposits with mixed ceramic components (Cueva 1970; Alcina Franch 1978:129). Some deposits that Alcina Franch (1978) attributed to the Kañari occupation

at Ingapirca were complicated by an “intrusion of Inka origin in low proportion ... [concentrated] in the habitational complex of Pilaloma.” The calibrated dates are substantially earlier than the currently accepted historical dates for the Inka incursion into the region. Because of the excavators’ concerns over the mixing of the samples and because the assays were measured over 30 years ago, it seems best to reserve judgment on Ecuadorian samples until more data are available.

Bolivia. Dates from the Bolivian highlands are of particular interest to the Inka expansion. There is substantial evidence for interaction between the societies of southern Peru and the altiplano in late prehistory (Julien 1993), and some the Inkas’ first major ventures outside the Cuzco heartland were often reported to have occurred toward the Titicaca basin. Archaeologists have begun to radiocarbon date Bolivian Inka occupations and the results are provocative, although considerably more evidence is needed to make a definitive case for the relationship between the two regions. Pärssinen and Siiriäinen (1997) describe a sequence of four well-defined strata in deposits at the site of Tuquischullpa, a settlement with a significant Inka component that is situated about 50 km south of Lake Titicaca. Four dates from the seal and middle layers, which contain pottery with classic Inka motifs mixed with a variety of altiplano types, bracket the 13th through 15th centuries. Most intriguingly, three samples (139-141) associated with Caquiaviri-Inka pottery correspond temporally with the transition from the Killke to imperial Inka styles of ceramics and architecture around Cuzco. Pärssinen and Siiriäinen infer that pottery with Inka-related motifs was in use in the Caquiaviri area in the 14th century.

Observing that the historical and archaeological chronologies do not conform, Pärssinen and Siiriäinen suggest that Inka-style pottery may have appeared in the Lake Titicaca basin through exchange relationships, rather than through conquest. Conversely, they acknowledge Julien’s observation that ceramic elements from the basin may have been adopted into the imperial Inka style (see also Rowe 1944; Dwyer 1971; Bauer and Stanish 1990; Bauer 1992). A major question to be resolved is therefore whether the proposed Cuzco-Titicaca interaction before ca. AD 1400 was a consequence of exchange (perhaps between the leadership of regional polities) or of adventures by the Inkas. Determining when the Inkas had truly established an imperial polity and penetrated the south is a matter that still needs much work.

The broadest sample of dates from Bolivia is a set of recent (2002) dates from Inkallajta, taken by Lawrence Coben (dates 249-256). Those assays are fairly widely dispersed, running from the 14th century well into the Colonial era. The distribution of these dates is difficult to reconcile with our understanding of the history of the Inka empire, unless we infer that the facility was occupied throughout the imperial era and well past the Spanish conquest.

Numerous other Bolivian dates fit a more conventional viewpoint. Two samples from Incarracay and Kharalaus Pampa have probabilities concentrated in the 15th century. Bauer’s samples come from Inka structures on the Islands of the Sun and the Moon, in Lake Titicaca, which were revered as especially holy sites. Three samples have 2 Φ brackets that span the early 15th century well into the historic period, indicating that Inka facilities on the Islands continued to be used well after the Spanish conquest. Two

samples were taken by Matthew Seddon, from a burned stratum containing Inka ceramics at Chucaripupata on the Island of the Sun. One yielded a calibrated 2Φ date of 1412-1441 and the other has a 90.5% probability of 1415-1502 (2Φ : 1416-1613). Two final samples of human bone from the site of Mesadilla in the Cochabamba region yielded calibrated 2Φ brackets of 1286-1631 and 1305-1954.

The South Andes. An extensive collection of radiocarbon assays, of which 106 are used in the present analysis, has been taken from Inka occupations in northwest Argentina and northern Chile. The large number of measurements reflects the concern of archaeologists working in the south Andes with dating the imperial occupations radiometrically, in part because the historical record for the south is thin. Given the number of samples taken, it may be most useful to address sites individually in this discussion. Here, we start with three Inka tampu – Potrero de Payogasta, Potrero-Chaquiago, and Shincal – whose stratigraphic record indicates that they were founded in pristine locations, without antecedent occupations. All three show the same pattern of dates. That is, the sites may have been founded in first half of the 15th century and occupied into the early Colonial era. If that interpretation is correct, that would put their initial Inka occupation a few decades earlier than the historical chronology indicates.

