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The Hospital of San Andrés (Lima, Peru) and the Search for the Royal Mummies of the Incas

Brian S. Bauer and Antonio Coello Rodríguez

Abstract

The fate of the mummies of the Inca kings following the Spanish conquest of Peru has been the focus of more than a century of historical and archaeological research. Several lines of evidence indicate that five of the royal mummies were deposited in the Hospital of San Andrés in Lima in 1560. In this work, we summarize what is currently known concerning the fate of the royal Inca mummies as well as the results of a recent ground-penetrating radar survey and an archaeological testing program that we conducted on the hospital grounds. The excavations revealed the location of the hospital's first cemetery, the remains of a nineteenth-century fountain, an early colonial trash pit, and, most intriguingly, a vaulted structure. While we did not find the royal mummies, the historical research and archaeological fieldwork yielded new information on the history of the San Andrés compound and life in Lima during early colonial times.

Uno de los enfoques de la investigación histórica y arqueológica que ha durado por más de un siglo, es el destino de los bultos de los reyes incaicos después de la conquista del Perú por los españoles. Varias líneas de evidencia indican que cinco de los bultos reales fueron guardados en el Hospital de San Andrés en Lima en 1560. En este trabajo, resumimos no solo lo que se conoce actualmente respecto al destino de los bultos de los reyes incaicos, pero también incluimos los resultados de un rastreo de georadar y un programa de muestreo arqueológico, los cuales se llevaron a cabo en los jardines del hospital. Las excavaciones mostraron la ubicación del primer cementerio del hospital, los restos de una fuente del siglo XIX, un vertedero de basura del periodo colonial temprano y, lo más fascinante, una estructura acorazada. Aunque no encontramos los bultos reales, la investigación histórica y el trabajo de campo arqueológico rindieron información nueva sobre la historia del recinto de San Andrés y la vida en Lima durante los tiempos coloniales tempranos.

Introduction

The Inca Empire was the largest state to develop in the Americas. Its capital city, Cuzco, was located in the central Andes of Peru, and the empire stretched from southern Colombia to central Chile. Inca mythology tells that the city was founded by the first Inca, Manco Capac, who began a noble lineage that ran unbroken for some eleven generations (Table 1). Huayna Capac, the eleventh and last Inca to rule a united kingdom, died on the eve of the Spanish invasion. His body, like those of his ancestors, was

immediately mummified and returned to his palace to be worshiped. It remained there for several years and was seen by the first Spaniards to enter the city in 1532.

In December 1559, Juan Polo de Ondegardo was appointed *corregidor* (chief magistrate) of what was then Spanish-controlled Cuzco by Viceroy Andrés Hurtado de Mendoza. Almost immediately, Polo de Ondegardo was asked to conduct a massive campaign against the idolatrous activities of the natives. In the end, much of his anti-idolatry work focused on finding the mummies of the Inca kings, who were still being worshiped by

TABLE 1. Fate of the royal mummies.

No.	Name of ruler	Notes on their mummies	Reported by
A. Male rulers			
1	Manco Capac	found in Wimpillay	Sarmiento de Gamboa (1906:42 [1572]) Cobo (1979:111-112 [1653])
2	Sinchi Roca	found in Wimpillay with copper bars in a house called Acoywasi	Sarmiento de Gamboa (1906:44 [1572]) Cobo (1979:74, 114 [1653])
3	Lloque Yupanqui	found with several others	Sarmiento de Gamboa (1906:45 [1572]) Cobo (1979:117 [1653])
4	Mayta Capac	found with several others	Sarmiento de Gamboa (1906:48 [1572]) Cobo (1979:120 [1653])
5	Capac Yupanqui	found with several others in a town near Cuzco	Sarmiento de Gamboa (1906:49 [1572]) Cobo (1979:123 [1653])
6	Inca Roca	found in Larapa	Sarmiento de Gamboa (1906:50 [1572]) Cobo (1979:125 [1653])
7	Yahuar Huacac	found in Paullu	Sarmiento de Gamboa (1906:55 [1572]) Acosta (1986:421 [1590]) Cobo (1979:129 [1653])
8	Viracocha Inca	kept in Jaquijaguana burnt by Gonzalo Pizarro	Betanzos (1996:79 [1559]) Sarmiento de Gamboa (1906:59 [1572]) Acosta (1986:429-430 [1590]) Cobo (1979:132 [1653])
		ashes sent to Lima	Ruiz de Navamuel (1882:256 [1572]) Calancha (1981:219 [1638])
9	Pachacuti Inca Yuanqui	misidentified in Cuzco housed in Patallacta but found in Totocachi	Garcilaso de la Vega (1966:306 [1609]) Betanzos (1996:139 [1559]) Sarmiento de Gamboa (1906:92 [1572]) Acosta (1986:423 [1590]) Cobo (1990:51 [1653])
		sent to Lima	Polo de Ondegardo (1990:86 [1571]) Ruiz de Navamuel (1882:256 [1572]) Acosta (1986:423 [1590]) Calancha (1981:212 [1638])
10.1	Topa Inca Yupanqui	kept at Calispuquio	Sarmiento de Gamboa (1906:102 [1572]) Cobo (1979:151 [1653])
		burnt during civil war misidentified in Cuzco	Sarmiento de Gamboa (1906:122 [1572]) Garcilaso de la Vega (1966:306 [1609])
10.2	Amaru Topa (brother of Topa Inca)	sent to Lima	Ruiz de Navamuel (1882:256 [1572])
11	Huayna Capac	ruler died in Quito	Xerez (1985:119 [1534]) Betanzos (1996:185 [1559]) Acosta (1986:422 [1590]) Sancho (1917:170 [1534]) Mena (1929:37 [1534])
		sent to Cuzco	Sarmiento de Gamboa (1906:112 [1572]) Polo de Ondegardo (1990:128 [1571]) Cobo (1979:161-162 [1653])
		found in Cuzco	Garcilaso de la Vega (1966:306 [1609]) Acosta (1986:424 [1590: bk. 6, ch. 22]) Ruiz de Navamuel (1882:256 [1572])
		sent to Lima	
B. Female rulers			
8	Mama Runtu	seen in Cuzco	Garcilaso de la Vega (1966:307 [1609])
9	Mama Anaguarque	kept in Pumamarca	Cobo (1990:67 [1653])
10	Mama Oella	kept in Picchu	Betanzos (1997) Cobo (1990:61 [1653]) Acosta (1986:422 [1590]) Ruiz de Navamuel (1882:256 [1572]) Garcilaso de la Vega (1966:307 [1609])
		sent to Lima	

the natives of the region. Polo de Ondegardo's efforts were extremely successful, and several royal Inca mummies were subsequently sent to the Hospital of San Andrés in Lima for the viceroy to see. They remained in the hospital for more than 80 years, but their final fate was not recorded.

Various archaeological projects have been conducted at the Hospital of San Andrés over the past century to find the mummies. The most recent took place in 2001 and 2005 by the authors of this report. Although we ultimately did not find the mummies, the project did recover additional historic information on Polo de Ondegardo's search for the mummies as well as new historic and archaeological information on the hospital in Lima. These findings, which are summarized below, provide us with a better understanding of the role that the mummified rulers played in the final years of the Inca Empire as well as the social conditions which existed in Lima during its first decade.

Discovery and Destruction of the Royal Inca Mummies

Like many societies, the Incas mummified their dead kings. Several times a year, these mummies were assembled, in chronological order of their reigns, in the plaza of Cuzco for all to see. During the rest of the year, the mummies gave and sought private audiences in their Cuzco palaces or in nearby royal estates. In the words of one early eyewitness, "It was customary for the dead to visit one another, and they held great dances and debaucheries, and sometimes the dead went to the house of the living, and sometimes the living came to the house of the dead" (Pizarro, 1986:52–53 [1571]). Speaking through oracles and attended by servants, the ancient kings of Cuzco counseled the living and attempted to protect and extend the resources of their descendants.

The mummified kings played a number of important roles within the imperial capital (Fig. 1). On one level they served to legitimate the current king. During the large public ceremonies of Cuzco, the ruling Inca was physically seen as the direct descendant of the long line of divine leaders that had been assembled in the plaza and that stretched back into the mythical times of the first Inca, Manco Capac (Bauer, 1996). The mummies and their

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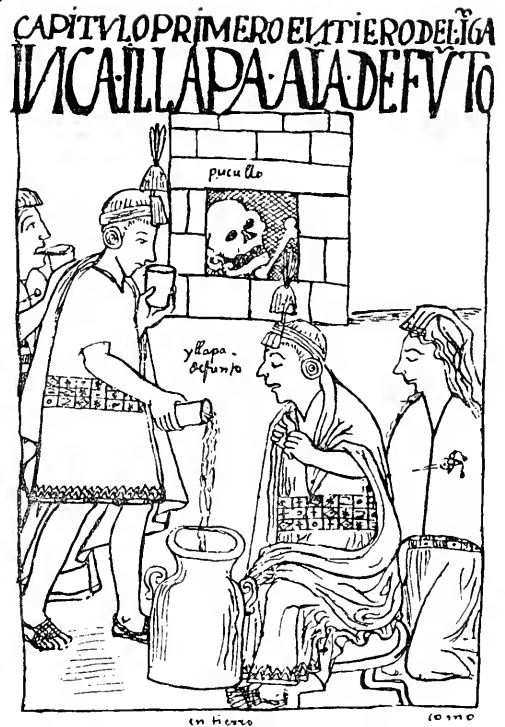


FIG. 1. The ruling Inca and his wife make liquid offerings to a previous Inca king and queen. The mummified Inca king sits on a low stool, while the queen kneels on the ground to the right of him. In the background is an open burial chamber. The caption reads, "Capitulo Primero, Entierro del Inga/ inca illapa aia/ defunto (First Chapter, Burial of an Inca, spirit of the Inca corpse, deceased) (Guaman Poma de Ayala, 1989:262 [ca. 1615:287]).

oracles also served the king in an advisory capacity. The ruling Inca was expected to seek advice from the ancestors on important issues. The most trusted mummies and their spokespersons were also used as ambassadors for the Inca. For example, a rebellion in Ecuador was averted when Huayna Capac sent an image of his mother, Mama Oella, and its accompanying female Cañari oracle to negotiate with the rebel leaders (Cabello de Balboa, 1951:374 [1586: pt. 3, ch. 22]; Murúa, 1962:92 [ca. 1615: ch. 34]).

Furthermore, the mummies provided a way for the noble houses of Cuzco to actively influence and gain power in the internal affairs of the state without directly or publicly challenging the divine ruler. In the words of Gose (1996:16), "Through the voice of their mummified ancestors, these groups could assert their own perspective and interest without questioning

the nominally absolute power of the current sovereign.” It was not, however, unusual for the *panacas* (royal kin groups) to become embroiled in the politics of the day. Their power and wealth could rise or fall as a result of these actions. For example, in one case, a contender to the kingship is said to have had his mother marry the mummy of one of the dead kings so that he would be seen as a more legitimate candidate (Pachacuti Yamqui Salcamayhua, 1950 [ca. 1613]). The decimation of Topa Inca Yupanqui’s bloodline provides another illustrative case. Atahualpa’s generals burned the mummy of Topa Inca Yupanqui and killed many of his descendants because they had openly sided with Huascar during the civil war. It was a mistake from which the kin group never recovered.

