

# Archaeology and Inka Origins

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**Abstract** The recent proliferation of Andean archaeological research presents new interpretive opportunities for reconstructing different aspects of Inka origins. Early colonial historiography reveals that “Inka origins” refers to multiple aspects of the past, including the first appearance of Andean people, Inca ancestors, and the imperial title. The intellectual history of Inka archaeology demonstrates the lasting influence of Spanish colonial interpretive values, even with the gradual introduction of new scientific methods during the 20th century. Since 1970, significant advances in the archaeology of Cuzco, the Inka capital region, and other parts of the Andes have established an independent database that highlights the long-term and regional aspect of Inka origins, as well as areas where interpretive questions remain. The shift from colonial chronicles to archaeological data improves the accuracy of reconstructions of Inka origins, but it also raises some epistemological questions for the future relationships between history and archaeology in the study of ancient empires.

**Keywords** Inka · Empire · Historiography · State formation

## Introduction

The archaeology of ancient empires has developed through longstanding entanglements between retrospective historical accounts of ancient times and the material traces of past human behavior. Early textual accounts of imperial origins typically

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cast across temporal ruptures to inscribe contemporary values upon the past, thereby establishing a linear path toward the present (see Foucault 1972). In the 19th century, state elites began to enlist professional archaeologists to engage in what might be properly thought of as archaeology *for* the state—a science of deep time that could supplant religious interpretations, but which nevertheless perpetuated ideological values (Díaz-Andreu 2007; Shryock et al. 2011). In recent decades, archaeologists have sought to renegotiate their relationships with texts, identifying domains where material patterns can independently evaluate imperial histories (Sinopoli 1994, 2001). The archaeology of early empires has focused heavily on populations living farthest from elite authors in the capital, generating provincial data on imperial expansion, administration, and decline.

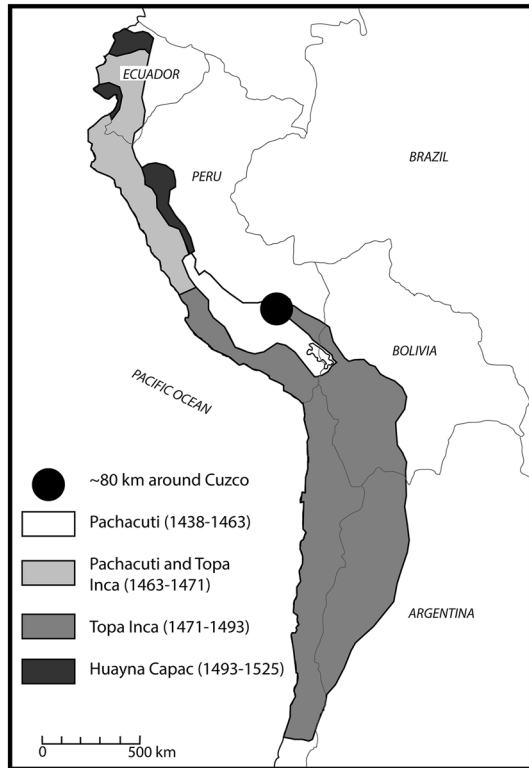
For several reasons, archaeologists have made less headway in addressing imperial origins. Many key archaeological contexts have been destroyed or lie beneath imperial monuments and modern cities. Early artifacts might seem unimpressive or stylistically ambiguous, making their study less appealing to many scholars. Richly detailed histories of imperial capitals appear more comprehensive than data gleaned from mere potsherds, even though historians recognize errors, exaggerations, and lacunae in their sources. Archaeologists and historians work at different analytical scales and ask different questions, and new interpretations of imperial origins means renegotiating the longstanding subordinate role of the material record.

The Inka empire of the South American Andes provides an arena to demonstrate the active role archaeology can take in reconstructing imperial origins (Fig. 1). This review begins by summarizing what early colonial writers meant by “Inka origins.” Spaniards first inquired about the Inka past in the 1540s, and over the following century dozens of authors wrote about Inka origins in ways that reflect broader political and religious discourses: as processes of universal creation, ethnic expression, dynastic emergence, and imperial expansion (R. Covey 2018). After Andean independence from Spain, 19th-century scholars rediscovered these colonial accounts, blending them with an emerging archaeological database. In the 1940s, Rowe (1944) proposed a new interpretive paradigm that separated Inka imperial origins from other prehistoric developments. Rowe’s approach inspired succeeding generations to treat some colonial information as historically accurate, influencing subsequent decades of archaeological fieldwork and interpretation. The growth of an independent archaeological database presents opportunities for reconstructing Inka origins, raising questions about how to address the differences between the archaeological record and the long-repeated claims of ancient elites.

## Historiographic Problems for Inka Origins

Inka archaeology is both enhanced and constrained by a large and contradictory body of colonial period writings that address different aspects of Inka origins. Pre-contact Andean societies did not use writing, and the colonial transcription of Inka oral histories introduced influences from evolving discourses regarding Spanish imperial sovereignty. Over time, debates shifted from the sovereignty of the Inka

**Fig. 1** Map of Inka territorial expansion, redrawn from Rowe (1944)



ruling title to the constituency of the colonial Inka nobility and the privileges of Andean elites (R. Covey 2018). Evolving scales of “Inka” status (titular, noble, ethnic) appeared alongside Andean creation accounts, as well as arguments about the timing and legitimacy of Inka conquests beyond their Cuzco homeland. After the resolution of Inka-related political debates and religious chronologies, 17th-century humanists, clerics, and Andean elites produced a diverse set of new dynastic narratives.

Early colonial sources can be used to develop several general scenarios for Inka origins, which have distinct archaeological correlates.

*Late Titicaca Origins.* Some sources from the 1550s claimed that the Inkas migrated from the Titicaca Basin region about four generations before Spanish conquest, founding Cuzco and immediately embarking on imperial conquests (e.g., Gasca 1998[1551–1553], p. 33; Zárate 1995[1555]). Archaeological expectations include political centralization and urbanization in the Titicaca Basin in the centuries before 1400; evidence in Cuzco of new urbanization, settlement pattern disruptions, and local stylistic changes around 1400; and material and bioarchaeological indications of significant migration to Cuzco by Titicaca Basin-affiliated populations.

*Cuzco Dynastic Origins.* Early chroniclers who interviewed Inka nobles situated Inka dynastic origins in the Cuzco region approximately 12 generations before

conquest (Betanzos 1999[1550s]; Cieza de León 1988[c. 1553]). After a long period of regional development, several generations of rulers extended Inka imperial conquests beyond the Cuzco region. Archaeologically, this model anticipates three phases—pre-Inka, early Inka, and imperial Inka—that should exhibit increasing regional hierarchy, centralization, and elite control associated with Inka-style material culture. Evidence of Inka conquest beyond the Cuzco region should date from 1400 and after.

*Late Imperial Origins.* Narratives of Inka dynastic origins stimulated debates over the date and legitimacy of Inka conquests beyond Cuzco (e.g., Las Casas 1892[1550s]; Sarmiento de Gamboa 1965[1572]). These sources share many features of the early Cuzco dynastic origins accounts, with similar archaeological expectations for the settlement of Cuzco and spread of Inka-associated settlement hierarchies. They can be distinguished for their ideological emphasis on the sudden origins of the Inka empire, two or three generations before Spanish conquest. Archaeologically, this distinction anticipates very late dates for Inka conquests outside the Cuzco region—beginning in the mid- or late 15th century.

*Ancestral Ethnic Origins.* Early 17th-century indigenous writers (e.g., Garcilaso de la Vega 1963[1609]; Guaman Poma de Ayala 1993[c. 1615]) represented Inka origins as early regional ethnic and political consolidation. The founding ancestor established Inka power and identity across the Cuzco region, and his descendants gradually built an empire in the succeeding generations. Archaeologically, evidence for the initial settlement of the Cuzco region should date to 300–400 years before European contact, accompanied by evidence of urbanization, centralized regional government, and stylistic uniformity. Evidence of Inka expansion beyond the Cuzco region should date to this time.

*Multidynastic Origins.* A few 17th-century authors working outside the Cuzco region make cryptic references to pre-Inka kings. The last of these, Fernando de Montesinos (1920[c. 1644]), produced a unique expanded list of more than 100 pre-contact kings of Cuzco. This source suggests material correlates similar to those of the indigenous chroniclers: early urbanization, regional political integration, and stylistic unity. It expects them much earlier (before 1500 BC), but also describes a centuries-long hiatus in state integration between the pre-Inka kings of Cuzco and those of the Inka dynasty.

Current archaeological evidence does not support the complete and literal reading of any account of Inka origins, but until very recently the archaeological database was insufficient to demonstrate this independently. The increasing interpretive power of the archaeological record, for identifying patterns and developing independent chronologies, draws attention to inaccuracies in chronicle accounts. Most colonial writers claim that the Inkas were the only civilization to develop in the Andes, something archaeologists have long known to be false. Archaeological data do not support the literal reading of Andean creation myths and Inka ancestral migration stories. They contradict indigenous assertions of early urbanization and political integration in the Cuzco region. The emerging database draws into question aspects of the late imperial conquest models and the role of state-directed militarism in annexing entire regions as new Inka provinces.

Few early accounts of Inka origins were published when written. Around 1840, scholars began to publish Inka-related materials from archives, libraries, and private collections. For about a century, “new” early colonial works appeared in books and journals, including sources challenging long-accepted interpretations. The proliferation of competing colonial-era claims about Inka origins spurred debates among historians regarding the authenticity and plausibility of different chronicles. The century-long rediscovery of Inka origin literature overlapped with the scientific rejection of biblical chronologies, as well as the emerging practices of Andean archaeology.

When published in Spanish, Montesinos’ long kinglist (1882[c. 1644]) seemed to offer a common timescale for history and archaeology, even though the editor of the volume (Jiménez de la Espada) characterized the chronicle (pp. vii–viii, my translation) as “very suspicious ... in that part that constitutes a kind of Peruvian Old Testament.” At a time when the authority of biblical chronologies was challenged, the editor noted ironically (pp. vii–viii, my translation) that “there is no Americanist who, entering the dark and remote ages before the Inka empire, does not cite, or comment on [Montesinos].” The identification of pre-Inka monuments helped convince some historians of the usefulness of Montesinos’ long kinglist. For example, Markham (1856, p. 165) characterized Montesinos as “a notorious fabricator” in 1856, but then (Markham 1892, p. 19) referenced the chronicle when describing a pre-Inka Tiwanaku empire whose megalithic remains could be seen at Ollantaytambo, Viñaque (Huari), Chavín, and Kuelap. Later, Markham (1910, p. 40) pronounced Montesinos’ kinglist as “[coming] to us on the highest authority, as a genuine tradition of the learned men of Inca times.”

Many scholars who embraced Montesinos’ chronicle chose to alter its geographical and chronological content to align it with emerging archaeological interpretations. For example, Means edited an English translation of the chronicle (Montesinos 1920[c. 1644]), adapting it to associate its Cuzco-based early dynasties with the pre-Inka horizon culture centered at Tiwanaku. Although Montesinos only mentions Tiwanaku once—as a petty kingdom from the time when Cuzco kings had fled to Tampu-Tocco (chapter 17)—Means included numerous photographs of Tiwanaku without noting the discrepancy.

## Inka Origins and Andean Archaeology

During the 19th century, several European and North American travelers published memoirs of Andean expeditions that visited Tiwanaku and Cuzco (e.g., D’Orbigny 1845; Squier 1877). These accounts coincided with increased collection of portable objects by antiquarians and museums (e.g., Gänger 2014). Despite the scientific pretensions driving exploration and collection, explanations of pre-Inka developments often perpetuated racist estimates of indigenous cultural capacity and migration-based explanations of culture change (e.g., Angrand 1866; Ranking 1827).

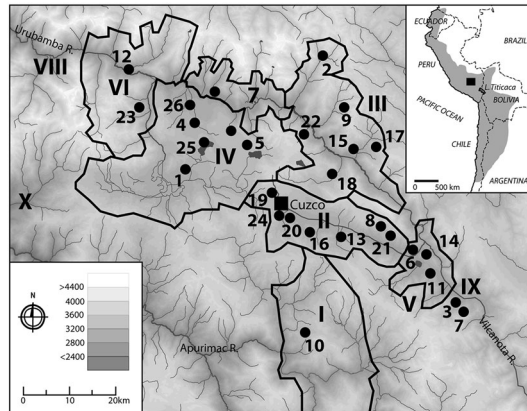
Understood to predate the Inkas, Tiwanaku received considerable attention as formal archaeological excavation work began in the Andes in the late 19th century.

Work at other sites, such as Ancón, revealed coastal sequences that the growing corpus of Inka ethnohistory could not account for (Tantaleán 2014). Uhle (1902, 1903), who studied Tiwanaku and subsequently excavated at Pachacamac, Chan Chan, and Huaca del Sol on the coast, developed a master sequence for Andean prehistory that was intended to be independent of colonial sources. His sequence identified two horizon cultures—Tiwanaku and Inka—as well as periods of early and late regional styles. In 1910, Uhle declared at an international conference that archaeological excavations could not be reconciled with Inka origin myths to reconstruct pre-Inka Andean civilizations, including Tiwanaku. He described the chronicles as insufficient to understand the Cuzco origins of the Inka dynasty, calling for more pre-Inka excavations in the Cuzco region, and publishing (Uhle 1912, pp. 324–328) illustrations of early ceramics from Q'atan in the Vilcanota-Urubamba Valley. Uhle predicted that further archaeological research would clarify Inka origins, including how Inka civilization related to the earlier Tiwanaku horizon.

Bingham's rediscovery of Machu Picchu in 1911 focused attention on a different project than the one Uhle advocated. His account of the first Yale Peruvian Expedition (Bingham 1913) repeated Montesinos' Inka origin story, identifying Machu Picchu as the legendary origin place of Tampu-Tocco. Bingham developed this claim further (1915a, pp. 184–185), declaring that the site had two phases of architecture and ceramics. Arguing that the site was ideal for studying Inka architecture (Bingham 1913, p. 489), Bingham cleared structures with features he considered “typically” Inka: gabled roofs and trapezoidal doorways, windows, and niches. He produced few plans, showing single-roomed rectangular structures organized into patio groups (e.g., Bingham 1913, pp. 556–557, 559). For decades, researchers did not move beyond this partial representation of Inka architectural forms and chronology.