Shincal, one of the most important centers in the southern Andes, has five radiocarbon dates. Two samples are from cow bone, which are obviously post-contact, and thus can be discounted here. Two more samples have 2Φ brackets that terminate in the 1460s: 1301-1460 and 1318-1463. In both cases, the probability curves are concentrated in the first half of the 15th century. The third of the carbon sample dates has a 2Φ bracket of 1400-1622; it has a 81.9% confidence interval of 1400-1512, which fits the historical framework well. The distributions of samples from Potrero-Chaquiago and Potrero de Payogasta are comparable to those of Shincal. The first of those sites was probably subordinate to Shincal, whereas the second was likely subordinate to a more northerly center, called Chicoana. For most samples, the 2Φ brackets are fairly broad, encompassing the era that fits the historical chronology. Even so, the earliest sample from Potrero de Payogasta has a 2Φ bracket of 1396-1447. The highest modal probabilities for each of these sites collectively spans the early 15th to mid-16th century.

The other four sites with Inka components for which there are three or more radiocarbon samples are Rincón Chico, La Huerta, Volcán and Tolombón. In each case, there was a significant local community that the Inkas may have taken advantage of for their own interests or with whose leadership the Inkas reached a working accord (Williams ms., this conference; D'Altroy, Lorandi, and Williams, in press). The pattern of radiocarbon dates is similar for all but Volcán: the 2Φ brackets of at least two assays substantially antedate AD 1400, with a subsequent series of dates whose probabilities lie predominantly in the 15th century. The samples from Volcán are comparable to those from the three tampu just discussed: Shincal, Potrero-Chaquiago and Potrero de Payogasta.

Collectively, the data from these sites recall a series of issues raised earlier in this paper: (1) whether there are special concerns with old wood in certain areas of the Andes, and (2) how, if at all, we consider probabilities that do not fit the conventional

2 Φ brackets. One concern for samples from this desertic region is that the materials sampled were slow growth plants and that more samples of annuals would be useful. In addition, especially with respect to sites that were occupied before the Inkas, special care needs to be taken to ensure that the materials dated were definitely from Inka-era activities. The samples from these three sites squarely place the question before us as to whether we work simply with the 2 Φ brackets or consider probabilities in other ways. The present paper does not propose to resolve the latter question, but we do consider it important to think about as we move forward.

SUMMARY AND DISCUSSION

This paper has attempted to raise, and at least partially reconcile, a number of the problems that lie at the heart of understanding the chronology of the Inka polity. We have taken the approach, following such scholars as Bauer (1992) and Covey (2006), that it will be best if we try to distinguish among an early Late Intermediate Period, a late Inka pre-imperial era, and an imperial era. Recent work in Cuzco has helped resolve the processes and timing of the first two parts of this sequence, and it is hoped that this paper has helped to clarify the transition from the late pre-imperial era to the emergence of the imperial polity. When considered as a whole, the radiocarbon evidence suggests that Inka presence in much of the Andes may have lasted somewhat longer than Cabello's chronology grants. Bauer's and Covey's dates from the Cuzco region suggest that a regionally expansionist Inka polity was active in the 14th century AD, while evidence from several parts of the broader Andes republics indicates that the Inkas may have established a presence in much of their domain in the first half of the 15th century. Some evidence also hints that the Inkas may have had considerable interaction with societies in the Lake Titicaca basin by the mid-14th century as well, but resolving the direction and nature of that relationship will require evidence beyond that currently available.

This assessment is at least partially at odds with the prevailing view that the Inka state emerged after Pachakuti's ascent to power, ca. AD 1438, and that much of the Andes were incorporated after 1463, when Thupa Inka Yupanki assumed titular military leadership. We make these statements cautiously, noting that there is a lot of noise in the chronometric sample and that some dates are implausibly early. Even so, it no longer seems sound to accept the idea that much of the empire was under Inka rule for only 70 years.