The mummies, once a central part of the great festivals of Inca Cuzco, had to be hidden after the Europeans gained control of the city. Juan de Betanzos, who saw some of the mummies before Polo de Ondegardo began his 1560 investigation in Cuzco to find them, writes,

Inca Yupanque ordered that the *yanaconas* and servants [of the deceased kings] should have houses, towns, and farmland in the valleys and towns around the city of Cuzco and that these servants and their descendants should always take care to serve those statues which he had designated for them, all of which was done from then until today. Now it is done in secret and sometimes in public because the Spaniards do not understand what it is. They keep these statues in *orones*, which are storage bins used here for maize and other foods and others in large jars and in niches in the walls, and in this way the statues cannot be found. (Betanzos, 1996:79–80 [1557: pt. 1, ch. 17])

Soon after his arrival in Cuzco, Polo de Ondegardo began searching for the royal Inca mummies. Although the exact order in which Polo de Ondegardo found the mummies is not known, it is clear that his search yielded astonishing results. Within a relatively short period, he found the mummies of all the Inca kings who had ruled Cuzco (Bauer, 2004).

Along with each royal mummy, Polo de Ondegardo also recovered specific ritual and historic items associated with their reign. Most important, he discovered their *huaques* (brothers): statues that stood as proxy for a ruler when

he was unable to attend a meeting or an event (Van de Guchte, 1990; Gose, 1996; Bauer, 2004). Polo de Ondegardo also found the mummified remains of several of the Inca *qoyas* (queens), yet we know far less about them. The discovery of these highly revered individuals and objects dealt a crippling blow to the already weakened nobility of the imperial city.

Recent analyzed data suggest that Polo de Ondegardo secretly buried many of the royal mummies in Cuzco (Ruiz de Navamuel, 1882:256–257 [1572]; Bauer, 2004). Secrecy was needed to dispose of the bodies so that they would not be exhumed and worshiped by the natives of the region. Nevertheless, it is clear that Polo de Ondegardo saved several of the best-preserved individuals for the viceroy to see. Garcilaso de la Vega, who was himself a descendant of royal blood, provides a remarkable description of these mummies while they were still in Cuzco. Just before Garcilaso de la Vega left Peru for Spain, in 1560, he visited the house of Polo de Ondegardo, where he was shown a group of five embalmed Inca kings and queens. Garcilaso de la Vega describes in vivid detail this encounter with his mummified ancestors:

When I was to come to Spain, I visited the house of Licentiate Polo Ondegardo, a native of Salamanca who was corregidor of the city, to kiss his hand and take leave of him before departing. Among other favors he showed me, he said: “As you are going to Spain, come into this room, and you shall see some of your ancestors whom I have exhumed: that will give you something to talk about when you get there.” In the room I found five bodies of Inca rulers, three males and two females....

The bodies were perfectly preserved without the loss of a hair of the head or brow or an eyelash. They were dressed as they had been in life, with *llautus* [royal headbands] on their heads but no other ornaments or royal insignia. They were buried in a sitting position, in a posture often assumed by Indian men and women: their hands were crossed across their breast, the left over the right, and their eyes lowered, as if looking at the ground....

I remember having touched one of the fingers of Huaina Cápac, which seemed like that of a wooden statue, it was so hard and stiff. The bodies weighed so little that any Indian could carry them in his arms or [on] his back from

house to house, wherever gentlemen asked to see them. They were carried wrapped in white sheets, and the Indians knelt in the streets and squares and bowed with tears and groans as they passed. Many Spaniards took off their caps, since they were royal bodies, and the Indians were more grateful than they could express for this attention. (Garcilaso de la Vega, 1966:306–308 [1609: pt. 1, bk. 5, ch. 29])

After Garcilaso de la Vega visited the house of Polo de Ondegardo, the mummies were sent to Viceroy Hurtado de Mendoza in Lima. (For additional information on Garcilaso de la Vega's observations and identifications of the Incas, see Bauer [2004]). Years later, in January 1572, Alvaro Ruiz de Navamuel (1882:256–257 [1572]), royal secretary to Viceroy Toledo, reflected on the fate of the royal mummies that Polo de Ondegardo had found in Cuzco and those that had been sent to Lima. He wrote,

Twelve or thirteen years ago, he [Polo de Ondegardo] offered with much diligence and by various means, to discover the bodies [of the Incas] to end the damage [of idolatry]. And indeed he found most of them. Those of the ayllu of Hanan Cuzco as well as those of Hurin Cuzco. Some of them were embalmed and as fresh as when they died. Four of them were Huayna Capac and Amaru Topa Inca and Pachacuti Inca Yupanqui Inca, and the mother of Huayna Capac who is called Mama Oello. The other ones he found enclosed in some copper boxes. These he secretly buried. With them he discovered the ashes of the body of Topa Inca Yupanqui [*sic* Viracocha Inca], conserved in a small jar wrapped in rich clothes and with his insignias, because Juan [*sic* Gonzalo] Pizarro had burned this body.... He also found with the bodies the huacas [religious objects] and main idols of the countries that each one had conquered, which were also notable obstacles in the conversion of these natives. (Ruiz de Navamuel, 1882:256–257 [1572], translation by the authors)

This statement, to which Polo de Ondegardo was himself a witness and signatory, suggests that at least four mummies that were “embalmed and as fresh as when they died” were sent to Lima. These mummies appear to have included that of Huayna Capac, the last Inca king to rule

over a unified kingdom; his uncle Amaru Topa Inca; and his mother, Mama Oello.

Furthermore, it seems that a small jar containing the ashes of an Inca, was also sent to Lima. Ruiz de Navamuel writes that the jar contained the remains of Topa Inca Yupanqui, who was burned by Juan Pizarro. However, Ruiz de Navamuel seems confused on this point. The mummy of Topa Inca Yupanqui was burned in 1533 by Atahualpa's generals (Chalcochima and Quizquiz) as they invaded Cuzco and searched the city for Huascar loyalists. The mummy of Viracocha Inca was, in contrast, burned by Gonzalo Pizarro several years later. The ashes of both of these rulers were collected in jars and continued to be worshiped, so in some respects the confusion is understandable (Sarmiento de Gamboa, 1906:102 [1572:ch. 54]; Cobo, 1979:151 [1653:bk. 12, ch. 15]; Acosta, 1986:429–430 [1590:bk. 6, ch. 20]).

The fact that it was the ashes of Viracocha Inca and not those of Topa Inca Yupanqui that were sent to Lima is confirmed by Cobo, who writes the following:

The body of this king [Viracocha Inca] was deposited in Jaquijaguana, and having some information and indications of its whereabouts, Gonzalo Pizarro searched a long time for it in order to get the great treasure that was widely thought to be buried with it; in order to discover it, he burned some Indians, men and women. At last he found it and a large amount of wealth was given to him by the Indians who looked after it. Pizarro had the body burned, but the Indians of the Inca's ayllu collected the ashes, and, with a certain concoction, they put them in a very small earthenware jar along with the idol, which, since it was a stone, was left by Gonzalo Pizarro's men, who paid no attention to it. Later, at the time when Licentiate Polo was in the process of discovering the bodies and idols of the Incas, he got word of the ashes and idol of Viracocha: so the Indians moved it from where it was before, hiding it in many places because, after Gonzalo Pizarro burned it, they held it in higher esteem than before. Finally, so much care was taken in searching that it was found and taken from the possession of the Inca's descendants. (Cobo, 1979:132 [1653: bk. 12, ch. 11])

Finally, to the list of mummies that were sent to Lima by Polo de Ondegardo, we can add the name of Pachacuti Inca Yupanqui, who is

considered by many to be the greatest of all the Inca kings. We know that Pachacuti was sent to Lima since Polo de Ondegardo himself writes,

... the body of Pachacuti Inca Yupanqui Inca, ... was one of those that I sent to the Marques in the City of the Kings [i.e., Lima]. He was embalmed and well preserved, as were all those that I saw. I found with him the principal idol of the province of Andahuaylas, because he conquered it and placed it under the domination of the Incas when he defeated Valcuvilca, their principal Lord. (Polo de Ondegardo, 1990:86 [1571], translation by the authors)

The fact that Pachacuti was among the mummies that were collected and sent for the viceroy to see is confirmed by Ruiz de Navamuel (1882:256–257 [1572]) as well as various other writers.

After their arrival in Lima, the mummies were placed within the confines of the Hospital of San Andrés (Calancha, 1981:219 [1638: bk. 1, ch. 15]; Acosta, 2002:364 [1590: bk. 6, ch. 21]). Although a large number of people must have seen the deceased Inca rulers in Lima, only two specifically write of seeing them. In 1590, nearly 30 years after the mummies were confiscated, Acosta provides a short account of the deceased kings and their condition in Lima and confirms that one of the bodies was that of Pachacuti Inca Yupanqui:

The body [of Pachacuti Inca Yupanqui] was so well preserved, and treated with a certain resin, that it seemed alive. The eyes were made of gold leaf so well placed that there was no need of the natural ones; and there was a bruise on his head that he had received from a stone in a certain battle. His hair was gray and none of it was missing, as if he had died that very day, although in fact his death had occurred more than sixty or eighty years before. This body, along with those of other Incas, was sent by Polo to the city of Lima under orders from the viceroy, the Marqués de Cañete, for it was necessary to root out the idolatry of Cuzco; and many Spaniards have seen this body, along with the others, in the hospital of San Andrés, founded by the aforesaid viceroy, although by now they are very much abused and in poor condition. (Acosta, 2002:364 [1590: bk. 6, ch. 21])

The gray-haired mummy that Acosta identified as being Pachacuti Inca Yupanqui is in all likelihood the same mummy that Garcilaso de la Vega suggests was Viracocha Inca (Bauer 2004:180). Acosta provides an intriguing observation that supports his identification of this mummy as being that of Pachacuti Inca Yupanqui. Acosta notes that the gray-haired mummy had a scar on his head that he received during a war. This wound may have been the result of a battle with the Acos (Sarmiento de Gamboa, 1906:74[1572:ch. 35]) or an assassination attempt against Pachacuti Inca Yupanqui, which is documented by a number of writers (Sarmiento de Gamboa, 1906:71–72 [1572: ch. 34]; Pachacuti Yamqui Salcamayhua, 1950 [ca. 1613]; Cabello de Balboa, 1951:300 [1586:bk. 3, ch. 14]; Rostworowski, 1999:33). It lends support to the belief that the gray-haired mummy seen by Acosta in the Hospital of San Andrés was that of the famous ninth Inca, Pachacuti Inca Yupanqui, and not of his father, Viracocha Inca, as suggested by Garcilaso de la Vega.

Acosta (1986:424 [1590:bk. 5, ch. 22]) also indicates that one of the other male mummies that he saw in Lima was that of Huayna Capac and that a female mummy was that of his mother, Mama Ocllo. He writes,

His [Huayna Capac's] mother was much esteemed. She was called Mama Ocllo. Polo sent her body and that of Huayna Capac's, well-embalmed and cured, to Lima. (Acosta, 1986:424 [1590: bk. 5, ch. 22], translation by the authors)

As will be described in greater detail below, it is logical that Viceroy Hurtado de Mendoza placed the mummies of the Inca kings in the Hospital of San Andrés, as he was a major benefactor of it (Hampe Martínez, 1982:412). In addition, since the hospital was exclusively for the Spanish citizens of Lima, the mummies would have been placed on display for the Spanish citizenry, while at the same time kept out of sight of the native population.