Bingham developed (1915b) a rough typology of Inka ceramic forms, named after ancient Greek vessels (*aryballos*, *pelike*, *hydria*, *diota*, *pythos*, and *lebes*). Means, who began his Andean career as a member of Bingham's 1914 expedition, elaborated on this work in 1917, reproducing the Machu Picchu typology and adding his own observations. Contemporary research in northwest Argentina (Ambrosetti 1917) and Ecuador (Jijón y Caamaño and Larrea 1918) used Bingham's classification to define Inka ceramics within local assemblages. Decades later, new Cuzco-area excavations (e.g., Rowe 1944; Valcárcel 1934–1935) broadened the vessel typology, although the influence of Machu Picchu persists in these and later works.

Although the Yale Peruvian Expedition focused on Machu Picchu, its members reported on visits to other Cuzco-area sites, including Pikillacta, Tipón, Pisac, Ollantaytambo, Sacsayhuaman, Tambomachay, Puka Pukara, and Qenqo (Bingham 1913) (Fig. 2). These sites were already known, but their popular description influenced subsequent archaeological overviews and tourist guides (e.g., Uriel García 1922; Pardo 1957). The Yale project probed Cuzco's prehistory, excavating under walls at Sacsayhuaman, in a former Inca palace, on the Picchu hill, and in cemeteries near San Sebastian (Bingham 1913, p. 500). Nevertheless, the archaeology of Cuzco remained highly focused on imperial Inka remains (Rowe



**Fig. 2** The Cuzco region, with archaeological sites mentioned in the text. Regional projects are marked in Roman numerals: I. Bauer’s Paruro survey, II. Bauer’s Cuzco survey, III. Covey’s Sacred Valley survey, IV. Covey’s Xaquixaguana survey, V. Bauer’s Oropesa-Andahuailillas survey, and VI. Kosiba’s Wat’a survey. Regional studies using different methodologies include VIII. Kendall’s Cusichaca project, IX. Glowacki’s Huaru survey, and X. Heffernan’s Limatambo project. Sites mentioned in the text include the following: 1. Ak’awillay, 2. Ankasmarka, 3. Batan Urqu, 4. Cheqoq, 5. Chinchero, 6. Chokepukio, 7. Hatun Cotuyoc, 8. Kasapata, 9. Markasunay, 10. Maukallaqta, 11. Minaspata, 12. Ollantaytambo, 13. Peqoykaypata, 14. Pikillacta, 15. Pisac, 16. Pukakancha, 17. Pukara Pantillijlla, 18. Raqchi, 19. Sacsayhuaman, 20. Tankarpata, 21. Tipón, 22. Warq’ana, 23. Wat’a, 24. Wimpillay, 25. Yuthu, and 26. Yucaj

1944, p. 55), and the early colonial legends still dictated Inka origins a generation later.

Bingham promulgated a Montesinos-based Inka mythohistory to amplify the significance of his Machu Picchu discoveries. Means put Montesinos to a more ambitious use in 1920 where he adapted the chronicle’s “absurd Deluge-chronology” to date the first pre-Inka king’s reign to 1120 BC, noting (Means 1920, p. xix) that “this date is untenable, being a great deal too early. In all probability, South America at the time was an uninhabited wilderness.” To salvage the long kinglist, Means applied a 25-year estimate to all rulers, adjusting the sequence to make it correspond to emerging Maya Long Count dates, and then applying it to the Andean archaeological sequence. This synthesis reflects the widely held belief that indigenous migrations to the Americas were relatively recent. Many archaeologists declined to push the initial peopling of the Andes back more than 2000 years (e.g., Clark 1940) until radiocarbon dating produced results that could not be reconciled with any colonial source (e.g., Bennett and Bird 1960).

## The Historicist Approach to Inka Origins

When Uhle and Means both passed away in 1944, Inka studies and Andean archaeology were already experiencing interpretive changes (e.g., Jijón y Caamaño 1934; Latham 1928; Valcárcel 1939). That year, Rowe (1944) published *An Introduction to the Archaeology of Cuzco*, which dismissed Means’ chronology as

“the quintessence of invention” (p. 57) and proposed concrete steps for improvement.

### Rowe’s Historicist Paradigm

Rejecting chronicles that recounted multidynastic or ancestral origins, Rowe (1945, p. 266) focused on late 16th-century sources that described rapid imperial expansion. He evaluated the published sources containing calendar dates, arguing (Rowe 1944, pp. 57–58) that the only plausible historical sequence was for the last rulers in Cabello Balboa’s 1586 kinglist (Pachacuti, Topa Inca Yupanqui, and Huayna Capac). Extracting selected material from broader dynastic narratives, Rowe recast Inka origins as an event: the prince Pachacuti’s supernaturally-aided victory over a Chanka invasion of Cuzco, which Rowe dated to 1438, based on Cabello Balboa’s accession date for Pachacuti. Although historiographically flawed (Covey 2006a), this was an improved synthesis of archaeological and documentary evidence. Whereas Means (1928) embraced accounts of early and gradual Inka imperial expansion, Rowe (1945) argued that provincial archaeology and ethnohistory revealed later and rapid expansion, an interpretation colored by the German *blitzkrieg* that started World War II. Disregarding questions about early Inka social development in the Cuzco region, Rowe (1945, pp. 269–274) promoted the imperial period as a historical era, producing a new map of provincial annexation (Fig. 1).

The juxtaposition of Inka historical and imperial origins reinforced the empire as a historical subject, ascribing legendary status to accounts of earlier Inka social developments (Rowe 1946, p. 203). To fill this void, Rowe developed a new prehistoric archaeological reconstruction of pre-imperial societies in Cuzco. Rejecting earlier assertions of a Tiwanaku connection with the Cuzco region (Rowe 1944, pp. 8–9), he established the basic elements of a local ceramic sequence, describing Inka imperial pottery as well as earlier styles called Chanapata, Pacalla mocco, Carmenta, Canchón, and Killke. Rowe considered his excavations to contain unmixed materials from discrete periods. He designated his eight Chanapata types and his five Killke types as series, thought to reflect Cuzco pottery production before AD 1200 and from 1200–1438, respectively.

### Chronological Developments

Rowe published his Inka “absolute chronology” as radiometric dating techniques were being pioneered (e.g., Libby 1946). Within a few years, he helped interpret the first Inka-affiliated radiocarbon dates, using samples collected from late contexts at Pachacamac (Kulp et al. 1952, p. 410). Calculating from his historical chronology, Rowe offered  $444 \pm 25$  BP as a “known” date for Pachacamac’s Inka occupation. Samples of mammalian remains returned a compatible (but much broader) date range (L-123C:  $450 \pm 50$ ,  $500 \pm 120$  BP), but plant remains (L-123B:  $800 \pm 100$ ,  $900 \pm 150$  BP) were considerably earlier; marine shell (L-123A:  $3800 \pm 200$  BP) was especially problematic. At that time, Rowe’s chronicle dates seemed more accurate than emergent radiogenic measures, and few researchers processed radiocarbon dates for Inka contexts in the succeeding decades.



Skeptical that radiocarbon dates would replace his calendar dates, Rowe (1962) and his students worked to improve on earlier attempts to establish a master sequence for the Andes (e.g., Tello 1942; Willey 1945). The 1954–1955 University of California expedition, organized to contribute to the understanding of Inka origins in its broadest sense (Rowe 1956, p. 136), redefined the old “Tiwanaku Horizon.” Having identified the highland site of Huari as the likely source of coastal pottery previously classified as Tiwanaku (Rowe et al. 1950), Rowe returned to Cuzco, where he saw Chávez Ballón’s excavation of Wari tombs and offerings at Batan Urqu (40 km southeast of Cuzco). He visited several sites in the Cuzco Valley that Chávez Ballón identified through reconnaissance. Wari pottery seemed more abundant in the Lucre Basin and Huaru area than other parts of the Cuzco Valley (Rowe 1954, p. 192), which led Rowe to speculate that the monumental Lucre Basin site of Pikillacta was Wari-related (Rowe 1956, p. 142; cf. 1944, pp. 52–53).

Reconnaissance in the upper Vilcanota Valley and northern Titicaca Basin indicated that Wari was more important than had previously been assumed (Rowe 1954, p. 193), which encouraged more precise definitions of the Wari-Tiwanaku Horizon. Menzel (1958) worked with the Ica Valley ceramic seriations as part of Rowe’s expedition and began to call the period “Middle Horizon.” Building on Rowe’s Cuzco Valley interpretations, she speculated (Menzel 1964, pp. 70–71) that Pikillacta was a Wari imperial storage depot, a precedent to later Inka practices of economic redistribution. Work on the Andean master sequence thus promoted Wari as a horizon culture that introduced styles and institutions to Cuzco, enabling the rapid Inka imperial growth that Rowe promoted in his late imperial origins scenario. The emphasis on the monumental sites of horizon cultures overlooked regional developments in Cuzco during the intervening centuries of the Late Intermediate period (~1000–1438). After Rowe’s 1954 expedition, virtually no new archaeological data on the Wari occupation of the Cuzco region appeared in print for 30 years (e.g., McEwan 1984a, pp. 5–9; Sanders 1973).

## Social Interpretations and Theories of Inka Origins

Without solid archaeological evidence to reconstruct prehistoric Inka society, historians continued to repeat legends of creation and ancestral emergence. This work drew on a new wave of ethnohistoric research that studied local documents intensively, making it possible to situate some provincial ethnic groups and Cuzco-area societies, and to discuss local accounts of Inka conquest and rule (Murra 1970). Archival documents from the Cuzco region offer insights regarding the geographic variations found across the Inka heartland, but they reproduce the limited temporal horizons—colonial, Inka, and “pre-Inka”—invoked during colonial legal proceedings over access to labor and productive resources.

Following Rowe’s influential 1946 “ethnography” of late Inka Cuzco, scholars proposed alternative ethnohistoric approaches. Murra (1956) challenged elite-centered representations, advocating a “bottom-up” perspective informed by his substantivist economic approach, which represented the Inka state as a weak superstructure grafted onto local reciprocity-based kin networks. Murra’s approach

complemented Rowe's to a considerable degree, but Zuidema's (1964) structuralist orientation presented greater interpretive controversy. Zuidema argued that the competing claims underlying Inka narratives made them factually problematic—faulty sources for reconstructing history but rich avenues for considering Andean cultural values and fundamental social structures (cf. Julien 2000; Urton 1990, pp. 5–10). Whereas Murra sought to empower ordinary Andeans negotiating experiences of Inka rule, Zuidema presumed to navigate the thickets of indigenous narrative to sort out essential structures that transcended space and time. By denying the historicity of Inka narratives, Zuidema asserted the ethnographic nature of Inka studies, a stance that provoked both historicists and historians (Brundage 1966; Hammel 1965).

Neither Murra nor Zuidema directly challenged Rowe's imperial origins chronology, and both supported the collection of archaeological data to reconstruct Inka society (Murra 1946; Zuidema 1964, pp. 15, 231). Rather, their work asserted the relevance of indigenous Andean experiences from colonial times to the ethnographic present. Rowe's late imperial origins paradigm described a short burst of Inka power, understood as an extrapolation or renegotiation of uniquely Andean social practices and principles that existed before the Inkas. Scholars subscribing to this *lo andino* approach often privilege indigenous 17th-century chroniclers over other sources. Many use 20th-century ethnography to illustrate Andean practices (e.g., reciprocity [*ayni*], rotational service [*mit'a*]) considered fundamental to village life and ancient statecraft (Murra 1984). The timelessness of the *lo andino* approach encourages archaeologists to draw from Inka chronicles to explain pre-Inka institutions and cultural practices, which can lead to circular reasoning.

As Andean research proliferated from the 1970s on (Burger 1989; Salomon 1982), many *lo andino* scholars favored the articulation of an essential Andean cultural logic over comparative theoretical analyses of the Inka empire. Nevertheless, other researchers compared the Inkas with other archaic states and early empires, generating theoretical interest in Inka state origins. Among anthropologists, scholarly interest in archaic states largely focused on the formation of first-generation states, but other social scientists used the Inkas in comparative models of early imperial dynamics (e.g., Eisenstadt 1963). In the late 1970s, new theoretical formulations of Inka origins appeared that largely replicated Rowe's historicist paradigm, using the legend of Pachacuti and the Chanka invasion as the point of social transformation.

Comparative approaches to Inka imperialism foregrounded economic and political dynamics, downplaying chronological change to model the interplay between social practices and institutions (e.g., Mann 1986). This work drew on classic sociological works that conceptualized the state using a conflict-based Western model that sometimes struggles to explain Inka statecraft (Covey 2015). The work of historians and archaeologists often reproduced this sociological framework—frequently expressed in Marxian terms (e.g., Godelier 1974; Lumbreras 1978; Patterson 1991)—while appropriating neoevolutionary concepts used by other archaeologists to describe first-generation states. Treating the “Inka state” as a sudden development that occurred in 1438, scholars variously described the pre-

state Inka society as a “chiefdom” (Schaedel 1978), “statelet” (Wolf 1982), or “kingdom” (Conrad and Demarest 1984).

Theoretical approaches often conflated Inka state formation and imperial expansion, employing Rowe’s 1438 horizon to describe how Pachacuti and his successors transformed a pre-state society into a state. Although some acknowledged the scarcity of archaeological evidence from pre-imperial Cuzco (e.g., Conrad and Demarest 1984, pp. 96–97), many felt comfortable situating the “pre-state” Inkas in the archaeological evidence of Late Intermediate period balkanization and conflict emerging in the Andean highlands (e.g., Parsons and Hastings 1988), a pattern seemingly confirmed by indigenous chroniclers. Archaeological explanation for how a modest collection of egalitarian farming villages suddenly became a mighty empire remained “shrouded in mystery” (Schaedel 1978, p. 290), but scholars cited royal estate construction (Patterson 1991) and the demands of Inka religion (Conrad and Demarest 1984) as catalysts propelling rapid imperial expansion.

The short chronology of Rowe’s historicist paradigm raised questions of whether Inka emperors simply mobilized the institutions of earlier Andean states. Lumbresas (1974, pp. 162–163) argued that rapid Inka expansion capitalized on Wari highland road networks, including a hypothesized Huari-Pikillacta road. Noting the lack of material evidence, he later speculated (Lumbresas 1978) that an attempted Wari annexation of the Cuzco region buttressed local elites, whose power grew until Pachacuti’s time. Arguing from the same scant evidence, Zuidema (1973) described an expansionist Wari state that conquered large parts of Peru. Zuidema (1973, p. 748) concluded that the Inkas reproduced Wari sociopolitical organization, because they “simply could not conquer the whole empire in so short a time (as they themselves said) and much less develop independently all the political institutions necessary to govern a recently conquered empire.” Using more intuition than archaeological evidence, Zuidema (1973, pp. 752–753) claimed that Inka provincial organization, storage, royal estates, retainers, and labor colonization were Wari inventions.