The possibility that the Inkas expanded their sphere of influence from their heartland earlier than is conventionally accepted raises important issues about the socio-political conditions found in the Late Intermediate Period (ca. AD 1000-1400). For example, the Inkas are thought to have been only one of many small, often bellicose, societies that inhabited the Andes in the 13th through 15th centuries AD. Following the collapse of the great highland states of Wari and Tiwanaku, many communities lived in high-elevation, fortified settlements. How much of that defensive posture arose from local conflicts or from a concern over imperial invasion may now become an open question. If the transformation of the Inka polity from a southern highland power to a full-blown empire took a century or more, rather than a few decades, then our

understanding of political processes throughout the central Andes needs have to be reconsidered. This is precisely the point made by Covey (2006) in his recent book.

The implications are equally meaningful for readings of the historical record, although the present paper is not intended to explore them in detail. It is increasingly difficult, though not impossible, to accept the notion that a sequence of just three rulers – Pachakuti, Thupa Inka Yupanki, and Wayna Qhapaq – ruled through the entire imperial era. More broadly, we may now be able to rethink some comparative questions about the formation of early or non-industrial empires. Tawantinsuyu and its constituent societies are justifiably considered to be unusual in many ways among the early empires. The region's isolation; its general lack of market economies, writing, and wheeled transportation; and the unusual social conventions at the heart of power converged to give Tawantinsuyu a distinctive character. Previously, the dynamics of empire formation have been thought to be essentially inaccessible through archaeology, because of the limited time frame involved. The radiocarbon evidence now indicates, however, that by paying close attention to the chronometry of Inka occupations, we may be able to refine our understanding of the creation and consolidation of the largest polity of the indigenous Americas and thus improve comparative explanations of imperial formation.

Despite the doubts raised by the radiocarbon dates, denying any chronological value to the narratives seems inappropriate, since the radiocarbon evidence is compatible with key elements of the historical treatises. Most importantly, the empire was a late prehistoric phenomenon in much of Andes, although not quite so late as many of the chroniclers estimated. In addition, the early series of dates related to Inka ceramics from the Lake Titicaca region meshes with the historical accounts of a precocious Inka interest there. Of equal importance for the dynamics of empire formation, there also appears to have been a roughly contemporaneous extension of imperial occupation throughout the empire, in the early-to-mid 1400s, as might be expected from a polity that was being formed quickly. Beyond those broad conclusions, however, the data are not yet sufficiently detailed to permit to us to model the order or timing of the regions brought under Inka rule.

We would like to suggest several ways in which the carbon dates and documentary sources can be at least partially reconciled, some of which partially echo the work of other scholars noted above. One possibility is that Pachakuti, Thupa Inka, and Wayna Qhapaq lived to unusual ages, averaging about 40 years each for their reigns. Such a scenario seems implausible, not least because the last two of those rulers reportedly died middle-aged in a society in which 50 years was an advanced age. An alternative is that the periodic reworking of Inka history effectively erased the accomplishments of a number of rulers, by folding their achievements into the regimes of the three emperors described in most chronicles. As noted above, such an act seems to have occurred in 1569, when royal litigants in Cuzco ascribed almost all imperial conquests to their ancestors Thupa Inka Yupanki, conveniently disregarding Pachakuti's exploits (Rowe 1985) and those said to have been attributed in 1542 to earlier rulers (Callapiña 1974 [1542/1608]).

The scenario that seems most plausible to us at present is that the roles of early Inka rulers were telescoped forward in the oral traditions. That is, the retelling of the

royal narratives in the context of Cuzco's volatile politics compressed history over the generations, or undistinguished reigns were downplayed, or both. What was eventually conveyed to the Spaniards was a variety of histories that drew at times from real events, but that were modified according to the shifting political landscape of the sixteenth century. The Spanish authors did their part as well, selecting, emphasizing, and synthesizing what they were told, and transforming Inka history in the process.