Antonio de la Calancha (1981:219 [1638: bk. 1, ch. 15]), writing in Lima almost 80 years after the royal mummies were found by Polo de Ondegardo, confirms the fact that several of the Incas were sent to the Hospital of San Andrés (Hampe Martínez, 1982). He also notes that the jar that contained the ashes of Viracocha Inca, who had

been burnt by Gonzalo Pizarro, was also sent to Lima:

... seizing the treasure, he [Gonzalo Pizarro] burnt the body [of Viracocha Inca]. The Indians collected the ashes and put them in a small jar that they worshipped. Licenciado Polo sent those ashes and other bodies to Lima in the time of the first Marqués de Cañete. They are in a corral in the Hospital of San Andrés. (Calancha, 1981:219 [1638:bk. 1, ch. 15], translation by the authors)

A few pages further on, Calancha (1981:212 [1638: bk. 1, ch. 15]), like Acosta, also indicates that the body of Pachacuti Inca Yupanqui was among those that Polo de Ondegardo sent to San Andrés. However, this is the last written reference we have to the royal mummies, and thus after 1638, the historical trail ends in Lima in the Hospital of San Andrés. As a result, archaeologists and other researchers have long been interested in learning whether the remains of the Inca mummies are still preserved within the hospital grounds area.

The Hospital of San Andrés

At the time of Lima's establishment, in 1535, the health of its citizens was of such high priority that Francisco Pizarro himself dedicated an area for the city's first hospital (Bromely, 1935). Similarly, the City Council of Lima (Cabildo de Lima) and the Church were preoccupied in developing a series of hospitals in Lima which reflected the city's formal name, the City of Kings. As a result, the Hospital of San Andrés was one of several hospitals to be built in the area which is now central Lima. It was dedicated to serve the Spaniards of the city, while the Hospital of Santa Ana was constructed across the street to serve the native peoples of Lima. Other hospitals that existed in Lima included the Hospital of Santa Maria de la Caridad (1559), built for poor women in the city; the Hospital of San Lazaro (1563), built for lepers; the Hospital of Espiritu Santo (1575), built for sailors; the Hospital of San Diego (1593); and the Hospital of San Bartolomé (1646), built for slaves. All these continued to serve their different populations and remained prominent loci in the city for centuries (Lastres, 1940; Alzamora Castro, 1963;

Harth Terre, 1963; Arias Schreiber Pezet, 1978; Mendieta Ocampo, 1990; van Deusen, 1999; Salinas Sanchez, 2000; Warren, 2004; Rabi Chara, 2005).

The Hospital of San Andrés was established around 1545 by Francisco de Molina, who then served as its longtime administrator. A permanent location on the outskirts of the city had already been selected, and construction began in 1550 and greatly expanded after 1555. This large enterprise would eventually cost some 19,000 pesos, 6,000 of which were provided by Viceroy Hurtado de Mendoza, during whose term (1556–1561) it was completed (Hampe Martínez, 1982:407–408). Later, during the viceroyalty of Francisco Toledo, additional structures were added to the hospital, and its endowments were enhanced (Harth Terré, 1963; Cobo, 1964a:441–444 [1639: bk. 3, ch. 25]; Hampe Martínez, 1982).

On April 17, 1563, the city officials of Lima conducted a formal inspection of the hospital and wrote a report to the king of Spain (Archivo General de Indias Lima 131, fols. 2v–4v; Castelli 1981). The resulting inspection document notes that the hospital contained various large rooms and patios as well as a church, a chapel, a pharmacy, and a cemetery (Fig. 2). The account also notes that the hospital grounds took up an entire city block and that they contained numerous support buildings for washing, cooking, and baking as well as a garden, a large orchard, and several animal corrals.

As the 1563 inspection is the earliest and most complete description of the hospital, it is worth highlighting some of the details that are included within it. The document notes that the central building was laid out in the form of a cross. Three sides of the cross contained large rooms for the sick, and the fourth contained a church. The church's altar, raised two or three steps above the floor level, was located at the center of the cross and was thus visible from each of the attached three infirmaries. The altar was placed in the center of the cross so that those attending church, as well as any patient who could not leave bed, could observe the mass. In this respect, the form of San Andrés and the forms of many other early colonial hospitals follow the suggestions first presented by Bartolome de Las Casas for the construction of hospitals in the Americas.

Outside the church was a clock tower with a bell that chimed the hour, and Cobo (1964:443 [1639: ch. 25]) mentions that this bell could be heard across much of Lima. There was also

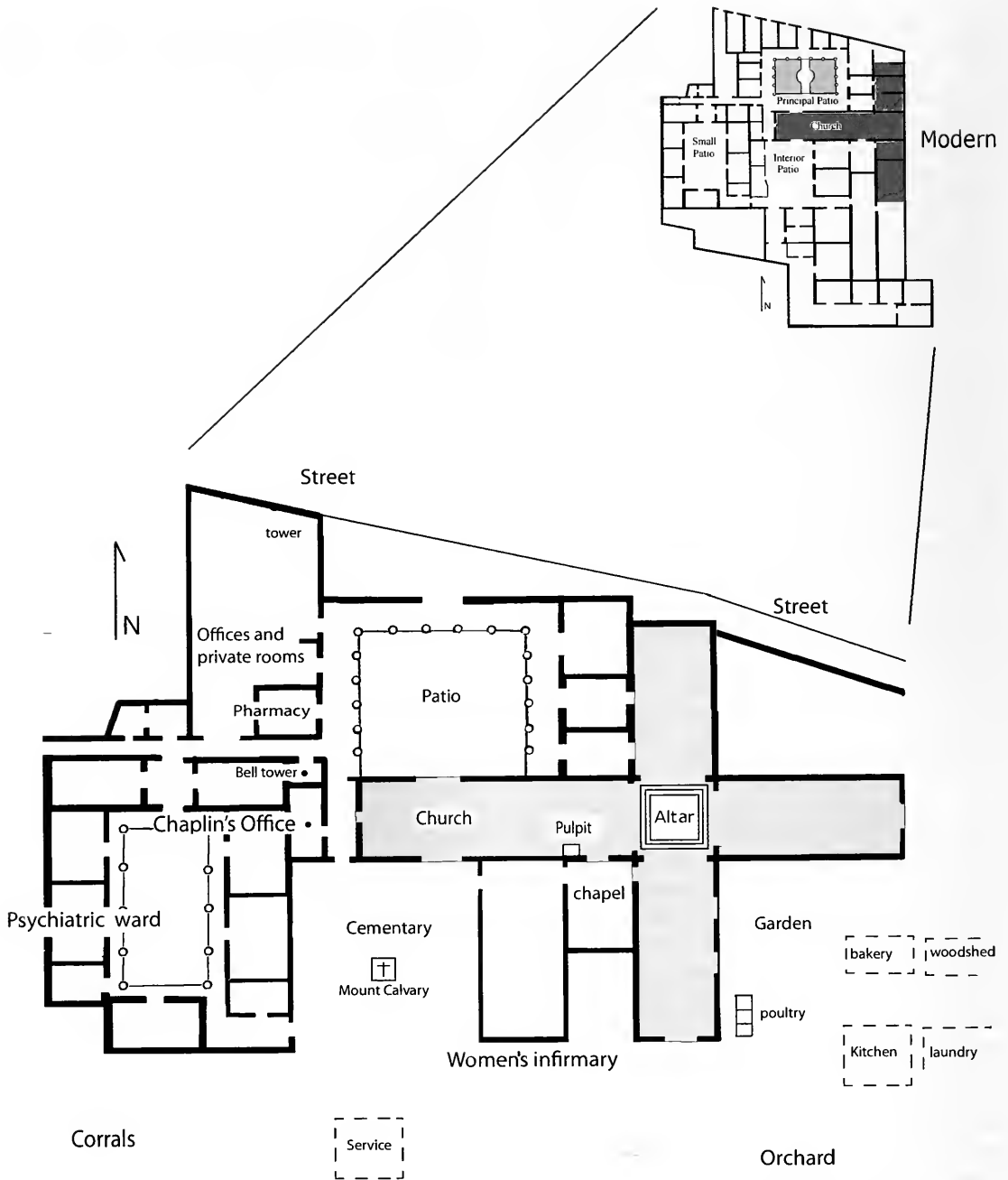


FIG. 2. Reconstruction of the Hospital of San Andrés, based on information provided in the 1563 inspection.

a door on one side of the church that led to a cemetery for those who died in the hospital. A Mount Calvary monument with a small cave, built of rough stone, was in the cemetery. Near the church and the cemetery was a separate infirmary for women that contained a patio, several outbuildings, and a garden.

One of the large infirmaries contained two windows as well as a door that led to the hospital's garden and orchard. This exterior area also contained several pens of hens and chickens. There seems to have also been numerous service buildings near the second infirmary. These included a patio where the linens were washed



FIG. 3. The principal patio of San Andrés and its church.

and dried, a pantry, a kitchen (with a large chimney), a bakery, a woodshed, a water canal, a stable, and a secondary entrance to the compound from the street. The third infirmary, like the other two, contained space for patients. It had two (perhaps three) adjacent rooms, the last of which may have included a laundry.

The 1563 document notes that the principal patio of the hospital was enclosed on three sides by portals. The fourth side of the patio, which was opposite the main doorway into the hospital complex, was defined by a wall of the church (Fig. 3). To one side of the principal patio, there was a pharmacy, several private rooms for the wealthier patients, and the bell tower. A corridor led from the principal patio to a smaller, side patio that was surrounded by various rooms. This area of the hospital was used for psychiatric patients (Fig. 4). Still further on, there were several livestock corrals.

At the time of its first inspection, the hospital held 44 surgical and 7 psychiatric patients. Its staff would grow through time to include priests,

surgeons, and laypeople as well as slaves. Unfortunately, although the Inca mummies may have been housed in the hospital at the time of the 1563 inspection, they are not described by the inspectors.

Seventeenth-Century Descriptions of the Hospital of San Andrés

In addition to the 1563 inspection report, there are two other early descriptions of the hospital. The first is written by Antonio Vazquez de Espinosa (1948:413) in 1628. He notes that with its many rooms, offices, pharmacy and laundry, the hospital compound seemed like a small town. The second account can be found in Cobo's *The Foundation of Lima* (1964a [1639]), a work that he finished some 14 years before he wrote his better-known book *History of the New World* (1964b [1653]). Cobo notes that the central building of the hospital was constructed in the form of a cross, at the center of which was an altar where mass was held for all to see. By Cobo's time, a total of six large infirmaries had been built on the hospital grounds as well as two additional, although smaller, wards:

The areas that serve as infirmaries are six large rooms, as well as two other medium sized [rooms], one for giving the sacrament of the last rites, and the other for healing sick blacks and *mulatos*, because they are kept apart from the Spaniards. (Cobo, 1964a:443 [1639], translation by the authors)

According to Cobo, the total number of patients fluctuated between 50 and 150, depending on the disease load of the city, and there were around 15 psychiatric patients in the hospital (Cobo 1964a:443-444 [1639]). He also mentions that, in addition to private rooms, there were various service buildings on the hospital grounds including a kitchen, dispensary, bakery, a large laundry, and several water canals. He specifically notes that the hospital's pharmacy was the best in the city and that various fruits and medicinal plants were grown on the hospital grounds. Cobo also provides various details concerning the hospital's endowment and financial operations, including the fact that there were some 25 male and female slaves to serve it.