## The Development of the Cuzco Archaeological Database in the Past 50 Years

Before 1970, the Cuzco ceramic sequence was incomplete, the radiocarbon database consisted of fewer than 20 dates, and the regional site inventory comprised fewer than 100 published sites. Since then, the archaeology of Cuzco has developed dramatically, enabling the interpretation of Inka origins using solely material evidence. Increased attention to Cuzco prehistory by academic archaeologists has occurred under particular economic and political conditions. Since the 1983 designation of Machu Picchu and Cuzco’s historic center UNESCO World Heritage Sites, urban development and tourism have stimulated local archaeological projects, from salvage work in the city to consolidation efforts at monumental Inka sites (e.g., C. Covey 2018).

## Ceramics from Style to Technology

Beginning in the late 1960s, new fieldwork elaborated Rowe's regional sequence, filling in gaps and identifying local styles from across the Cuzco region. Ceramicists working with excavated samples from large projects (e.g., Glowacki 1996; Lunt 1987; Rivera 1971a) introduced new analytical methods, moving toward technology-oriented studies that could transcend some of the interpretive limitations of decorative analysis. Recognizing the continuing issues with periodization and stylistic classification, I focus on ceramics from the Middle Horizon (MH, ~AD 600–1000), Late Intermediate period (LIP, ~AD 1000–1400), and Inka. Excavations have shown that some MH styles appeared before Wari colonization in the Cuzco region (Bauer and Jones 2003), and some data that I present include the Early Intermediate period (EIP).

Fifty years ago, Lanning (1967, p. 27) described the Cuzco Middle Horizon as a time of local ceramic use (Huaró style), followed by a short period of Wari prevalence (Viñaque style). In the 1970s and 1980s, local archaeologists identified new MH styles (Qotakalli [Barreda 1973]; Araway [Torres 1989]), and North American scholars defined others (Lucre A [McEwan 1984b]; Ccoipa and Muyu Orqo [Bauer 1989]). Using McEwan's excavated collections from Pikillacta, Glowacki (1996) classified Wari-style pottery and identified modest components of local Qotakalli and Araway. More recently, excavations at several sites have produced stratigraphically controlled samples of pottery and numerous MH radiocarbon dates (e.g., Bauer and Jones 2003; Bélisle 2015; Glowacki 2002; McEwan et al. 1995). Regional surveys have identified hundreds of EIP and MH components at sites in the Cuzco region, contextualizing the distribution of Wari-style pottery within broader settlement patterns (Covey et al. 2013; Kosiba 2010).

In the late 1960s, Killke was the sole stylistic marker of the LIP in Cuzco, a long period lasting from AD 900 to 1476. Researchers considered Rowe's initial definition of Killke to be significant (Willey 1961), but over time confusion grew regarding the classification of its spatiotemporal variation. Some scholars treated Killke as "early Inka" (e.g., Alcina 1970), whereas others deployed it more broadly, as "provincial Inka" (e.g., Reichlen 1954). Few published excavations in the Cuzco region had stratigraphically isolated LIP pottery. Dwyer began fieldwork in the late 1960s to develop a more precise Killke sequence and determine its relationship to Inka imperial polychromes. Dwyer's test units at Saqsaywaman, Pukara Pantillijlla, and Minaspata complemented Rowe's excavations in and near Cuzco, and his surface collections elsewhere suggested that the Killke style (strictly defined) appeared in association with "Killke-related" ceramics, which often appeared with Inka imperial pottery (Dwyer 1971).

Working at the same time at the Inka site of Chinchero, Rivera collected LIP ceramics from the surface of the nearby sites of Canchacancha and Chaqamoqo (Alcina 1970; Rivera 1971a, b). Comparing his collections with material from Wimpillay, in the Cuzco Basin, Rivera (1971a, pp. 90–91) proposed to broaden Rowe's definition of Killke, while also defining a new type of LIP pottery and noting local variations in monochrome and polychrome decoration. Noting the diversity of material that he classified as Killke, Rivera (1971a, pp. 91–92)

concluded that Rowe's (1944) stylistic designation was insufficient to describe temporal and regional variations that resembled Killke pottery to varying degrees.

Dwyer maintained a strict definition of Killke while recognizing broader regional patterns of production and distribution, whereas Rivera lumped temporal and regional variations under the rubric of "Killke," rightly concluding that such a class of materials could not be used to study Inka origins directly. To resolve competing Killke classifications would require better excavation samples and an improved regional perspective on ceramic production and distribution in the Cuzco Basin. To date, this remains to be accomplished. Test pits, consolidation projects, and rescue archaeology have recovered LIP pottery in and around Cuzco, but the work has tended to reproduce familiar stylistic categories, rather than using stratigraphic sequences to define the technological, formal, and iconographic variations characteristic of the LIP.

Nevertheless, advanced ceramic analysis of large excavation samples has been conducted elsewhere in the Cuzco region. Lunt (1987) studied 25,000 excavated sherds from Cusichaca region sites, although much of the LIP component comes from the lower strata of the small promontory occupation of Huillca Raccay (Hey 1984; Kendall 1994, pp. 34–36). Five field seasons at Huillca Raccay targeted the complete excavation of Inka structures and open spaces, exposing circular pre-Inka dwellings and evidence of early Inka influence. This work can be considered the first horizontal excavations to expose LIP domestic contexts, although the scale of excavation pales in comparison to McEwan's 14 seasons at Chokepukio (Hiltunen and McEwan 2004; McEwan 2006a; McEwan et al. 1995, 2002), following earlier work by Gibaja (1973). A detailed account of the Chokepukio ceramic data has yet to appear in peer-reviewed publications.

Covey (2006b, 2015) published general descriptions of his analysis of nearly 50,000 sherds excavated at Pukara Pantillijlla, and Kosiba (2010, p. 51) analyzed more than 5,000 diagnostic sherds from excavations at Wat'a. Although the description of LIP ceramic production in the Cuzco region remains incomplete, large-scale excavations are establishing more nuanced interpretations of the pre-Inka past and defining local styles contemporaneous with Killke, such as Canchacancha, Lucre, Colcha, Cueva Moqo, and Cuyo styles (e.g., Bauer 1999; Haquehua and Maque 1996). Most styles remain rough categories that can be associated only approximately with a likely area of production and region of distribution.

The internal variation of stylistic categories indicates diverse potting practices across space and time (e.g., Covey 2015), and researchers have turned to more fine-grained methods, including petrography (Ixer and Lunt 1991), instrumental neutron activation analysis (D'Altroy and Bishop 1990), and LA-ICP-MS (Kosiba et al. n.d.). To date, most specialist studies have sampled opportunistically from a few excavated sites lying at a distance from Cuzco. For example, Ixer and Lunt (1991) analyzed Killke pottery from Inka-period contexts in the Cusichaca region, located more than 50 km northwest of Cuzco. In subsequent work (Ixer et al. 2014a, b) they used a broader style-based sample ( $n = 38$ ) from excavations at Cusichaca and Chokepukio, and from Cuzco Basin surface collections. As researchers work to define the sources of clays and temper materials used in LIP and Inka pottery,

cautious interpretation is needed until more representative samples have been analyzed.

As specialist analysis proceeds, researchers still make stylistic evaluations that influence their results, and interpretive differences over style fuel debates among Cuzco-area archaeologists. At heart is the extent to which certain pottery styles indicate state political power over local contexts. For MH pottery, there is disagreement over the significance of Araway pottery, a Wari-related style apparently produced in the Cuzco Valley (Montoya et al. 2003, 2009, p. 478). Survey archaeologists distinguish Araway from Wari-style pottery (Bauer 1999), noting a broad regional distribution pattern that is negatively correlated with Wari ceramics and architecture (Covey et al. 2013). Excavators at Wari sites (e.g., Glowacki 1996, pp. 199–207) interpret Araway as a Wari type called Wamanga, a broad ceramic category that can refer to nonelite pottery of the Ayacucho region, as well as to other Wari-related pottery from in southern Peru (Owen 2007). Araway constituted just 5.5% of the Pikillacta assemblage (Glowacki 1996, p. 199), and it is less common in Lucre Basin survey collections than in other surveyed parts of the Cuzco region (Covey et al. 2013). Beyond the Lucre Basin, competing interpretations of Araway generate distinct conclusions regarding the power and influence of the Wari state (e.g., Covey 2006b, pp. 74–78; cf. McEwan 2012, pp. 254–255). Although researchers agree that Wari colonization in the Cuzco region influenced the later Inka developments, discordant stylistic interpretations prevent a consistent dialogue.

Interpretive differences between survey archaeologists and some excavators also affect interpretations of the LIP and Inka periods. Survey archaeologists, who also have conducted test excavations and broader horizontal exposures at 20 sites with LIP and Inka occupations (Bauer 1992, 1999; Bauer and Jones 2003; Covey 2006b, 2015; Kosiba 2010, 2015; Quave and Covey 2015; Quave et al. 2017), define Killke as a Cuzco Basin style, based on Bauer's (1999) elaboration of Rowe's sequence. The survey projects associate the Killke style with Cuzco Basin developments, but do not interpret the presence of the style alone as representing a clear economic or political relationship with an early Inka polity. Ceramic styles identified elsewhere in the Cuzco region appear to have more restricted distribution ranges beyond their likely areas of production. Except for imperial Inka polychromes, Killke is the most widely distributed style in the Cuzco region.

By contrast, excavators at Chokepukio focus on the prevalence of Lucre-style pottery (McEwan et al. 2002, pp. 294–295). Although they lack regional distribution patterns, they conclude that Chokepukio was the capital of a “powerful polity” that commanded a large territory including all known major Wari sites (p. 298). Chatfield identified Lucre pottery in excavations at Aqnapampa (80 km southeast of Cuzco), but her unusual definition of “Killke”—designs similar to Inca but poorly executed (2007, pp. 255–256)—makes it difficult to evaluate the occupational history. Her definition diverges from published fabric descriptions for Killke (Bauer 1999; Lunt 1987), and Chatfield excludes Lucre pottery from this designation (2007, p. 260) while inconsistently classifying the LIP Colcha style (e.g., 2007, pp. 258, 264) and provincial Inca styles (Sillustani, Pacajes) in her analysis. Defining “Killke” as a locally determined subset of the pottery that deviates from Inka

imperial polychromes in time, space, or execution, Chatfield (2010) argues that the style is not a good temporal marker. This is unsurprising, given her inconsistent definition of “Killke” and the fact that some of her excavation contexts were mixed (2007, p. 335; cf. p. 344).

Like Chatfield, other excavators report Killke and other “LIP” styles in association with Inka pottery at sites across the Cuzco region, often due to stratigraphic disturbances ranging from Inka site modifications to modern farming (e.g., Bauer 1992, pp. 81–82). In several instances, however, “LIP” and “Late Horizon” pottery appear together in well-preserved contexts, and radiocarbon dates from several sites present an inconvenient reality: Inka-style pottery appears in contexts that predate 1438, and some LIP styles (including Killke) persisted into the imperial period. Many researchers still see the appearance of Inka polychromes as a sudden and deliberate change in production (e.g., Dwyer 1971; Ixer et al. 2014a; McEwan et al. 2002), and not all have accepted that such an event could occur before 1438 and reflect the actions of someone other than the culture hero, Pachacuti. The continuity of “vernacular” ceramic styles in the Inka heartland is hardly surprising, but the co-occurrence of styles complicates the synthesis of coarse-grained maps from surveys and site-based stratigraphic sequences from excavations.

### Excavation and Improvement of the Cuzco Sequence

Horizontal excavations were rare in the Cuzco region before the 1970s, focusing on monumental Inka sites (e.g., Machu Picchu) and employing less exacting techniques than those used today. As the archaeology program at the Universidad Nacional San Antonio Abad del Cuzco grew in the 1970s and archaeological tourism stimulated and supported new fieldwork, more excavation data appeared in reports and publications of local archaeologists, but the results are not widely disseminated, making it difficult to integrate the work of local researchers into broader interpretive frameworks. The dozens of investigators directing recent projects classify “Killke” and “Lucre” in different ways, so that both “styles” serve as general descriptors for diverse LIP and Inka assemblages.

In the 1970s and 1980s, most excavations consisted of small-scale units at late prehispanic sites. The Cusichaca project is an important exception; Kendall (1994) excavated entire structures and patio spaces, targeting imperial Inka contexts, although earlier occupations were identified at some sites. In his work at Pikillacta, McEwan (2005) also conducted horizontal excavations exposing Wari contexts. At the neighboring multicomponent site of Chokepukio (e.g., McEwan et al. 1995, 2002), he codirected large-scale excavations spanning the Cuzco ceramic sequence.

Horizontal excavations at pre-Inka sites have increased since 2000. Excavations at the Formative village of Yuthu (Davis 2011) significantly developed perspectives on the first millennium of village life in the Cuzco region. For the MH, fieldwork in the Huaro area clarified the Wari occupation (e.g., Glowacki 2002), complementing McEwan’s data from Pikillacta and Chokepukio. Recent excavations by B elisle (2011) and Skidmore (2014) generated valuable data on local and nonelite lifeways

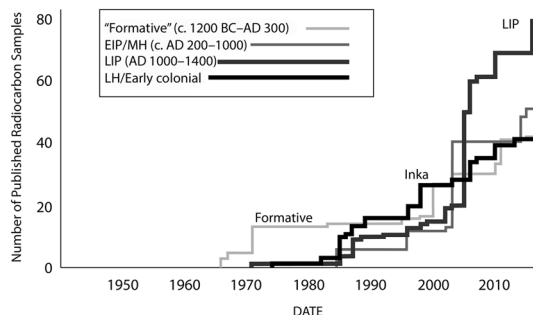
during Wari colonization. Working on the LIP and Inka periods, Covey (2003a) excavated domestic and public structures at Pukara Pantillijlla, and others (Chatfield 2007; Kosiba 2010; Quave 2012; Sillar and Dean 2002) have explored the transition to Inka rule elsewhere. The rapid accumulation of excavation evidence exposes the limitations of early archaeological explanations of Inka origins. Although some researchers had insightful views on the social transformations in the centuries before Inka imperial growth, the early Cuzco sequence was highly speculative in many regards.