In closing, we would like to emphasize that our central points here have been to try to reconcile the archaeological evidence with the documentary sources and to think more broadly about the emergence of one of the great empires of antiquity. We by no means consider the issue to have been closed with this paper. As has been suggested by a number of our colleagues in discussions, refining the chronology of the emergence of the empire will require considerably more work. Radiocarbon analyses on short-lived or annual plants, from carefully considered contexts across the Andes, analyzed through very precise techniques, may provide the kinds of data that we will need to take the discussion beyond the point currently possible. We consider that such work will be worth the effort in that, to the degree that we can approach a realistic time frame for Inka rule, we will be in a far better position to evaluate the dynamics of the empire.

Notes.

List of Tables.

1. Six versions of the Inka expansion.
2. Calibrated radiocarbon dates taken from 1) pre-imperial Inka contexts, and 2) imperial Inka contexts throughout the Andes. The samples are ordered 1) by region; 2) alphabetically by site within region; and 3) by largest radiocarbon age within site. Calibrations were performed using the Oxcal 2007 program, v 4.0.1.

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2Structural scholars such as Duviols and Zuidema have argued that the Inka royal narratives are better understood as models of sociopolitical relations than as linear accounts of historical events (Duviols 1979; Zuidema 1983; Urton 1990). They have proposed, for example, that there were actually two simultaneous Inka kings, one at the head of each moiety at the heart of Inka sociopolitical structure. Their view, however, is not widely shared and will not be pursued here (see Gose 1996

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3“... y si entre los reyes alguno salía remisión, cobarde, dado a vicios y amigo de hogar sin acrescentar el señorío de su imperio, mandaban que éstos tales hobiese poca memoria o casi ninguna’ y tanto miraban ésto que si alguna se hallaba era por no olvidar el nombre suyo y la sucesión; pero en los demás se callaba; sin cantar los cantares de otros que de los buenos y valientes” (Cieza de León 1967 [1554]: II, ch. 11, p. 32

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4Alternatively, because the Pacariqtambo account did not appear until after Betanzos’ death, his name may have been invoked to provide it credibility. We are not in a position here to make a judgment on the authenticity of that manuscript, which is at issue among historian

s.

5.“...respectively”: Cabello 1951 [1586]: ch. 20, p. 358; Murúa 1986 [1590]: ch. 26, p. 99; “...Wayna Qhapaq’s kin.”: Murúa 1987 [1590-1600]: ch. 29, pp. 101-106; Sarmiento 1960 [1572]: ch. 55-57, pp. 259-60; Cobo 1979 [1653]: Bk. II, ch. 16, p. 152. See Rostworowski 1988:145-4

6.

6.The situation is actually more complicated than that; see Rostworowski 1960, 198

8.

7Tarqo Waman, for example, is mentioned by Polo (1916 [1545?]:ch. 3, p. 12) in lists of Inka emperors, following Mayta Qhapaq, but is not included in other chronicles, except for Acosta (xxx; Bk. 6, ch. 23. p.---), who echoes hi

m.

8.Cieza de León 1967 [1553]: ch. 44, p. 148; Sarmiento (1960 [1572]: ch. 25, p. 229) wrote that Inka Urcon and Pachakuti had different mothers, that Inka Urcon’s descendants said he was legitimate, and that Pachakuti’s descendants said that Yupanki was the legitimate hei

r.

9.Betanzos 1987 [1551]: ch. 26-35, pp. 128-16

3.

10.Sarmiento 1980 [1572]: ch. 42, p. 247; Santa Cruz Pachacuti Yamque 1968 [1613]: p. 189; Cabello Valboa 1951 [1586]: pt. 3, ch. 18, pp. 334-35; Betanzos 1987 [1551]: ch. 23, pp. 119-20; Rowe 1985 [1569-1572]:221-23; Murúa 1986 [1590-1600]: bk. 2, ch. 88-89, pp. 317-32

6.

11.“...respectively”: Cabello 1951 [1586]: ch. 20, p. 358; Murúa 1986 [1590]: ch. 26, p. 99; “...Wayna Qhapaq’s kin.”: Murúa 1987 [1590-1600]: ch. 29, pp. 101-106; Sarmiento 1960 [1572]: ch. 55-57, pp. 259-60; Cobo 1979 [1653]: Bk. II, ch. 16, p. 152. See Rostworowski 1988:145-46. Wallpaya was ousted by Waman Achach

i