Cobo completed his *The Foundation of Lima* [1639] only a year after Calancha specifically



FIG. 4. This area of the hospital was used for psychiatric patients. We conducted a small test excavation in the center of the patio (Zone 14).

wrote that the Inca mummies were in the hospital. Yet, like the city officials who visited the hospital in 1563 and Vazquez de Espinosa, who wrote about the hospital in 1628, Cobo does not mention these important remains in his description of the hospital. In contrast, in his later *History of the Inca Empire*, Cobo (1979:141 [1653: bk. 12, ch. 13]) offers a brief description of Pachacuti's mummy and notes that the best-preserved mummies of the Inca kings were sent by Polo de Ondegardo to Lima. This information is, however, extracted from the work of Acosta, so there is no clear evidence that Cobo actually saw the royal mummies during his many years in the city. Yet we know that the mummies were available to see, for all or some of this period of time, since Acosta (1986:423 [1590: bk. 6, ch. 21]) writes that "many Spaniards have seen this [Pachacuti's] body, along with the others, in the hospital of San Andrés, founded by the

aforesaid viceroy, although by now they are very much abused and in poor conduction."

The fact that the mummies are not mentioned during these various visitations can be interpreted in a number of ways. First, perhaps in the cultural climate of the early colonial period, the mummies were irrelevant to formal descriptions of the hospital. In this regard, it is worth noting that accounts of the mummies are found within narratives discussing the lives of the Incas rather than in formal administrative documents. Second, the mummies may not have been on general display and may have been held in some area of the hospital where they could be seen only on request. In this way, they would have been passed over during formal inspections that were concerned with the staffing, endowments, and well-ordered functioning of the hospital. Or third, perhaps the mummies were not at the hospital. This last possibility would, of course,

contradict both Acosta and Calancha, both of whom suggest that they personally saw the mummies and who are considered reliable writers on many other historical points and observations.

History of Archaeological Research at San Andrés

San Andrés was used as a hospital for several centuries, and the city's first medical school was built on its grounds, just east of the hospital buildings, in the early 1800s (Equiguren, 1945:114). Large-scale renovations took place on various occasions as the number of patients steadily increased. An 1868 report on the condition of the hospital tells of great overcrowding (Memoria de la Sociedad de Beneficencia Pública de Lima 1868, 1869, 1880, 1911). The hospital had been expanded to hold some 300 patients, but by that time it was housing 560. The hospital was so short of space that many of the rooms contained double-deck beds to help hold the overflow of the sick.

Seeing the need for a new hospital, city leaders commissioned funds for its construction. By 1875, the new hospital, El Dos de Mayo, was completed, and patients were being shifted over. At this same time, the medical school was also transferred to new facilities. The Public Charity of Lima continued to be in charge of administering the various hospitals in Lima, while the religious order of the Las Hermanas de la Caridad de San Vicente de Paúl began looking after the patients. During much of the early to mid-1900s, the Catholic convent of Las Hijas de María Inmaculada used the central buildings of San Andrés to support an orphanage, while the Public Charity of Lima gradually began selling parts of the former hospital grounds. In more recent times, the hospital was declared a national historical monument in the 1970s, and the buildings of San Andrés have been used for instructional purposes, hosting the Colegio Nacional de Mujeres "Oscar Miró Quesada de la Guerra" (Hampe Martínez, 1982, 2000). Nevertheless, the area of San Andrés, which once encompassed an entire city block, has been greatly reduced, and only its central core of buildings and patios remain today.

Interest in understanding the history of the hospital appears to have first arisen during the

late nineteenth century. On October 28, 1868, the Public Charity of Lima assigned funds for emergency repairs at San Andrés. The very next day, the leading newspaper of Lima, *El Comercio*, reported that the body of a bishop had been found in a patio of the hospital. While the exact identity of the bishop was not known at that time, his remains were placed in a large crypt under the church. (It was later concluded that these were the remains of José Cuero y Caiedo, the bishop of Quito, who had died in 1815 while visiting Lima [Riva-Agüero, 1966:399].) Approximately nine years later, in 1877, José Toribio Polo (1877:377), interested in finding the royal mummies of the Incas, reported that a great quantity of human bones, thought to represent 1000 to 1500 bodies, had been found between two walls of the hospital. Unfortunately, he provides no additional information on this discovery and no details on how he arrived at this remarkably high number.

A larger and more systemic effort to find the royal mummies of the Incas was undertaken in 1937. With the selling of various parts of the hospital grounds and the planned construction of various stores and houses along what is now Ayacucho Avenue, the southern border of the hospital ground, the Public Charity of Lima formed a commission to look for the royal Inca mummies (Riva-Agüero, 1966, 2003: 1:106; Hampe Martínez, 1982). The commission was headed by José de la Riva-Agüero y Osmá, who was in charge of conducting field-work to find the mummies and archival research to gather additional information on the history of the hospital.

Riva-Agüero's excavations began in early August 1937, and workers immediately encountered various objects of interest. These findings were briefly recorded in the national newspaper, *El Comercio*, as well as in the notes and correspondences of Riva-Agüero. While much of his work was concentrated in the area of the old gardens and orchards of the hospital, excavations also took place in some of the patios. Newspaper articles dating to August 4 and 5 told that the excavators found a brick crypt, running east-west approximately 1 m below the ground surface in the "interior patio, behind the church." The team had been directed to excavate in this area by Constanza Lazo, an elderly woman who had remembered the earlier 1877 work at the hospital. Although the crypt had been opened on previous occasions, the

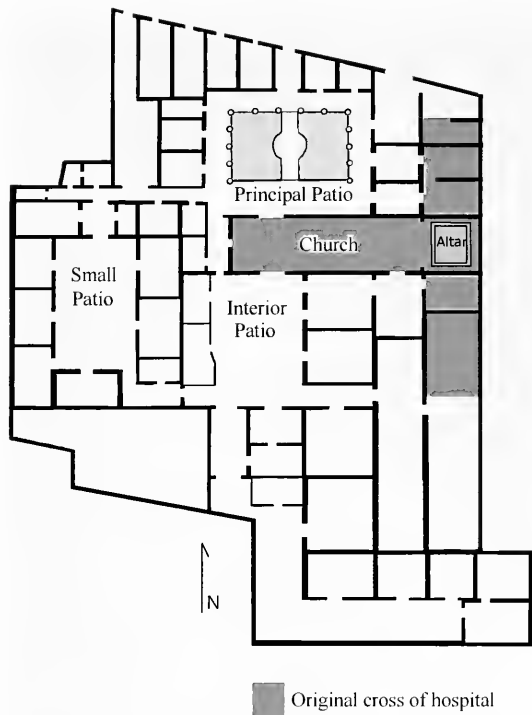


FIG. 5. Modern San Andrés. Three of the original four large rooms, which were built in the form of a cross, have survived. The 1887 and 1937 projects concentrated their efforts in the interior patio, south of the church.

researchers did find some poorly preserved human bones within it. The exact location of the small crypt within the interior patio is not known. Nevertheless, we suspected, on the basis of our later ground-penetrating radar work at San Andrés, that it was located near the southern end of the interior patio (Fig. 5). While discrepancies between Riva-Agüero's and the newspaper's accounts of the excavation make a definitive description of the results difficult, it appears that additional human remains, as well as a lidless coffin and a corroded copper medallion, were found in nearby areas.

Our research indicates that the area directly south of the church, now called the interior patio, was the original cemetery for the hospital. For example, the 1563 inspection specifically notes that patients were buried in this area and that there was a small Mount Calvary monument in the cemetery. Thus, it is not surprising that the various earlier projects at San Andrés recovered a large number of human remains in this area.

Our 2005 test excavations in Zone 46 (see below) confirmed the existence of the cemetery and the presence of numerous burials.

Riva-Agüero's 1937 research team also entered the large crypt under the hospital's church. There they found the remains of the bishop, who had been placed there after his disinterment from the interior patio in 1867, as well as the scattered remains of other individuals. Excavations were also conducted elsewhere in the hospital compound. Riva-Agüero (1966:398), in describing the areas of his research, writes that "we gave preference to the interior patios, the washing area, the passageway and the orchard, where the new houses would be constructed. We also tested the ground in other different areas, especially where there seemed to be crypts or sub-surface constructions" (translation by the authors).

During the course of his project, Riva-Agüero received some disturbing information. Ms. Lazo, the same woman who had advised his team where to dig in the interior plaza, suggested that the mummies may have been found years earlier by the chaplain of San Andrés. Riva-Agüero's account of his conversation with Ms. Lazo reads as follows:

... the chaplain, Sr. Canónigo Barrantes (who is also thankfully still alive) and the nuns discovered, following information provided by a student, in the same interior patio contiguous to the chapel and the washing area, in which we have again recently dug, a small vault that contained mummies that by their hair and shapes seemed to be Indians. This was an unusual thing in such a building, unless they were the Incas buried there in the middle of the 16th century. Without investigating this possibility, the then Inspector of Charity inexcusably ordered their immediate transfer to the general cemetery, without consulting with this society and the government, which already possessed a museum. In this rush, their final interment was in a common burial pit or trench. (Riva-Agüero, 1966:400; translation by the authors)

It was hard for Riva-Agüero (and it is yet more difficult for us at an even greater distance from the events) to know what to do with this secondhand information. It is also frustrating to note that although the chaplain is reported to have been alive when Riva-Agüero was given this strange account, Riva-Agüero does not appear

to have contacted the chaplain to gain a more detailed understanding of the possible events. Instead, Riva-Agüero wrote to a friend in Seville (Miguel Lasso de la Vega) requesting that he search in the General Archive of the Indies for additional information on San Andrés (Hampe Martínez, n.d.). Riva-Agüero specifically requested that his friend investigate the possibility that mummies had, as reported by Ms. Lazo, been found and then reburied in the public cemetery. He also asked that Lasso de la Vega research the possibility that one of the viceroys, Príncipe de Esquilache (1615–1621), may have extracted the mummies (Hampe Martínez, n.d.). Despite these disturbing possibilities, it is clear that Riva-Agüero retained some hope that the royal Inca mummies would someday be found within the hospital grounds.

The San Andrés Historical and Archaeological Project

Responding to a request by the National Institute of Culture (Resolución Directoral Ejecutiva No. 296 [27, April 2000], a renewed effort to understand the history of the San Andrés hospital and to identify the possible resting places of the royal mummies was begun in 2000 by Teodoro Hampe Martínez, Brian S. Bauer, and Antonio Coello Rodríguez. They were soon joined by Patrick Ryan Williams and Christopher Dayton.

We began our research knowing that there had been at least three earlier attempts (1868, 1877, and 1937) to find the Inca mummies at San Andrés. At least two of these projects (1868 and 1937) had dug in the interior patio of the hospital, where they located a small crypt. Both of these projects were also involved in entering a second, much larger crypt under the hospital's church. The royal mummies were not found in either of these crypts. Of the three projects, the 1937 effort was certainly the largest, as it also involved excavations in the former garden and orchard area of the hospital as well as soundings in many other locations.