Stratigraphic excavations from the Cuzco region have improved the chronological framing of Inka origins. Rowe (1944) estimated that the Killke series began around AD 1200 and that the Chanapata series preceded it for some unknown time. He thought the Inka style appeared around 1438, coinciding with Pachacuti's accession and the imperial reconstruction of Cuzco. The first radiocarbon dates from Cuzco appeared approximately 50 years ago and began to situate Chanapata and Killke pottery deeper in time (Fig. 3). The radiocarbon database grew slowly at first, focused on the Formative period, but absolute dates accumulated more rapidly after the mid-1980s, and especially after 2000. There are now more than 200 published radiocarbon dates from more than 30 sites in the Cuzco region.

### Dating the Appearance of Inka Styles

As the radiocarbon inventory grows for the Cuzco region, important questions persist regarding context and meaning of dates derived from construction materials, organic remains from middens, and human bone. A radiocarbon chronology for the origins of Inka-style pottery and architecture is necessary to evaluate the central temporal assumption of the historicist paradigm that imperial styles first appeared after 1438 and represent unambiguous markers of the short century of Inka expansion beyond the Cuzco region. This is a difficult task, in part because of stratigraphic disruption at many late prehispanic sites. Even when good dates are collected, calibration remains an unresolved issue (Ogburn 2012), and it is still unclear which (if either) of the most recent hemispherical atmospheric models is appropriate for the Cuzco region. Chronologies of pre-imperial Inka development face a significant wiggle in the calibration curve, which produces two-peak dates for the late 14th and early 15th centuries. Despite these limitations, a growing body of

**Fig. 3** Timeline of the accumulation of radiocarbon dates for the Cuzco region





radiocarbon dates challenges prevailing interpretations regarding the origins of Inka pottery and architectural styles.

### *Inka Ceramic Chronology*

Although the chronicles are generally silent about Inka ceramic production (Rowe 1946, p. 243), many scholars assume that Inka polychromes appeared around 1438 and represent the imperial state. Rowe (1944, p. 43) considered most Inka pottery to belong to the historic period from 1438–1530, and he excavated at the site of the former Inka sun temple to associate pottery and architecture (pp. 44–46). Rowe (1944, p. 61) speculatively dated his Killke series to “?1200–c. 1438,” establishing a clear boundary that corresponded perfectly with his historicist reconstruction of late Inka imperial expansion.

Researchers have long noted the co-occurrence of Killke and Inka pottery (e.g., Dwyer 1971, pp. 126–135; Kendall 1985; Rowe 1944), but radiocarbon dates from controlled stratigraphic excavations were needed to date the appearance of Inka polychromes with greater confidence. Excavated Inka and Killke pottery from Ankasmarka (Kendall 1985, p. 347) dated to  $482 \pm 91$  BP, but with too much uncertainty to resolve chronological ambiguities. More recently, Bengtsson (1998, pp. 102, 107) reported a date of  $660 \pm 65$  BP for construction materials in a mortuary structure in which non-Inka and Inka pottery appeared, although she attributes the latter to ongoing funerary practices. Covey (2006b, 2015) encountered Inka and LIP pottery in different associations at Pukara Pantillijilla, with a radiocarbon date range that indicates mixed contexts from the LIP/Inka remodeling of the site, as well as the early appearance of the Inka style and the continued use of “LIP” styles, including Killke (Table 1). The use of a particular calibration curve influences results in important ways, but several dates support the conclusion that the Inka style was present at Pukara Pantillijilla before 1438 (the very early date from AA47674 shown in Table 1 reflects a mixed context where Inka-related terrace modification disturbed long abandoned Formative contexts). Kosiba (2010, pp. 236–237, 312–316) encountered comparable results in excavations at Wat’a and Markaqocha, with Inka pottery dating from the end of the 13th century until the early colonial period.

Inka-style pottery is not present in all late LIP assemblages in the Cuzco region. Quave and colleagues (n.d.) recently dated Yunkaray to the LIP—with dates that extend into the 15th century—but Inka pottery was almost completely absent in their excavations. McEwan and colleagues (2005; Hiltunen and McEwan 2004) report LIP dates from Chokepukio, but they have yet to present dates for Inka pottery or to clarify the LIP-Inka transition there. Given the expectation that Inka pottery first appeared in the Cuzco Basin, more excavations are needed at Killke-Inka sites to date the earliest appearance of Inka-style ceramics.

### *Inka Architectural Chronology*

Rowe held that Pachacuti rebuilt Cuzco with stone buildings after the Chanka invasion around 1438. His historicist view influenced heritage management plans

**Table 1** Radiocarbon dates from excavated samples with Inka pottery, Pukara Pantillijlla

Sample	Context	Date (BP)	IntCal 13	SHCal 13
AA47674	VS-176-0310; carbon from feature associated with Killke and Inka pottery; depth: 98 cm	2708 ± 33	915–806 calBC (95.4%)	901–794 calBC (95.4%)
AA47670	VS-176-0953; carbon from a feature containing LIP and Inka pottery; depth: >56 cm	688 ± 51	1246–1399 calAD (95.4%)	1279–1401 calAD (95.4%)
AA47676	VS-176-0912; carbon from Level 4, with Killke and Inka pottery, depth of 41.5–50 cm	656 ± 43	1275–1399 calAD (95.4%)	1292–1407 calAD (95.4%)
AA47667	VS-176-1509; maize near bedrock in rectangular structure, with Killke and Inka pottery; depth: ~39 cm	498 ± 53	1305–1364 calAD (18.8%) or 1364–1468 calAD (76.6%)	1392–1511 calAD (87.2%) or 1552–1557 calAD (0.3%) or 1575–1622 calAD (7.9%)
AA47666	VS-176-0913; carbon from midden with LIP and Inka pottery; depth: 54 cm	493 ± 39	1324–1346 calAD (5.6%) or 1393–1459 calAD (89.8%)	1405–1498 calAD (94.5%) or 1602–1607 calAD (0.9%)
AA47678	VS-176-0975; carbon from feature with Inka pottery; depth: >36 cm	433 ± 42	1412–1522 calAD (83.5%) or 1575–1624 calAD (11.9%)	1436–1523 calAD (60.3%) or 1536–1627 calAD (35.1%)
AA47671	VS-176-0411; carbon associated with LIP and Inka pottery; depth: 35–45 cm	427 ± 30	1423–1512 calAD (90.5%) or 1601–1616 calAD (4.9%)	1444–1512 calAD (66.5%) or 1548–1563 calAD (2.3%) or 1570–1623 calAD (26.5%)
AA47672	VS-176-0362; carbon from feature associated with Killke and Inka pottery; depth 103 cm	343 ± 42	1460–1642 calAD (95.4%)	1465–1469 calAD (0.7%) or 1477–1655 calAD (94.7%)

Notes: Calibrations obtained with OxCal v. 4.2: Bronk Ramsey (2013); IntCal13 atmospheric curve: Reimer et al. (2013); SHCal13 atmospheric curve: Hogg et al. (2013)

for Cuzco after the devastating 1950 earthquake, and Kubler (1952, p. 2) cited Inka-style masonry as material evidence of the city's earliest urban manifestation. When UNESCO designated the city center as a World Heritage Site in 1983, the nomination report explicitly linked Cuzco's urban origins to Pachcuti's agency (ICOMOS 1982, p. 2). Labeling Cuzco as global heritage reinforced Rowe's representation of Inka mythohistory, and the concomitant regulations for preserving Inka and colonial architecture have a tangible impact on where and how archaeologists excavate in the city. Farrington's (2013) recent review of Cuzco's architectural remains treats the urbanization process as intimately linked to Pachacuti.

Radiocarbon dates from Inka-style architecture have accumulated since the 1970s, indicating the development of distinctive building forms and masonry techniques prior to 1438. Architectural dates come from construction materials—wood used for beams and grass used to temper mud plasters—and excavations beneath Inka stone blocks abandoned in transit (e.g., Bengtsson 1998; Covey 2006b, 2015; Hollowell 1987; Kendall 1985, 1996; Kosiba 2010). As with excavation dates, architectural dates should be interpreted based on their context. For example, a wooden lintel would be associated with a significant construction event, whereas grass from exterior plasters could pertain to periodic renewal of the structure while in use. The wood might be subject to dating biases, such as conservation from earlier constructions, whereas exposed wall plaster would be affected by weathering. Given architectural assumptions of the historicist paradigm, it is not surprising to find some interpretive bias in sample selection and interpretation of results. For example, Kendall (1996, p. 152) uses 1438 as a guiding date to distinguish calibrated architectural dates as being either “LIP Inca” or “LH Inca.”

At present, the earliest radiocarbon dates associated with Inka-style structures appear in the Ollantaytambo area (Bengtsson 1998; Hollowell 1987); early dates also come from excavation contexts in Inka-style structures at Juchuy Coscco, Pukara Pantillijlla, and Wat’a (Covey 2006b; Kendall et al. 1992; Kosiba 2010) (Table 2). There are still major questions regarding the origins of Inka-style architecture, but the radiocarbon database suggests that Inka masonry and construction techniques were not a sudden invention after the legendary 1438 Chanka invasion (cf. McEwan et al. 2002, p. 291). Although there are no early dates for Cuzco Basin Inka structures, Farrington (2013) confirms that the urban architecture of Cuzco and the rural communities of the Cuzco Basin show a virtually exclusive use of rectangular forms, unlike many surrounding areas. Rectangular structures appear in Killke-era complexes lying beneath Cuzco (González 1984), as well as at unexcavated imperial-era villages, many of which have Killke pottery on the surface.

Based on the current radiocarbon chronology, there were multiple traditions of public architecture present in the Cuzco region in the century before Inka imperial expansion, including the well-dated LIP monuments at Chokepukio (Hiltunen and McEwan 2004; Kendall 1985; McEwan et al. 2005) and more modest constructions and social spaces that survive elsewhere (Covey 2006b; Kosiba 2010). The construction of Inka-style structures at sites with distinct pre-Inka architecture suggests a more intensive relationship than the distribution of portable material culture, although the current evidence leaves room for debate over the extent to which local constructions reflect state projects, local emulation, or some combination of factors.

### **Archaeological Survey and Regional Perspectives on the Cuzco Sequence**

Excavation projects have contributed to the recent advances in stylistic classification and absolute chronology, but regional research also has significantly developed the Cuzco archaeological database. Rowe (1944, p. 50) acknowledged the potential

**Table 2** Radiocarbon dates from construction materials in Inka-style buildings

Sample	Context/Material	Date BP	IntCal13	SHCal13
SI-6986	Pumamarca PM-1 PA-14(B2 Ph. 1); wood	940 ± 40	1019–1184 calAD (95.4%)	1038–1217 calAD (95.4%)
UCLA 1676Q	Juchuy Coscco JC1(B2); wood	850 ± 60	1040–1110 calAD (21.3%) or 1115–1270 calAD (74.1%)	1046–1088 calAD (4.8%) or 1132–1300 calAD (89.9%)
SI-6987	Pumamarca PM-1 PA-14(B13); wood	710 ± 55	1215–1329 calAD (71.0%) or 1340–1397 calAD (24.4%)	1235–1243 calAD (1.0%) or 1265–1403 calAD (94.4%)
SI-6988A	Pumamarca PM-3 PA-14(B16); wood	660 ± 60	1261–1411 calAD (95.4%)	1281–1421 calAD (95.4%)
SI-6988B	Pumamarca PM-3-1 PA-14(B16); wood	645 ± 45	1279–1400 calAD (95.4%)	1294–1414 calAD (95.4%)
SI-6990	Kachiqhata KA-1 (Choquetacarpo); wood	640 ± 55	1275–1410 calAD (95.4%)	1290–1425 calAD (95.4%)
AA47657	Pukara Pantillijlla R-13; grass from interior niche	519 ± 55	1299–1370 calAD (32.1%) or 1380–1459 calAD (63.3%)	1321–1349 calAD (3.5%) or 1387–1504 calAD (88.8%) or 1591–1616 calAD (3.1%)
SI-1989	Intihuatana INT-1 (above Parcon); wood	515 ± 50	1304–1365 calAD (26.8%) or 1383–1455 calAD (68.6%)	1327–1339 calAD (1.0%) or 1390–1502 calAD (92.3%) or 1595–1613 calAD (2.1%)

Notes: Sources: Bauer (2004), Covey (2006b), Kendall (1996). Calibration used OxCal v4.2.4 (Bronk Ramsey 2013); IntCal13 (Reimer et al. 2013); SHCal13 (Hogg et al. 2013). Ranges less than 1% were excluded

value of regional data, but the list of published sites did not grow substantially before 1970, and few pre-Inka sites were known (e.g., Pardo 1957; Rivera 1971b, pp. 114–115; Rowe 1963). Site counts grew as archaeologists framed new regional questions regarding Inka origins. Dwyer (1971) compared excavation data from three sites and concluded that Cuzco Valley was a peaceful area that contrasted with the decentralized LIP settlement patterns identified elsewhere in the highlands (e.g., Covey 2008a). A few years later, Kendall (1985) catalogued Inka architecture at several dozen Inka and LIP sites across the Cuzco region.

Regional archaeology continued to develop in the late 1970s and early 1980s. In 1977, Kendall (1994) initiated reconnaissance, mapping, and excavations in the Cusichaca region along the Urubamba Valley between Ollantaytambo and Machu Picchu. McEwan (1984a, 1987) complemented his excavations at Pikillacta with regional explorations in the Lucre Basin from 1979–1982. Later in the decade,

Heffernan (1989, 1996) conducted a regional reconnaissance in the Limatambo area (west of Cuzco) and identified dozens of LIP and Inka sites. These projects elaborated local settlement histories, recording unprecedented numbers of pre-Inka sites. The Cuzco office of the Peruvian Instituto Nacional de Cultura conducted its own regional inventory in the early 1980s, registering ancient architectural remains, as well as some scatters of surface artifacts. None of these projects, however, employed methods that could generate regional settlement pattern data.