Like the previous researchers of San Andrés, we began our investigation with the knowledge that the royal mummies were sent from Cuzco to Lima around 1560 and were kept there for a considerable amount of time. However, the limited descriptions of the mummies suggested to

us that they could be seen on request for a time in San Andrés, but access may have been limited. Furthermore, we believe that the presence of the royal mummies in the hospital presented unique problems for the Spaniards. At least at first, the Inca mummies would have been recognized as the remains of kings, and hence they demanded a certain respect. As documented by Garcilaso de la Vega, this certainly was the case in Cuzco. He writes, "[The mummies] were carried wrapped in white sheets, and the Indians knelt in the streets and squares and bowed with tears and groans as they passed. Many Spaniards took off their caps, since they were royal bodies, and the Indians were more grateful than they could express for this attention" (Garcilaso de la Vega, 1966:306–308 [1609: pt. 1, bk. 5, ch. 29]).

Yet the mummies were also seen as the remains of non-Christian individuals, and thus they could not be buried in the large crypt under the hospital's church or in its adjacent Christian cemetery (Riva-Agüero, 1966:398). Furthermore, the Inca mummies could not be buried in a local Lima cemetery since the indigenous population was known to exhume and worship the remains of important individuals. We reasoned that the placement of the mummies within a crypt or some other burial structure inside the hospital walls but outside the formal Christian burial ground would have solved these problems. In this way, the remains could be kept far from native eyes, a certain level of respect could be inferred, and they would be available for viewing by the occasional Spanish dignitary.

We also recognized that the last account of the mummies, written by Calancha, is frustratingly vague. He states only that "[t]hey are in a corral in the Hospital of San Andrés" (Calancha, 1981:219 [1638:bk. 1, ch. 15]). The word "corral" could refer to almost any open space within the hospital including what we would now call a patio, a yard, a garden, or a corral. Furthermore, we had to consider that after 1638, the mummies may have deteriorated to such an extent that they had lost any value as relics or curiosities, which they once held for the Spaniards. As a result, they could have been destroyed in any number of ways or simply buried. Understanding these limitations but knowing that a renewed effort to locate the royal mummies would also yield new information on the history of one of the oldest hospital in South America, we began the San Andrés Historical and Archaeological Project.

The Ground-Penetrating Radar Survey (2001)

Although previous research at the San Andrés hospital had not found direct evidence of the mummies, we proposed that a multiphase project that began with a geophysical survey of the remaining hospital grounds might yield insights into the fate of the Inca kings and would certainly provide new information on the history of the hospital. While it is generally advisable to conduct a geophysical survey with multiple but complementary methods (Kvamme, 2001; Gaffney & Gater, 2003) and while project members Dayton and Williams had used ground-penetrating radar, earth resistance, and gradient magnetometry together with some success elsewhere in the Andes (e.g., Williams et al., 2004; Dayton & Janusek, 2005), the choice of geophysical technology at San Andrés was limited by several factors. The fact that the entire surface of the compound is covered with a variety of flooring materials (such as wooden planks, ceramic tiles, and concrete) precluded probe-based electrical resistance measurements. The urban setting, which included extensive electrical wiring, metal pipes, and widespread metal debris, ruled out magnetic methods. Thus, we opted to use only ground-penetrating radar (GPR) during the project. The reliance on this technology was reinforced by the fact that it is also the most amenable to identifying the type of underground features that we were looking for (for additional information on the ground-penetrating radar survey conducted at San Andrés, see Dayton et al., n.d.).

We were interested in finding cavities or pits, either formal architectural crypts or informal holes dug beneath the hospital. Whether the cavities were filled with air (as in the case of an intact crypt) or filled with earth or rubble (as in the case of a burial), we predicted that they would exhibit a contrast in density relative to the surrounding material, a physical arrangement “visible” to (i.e., likely to reflect) the electromagnetic pulses used in GPR prospection (Conyers & Goodman, 1997).

Since the 1980s, the use of GPR technology has become more and more common in archaeological investigations carried out in the United States and elsewhere. With this technology, a small machine emits radio pulses while it is pulled across the surface of the ground. The machine registers the “echoes” of the radio pulses as they are

reflected by underground features (generally called “anomalies”). The specific physical characteristics of the anomaly (be it a canal, burial, pit, wall, and so on), affect the time that it takes the radio pulses to return to the machine. The readings are fed to a computer that produces a map of the largest underground anomalies.

With a digital GPR, the data can then be filtered, analyzed, and viewed in several ways, with the most popular being vertical profiles—mimicking the classic paper format—or simulated horizontal slices based on a designated time window (Conyers & Goodman, 1997). Advances in the power and memory of personal computers in the past decade have also made it feasible to view GPR data from a given grid as an interactive three-dimensional cube that can be rotated, cut, and viewed at varying degrees of transparency (Dayton et al., n.d.). These maps are then used by archaeologists to identify areas where excavations might take place, depending on the goals of the project. It is important to note that although GPR technology can help to inform researchers about the location of underground anomalies, excavations are still needed to define the exact nature of the anomalies and to collect other relative information.

A GPR survey of the surviving hospital grounds was conducted by Patrick Ryan Williams and Christopher Dayton in August 2001, and we believe that this project was the first to use GPR in the Lima area. The survey was complex since San Andrés now covers about three-quarters of a hectare and is divided into a labyrinth of some 70 rooms, halls, patios, and other discrete areas. We were able to survey about 50 of the areas, with data collection grids ranging in size from 20 to 250 m². The creation of what were essentially 50 separate databases, each of which needed to be individually organized and analyzed, required considerable time. Certainly the most dramatic results came from the area below the hospital’s church (Fig. 6). The GPR work clearly showed the large crypt, with its vaulted ceiling, which is known to be under the church, as well as the stairwell that leads to it (Dayton et al., n.d.). Since, as noted above, this large crypt has been investigated by earlier researchers in 1865 and 1937 and we doubt that the Inca mummies would have been buried within such a clearly Christian context, we decided not to enter it.

Initial screening of the GPR data revealed numerous other anomalies within the various grids, many of which we suspected to be modern

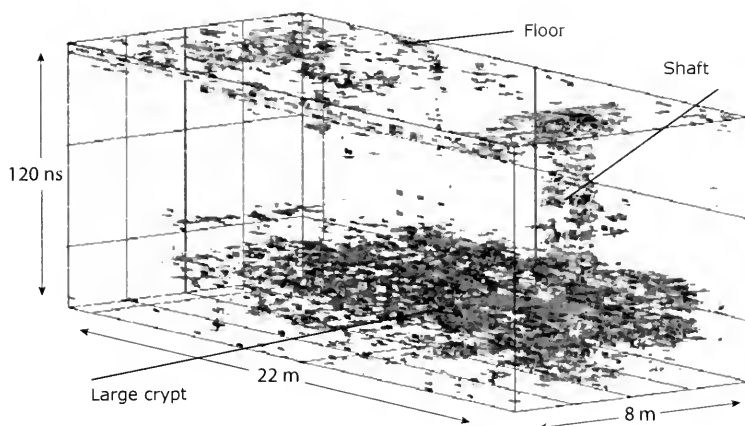


FIG. 6. A 3-dimensional map made using the Ground Penetrating Radar data clearly shows the large crypt under the church as well as the stairway shaft that leads to it (courtesy of Christopher Dayton). The abbreviation ns on the y axis stands for nano seconds.

features, such as sewer lines, drains, and areas of floor remodeling. Additional computer analysis by Dayton dramatically lowered the number of anomalies that appeared to be of special interest for this project. Essentially, we were interested in finding areas that showed evidence of reasonably large (more than 1 m²) disturbances. In the end, we focused on four loci that appeared to have the most interesting results. These included Zones 12, 14, 46, and 49 (Fig. 7). Later analysis of the data indicated that Zone 2, the interior patio, also contained a number of anomalies. Because this patio had been the original cemetery for the hospital and had been the focus of several earlier projects, we chose not to conduct excavations within it and to concentrate instead on investigating other areas of the hospital. The results of our test excavations in Zones 12, 14, 46, and 49 are briefly discussed below.

poured concrete (Zones 12 and 14) or ceramic tiles (Zone 14), were cut using a circular saw equipped with a hardened blade. The tiles were

Test Excavations at San Andrés (June–July 2005)

Building on the results of our 2001 research, we returned to San Andrés in June 2005 to conduct test excavations at four locations believed to contain significant subsurface anomalies. At that time, Dayton conducted a second GPR study of the four areas to check the results of the early survey. The second GPR survey confirmed the results of the previous work, and test excavations were subsequently begun.

The test excavations followed standard excavation procedures. The modern floors, made of

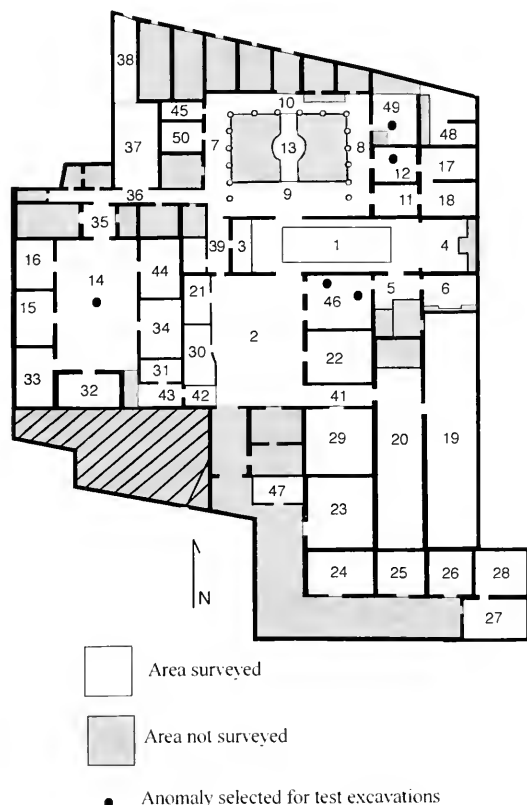


FIG. 7. Areas of San Andrés selected for test excavations following the results of the ground-penetrating radar survey. The shaded cross hatched area was inaccessible for study.

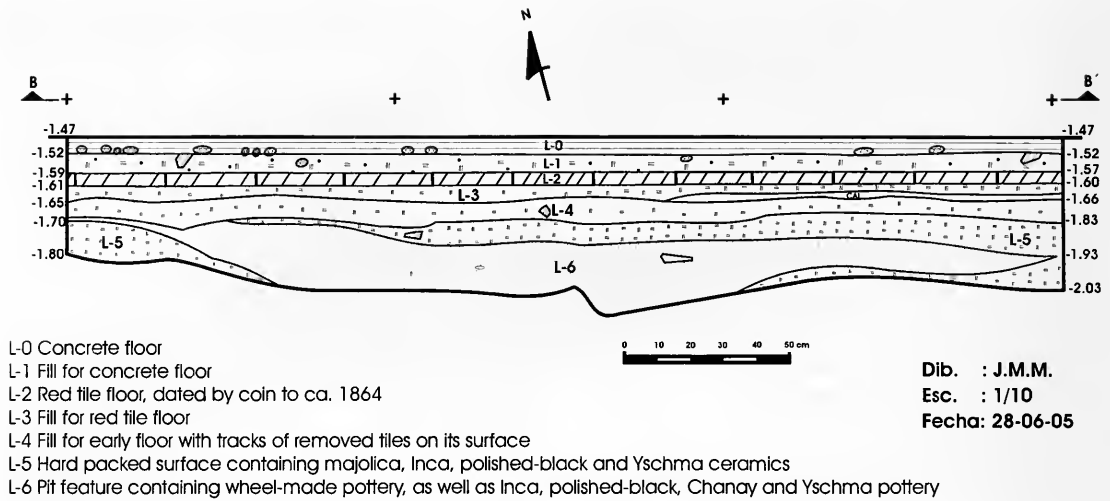


FIG. 8. Profile of excavation in Zone 12.

numbered with chalk before their removal and returned to their place at the end of the excavation. All units were excavated in arbitrary levels of 10 cm until natural levels or features were identified. These were then excavated separately. The excavators primarily used hand trowels and hand scoops to remove the sediment. However, picks and shovels were also occasionally used. All the soil removed during the excavations was screened through quarter-inch wire mesh. After the excavations were finished, profile drawings were made of each unit. At the end of each excavation, the unit was backfilled and the floor repaired.

Information for each level was recorded on standardized forms. Photographs were taken throughout the excavation, particularly at the end of each level. All artifacts recovered from each level were separated by type (animal bone, human bone, ceramic, shell, lithic, metal, glass, and vegetable) and bagged in the field for transport to the laboratory. The excavation number, level, date, crew, and artifact type were recorded on the front of each bag. In the laboratory, the artifacts were cleaned, counted, cataloged, and marked with the site name and excavation number. As is the norm for excavations on the dry coast of Peru, the preservation of organic materials was generally very good. Specialists were contracted to write the reports on the animal bone, human bone, shells, and vegetable remains.

Excavations in Zone 12

Zone 12 is a 6.85×6.40 -m room located directly east of the principal patio. Results from the GPR surveys indicated that there was a large anomaly, approximately 6.0×5.0 m near the center of the room. Archival research suggests that the room was among the original buildings built for the hospital and was included within the 1563 inspection.

Our excavation began as a 0.90×2.40 -m unit but was soon expanded to cover a 2.25×2.40 -m area. The first level included the modern concrete floor and its fill. The second and third levels included a red tile floor and its underlying fill (Fig. 8). We recovered a coin dating to 1864 within the floor fill. Under the red tile floor fill, we found evidence of another tile floor. While the tiles for this third floor had been removed, perhaps to be reused elsewhere, the 0.15×0.15 -m tracks of the tiles could still be clearly seen pressed into the top of the fill (Level 4).

The fifth level consisted of a compact, patchy matrix that appears to be the remains of a hard packed working surface. Within its matrix, we recovered a large quantity of pottery, including a few examples of majolica pottery, a single Inca sherd, two fragments of polished black ware, several mold fragments of unknown date (Fig. 9), and numerous fragments of an indigenous pottery style most commonly called Ychma (Cornejo, 2002; Díaz Arrila & Vallejo,



FIG. 9. Levels 5 and 6 in Zone 12 yielded numerous mold fragments.

2004; Feltham & Eeckhout, 2004; Vallejo Berrios, 2004; also see Strong & Corbett, 1943; Bonavía, 1959; Iriarte, 1960; Bazan, 1992). We also recovered a great variety of Andean and European floral and faunal remains.

A large but relatively shallow trash pit was found cut into the natural soil of the area under Level 5. The trash pit, which was the anomaly detected during the GPR survey, contained a rich mixture of cultural as well as biological remains. Among the ceramics, we recovered several fragments of wheel-made pottery indicating a post-European contact period date for the deposit (Fig. 10). The excavations also provided two fragments from Inca vessels, four pieces of polished black ware, a single black-on-white Chancay sherd, various mold fragments, and a large amount of Ychsma pottery. Like Level 5, the trash pit also contained numerous plant and animal remains from both the Andes and Europe.

The fact that Ychsma ceramics, Inca pottery, and wheel-made sherds were recovered within the same trash pit, as well as a mixture of

Andean and European plant and animal remains, indicates that the pit and its associated occupation area were formed during a short but critical period when power on the Peruvian coast was shifting from the Inca to the newly arrived Spaniards. Although there has been some research on the native occupations in the Rimac River Valley, very little is known concerning the prehistory of the specific area where the capital city of the Spaniards would soon grow (Flores Espinoza, 1988; Díaz & Vallejo, 2002). The area was under the control of a local lord, who was himself under the direction of the Inca. The natives appear to have worked with the Spaniards in the establishment and building of the settlement. However, many also participated in the siege of Lima, which occurred the very next year. In this respect, it is also worth noting that the area of Lima where San Andrés was later built may have been of ritual importance for the local inhabitants before the arrival of the Spaniards. This is suggested by the fact that a small horde of silver, apparently an offering, was found near San Andrés in 1639 (Villanueva



FIG. 10. Wheel-made ceramics recovered in Level 6 of the Zone 12 excavation.

C., 1999). It is also believed that a native shrine, called the Sanctuary of Huatica, was located in this region (Bromley 1935; Villar Córdova, 1935; Bromley & Bargagelata 1945; Juan Gunther, pers. comm.).

The *Ciudad de los Reyes* (City of the Kings) was established on January 5, 1535, by Francisco Pizarro near the edge of the Rimac River. Founded on or near the indigenous village of Lima, the Spanish town almost immediately adopted this local name. At the founding, Pizarro presented a plan of the city, with its classic Spanish grid system, and allotted various parcels of land to his troops. In 1538, the town counsel decided that a large area of land near the edge of the city should be set aside for the construction of several hospitals. Large-scale construction on San Andrés started around 1555. Based on this chronology, we suggest that the occupation and trash pit found in Zone 12, which was found beneath what we believe to be one of the first buildings of the hospital, dates to a narrow 20-year time period between 1535 and 1555.

It is well established that Ychsma ceramics were produced in the Rimac and Lurin valleys

immediately before the conquest of the region by the Inca and that this style of pottery continued to be produced during the Inca occupation of the coast (Strong & Corbett, 1943). Numerous examples of classic Ychsma forms (Fig. 11) were recovered during our excavations as well as over 1400 fragments of domestic ware, most of which appear to have been locally manufactured. It is not surprising that this strong tradition of ceramic production continued after the arrival of the Spaniards.

The wide variety of ceramic styles recovered in our small test excavation in Zone 12 also reveals the great exchange of cultural materials that was occurring among the coastal people of Peru during the initial years of Spanish control (Fig. 12). Besides Ychsma, three other types of Andean ceramics were recovered in this small excavation. The polished black ware could be of local manufacture; however, it is more generally thought to represent trade with the northern coast region. The Chancay fragment almost certainly came from the Chancay Valley, some 50 km north of Lima. And the Inca fragments reflect highland influence in the region at the



FIG. 11. Ychsma ceramics.

time of the Spanish contact. The co-occurrence of Ychsma and Inca ceramics is common in the Lurin and Rimac valleys, and there is some historic evidence to suggest that a *tambo* (waystation), staffed by Chinchá individuals, once stood near where San Andrés is now (Hampe Martínez, pers. comm.).

Beside native pottery types, we also recovered various wheel-made ceramics, including glazed earthen wares and, more specifically, majolica ceramics (Fig. 13). The latter of these is a readily recognizable but little studied early Spanish ceramic type for the New World (Goggin 1968; Deagan 1987; Jamieson 2001). Defined by their tin glazes, white slips, and pale palette of green, yellow, brown, and blue designs, these ceramics were first imported into the New World from Spain, but local centers of production were soon established in Mexico and Panama (Jamieson & Hancock 2004). Later, although the exact dates are uncertain, additional centers of majolica production were established in South America, including in Lima, Cuzco, Arequipa, and Quito. As Jamieson and Hancock (2004:571) write, "It is currently believed that Andean majolicas in the

early colonial period were imported from Panama Vieja, and that these were later replaced by ceramics made in various Andean cities." Unfortunately, while majolica fragments are ubiquitous in colonial period excavations in Lima, they are greatly underreported in the literature. Harth-Terré (1958) cites archival evidence of majolica production in Lima before 1577, and Mogrovejo Rosales (1996) argues for an even earlier initial date of production. Thus, the recovery of Spanish colonial sherds in a secure context at San Andrés indicates that majolica vessels were being used by natives on the outskirts of Lima very early in the colonial period.

The floral and faunal remains recovered during the excavation of Levels 5 and 6 provide insights into the diet of natives during the earliest years of Lima and information on the introduction of European species to South America. The remains of 10 different species of edible saltwater mollusk were recovered, indicating that they held a small but important role in the diet of the contact period inhabitants. The species identified by Valentín Mogollón Avila (2005) include



FIG. 12. A wide range of ceramics was found in Levels 5 and 6 of Zone 12. Top row, left to right: Inca, polished black, Chancay. Bottom row: glazed earthen ware, Ychsma, Ychsma.

Aulacomya ater (Choro), *Brachidontes purpuratus* (Chorito purpura), *Choromytilus chorus* (Choro zapato), *Seminytilus algosus* (Chorito de las algas), *Mesodesma donacium* (Macha), *Tegula Chlorostoma atra* (Caracolito negro), *Tegula Chlorostoma luctuosa* (Caracolito negro), *Crepidatella dilatata* (Pique), *Stramonita chocolate* (Caracol plomo), and *Stramonita delessertiana* (Caracol de roca).

Plants remains recovered and identified by Carmela Alarcón L. (2005) included native Andean crops, including peanuts (*Arachis hypogaea*), squash (*Cucurbita* sp.), lucuma (*Pouteria lucuma*), mati (*Lanenaria siceraeia*), paca (*Inga feuillei*), achira (*Cana edulis*), and maize (*Zea mays*). Of these, achira, a tuber, is certainly the least known since it is currently grown in restricted areas in the highlands (Gade 1966). To this list of plants that were consumed in early Lima, we can also add the peach (*Prunus persica* [*Melocotón*]), a European import, examples of which were recovered in our excavations in Zone 12 as well as elsewhere in San Andrés.

The faunal remains were examined by Patricia Maita Agurto (2005). They included a variety of European and Andean species. Level 5 include bone fragments from cow (*Bos* sp.) and cat (*Felis catus*) as well as white-tailed deer (*Odocoileus virginianus*) and camelid (alpaca and llama Family Camelidae)]. The pit, Level 6, did not contain any European animal remains, but it did yield a wide variety of Andean animal remains, including those of numerous camelids as well as those of viscacha (*Lagidium peruanum*), egret (*Egretta* sp.), and stingray (*Myliobatis peruvianus*). It is worth noting that the faunal contents of Levels 5 and 6 are in sharp contrast with those of all other excavation contexts in the hospital. Elsewhere in the San Andrés excavations, Andean beasts were poorly represented, and European domestics dominated the collections. Especially numerous (in descending order of frequency) were sheep, cow, pig, and chicken. It is clear that once the hospital was in operation, the meats prepared were largely those of a traditional European diet.



FIG. 13. Fragments of majolie pottery were found in all of our excavation units in San Andrés. These examples are from our excavations in Zone 46.

In summary, the materials recovered in Levels 5 and 6 of Zone 12 are believed to have been deposited during a short but important period after the establishment of Lima (1535) but before large-scale construction started on San Andrés (ca. 1555). At that time, the outskirts of the city were known to have been inhabited by natives. For example, Villar Córdova (1927:165) mentions a great density of villages that were located in the areas of El Carmen, Martinete, and Maravillas, which are not far from San Andrés. Accordingly, we believe that the contents of Zone 12 are likely to represent the domestic refuses of local villagers who had some contact with the Spaniards of the adjacent city during a brief period of time after the founding of Lima.