Bauer (1990) began the first systematic full-coverage survey in the Cuzco region in 1984, collecting settlement pattern data in the Paruro region just south of the Cuzco Basin to evaluate settlement changes near the legendary origin place of the first Inka ancestors. Working in an area of 600 km<sup>2</sup>, Bauer employed a field methodology introduced to the Andes by Parsons (Parsons et al. 2000), a modification of the Basin of Mexico survey pioneered by Sanders (Sanders et al. 1979). Survey crews hiked all accessible areas in parallel lines spaced 50–150 m apart, registering artifact scatters and ancient architectural remains (Bauer 1992, pp. 66–68, 1999, pp. 6–8). Bauer analyzed purposive collections of diagnostic pottery to identify occupation periods based on the presence or absence of different styles. Test excavations at Maukallaqta (Inka) and 14 other sites helped Bauer (1999, p.8) associate local ceramic styles (e.g., Ccoipa, Colcha) stratigraphically with known styles of the Cuzco sequence and improve absolute chronology. Despite acknowledged limitations of regional survey, Bauer (1999, p. 1) recorded 250 sites in a region that was virtually unknown beyond a few monumental Inka sites.

Bauer expanded the regional database in the 1990s, surveying approximately 350 km<sup>2</sup> in the Cuzco and Oropesa Basins and nearby areas and recording roughly 1200 archaeological sites, including the first clear evidence of pre-ceramic occupations in the Cuzco Valley (Bauer et al. 2004). Test excavations clarified the regional sequence, with special attention on sites from the Archaic (Kasapata) and EIP/MH (Pukacancha, Tankarpatá, Peqoykaypata) periods (Bauer and Jones 2003; Bauer et al. 2007). In 2006, Bauer extended the Cuzco Valley survey to the southeast, registering 170 additional sites in a 100-km<sup>2</sup> region that included the Lucre Basin (Bauer et al. 2018).

Building on Bauer's growing survey database, Covey (2003a, 2014; Covey et al. 2008) codirected three regional survey projects. In 2000 he registered approximately 410 sites in a 400-km<sup>2</sup> area along the Vilcanota-Urubamba Valley north of Cuzco. He extended coverage west and northwest of the Cuzco Valley from 2004–2006, recording approximately 630 sites in an area of 600 km<sup>2</sup> on the Xaquixaguana Plain. In 2007, he registered roughly 150 sites in a 100-km<sup>2</sup> extension of the prior survey in the Vilcanota-Urubamba Valley. Covey used Bauer's field methodology and artifact sequence, with one important distinction: in the flat and open lands of the Xaquixaguana Plain, crews collected surface pottery at larger sites through a grid of intensive collection units that sampled all surface artifacts across 2% of the site area, which permitted better control over the occupational history at large settlements.

By 2007, Bauer and Covey had applied the same field and laboratory methods across a combined area of almost 2200 km<sup>2</sup>, a region centered on Cuzco and extending 20 km or more in almost all directions, within which nearly 3000 sites

were recorded. Kosiba (2010) also contributed compatible data from his survey of 200 km<sup>2</sup> in the Wat'a and Ollantaytambo areas, registering as many as 250 sites.

Before Bauer's first survey there were perhaps 100–150 published archaeological sites in the Cuzco region—the majority recorded for the first time in the regional reconnaissance projects of the 1970s and early 1980s. The surveys dramatically increased site counts, systematically identifying pre-Inka sites in large numbers for the first time and placing excavated sites in a broader context that allowed researchers to study settlement pattern developments across the large region. Settlement patterns drove the formulation of new research questions, leading to horizontal excavations at sites of different time periods, including Yuthu (Davis 2011), Ak'awillay (Bélisle 2011), Wat'a (Kosiba 2010, 2011), Pukara Pantillijlla (Covey 2015), Yunkaray (Quave et al. 2017), and Cheqoq (Quave 2012).

The benefits of the regional survey database must be weighed against the limitations of modern inventories of ancient sites, and every researcher conducting regional work has voiced cautions about its vulnerabilities (e.g., Bauer 1999, pp. 6–8; Covey 2014; McEwan 1984a, pp. 13–15). Environmental considerations (erosion, flooding), ancient and modern landscape modifications, urbanization, and other human actions have modified, obscured, and destroyed the surface representation of archaeological sites of different time periods, and local settlement patterns across the Cuzco region are altered in distinct ways. Seasonal changes in vegetation can give differing impressions regarding the size and density of a site occupation, and field methods targeting agricultural villages inevitably miss some of the smallest sites. Along with these field considerations, survey archaeologists also face the interpretive limits of purposive surface collections, including the issues of using type-variety designations to identify occupations in a relative sequence of varying phase lengths. Survey archaeologists acknowledge that real-life assemblages are diverse and that fine-grained local temporal changes seen in stratigraphic excavations cannot be reconstructed using surface collections alone.

Nevertheless, survey data offer unmatched strength for reconstructing regional patterns, for getting beyond the myopia of single-site views of regional change. Critics of regional data sometimes misunderstand the bulk of accumulated evidence, making *ad hoc* arguments to critique stylistic designations when the regional site inventory numbers in the thousands. Although it is fair to raise issues regarding the use of stylistic analysis for developing settlement patterns, excavators should remain mindful that the general patterns—which have a comparative reliability across different areas—are based on consistent analytical assessment of tens of thousands of diagnostic artifacts by a small number of closely collaborating researchers who also have conducted stratigraphic excavations.

### Methodological and Collaborative Frontiers

The wave of new archaeological fieldwork in the Cuzco region has fostered interdisciplinary collaborations relevant to questions of Inka origins. Specialist analysis is not new in Cuzco archaeology—osteologists accompanied Bingham's expeditions (e.g., Eaton 1916; cf. Burger 2004), and ceramicists have worked on large projects since the 1960s (e.g., Rivera 1973). In recent years, new methods in

climate science, bioarchaeology, and ecofact analysis offer data at scales that complement archaeology.

Ice cores from the Quelccaya glacier (e.g., Thompson et al. 1985, 2013) and cores from Lakes Marcacocha and Huaypo (Chepstow-Lusty 2011; Sublette Mosblech et al. 2012) help reconstruct ancient climatic fluctuations. Specialized analyses of ceramics, lithics, paleobotany, and zooarchaeology inform the reconstruction of subsistence and exchange practices, although the number of peer-reviewed publications remains modest (e.g., Ogburn et al. 2013; Rosenfeld 2012). Specialists have sampled a very limited number of excavated sites, leading to questions of how representative the resulting data are (e.g., Burger et al. 2000; Ixer et al. 2014a). With the completion of more horizontal excavations across the Cuzco region, it should become easier to develop stronger sampling protocols and to test initial interpretations with a more robust and representative dataset.

Bioarchaeologists have studied curated collections and excavated samples (e.g., Andrushko 2007). Methods include physical inspection of bones (e.g., Andrushko and Torres 2011; Andrushko and Verano 2008), as well as biogeochemical studies of diet and migration (e.g., Andrushko et al. 2009; Turner and Armelagos 2012). Some ancient DNA analysis has been completed (Shinoda et al. 2006; cf. Shinoda 2015), although current interpretations are limited by the lack of clarity regarding archaeological contexts, as well as the rapidly developing understanding of local genetic variation among modern indigenous Andean populations (Cabana et al. 2014). As with other specialist analyses, sampling issues make it difficult to extrapolate local data into regional patterns at present.

## Current Evidence for Inka Origins

The emerging archaeological database offers new prospects for interpreting aspects of Inka origins, but scholars have not fully moved beyond colonial legends and the received wisdom of earlier generations. Rowe's historicist origins paradigm remains influential, especially in interpretations focused solely on important Cuzco Valley sites.

### Sites of Inka Origin

A century ago, scholars who accepted Montesinos' long kinglist looked to Tiwanaku, Tampu-Tocco, and Cuzco to describe Inka origins. Rowe rejected this approach, shifting attention to a Cuzco-centered prehistory that eventually considered prehistoric MH Wari influence at Pikillacta, the emergence of Inka society in LIP Cuzco, and the historical spread of empire after 1438. In recent years, site-based perspectives on Inka origins have drawn from both approaches.

Pikillacta became associated with Wari state expansion into Cuzco in the 1950s, and theoretical works on Inka origins elevated the site to a provincial capital before the late 1970s, when McEwan conducted the first large-scale excavations there. McEwan (e.g., 1984a, p. 208) reinforced the interpretation of MH Cuzco as a Wari province with an urban capital where local elites encountered the political and

religious practices of their imperial rulers. His early work challenged previous interpretations of the site as a storage depot, suggesting the possible role of religious ceremony for maintaining imperial power. More recently, he suggests (2005, p. 161) that the site was used to stage elaborate feasts, and to sequester ancestral mummies and portable sacred objects of local Cuzco populations. McEwan's (1998, 2005, pp. 6–7) primary focus at Pikillacta was to develop an architectural typology and conduct test excavations associated with different building forms and access features. He discovered that the huge complex remained incomplete when abandoned, with only one sector showing evidence of completed construction and intensive occupation (e.g., McEwan 1996, 2005, pp. 32–58). Even there, occupation evidence was uneven. Many of McEwan's excavation contexts yielded few (if any) artifacts, although dedicatory offerings were common in some areas still under construction. Although a few hearths and small middens were identified inside Pikillacta's walls, most of the 55,000 sherds that McEwan (2005, pp. 58–62) recovered came from a large midden outside the walls, where many of the site's residents apparently dumped their trash. McEwan (2005) and Glowacki (1996) argue that Pikillacta's main functions were Inka-like practices of ancestor veneration and reciprocal feasting, but it is hard to infer large-scale public events from the extramural trash deposits, or from impressive buildings that lack material evidence for occupation or ceremonial use after their dedication.

Although work at Pikillacta indicated some lingering LIP use, McEwan presents abundant evidence for general abandonment by the end of the MH, arguing (e.g., 1984a, pp. 222–225) that its influence on the Inka state came indirectly, through the impressive aesthetics of its ruins, as well as the maintenance of Wari cultural practices and statecraft elsewhere in the Cuzco region. To address the latter issue, McEwan (et al. 1995) excavated at Chokepukio, a local Lucre Basin village that fell under Wari control in the MH and emerged as a local center during the LIP. Before excavating, McEwan (1984a, pp. 210–213) hypothesized that Chokepukio was home to local elites who broke violently from their Wari overlords, assumed control over the strategic Lucre Basin, and bolstered their prestige by holding the old seat of Wari power.

McEwan et al. (2002, pp. 293, 295) maintained this interpretation in their excavations in the monumental LIP enclosures at Chokepukio, where they identified architectural traits (niched halls) and ceramics (polychrome tumblers, bowls, and face-neck jars) that they felt reflected the Wari cultural legacy. They treated Chokepukio as a stylistic bridge between Wari and Inka (McEwan et al. 2002, pp. 292, 298–299), assuming that monumental architecture and a widely distributed local ceramic style (Lucre) indicated a regional kingdom that preserved Wari power for centuries, until it fused with a nascent Cuzco Basin polity in Pachacuti's time to form the Inka empire.

McEwan and Hiltunen (Hiltunen and McEwan 2004; McEwan 2006a, b, 2012) resurrected Montesinos' long-discredited multidynastic origins model to claim that Chokepukio is the site of Tampu-Tocco and that excavations there reveal the melding of Wari and Tiwanaku civilizations. Hiltunen and McEwan (2004) cite the same evidence for Tiwanaku influence that McEwan et al. (2002) used to identify Wari continuity: secondary burials in the walls of the Wari-influenced buildings had



mtDNA described as “related to the Aymara ethnic group of Bolivia,” and in the ceramic assemblage “[h]ead ornaments painted on Lucre face-neck vessels ... show similarities to the ornaments peculiar to Collasuyu” (Hiltunen and McEwan 2004, p. 243). Identifying Chokepukio as the lost city of Tampu-Tocco, McEwan (2006b) interprets the appearance of pottery, architecture, and people seemingly affiliated with the Titicaca Basin as evidence of a royal Tiwanaku-affiliated migration around AD 1300, a scenario that departs significantly from Montesinos’ Cuzco-centered narrative.

This conclusion also disregards the considerable archaeological evidence that has accumulated in the Titicaca Basin (Covey 2012). Archaeological assessments of Tiwanaku territory have shifted from claims of pan-Andean imperial dominance to more limited and discontinuous manifestations of state power and influence (e.g., Goldstein 2005). Recent survey and reconnaissance projects in the Titicaca Basin have reported almost 2000 Altiplano period (c. AD 1000–1400) sites, identifying numerous decentralized agropastoral societies (Albarracín-Jordan 1992; Arkush 2011; Bandy 2001; Bandy and Janusek 2005; Frye 2005; Janusek and Kolata 2003; Stanish and Bauer 2004; Stanish et al. 1997, 2014). Settlement patterns reveal the absence of urban centers and regional political integration, and site surveys and excavations have identified little monumental construction outside of defensive works that proliferated after about AD 1300 and are most prevalent in the basin’s northwestern part (Arkush 2011; Frye 2005; Frye and de la Vega 2005; Stanish 2003; Stanish et al. 1997). Across the Titicaca Basin, local mortuary practices (Albarracín-Jordan 1992; Arkush 2011; de la Vega et al. 2005; Frye and de la Vega 2005; Stanish 2003) and ceramic styles in use after AD 1000 (Abraham 2012; Arkush 2011; Bermann 1993, p. 132; Stanish et al. 1997; cf. Lumbreras and Amat 1966; Rydén 1947; Tschopik 1946) are diverse and impossible to link directly to Tiwanaku elites.

McEwan’s reconstruction of Inka origins posits the continuity of Wari-influenced statecraft at Chokepukio until “an influx of a small, elite group ... a usurpation of the local kingdom or a regal vacancy filled by a member of a foreign lineage viewed to be more legitimate than anyone locally available” (McEwan 2006b, p. 95). Isotope research using samples from the site (Andrushko et al. 2009) has not detected this migration, and ceramic analysis (e.g., Ixer et al. 2014a, b) demonstrates sufficient variability in its small number of “Lucre” sherds to suggest a more complicated story. Most recently, McEwan (2012, p. 258) omits references to mtDNA evidence or face-neck pottery, but he still cites nonlocal ceramics (“Mollo style” drinking tumblers) and architecture (funerary towers) as evidence of immigration of a small elite group, even though above-ground mortuary structures are widespread in the Cuzco region during the LIP (Bengtsson 1998; Covey 2006b; Kosiba 2010).