In almost all classes of materials recovered from our excavations in Zone 12, from ceramics to plant and mammal remains, we see a similar pattern. Local coastal types dominate the collections, but some highland contact is documented, as is contact with Europe. For example, the ceramic collection was dominated by local

Ychsma pottery. However, other coastal styles, including Chancay and a polished black ware, were present, as were highland Inca styles. Furthermore, some wheel-made European styles were also found. Among the plants, we have many species native to the Rimac and Lurin region as well as higher-elevation achira and exotic peaches. Among the animals, it is clear that camelids were the most frequently consumed, but there is evidence that deer and cow were also eaten, and there was a scattering of other smaller mammals, birds, and sea life.

Although the exact conditions that created the Level 5 and 6 deposits are not currently well understood, the large number of plain domestic pottery fragments and the overwhelming presence of Ychsma pottery suggest that these deposits represent the refuse of native peoples. Nevertheless, it is clear that they also had access to some European-style ceramics as well as various newly introduced plant and animal species. In other words, in less than 20 years after the foundation of the City of the Kings by



FIG. 14. A curved foundation, part of a former fountain, was found in the center of Zone 14.

the Spaniards, European elements were already becoming integrated into the social and economic spheres of the native peoples of the region.

Excavations in Zone 14

Zone 14 of San Andrés is a small patio located to the west of the church (Fig. 7). This patio was part of the original hospital plan, and the rooms that surround it were used for psychiatric patients. Our GPR surveys indicated that there was a large anomaly in the center of the patio. Although we suspected that this underground feature was related to the drainage system of the hospital, we decided to investigate it.

A 2 × 1-m unit was placed just off the center of the patio. The remains of a curved brick foundation as well as a tiled patio floor were found immediately below the modern, concrete patio floor. Continued excavation and historical research indicated that the curved foundation was the edge of a fountain that contained a drainage hole in its center (Fig. 14). Having confirmed the nature of the anomaly, we left the foundation and the patio floor tiles intact and

sealed the excavation. We were also later able to find a photograph of this patio dating to 1913 that shows the fountain still in use (Sociedad de Beneficencia Pública de Lima, 1913).

Excavations in Zone 46

Zone 46 is situated directly south of the church and to the east of the interior patio (Fig. 7). Our GPR surveys identified two very different anomalies in this sector. The first was a distinct, roughly 1 m² anomaly, clearly a pit, near the eastern wall of the room. The second was a less clear area of possible disturbance near the northern wall.

Our first test excavation in Zone 46 consisted of a 1 × 1-m unit positioned above the square anomaly. Under the modern 0.20 × 0.20-m floor tiles was a concrete floor that had been poured after the pit was dug and filled in. Evidence of shattered tar floor was found under the concrete floor. Engineers who visited the excavation told us that tar floors are common features in mid- to late-nineteenth-century buildings of Lima and were frequently used in hospitals because they

were easy to clean (Felix Miyashiro, pers. comm.). Several annual reports of the Public Charity of Lima indicate that the wooden floors of the hospital were gradually removed and replaced by tar floors between 1850 and 1855. With this information, we can determine that the square pit was dug sometime after 1850, since the tar floor that once covered this area of the hospital was broken during its original excavation.

Further below, we found that the square pit, which eventually reached a depth of approximately 1.25 m, had cut through another tile floor and had also exposed the remains of a brick wall on its southern profile. Scattered human bones were recovered in the fill of the pit, and a subadult burial was exposed in its western profile. Based on the shape of the pit and the fact that it dates to after the 1850s, we currently believe that this pit was one of the soundings dug by Riva-Agüero during his work at San Andrés in 1937.

Our second test excavation in Zone 46 was a 2 × 1-m unit near the northwestern corner of the room. The unit ran parallel to the northern wall. Beneath the modern tile floor, we found the tar floor intact, and, on removing it, we exposed the edge of an east-west-running brick floor or walkway that may at one time have marked the edge of a patio. (In all likelihood, zones 46 and 47 were once part of a single patio.) The brick floor was cut by a 50-cm-deep oval pit near the western end of our excavation, perhaps a sounding by an early project dating to before 1850 (Fig. 15).

There was a narrow (ca. 30 cm) strip of ground between the edge of the brick floor and the southern edge of our excavation. Leaving the brick floor intact, we removed the soil in this narrow area and found evidence of three burials (two adults and one subadult) as well as various isolated human bones. The identification of burials in both of the Zone 46 excavations confirms our readings of the 1563 inspection document, which indicates that the region south of the church formerly served as the hospital's cemetery.

Believing that the burials should be left in place until a larger project (perhaps focusing on the diseases of early colonial Lima) can be conducted in this area of San Andrés, we left as many of the human remains as we could in situ. Nevertheless, some were removed by necessity during the course of the excavation.



FIG. 15. The second excavation in Zone 46.

Of those removed, the remains of the partially exposed burial in the western profile of the first excavation were the most interesting. The osteological analysis indicated that these belonged to a subadult who suffered from a blood-borne infection, with the femur, tibia, and fibula fragments displaying the presence of periosteal infection (Osborn & Campos Napan 2005). The fact that the individual suffered from a blood-borne infection is not, however, surprising given that these remains were recovered from a hospital cemetery.

The excavations in this zone also yielded numerous examples of majolica and Ychsma ceramics. Although the context of these artifacts was not as secure as that provided in the Zone 12 excavation, the recovering of Ychsma pottery suggests that there was a substantial native population living in this area of Lima before the construction of San Andrés.

Excavations in Zone 49

Zone 49 is located directly east of the principal patio of San Andrés and adjacent to Huallaga



FIG. 16. The southern end of the vaulted structure.

Street, on the northern edge of the hospital grounds. Our reading of the 1563 visitation document suggests that this area may have been used as a laundry during the early years of the hospital. Much later, after the hospital was closed, part of the area was converted into lavatories, and another served as a visiting area for the nuns. The Lima earthquake of October 3, 1974, destroyed the rooms in this area, and it has remained in an abandoned condition since then (Teodoro Hampe Martínez, pers. comm.).

In 2001, a small section of what appeared to be a brick feature could be seen in the southern part of the area. However, when we returned to the complex in 2005, evidence of the brick structure could not be seen since the ground surface of the area had been raised and leveled so that cars could be parked in it. Nevertheless, both the 2001 and the 2005 GPR survey detected a possible anomaly in this area.

Our July test excavations in 2005 in Zone 49 immediately identified the top of a vaulted structure. Additional cleaning operations suggested that the structure was 3.35 m² and that it

contained an entrance, approximately 2.5 m long, on the northern side (Figs. 16, 17, 18). The walls measured about 40 cm thick, and a circle of mortar marked the center of the vault. Drag marks, apparently from a mechanical scoop used to remove debris after the 1974 earthquake, were visible on the exterior surface of the vault. There were modern floor tiles to the north of the vault, part of the lavatories that were built in this area. By the end of July 2005, we had defined the limits of the structure. The excavation unit was then backfilled and the structure covered.

Excavations within the Vaulted Structure of Zone 49

We returned to San Andrés in October 2005 to excavate the vaulted structure in Zone 49. To understand the internal construction and contents of the structure, we first drilled holes in the northwestern and southeastern corners of the vault. The holes, which were approximately



FIG. 17. The vaulted structure looking north.

40 cm deep, revealed that there was an open area, approximately 1.80 m in height, under the vault. We then placed a video camera attached to a portable computer into both of the holes to view the interior of the vault. The resulting photographs indicated that the vault was largely empty, except for a large pillar that stood in the center of the structure. Fragments of iron on the floor of the vaulted structure also suggested that it had been disturbed sometime over the past century.

While the photographs from inside the vaulted structure indicated that it did not contain colonial period remains, excavations were continued to fully document the structure. A 1.0×3.0 -m unit was excavated near the northern end of the structure, where we believed the entrance would be. After removing a modern tile floor and several levels of nineteenth-century fill, we found the stairs leading to the vault. The entrance was also filled with nineteenth-century materials, including various painted and numbered human skeletal parts as well as a great deal of construction debris. We believe that the human bones are related to the operation of Lima's School of Medicine, which was founded as part of the San Andrés hospital in 1848 and

were used for the teaching of various anatomy classes (Zarate 2005; Watson 2006). We believe that these materials were deposited, along with construction debris, in 1875 when both the hospital and the medical school adjacent it were closed and the faculty and staff moved to newer facilities.

Our excavations also revealed an L-shaped stairway, leading to a 2.50-m-long entrance (Fig. 19). The doorway into the structure was arched; however, it was not sealed. The large number of bricks removed in the entrance fill may have at some time been used to seal the door. However, that could not be determined with certainty (Fig. 20).

The interior of the vaulted structure measures 2.60×2.40 m, with a ceiling that reaches a maximum height of 1.80 m. In the center of the chamber is a 1-m^2 pillar that contains small drains on each side. We believe that this pillar is a later addition to the chamber, perhaps added after an earthquake damaged the hospital and the functions of various areas within its grounds were changed.

Because of the large-scale remodeling that has occurred at San Andrés, it is difficult to determine with certainty the original function of the vaulted structure. There is, however, strong circumstantial evidence to suggest that this vaulted structure may have once served as a crypt. Its size and careful construction marks it as a noteworthy structure on the hospital grounds. Furthermore, it is similar in both size and shape to an early colonial period crypt that was excavated in the Church of La Merced in Cuzco (Alegria Sanchez, 2003). Finally, other projects conducted at San Andrés during the 1880s and 1930s have found crypts, similar in size, shape, and construction techniques to the vaulted structure found in Area 49, elsewhere on the hospital grounds.

Summary

Ancestor worship was a religious tradition that stemmed back thousands of years in the Andes. It reached, however, its most elaborate form in the city of Cuzco at the height of the Inca Empire. When the Spaniards entered the city, they were amazed to see the mummies of previous kings and queens playing an active role

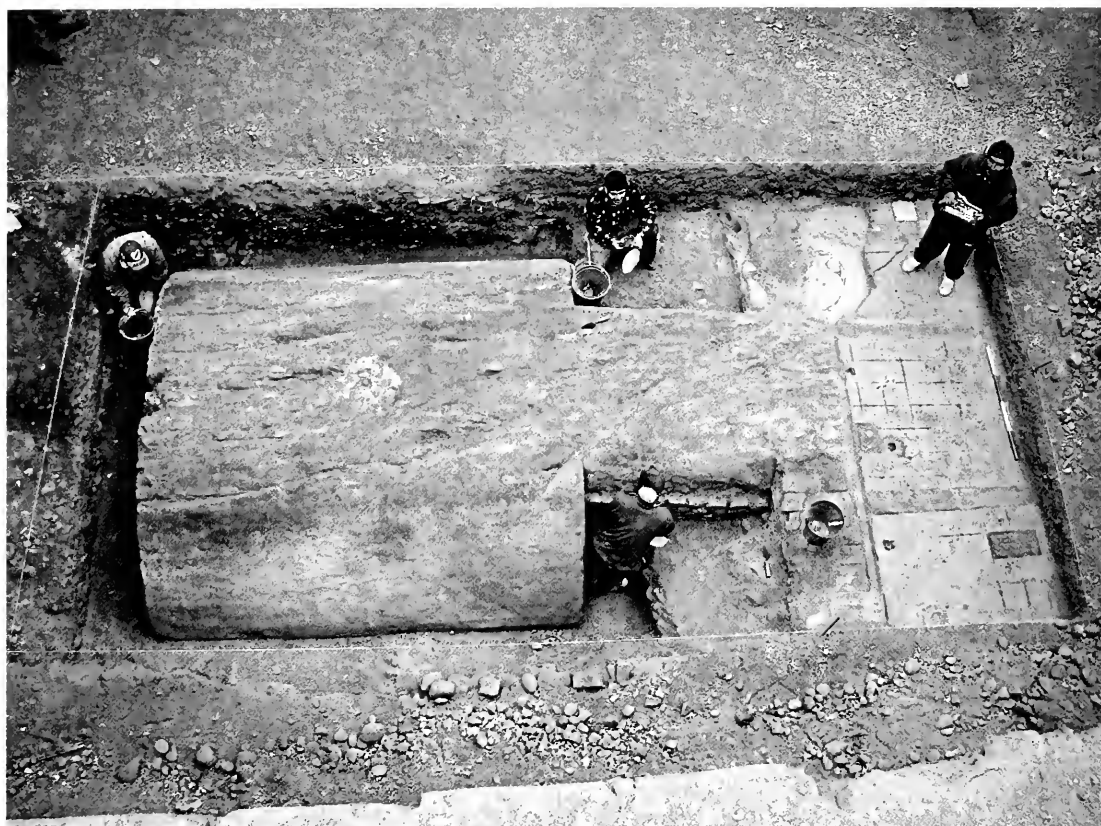


FIG. 18. The vaulted structure looking west. Note the area of northern tiles on the right side of the photograph.

in the politics of the day. The mummies were accompanied by oracles that spoke for them as well as by various attendants who served them. Because the king's wealth was passed down from one generation to another, the descendants of each ruler were able to maintain elaborate mummy cults for generations.