For other researchers, Cuzco continues to be a site that explains Inka origins. Farrington’s recent review of the city (2013, pp. 90–91) grants credence to the ancestral migration legend and associates Pachacuti with the definitive work of urban development. Although he jumps from ethnohistoric accounts of ancestral migrations to imperial Cuzco in a single page, Farrington nevertheless mentions the presence of LIP architecture and pottery in Cuzco, where pre-imperial material

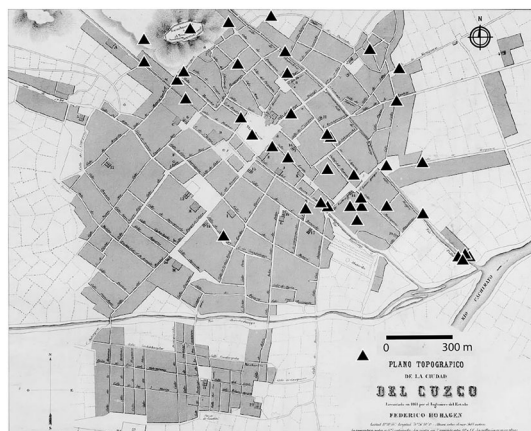
culture appears in many locations. He notes variations in the abundance of Killke-style pottery in urban excavations in Cuzco, which he takes to indicate the absence of a substantial settlement before Pachacuti's program of urban development.

There are reasons to question the straightforward presentation of results from urban excavations in Cuzco. Salvage and test excavations have not targeted the exposure of pre-imperial contexts to the same extent as imperial ones, and the percentage of Killke in an excavation assemblage depends on the preservation and exploration of both imperial and pre-imperial strata—it is not a straightforward measure that can be compared directly across contexts. Recent excavations in Cuzco have encountered LIP contexts across the city (Fig. 4). In addition to the reports and publications that Farrington references, archaeologists reported Killke- and Lucre-style pottery in more than two dozen excavations between 2005 and 2011. Current distribution patterns should not be treated as representative, given that the UNESCO boundaries for the Cuzco center affect the implementation of heritage management. Many of the recent reports only mention a few “Killke” and “Lucre” sherds in assemblages that often include a mix of Inka and colonial material. Nevertheless, the ubiquity of LIP pottery beneath the modern city, and the discovery of even earlier styles in some areas (i.e., Qotakalli), suggests that the pre-imperial settlement history of the Inka capital is richer than colonial legends suggest.

## Regional Patterns and Inka Origins

Most researchers concede the importance of regional social changes leading to imperial expansion, but interpretive disagreements persist. Excavators at Wari sites emphasize how Wari's regional power affected Inka origins, although their conclusions do not consider published regional survey data when developing scenarios of strong and continuous imperial power across the Cuzco region (e.g., Glowacki 2012, pp. 191–192; McEwan 2006a, p. 41, 2012, pp. 252–258). While promoting Choquepukio as essential for understanding Inka origins, McEwan (2012, pp. 258–259) and colleagues (McEwan et al. 2002, pp. 298–299) envision a Lucre

**Fig. 4** Recent excavation locations under modern Cuzco where LIP pottery has been recorded, superimposed on a 19th-century map of the city. Pre-imperial pottery appears in areas identified as Hurin Cuzco and Hanan Cuzco in colonial chronicles, suggesting that dynastic accounts of the growth of the city are flawed



Basin kingdom with a broad territorial scope, as well as neighboring groups that were its allies and enemies. The regional extent of this supposed polity is largely based on unpublished reconnaissance work in the 1950s (Rowe 1956; cf. McEwan et al. 2002, pp. 298–299). The accumulation of regional data has prompted McEwan (2006a, pp. 66–67, 2012, pp. 258–259) to dismiss survey methods rather than develop a new synthesis of LIP Cuzco. Meanwhile, Farrington (2013) seems to privilege the Inka ancestral migration myth over published settlement pattern data (Bauer 2004) to reconstruct Cuzco's urban origins, accepting the historicist account of Pachacuti's imperial construction of Cuzco. Farrington (e.g., 2013, p. 253) reviews the architectural evidence for rural Inka settlement and state infrastructure in the Cuzco Basin, but devotes little attention to the regional evidence for settlement continuity and change.

### *Wari Influence in the Cuzco Region*

Excavations at Pikillacta led McEwan (2005, p. 164) to conclude that the Wari state established direct imperial rule for 500 years, leaving a legacy that significantly affected Inka state formation (cf. Glowacki and McEwan 2001). Regional settlement pattern data suggest a more indirect Wari imperial footprint and subsequent influence on Inka origins (Covey et al. 2013; Kosiba 2010). Although work in the Huaro area has identified Wari administrative sites, colonial villages, and cemeteries (Glowacki 2002, 2012; Juengst and Skidmore 2016; Skidmore 2014; Zapata 1997), sites with strong Wari affiliations are rare across the broader Cuzco survey region. As noted, Pikillacta was only partially occupied, and three of its four sectors were still under construction when it was abandoned and partially burned (McEwan 2005). This Wari site is truly impressive, but it was never finished, and survey work has not identified any lower-order administrative site outside the Huaro-Lucre area. This includes the nearby Sacred Valley, where Wari canals could have created productive frost-free lands for cultivating maize, and the Xaquixaguana Plain, which lies along the Inka route connecting Cuzco to the central highlands, including the former Wari heartland in Ayacucho (Covey 2014). Survey in the Xaquixaguana region encountered no evidence of Wari colonies, and Bélisle's (2011, 2015) excavations at Ak'awillay, a local population center, reveal daily and ceremonial practices that appear largely unaffected by Wari colonization.

Regional settlement patterns indicate that local populations already produced polychrome ceramics and cultivated maize before Wari colonists arrived (Covey et al. 2013). In most areas, village locations appear to have remained occupied throughout the time of Wari colonization, suggesting that significant migration or resettlement did not occur until the end of the MH. Except for the Lucre Basin, there is no evidence for large-scale agricultural intensification or increases in site hierarchy that could be interpreted as responses to Wari imperial rule. The Wari-influenced Araway ceramic style indicates some degree of cultural sharing, and the co-occurrence of local and Wari pottery in excavations at Wari and local sites suggests two-way exchanges of goods (Bauer and Jones 2003; Glowacki 1996, 2005; McEwan et al. 1995; Skidmore 2014, p. 300). Bélisle's (2015) excavations at Ak'awillay reveal that some local populations traded occasionally

with Wari-affiliated populations while also maintaining regional exchange networks that were not Wari-dominated to access obsidian, decorated pottery, and other goods.

The sheer size of Pikillacta indicates Wari political aspirations for the Cuzco region, but it is unclear who provided the construction labor, and under what circumstances. Skidmore (2014), drawing on her excavations at Hatun Cotuyoc, a settlement in the Huaro colony, suggests that the Wari state exerted greater pressure on some Cuzco populations—including its own colonists—in the later centuries of the Middle Horizon, as it attempted to maintain or intensify its peripheral reach. The overall continuity in local settlement patterns and the paucity of Wari ceramics encountered across surveyed areas indicate a more limited sort of state power. Covey (2006b) suggests that Wari leaders presided over some ceremonial and festive activities as they recruited local elites to assist them in periodic construction episodes, whereas Bauer (2004, p. 69) proposes that local settlement pattern variations might indicate that cooperation with and resistance to Wari colonization were both potential avenues for developing local leadership. From a regional perspective, the Wari colonization of parts of the Cuzco region did not directly lay the institutional foundations for Inka statecraft, but it is reasonable to infer that many local leaders were inspired by Wari craft goods, architecture, and the social connections and ritual performances essential for maintaining trade routes and labor tribute practices. Interpretations based on all sites in the region differ from those of scholars who view the presence of Wari-style architecture or craft goods at a few sites as evidence of continuous provincial rule over all of Cuzco (e.g., Glowacki 2012; Isbell and Young-Sánchez 2012).

### *Regional Perspectives on the LIP*

Despite the appeal that local leaders might have seen in emulating Wari elites, the end of the Wari occupation in Cuzco was disruptive. Sites were abandoned, monuments were burned, and there were significant changes in social organization and economic activity across multiple local landscapes. In the Sacred Valley and Xaquixaguana survey regions, several large LIP sites have a small Araway component, which suggests they were first settled late in the MH (Bélisle 2014; Covey 2014, pp. 111–112, 129–133). Many of these are located on high ridges far from lands where maize could be cultivated, which does not indicate populations of Wari cultural or political affiliation. Closer to the former Wari colonies, the Cuzco Valley survey identified the abandonment of MH settlements near productive valley-bottom farmland in the Oropesa Basin, a depopulation process that left only a few fortified sites in high elevation areas (Bauer 2004; Bauer and Covey 2002).

In mountainous areas south and north of the Cuzco Basin, surveys indicate significant settlement changes around AD 1000. In Paruro, Bauer (1999, p. 25) identified 102 sites with Killke and/or Colcha surface pottery, a marked increase from the MH site count. Paruro LIP villages were generally of modest size (<5 ha) and located in intermediate ecozones providing local access to a range of agropastoral resources (Bauer 1992, pp. 95–108). Some sites were on ridges and other high spots, which Bauer (1992, p. 99) notes are the only flat locations for

settlement, but they lack fortifications. Based on the prevalence of Killke pottery at Paruro sites within 30 km or so of Cuzco and the stability of the regional settlement pattern in LIP and Inka times, Bauer (1992, pp. 140–141) suggested that Inka state formation and early expansion were more gradual processes than the Pachacuti legend describes.

North of the Cuzco Basin, Covey (2015) encountered some of the same LIP developments in the mountainous uplands of the Sacred Valley. Sacred Valley LIP sites indicate considerable discontinuity from earlier times, with 83.5% lacking evidence of continuing MH settlement (Covey 2014, p. 133). Increases in site count and settled area during the LIP might indicate immigration by outside groups, increased settlement mobility, or a combination of the two. North of the Vilcanota-Urubamba River, surveys recorded the widespread construction of above-ground mortuary structures near LIP villages, a phenomenon observed elsewhere in the Cuzco region (e.g., Bengtsson 1998; Chatfield 2007; Dean 2005; Covey 2006b, pp. 96–99; Kosiba 2010; McEwan et al. 2002; Wilkinson 2013, p. 53), and in other highland regions. Sacred Valley villages were somewhat larger than those of Paruro (up to ~6 ha), and they favored prominent locations at the ecotone between farming and herding landscapes. The high, prominent locations of LIP villages kept neighboring settlements in view while also maximizing the effort required to establish or to maintain direct contact. Some sites have modest fortifications: strategically placed walls or ditches that enhance natural defenses (Covey 2006b). The Sacred Valley imposed a significant cultural barrier between populations living on opposite sides, but the corridor of the valley bottom facilitated low-cost movement through the region. Covey (2015, pp. 187–188) notes that Killke-style pottery was strongly represented at sites south of the valley, but it only constituted one-third of the LIP collections from the valley itself, and just one-eighth of those from sites north of the valley. (Small Lucre components appeared at some valley-bottom sites along the valley.) The LIP settlement evidence from the Sacred Valley suggests a regional population more numerous—and slightly more hierarchical—than that of the Paruro region, one that was settled more remotely and defensively.

Other surveys in the Cuzco region encountered modest hierarchies of agropastoral villages in upland areas. Covey (2014) identified such settlements near the Qoricocha *puna*, in the Chinchero area, and in some areas south of the Xaquixaguana Valley. Surveying slightly farther from Cuzco, Kosiba (2010) reveals important developments that cannot be attributed to Wari rule but also were not driven directly by Cuzco Basin populations. His study region shows a proliferation of new LIP settlements with a distinct ecological focus on maize agriculture (Kosiba 2010, p. 140). Kosiba (2010, pp. 140–141) identified extensive continuity in local villages—some were first settled more than a thousand years earlier—although the site of Wat'a grew to be larger as some other villages declined during the LIP.

The proliferation of LIP settlement in the warm valley-bottom lands of the Wat'a region complements the results of the neighboring Xaquixaguana and Calca-Yanahuara surveys (Covey 2014; Covey et al. 2008). Roughly 100 new LIP settlements appeared near Maras and Urubamba, an area with limited MH occupation (Bélisle 2014; Covey et al. 2008). A large and hierarchical cluster of

new sites grew around Yunkaray, a 20-ha settlement first occupied during the LIP (Covey 2014; Quave et al. 2017). Second-tier sites surrounding Yunkaray were larger than any Sacred Valley or Paruro village of that time, and the settlement cluster was close to agricultural terraces, salt pans, and an andesite quarry. Preliminary excavations at Yunkaray (Quave et al. 2018) confirm the site's LIP date, indicating a large community that circulated its own locally made pottery, but lacked high-status nonlocal trade goods (shell, metal).

South of Maras, the Xaquixaguana Valley exhibits many of the characteristics of the Wat'a area (Covey 2014, pp. 120–122). LIP pottery, including substantial Killke components, is present at 156 sites in the Xaquixaguana Valley, a significant increase in settled area from the MH. Most LIP sites in the valley had local access to valley-bottom farmland, although several small villages were located at the transition to upland tuber plots (around 3600–3700 masl), a pattern similar to the villages of the nearby Paruro region. The largest site in the valley, Ak'awillay, is estimated to be nearly 15 ha during the LIP, and was surrounded by multiple villages of different sizes, a settlement cluster about half the size of the one encountered around Yunkaray. Unlike Yunkaray, Ak'awillay was an ancient village that had been the largest settlement in the valley since 100 BC or earlier (Bélisle 2014, 2015; Davis 2014).

Despite the absence of Wari influence in the Xaquixaguana Valley, the settlement pattern surrounding Ak'awillay is similar in many ways to what has been observed in the Oropesa-Andahuaylillas region southeast of Cuzco (Bauer et al. 2018). Two large LIP centers in the Lucre Basin—Chokepekio and Minaspata—were established during the Formative period and persisted through the Wari occupation, becoming large settlements (cf. Dwyer 1971; McEwan et al. 1995). Several other established villages remained occupied during the LIP, and new villages appeared in locations with immediate access to valley-bottom lands. The overall LIP site count in the Oropesa-Andahuaylillas region ( $n = 39$ ) reflects a growth of settlement and a “filling in” of the landscape (Bauer et al. 2018), although Lucre Basin centers were surrounded by smaller networks of villages and small sites than are seen near Yunkaray and Ak'awillay, with more modest catchment areas available for economic growth. The Lucre Basin centers seem more primate-centered, and their investment in monuments (McEwan et al. 2005) and defensive works (Bauer et al. 2018) appears to contrast with the large sites west of Cuzco.

Regional surveys reveal how local differences in ecology and settlement history contributed to varying responses to the climatic and political uncertainties of the LIP, establishing a context for the Cuzco Basin settlement pattern. The basin settlement system comprises roughly 10 large (5–10 ha) villages, and about twice as many smaller ones (1–5 ha), as well as 160 sites smaller than a hectare. The southern side of the basin was the focus of early village settlement (Bauer 2004), and several of the larger LIP communities were ancient communities by AD 1000. On the northern side of the basin, however, farming communities only appeared after the development of canal and terrace systems, which surveyors found in association with Killke pottery and imperial polychromes. Excavations would help clarify the occupation history of the new settlements, but it is undeniable that they

represent new applications of labor to agricultural intensification, something that was happening at Yunkaray in the Maras area at the same time.

The Cuzco Basin during the LIP was densely settled in a hierarchical collection of villages that had different settlement histories. Although the total occupation area for the Cuzco Basin (excluding Cuzco) has not been published, a conservative estimate based on Bauer and Covey (2002) would be around 200 ha. Even before the intensification of the northern basin slopes, Cuzco dominated more communities and people than any other contemporaneous local center in the region. Few archaeologists would deny that Cuzco was the most important site by the late LIP, although its early settlement history remains unclear for reasons discussed above. Recent excavations have reported Qotakalli pottery under parts of Cuzco, confirming Bauer's (2004) survey evidence that the area was settled by the MH. It is impossible at present to determine whether Cuzco's urban growth emerged from early village traditions, or whether it represents a new settlement strategy comparable to Yunkaray. Nevertheless, there is abundant evidence of Killke-era occupation under much of the modern city, and the excavation of LIP buildings with a semblance of orthogonal layout (González 1984) suggests that urbanization was well underway before the mid-15th century. Bauer and Covey (2002) offer 50 ha as a very rough estimate for the size of LIP Cuzco, but that figure might change as new excavations are conducted.

Regional settlement data indicate that by the late LIP Cuzco was the principal settlement in the most densely settled part of the region. The Killke style predominated within the Cuzco Basin and was prominent in surrounding areas within about a day's walk. In some areas, such as Paruro, exchange relationships between Cuzco Basin and local populations might have developed into more formal governing arrangements, but other areas appear to have maintained a more defensive posture toward their neighbors. The distribution of large sites west and southeast of Cuzco demonstrates that Cuzco was the largest of several local centers in valley-bottom areas. These sites have distinct occupation histories, exhibit different local settlement hierarchies, and might have pursued multiple configurations of social power to promote themselves regionally.

It is possible to make some rough estimates of the reach of Cuzco's rulers during the LIP. The distribution of the Killke style is a poor marker of political control, but it offers some insights regarding economic interactions and the geographic scale at which one good was exchanged. Survey research has identified an area within which the majority of surface pottery is classified as "Killke"—the Cuzco Basin and most surrounding areas within about a day's walk of Cuzco. Killke pottery is less common in collections at sites for another 20–30 km from Cuzco, but local styles—which seem to have somewhat more circumscribed distributions—are more prevalent (e.g., Bauer 1999; Covey 2014). Some LIP sites or clusters of settlement that lie at a distance from Cuzco seem to have higher percentages of Killke pottery than neighboring sites. For example, LIP sites in the Huarcocondo part of the Xaquixaguana Valley have a majority (57%) of Killke-style sherds, whereas the neighboring Anta and Zurite areas had less than half of that percentage, even though they are closer to Cuzco (Covey 2014, p. 122). North of the Sacred Valley, the sites of Ankasmarka, Pukara Pantillijlla, and possibly Markasunay all have Killke

components that are substantially larger than those of nearby LIP sites (Covey 2014, 2015). Excavations at Ankasmarka (Kendall 1985) and Pukara Pantillijlla (Covey 2006b; Dwyer 1971, pp. 68–69) indicate a Cuzco-affiliated phase preceding Inka imperial expansion. Citing this evidence along with the scale and hierarchy of settlement in the Cuzco Basin, Bauer and Covey (2002; cf. Covey 2003b, 2006b) have argued for state formation in the Cuzco Basin during the second half of the LIP, with uneven and discontinuous territorial expansion until the final Inka consolidation of the Cuzco region around AD 1400. More recently, researchers have stressed that the increase in Cuzco Basin pottery in local assemblages provides more ambiguous evidence for the power of the state in the everyday lives of ordinary people (e.g., Covey 2015; Kosiba 2010).

Based on the distribution of the Killke style alone, there is a strong argument for increases in political centralization and hierarchy in the Cuzco Basin, with less convincing evidence of broader territorial control prior to the appearance of Inka-style ceramics and architecture. As noted above, there is good reason to date the appearance of those styles to before 1400, although probably not significantly earlier. Regional data signal a handful of local centers in the valley-bottom lands surrounding the Cuzco Basin, which pursued distinct strategies for community organization and interactions with neighboring groups. Both valley-bottom and upland areas exhibit evidence for significant increases in LIP site counts, which suggest a combination of immigration and local settlement mobility during the centuries prior to Inka imperial expansion. The regional perspective on LIP population movement emphasizes the proliferation of relatively egalitarian agropastoral groups rather than small groups of nobles who would plant the seed of statecraft in the Cuzco Valley (cf. McEwan 2006b, 2012).

### *Patterns of Inka Expansion in the Cuzco Region*

The synthesis of survey and excavation data enables the description of local developments across the Cuzco region during the LIP, without relying on the colonial chronicles. There is no evidence of regional political or ethnic unification before 1400, and the settlement patterns and stylistic distributions in the Cuzco Basin and Paruro region do not support interpretations of a migration to Cuzco that disrupted existing local populations. Of course, archaeology is not well suited to the independent identification of very small groups on a prehistoric landscape, and some scholars continue to use the migration of small groups of elites as the catalyst for LIP changes (e.g., Hiltunen and McEwan 2004, pp. 244–245). Such a perspective resonates with a broader scholarship that considers the expansion and collapse of states as a central driver for linguistic (Beresford-Jones and Heggarty 2012, pp. 9–10) and genetic (Shinoda 2015, p. 64) changes, downplaying the longitudinal regional effects of local interactions that functioned largely independently from state elites or institutions. The seeming correspondence of material culture and other lines of evidence is seductive, although the apparent consilience begins to break down as evidence accumulates in different fields (e.g., Cabana et al. 2014; Mannheim 1991), necessitating the formulation of more sophisticated models.



As described above, excavation evidence from multiple sites indicates the appearance of Inka-style pottery and architecture in the 14th century, and possibly slightly earlier (e.g., Covey 2006b; Kendall 1996; Kosiba 2010). The spread of Inka styles appears to be early and pronounced at the upland villages of Wat'a and Pukara Pantillijlla, whereas dated excavations at the large valley-bottom sites of Chokepukio and Yunkaray indicate different degrees of material culture exchange and the absence of Inka-style architecture before the 15th century (McEwan et al. 2005; Quave et al. 2018). The distribution of Inka styles suggests patterns to the growing social power of the Cuzco Basin. Several researchers have commented on the probable ritual nature of interaction between Cuzco Basin populations and their neighbors (e.g., Covey 2015; Kosiba 2012; McEwan et al. 2002). Covey (2006b) speculates that several small complexes of Inka-style buildings north of Cuzco represent forts constructed as Cuzco Basin populations employed growing military power along networks extending access to lowland products from the Amazonian slope. Kosiba (2011; Kosiba and Bauer 2013) argues that early Inka expansion in the Ollantaytambo area capitalized on the maize-oriented economic intensification seen in the lower Sacred Valley and some nearby areas during the LIP (e.g., Covey 2006b, 2014; Covey et al. 2008). The construction of new canals and terraces in the Cuzco Basin appears to have begun sometime in the LIP. It is difficult to infer political control over particular areas using archaeological evidence alone, but it seems reasonable to conclude that elites in the Cuzco Basin were building and extending their ideological, economic, and military power during the LIP.

The regional archaeological record now provides a much more accurate and detailed record of human life in the Cuzco region than the chronicles, data that help retrieve some of the cultural values and sociopolitical relationships encoded in Inka myths (e.g., Covey 2008b). Recent excavations and radiocarbon dates are disentangling Inka ceramic and architectural styles from the historicist date of 1438, making it possible to see variable impacts of Cuzco Basin expansion during the generations before the rapid growth of the Inka empire. Covey (2003b) has argued that the proliferation of archaeological data necessitates a new approach to colonial sources. To render the chronicles into a scale compatible with archaeological data, Covey advocates a processual reading that identifies multiple indicators for qualitative regional social changes occurring over several generations of Inka dynastic succession. Changes in royal Inka marriage alliances, the scope of military conquests, and the use of elite titles before imperial expansion indicate a distinct sociopolitical organization from descriptions of early generations of rulers after the mythical migration to Cuzco. This reading of the colonial sources suggests growing Inka power across parts of the Cuzco region in the three to four generations prior to the first territorial expansion to more distant regions, which is in general agreement with regional archaeological data.

The processual approach treats royal estates as an important development predating imperial expansion (Covey 2003b). Estate construction harnessed labor tribute available to a ruling couple, and several generations of Inkas reportedly developed new agricultural lands and country palaces in the Cuzco Basin and nearby areas prior to Pachacuti's reign (e.g., Covey 2006b; Niles 2004). These monumental sites are famous, but they present some important interpretive

problems for archaeologists. Some have strong documentary associations with a ruler who built and populated them, encouraging scholars to treat them as material confirmation of the historical acts of the last emperors. Archaeological work has shown these palaces to be less securely linked to the agency of a single Inka person. For example, Juchuy Coscco, identified as the estate of Viracocha Inca (Pachacuti's father), has multiple construction phases, and radiocarbon dates of construction materials indicate that the site continued to be expanded for several generations (Covey 2006b, p. 221; Kendall et al. 1992). At many Inka estate sites, excavations to clear and consolidate imperial monuments have not included absolute dating or well-reported artifact analysis, so that the association between royal Inka households and the material remains of palatial sites rests on claims made in colonial documents.

Royal estate facilities are concentrated in the Cuzco Valley, the Sacred Valley, and, to a much more limited degree, in the Xaquixaguana region. Most have some association with new valley-bottom agricultural terraces, canals, and storehouses, as well as the establishment of new small village sites (e.g., Covey and Amado 2008; Niles 1999; Quave 2012; Valencia 1982). Although estates represent the elite Inka ideology (e.g., Conrad and Demarest 1984; Covey 2011), they also reflect Inka economic power in the Cuzco region. Estates are associated with Inka-style architecture, much of it finely made, as well as the distribution of Inka polychromes. Inka estates were not built in the uplands of Paruro or the side valleys north of the Vilcanota-Urubamba River, and they were reportedly late additions to the Xaquixaguana region. Areas where Inka estates are absent show different local use of Inka styles. Bauer (1992) observes the widespread distribution of Inka pottery across his Paruro survey region, but he notes that the only significant change to the regional settlement hierarchy was the construction of an elaborate complex at Pacariqtambo, the place that the Inkas associated with their ancestral origins. Kosiba (2015) encountered predominantly imperial materials on the summit of Huanacaure, suggesting significant investments in imperial times to memorialize the ancestral migration route. Many of the Inka landmarks that early explorers used as cues to tell the dynastic origin story now appear to be late imperial attempts by the Inka elite to appropriate and promote specific origin stories.

Looking at the uplands north of the Sacred Valley, Covey (2015) observes that the early appearance of Inka architecture and pottery at Pukara Pantillijlla was not followed by a major overhaul of local life or the construction of additional Inka-affiliated structures. Instead, the site appears to have experienced a prolonged decline as royal Inka construction of the palace and valley-bottom agricultural lands at Pisac shifted social, political, and economic life toward the valley floor (Covey 2006b, 2011). Kosiba (2010, 2011) describes comparable changes at Wat'a, although the Inka occupation there seems to have emphasized ritual exclusivity of a sacred precinct. Inka religious investment also is evident at Chokepukio, where McEwan et al. (2002) have identified what they interpret as a termination ritual for an important shrine, as well as an imperial-era mass human sacrifice event (Gibaja et al. 2014). According to local documents, the Inkas resettled the autochthonous residents of Chokepukio and replaced them with other Inka subjects, which is substantiated by the presence of nonlocal people buried in the Inka-era houses

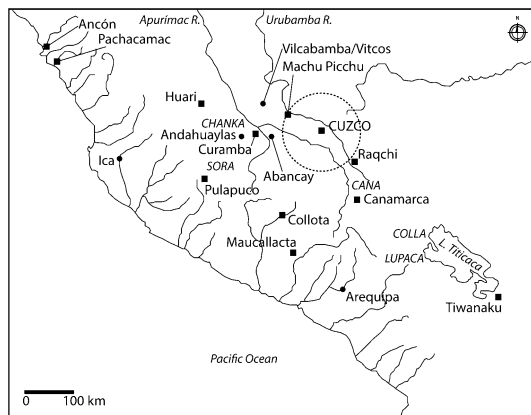
(Andrushko et al. 2009). In the Maras area, there appears to have been no such commemoration at Yunkaray, but the construction of the ceremonial site of Moray was associated with the establishment of pasture lands for the cult of the Sun (Covey 2014; cf. Wright et al. 2011) as the local Ayarmaca people were resettled to the Cuzco Basin and other nearby areas (Rostworowski 1970).

When the Spaniards arrived, the Inkas were still extending their social power across the area that they identified as their imperial heartland. They ritually demarcated the region (e.g., Bauer and Reid 2015) and constructed roads, waystations, shrines, and palaces in parts of it. Some areas were socially transformed, as local Cuzco populations were sent to the provinces as colonists, replaced by rotating provincial laborers and retainers (e.g., Covey 2009; Covey and Elson 2007). Nevertheless, as archaeologists begin to investigate the nonroyal parts of the region—that is, the vast majority of settlements—it is possible to see variations in status and identity (e.g., Quave and Covey 2015). The Inka project was still incomplete when it shifted from building new infrastructure and commemorative monuments to claiming ancestral lands in colonial Spanish courts. This is an important point that archaeologists should consider: Inka nobles projected accounts of dominance and ownership that exceeded their actual control over their heartland and provinces. Inka origins were ongoing in 1532, and shifted to history-making efforts after that time.

### Chronology of Inka Imperial Origins

Rowe's (1945, p. 269) rapid imperial expansion scenario favored chronicles stating that the Inkas had not conquered more than 80 km from Cuzco at the time of Pachacuti's accession. Acknowledging that the Inka consolidation of the Cuzco region remained incomplete in the 1530s underscores the need to date and reconstruct the earliest waves of state expansion into other regions—that is, Inka imperial origins. Archaeologists still need better evidence to understand the tempo and intensity of Inka incorporation, especially in areas lying just beyond the imperial heartland, a large and poorly understood region (Fig. 5).

**Fig. 5** South-central Andes, showing locations beyond 80 km of Cuzco



Rowe (1945) depicted an empire that expanded from center to periphery, encompassing continuous territory through permanent conquests. This imperial cartography obscures the discontinuous and contested nature of Inka expansion and the occurrence of factional violence and provincial rebellions that reliable chronicles describe. Accounts of expansion beyond the Cuzco region recount how local allies joined Inka armies to extend or reassert dominance over nearby areas. Narratives of Pachacuti's early campaigns identify places where Inka armies had to fight to subjugate local populations—rather than using diplomacy or coercion—and the closest engagements lie at least a week's travel from Cuzco (Table 3). Even sources emphasizing Pachacuti's role as imperial founder indicate a powerful polity already capable of dominating local groups across an extensive territory (Covey 2006b).

Better historiography is only part of the interpretive revision, as some significant documentary assertions prove to be inaccurate when compared against archaeological data (e.g., Bauer and Smit 2015). Archaeologists have identified major discrepancies between chronicle descriptions of Inka rivals, such as the Chankas and Collas, and the material remains where these groups were said to live (Arkush 2011; Bauer et al. 2010). Historical lacunae and exaggerations make archaeological data from just outside the Inka heartland essential for reconstructing early processes of Inka imperial expansion. Little archaeological research has been published on this broader region, although the available dates suggest the possibility of slightly earlier Inka expansion into some areas (Table 4).

Between Cuzco and the Titicaca Basin, a few projects have reconstructed local pre-Inka settlement patterns, identifying places where a dated Inka occupation altered existing subsistence regimes and sociopolitical organization. Sillar and Dean directed the most significant work to date in the upper Vilcanota Valley, including regional survey, extensive test excavations, and an ethnohistoric review of the local Cana people. Survey in a region of 520 km<sup>2</sup> documented 287 sites, including 100 new LIP settlements established in high places (Sillar and Dean 2002, p. 223). Rectangular forms found in the Cuzco area are absent in local villages, and fragments of Killke-style pottery are exceedingly rare at LIP sites (pp. 227–229). The Inka occupation concentrated along the Cuzco-Collasuyu road, and at the

**Table 3** Distance of early battles reportedly led by Pachacuti

Early conquest	Distance from Cuzco	Reference
Soras and Lucanas	250+ km, SW	Betanzos 1990[1550s] part 1, chapter 18; Sarmiento de Gamboa 1965[1572] chapter 35
Collas	300+ km, SE	Betanzos 1990[1550s] part 1, chapter 20; Sarmiento de Gamboa 1965[1572] chapter 35
Vilcabamba and Vitcos	~ 120 km, NW	Cabello Balboa (1951)[1586] book 3 chapter 14; Cobo (1964)[1653] book 14, chapter 12
Curamba	~ 125 km, W	Cieza de León 1988[c. 1553] chapter 47
Arequipa area	300+ km, S	Cobo (1964)[1653] book 14, chapter 13

**Table 4** Some radiocarbon dates from Upper Vilcanota sites

Sample	Context	Date BP	IntCal13	SHCal13
OxA-12400	Raqchi Chaski Wasi (R6), grass from mortar of Inka structure	612 ± 39	1291–1408 calAD (95.4%)	1304–1363 calAD (44.5%) or 1377–1434 calAD (50.9%)
Beta-167523	Aqnapampa, Unit 4, human bone associated with LIP/Inka pottery	540 ± 70	1285–1462 calAD (95.4%)	1300–1505 calAD (92.0%) or 1588–1617 calAD (3.4%)
Beta-149193	Aqnapampa, STR44B, wood beam associated with provincial Inca pottery	520 ± 60	1296–1466 calAD (95.4%)	1317–1354 calAD (5.5%) or 1383–1509 calAD (85.1%) or 1582–1620 calAD (4.8%)
Beta-156741	Kinsach'ata Cocha, local LIP context lacking Inka pottery	510 ± 40	1318–1352 calAD (14.7%) or 1390–1450 calAD (80.7%)	1399–1482 calAD (95.4%)
OxA-12401	Raqchi Carcel Rakay (R5), grass from circular structure near Inka compound	503 ± 37	1324–1345 calAD (7.5%) or 1393–1451 calAD (87.9%)	1403–1483 calAD (95.4%)
UCLA-1676D	Canamarca, wood, interior niche of rectangular structure	475 ± 60	1310–1361 calAD (10.7%) or 1386–1522 calAD (77.8%) or 1575–1625 calAD (6.9%)	1400–1519 calAD (72.4%) or 1538–1626 calAD (23.0%)
OxA-12145	Raqchi, main temple, grass from adobe brick	472 ± 21	1416–1450 calAD (95.4%)	1430–1484 calAD (95.4%)
OxA-12146	Raqchi, Yanacancha, grass from adobe brick	462 ± 21	1420–1452 calAD (95.4%)	1435–1497 calAD (95.4%)

Sources: Chatfield (2007), Dean (2005), Higham et al. (2007), Kendall (1985), Sillar and Dean (2002), and Sillar et al. (2013)

magnificent temple of Viracocha at Raqchi, reportedly built by the penultimate Inka, Huayna Capac. Sillar and Dean (2002, pp. 233–236) excavated at Raqchi, obtaining dates that challenge chronicle accounts (Higham et al. 2007, pp. S49–50; Sillar and Dean 2002, p. 226; Sillar et al. 2013, p. 25), and their excavations at an Inka waystation (Chaski Wasi) dated a very early Inka occupation (Dean 2005, pp. 253–254). Beyond the temple and road infrastructure, local communities show little evidence of Inka-style architecture and pottery (p. 238).

At Canamarca, Sillar and Dean (2002, p. 243) describe a large settlement in the high grasslands that shows Inka architectural influence, but not necessarily state-directed site planning. Kendall (1985) mapped a mix of Inka and local architectural forms there and dated wood from a rectangular structure. Slightly closer to Cuzco, Chatfield excavated at Aqnapampa, a valley-bottom site with agglutinated

rectangular structures that are not faithful replications of the Inka style, as well as LIP, Inka, and colonial artifacts. Chatfield (2007, pp. 179–184) dated human bone from a wall tomb associated with Inka pottery and sampled a wooden beam associated with a local mortuary structure (STR44B) that contained local and “Provincial Inca and Collao” pottery (pp. 217–218). The Aqnampampa dates fall in between the early Inka date from Raqchi and the one from the Inka structure at Canamarca (Table 4).

Evidence from the upper Vilcanota Valley hints that Inka power spread earlier than 1438, unfolding more slowly and discontinuously through processes still underway in 1532. This expansion is associated with Inka architectural and pottery styles, rather than the Killke style. Some sites show a looser connection to the Inkas, with locally produced architecture and/or the absence of Inka-style pottery; more remote administrative sites seem to have been established after the construction of roads and new Inka-affiliated temples. Such evidence complements the archaeological picture from the Cuzco region and serves as an important counterpart to dates from the Colla region of the Lake Titicaca basin. Arkush (2011, pp. 183–200, table A.3) reports 12 dates from the late LIP, a time of major fortification building across her study region. Her uncalibrated samples overlap substantially with early Inka dates in the upper Vilcanota Valley, raising the question of whether Inka expansion stimulated local political consolidation and military competition in some highland regions just before Inka military incursions affected those areas directly.

There is almost no archaeological evidence for dating Inka expansion beyond the Cuzco region in other directions. To the northwest, few LIP or Inka sites are well studied, although Abraham (2012, pp. 181–182) dated wood from a “Late Horizon” structure at Pulapuco, a local village where Inka material culture was rare. Bauer and colleagues (2010, p. 115) did not encounter Killke-style pottery in their regional survey in Andahuaylas, the reported Chanka heartland. There are no dates from the Inka occupation of Andahuaylas, and the LIP dates correspond to the early part of the period (Bauer et al. 2010, pp. 123–128; Kellett 2010, p. 374), leaving important aspects of imperial expansion unresolved. On the forested Andean slopes to the north of Cuzco, regional work has not identified a Killke incursion, although ground cover and the daunting logistics of fieldwork make it difficult to develop an archaeological database (Bauer et al. 2015, pp. 26–31). Kendall identified Killke and Lucre pottery in LIP contexts in the Cusichaca region, much closer to Cuzco (Lunt 1987), but excavation dates for the early Inka occupation are scarce.

In his survey south of Cuzco, Bauer (1992) concludes that Killke pottery was not widespread beyond the Apurímac River, and surveys closer to Arequipa indicate the style to be rare or absent (e.g., Doutriaux 2004; Jennings 2002, p. 199; Wernke 2003). Michczyński and Pazdur (2003) excavated at the Inka site of Maucallacta, near the Coropuna volcano, and their dates indicate a very early stratum, as well as several strata suggesting an occupation beginning in the 15th century (cf. Michczyński et al. n.d.). At Collota in the nearby Cotahuasi Valley, there is a slightly later date for architecture built at a lower-order Inka center (Edwards 2015, p. 225).

Overall, archaeological evidence is insufficient to reconstruct Inka expansion for the region lying roughly 50–200 km from Cuzco. More excavations and dates are

needed from Inka state installations and shrines, as well as local communities lacking Inka architecture or extensive Inka-style surface artifacts. Many ethnohistoric assumptions regarding the timing and intensity of Inka conquest and administration remain to be tested archaeologically.

### Expansion to the Imperial Frontiers

Dates from Inka buildings in the upper Vilcanota Valley seem to challenge Rowe's historicist reading of Inka expansion. In distant provinces where the chronicles claim a very late Inka conquest, new dates of Inka architecture and pottery suggest earlier conquests than Rowe's historicist chronology (Marsh et al. 2017). In the southern Inka periphery, said to be conquered by Topa Inca Yupanqui (r. 1471–1493), sites in Chile, Argentina, the Bolivian lowlands, and the far southern coast of Peru return Inka dates that center on the first half of the 15th century, if not slightly earlier (e.g., Chacaltana 2015, pp. 186–187; Coben 2012, p. 198; Cornejo 2014; D'Altroy et al. 2007; Dayton 2008, p. 223; Greco and Otero 2016; Gyarmati 2015, p. 43; Schiappacasse 1999). In Ecuador, Inka contexts associated with Topa Inca Yupanqui and Huayna Capac show a similar pattern, leading Ogburn (2012, p. 235) to conclude that Rowe's expansion chronology is no longer the best representation of the evidence (see Alcina 1981, p. 97; Bray 2015; Bray and Echeverría 2014).

The historicist chronology seemed to make it counterproductive to process expensive radiocarbon dates for Inka contexts, and in the 1990s the corpus of dates remained small enough to dismiss individual samples deviating from the received wisdom. Since then, the number of Inka-associated dates has quickly grown to several hundred samples (D'Altroy 2015, p. 64), revealing problems in the historicist model of late imperial origins. There are still unresolved challenges for calibrating Inka dates, and Ogburn (2012) notes that neither of the current hemispheric models might be appropriate for all samples from the Inka world. Dendrochronological analysis might improve Andean calibration (e.g., Morales et al. 2013), decreasing reliance on a southern hemisphere curve developed with data from other continents, although improved calibration curves in more temperate latitudes of the Inka realm will not necessarily resolve dating issues in tropical contexts.

As radiometric dating methods improve, scholars still face the task of correlating radiocarbon dates from well-preserved contexts with more sophisticated models of Inka expansion and administration. Colonial accounts of Inka conquest almost always fail to explain how existing networks of social power were transformed or preserved after Inka armies departed. Only archaeologists can develop more consistent, theoretically driven analysis to develop patterns of Inka impact at different social and geographic scales. Many scholars are beginning to step away from a heavy reliance on chronicle accounts of Inka hard power—especially in the southern part of the empire, where colonial documents provide few details—but this enterprise requires continued acknowledgment of the limitations of the material record.

## Conclusions: Do Inka Origins Still Matter?

As the distance widens between the growing archaeological database and the paradigmatic readings of the colonial chronicles that have dominated Andean archaeology for several decades, researchers must rethink the synthesis of these lines of evidence. Survey and excavation data are more reliable for reconstructing the ultimate sense of Inka origins—the early migrations and long-term social development of Andean highlanders—than colonial myths of creation and ancestral emergence. The archaeology of the LIP and Inka imperial periods already informs us about people and places that Inka elites failed to mention in their oral histories, and in some key contexts the material evidence exposes those noble claims to be exaggerated or false. Fifty years ago, Zuidema (1964, p. 12) noted that “[a]rchaeological data ... hardly serve to corroborate history as handed down by the Inca themselves,” and this statement has become increasingly self-evident as data accumulate.

And yet, as archaeologists pursue anthropological questions about the development and impact of Inka expansion, they should ponder the implications of replacing inaccurate and biased emic narratives with more theoretically informed etic ones. The scale of archaeological analysis cannot corroborate literal interpretations of small elite migrations or the charismatic actions of Inka leaders, and when configured to address relevant developments in the past—construction sequences, settlement patterns, stylistic change—researchers might ask whether they are still addressing “Inka origins.” The archaeological reconstruction of pre-imperial Cuzco can be disentangled from ethnohistoric claims, but doing so generates a distinct discourse, a stageless account of the social evolution of the Cuzco region that approximates none of the colonial representations of Inka origins. Unraveling archaeological evidence from documentary assertions generates the epistemological question of what to do with emic Inka perspectives found in ethnohistory (and to a lesser degree, ethnography). The claims of Cuzco’s Inka noblemen should not stand as the definitive account of all Andean people living before conquest, but they should not be reduced to the point that they speak for no one at all.

The Inka case offers some important perspectives on the prospects and consequences of tempering the lingering power of ancient elites—the ways that elite representations of state power resonate in historical and archaeological discourses, and in Western political models that perpetuate a sense of what state power looks like. By outlining some of the challenges inherent to the historiography, intellectual history, and continuing archaeological study of an early empire, I hope that scholars working in other places and times will see the value of displacing the archaeology of empires from its longstanding roles within the discourse of the past as the prelude to present social arrangements.

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recognize Alicia Hoffman's work reviewing recent unpublished excavation reports in the Ministerio de Cultural archive in Cuzco, which Kylie Quave supervised.

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