The ruling Inca visited the mummies of previous kings to seek advice, develop alliances, and form consensus among the royal lineages of the city. The ruling Inca could also "animate" a wide range of objects with his persona. Representations of a ruling Inca could be created with bits of his hair or fingernails or sculpted from other materials into his likeness. These figures could be sent on missions to represent the ruler and to speak on his behalf.

The Spaniards saw the mummies and their cults as both religious and political threats to Christian rule of the Andes. Seeking to destroy the foundations of the indigenous religions in their newly won territories, the Spaniards began a series of campaigns against idolatry. In Cuzco,

this task fell to the newly appointed chief magistrate, Polo de Ondegardo. He was ordered in 1559 to find and destroy the mummified Inca kings and to expose the idolatrous rituals that surrounded the mummy cults.

Historic sources also indicate that Polo de Ondegardo sent several of the royal Inca mummies to the viceroy in Lima, where they were placed on public display within the confines of the San Andrés hospital. Although accounts vary, it is most likely that these included the mummies of Huayna Capac (the eleventh king), Pachacuti Inca Yupanqui (the ninth king), and Mama Ocllo (the tenth queen and mother of Huayna Capac) as well as that of Amaru Topa Inca (the brother of the tenth king) and the ashes of Viracocha Inca (the eighth king) contained in a ceramic vessel. Acosta, writing in 1590, provides the best account of the royal mummies in Lima. From his description, it seems that the mummies had begun to decay after being shipped from the cool, dry climate of Cuzco to the warm, moist conditions of Lima. The last



FIG. 19. Our excavations revealed an L-shaped stairway leading into and down to the 2.50-m-long entrance.

recorded eyewitness report of the royal mummies in Lima is that of Calancha, who states that in 1638 several Inca mummies, along with the jar with the ashes of Viracocha Inca, were still in the hospital.

Unfortunately, but not surprisingly, we have no direct information on the final resting place of the Inca kings. We know, however, that the mummies arrived at San Andrés from Cuzco sometime after 1560 and that they were last seen in 1638. There are a very limited number of descriptions of the mummies in San Andrés, suggesting that they could be seen on request, but access may have been restricted. For over 100 years, researchers have suggested that the remains of the mummies may still be within the confines of San Andrés, yet attempts to find them have not been successful. Two projects to find the royal Inca mummies in 1877 and 1937 entered a well-marked crypt under the hospital's church. These projects also found one, perhaps two, smaller crypts immediately south of the

church. We now know, based on information in a newly discovered 1563 inspection of the hospital, as well as from our test excavations, that the area south of the church served as the hospital's cemetery. The royal Inca mummies were not found in these crypts, although they seem to have contained some human remains.

With the recent development of new research technologies, specifically nondestructive, remote-sensing techniques, we believed that it was important to return to San Andrés and renew the search for the royal Inca mummies. In 2001, we conducted a ground-penetrating radar survey of the hospital grounds. The results of the survey highlighted several subsurface anomalies in different areas of San Andrés. During 2005, we conducted test excavations at those locations. The excavations confirmed the accuracy of the radar survey and identified an early colonial occupation area and trash pit, a fountain foundation, parts of the hospital's colonial cemetery, and a buried vaulted structure. The early co-



FIG. 20. The entranceway to the vaulted structure.

lonial trash pit is especially interesting since it was in use during a very brief period of time (ca. AD 1535–1555) and contained a range of Andean and European plant and animal remains as well as ceramic styles from several regions of Peru and Europe.

The vaulted structure is also noteworthy since it is located well outside the hospital's cemetery. With a steep stairway leading to it, a long entrance passage, and a chamber, the vaulted structure may have originally been constructed as a crypt. The existence of the possible crypt, combined with its unusual location, introduces the intriguing possibility that it may have once contained important human remains. Nevertheless, more recent renovations to the structure have destroyed any evidence of its original contents. Thus, the fate of the royal Inca mummies remains unknown.

Acknowledgments

In this collaborative research, Brian S. Bauer and Antonio Coello Rodríguez supervised the

archaeological excavations, Teodoro Hampe Martínez conducted the historical research, and Patrick Ryan Williams and Christopher Dayton were responsible for the ground-penetrating radar survey. Other members of the excavation team include Carlos E. Campos Napán, Jose Manuel Ramírez Rojas, and Jean Michel Morales Chumacero. We were also aided by Valentín Mogollón Avila (shell remains), Carmela Alarcón L. (plant remains), Patricia Maita Agurto (faunal remains), as well as Lucia Watson and Rebecca Osborn (human remains). We thank each of these individuals for their help in the project.

The Public Charity of Lima (Beneficencia Pública de Lima) owns San Andrés, and parts of the original complex continue to be used by the Colegio Nacional de Mujeres "Oscar Miró Quesada de la Guerra." We thank the officials of both of these institutions for the interest and support that they showed in all phases of our research. Funding for our 2005 excavations at San Andrés was provided by the National Geographic Society (grants EC 0209-04 and EC 0251-05). Additional support was provided by the Department of Anthropology (UIC) and the Department of Anthropology (Field Museum). Finally, the radar unit used in 2001 is owned by the Department of Archaeology, Boston University, and the one used in 2005 is owned by the Department of Anthropology at the Field Museum of Natural History. Parts of this report have also appeared in Bauer (2004).

Literature Cited

- ACOSTA, J. DE. 1986. *Historia natural y moral de las Indias* [1590]. Edited by José Alcina Franch. Historia 16, Madrid.
- ALARCÓN, L. C. 2005. *Análisis de restos botánicos*. Unpublished report submitted to the Instituto Nacional de Cultura (Lima) as part of the final project report for the San Andrés Historical and Archaeological Project.
- ALEGRIA SANCHEZ, R. 2003. *Contextos Funerarios Coloniales: Una introducción a su estudio*. Saqsaywaman Instituto Nacional de Cultura, Cuzco, 6: 189–206.
- ALZAMORA CASTRO, V. 1963. *Mi Hospital: Historia, Tradiciones y anécdotas del Hospital "Dos de Mayo"*. Talleres Graficos P. L. Villanueva, Lima.
- ARCHIVO GENERAL DE INDIAS. 1563. *Inspection of the Hospital of San Andrés* (Lima, Peru). Audiencia de Lima, Legajo 131.

- ARIAS SCHREIBER PEZET, J. 1978. Hospitales de Lima y Callao. Resena Historica. Dpto. Boehring Ingelheim. Lima.
- BAUER, B. S. 1996. The legitimization of the Inca state in myth and ritual." *American Anthropologist*, 98(2): 327-337.
- . 2004. Ancient Cuzco: Heartland of the Inca. University of Texas Press, Austin.
- BAZAN, F. 1992. Arqueología de Lima. Centro de Estudios y Difusión de Artes. Lima.
- BETANZOS, J. DE. 1996. Narrative of the Incas [1557]. Translated and edited by Roland Hamilton and Dana Buchanan from the Palma de Mallorca manuscript. University of Texas Press, Austin.
- BONAVÍA, D. 1959. Cerámica de Puerto Viejo (Chilca). *In* Actas del II Congreso Nacional de Historia del Perú. Centro de Estudios Historias y Militares del Perú. Lima 1: 137-168.
- BROMLEY, J. 1935. La fundación de la Ciudad de los Reyes. Excelsior, Lima.
- BROMLEY, J., AND J. BARGAGELATA. 1945. Evolución Urbana de Lima. Talleres Gráficos de la Editorial Lumen S.A., Lima.
- CABELLO DE BALBOA, M. 1951. Miscelánea antártica, una historia del Perú antiguo [1586]. Edited by L. E. Valcárcel. Universidad Nacional Mayor de San Marcos. Instituto de Etnología. Lima.
- CALANCHIA, A. DE LA. 1981. Corónica moralizada del Orden de San Agustín en el Perú [1638]. Edited by Ignacio Prado Pastor. Universidad Nacional Mayor de San Marcos, Editorial de la Universidad. Lima.
- CASTELLI, A. 1981. La primera imagen del Hospital Real de San Andrés, a través de la visita de 1563. *Historia y Cultura (Lima)*, 13/14: 207-216.
- COBO, B. 1964a. Fundación de Lima [1639]. *In* Mateos, D. Francisco, ed., *Obras del P. Bernabé Cobo de la Compañía de Jesús*. Biblioteca de Autores Españoles (continuación), Ediciones Atlas, Madrid 92: 277-460.
- . 1964b. Historia del Nuevo Mundo [1653]. *In* Mateos, P. Francisco, ed., *Obras del P. Bernabé Cobo de la Compañía de Jesús*. Biblioteca de Autores Españoles, Vols. 91 and 92. Ediciones Atlas, Madrid.
- . 1979. History of the Inca Empire: An Account of the Indians' Customs and Their Origin Together with a Treatise on Inca Legends, History, and Social Institutions [1653]. Translated and edited by Roland Hamilton. Austin: University of Texas Press.
- CONYERS, L. B., AND D. GOODMAN. 1997. Ground Penetrating Radar: An Introduction for Archaeologists. Altamira Press, Walnut Creek, California.
- CORNEJO, M. 2002. Sacerdotes y Tejedores en la provincial Inka de Pachacamac. *Boletín de Arqueología PUCP*, 6: 171-204.
- DAYTON, C., AND J. W. JANUSEK. 2005. Khonkho Wankane and the Altiplano Formative: Geophysical Survey and Excavation. Paper presented at the 45th Annual Meeting of the Institute of Andean Studies. University of California, Berkeley, January 7-8.
- DAYTON, C., B. S. BAUER, P. R. WILLIAMS, AND A. COELLO RODRIGUEZ. n.d. Searching for the Royal Inca Mummies: Ground-Penetrating Radar Survey and Archaeological Excavations at the Hospital of San Andrés. Lima, Peru. Unpublished manuscript.
- DEAGAN, K. A. 1987. Artifacts of the Spanish Colonies of Florida and the Caribbean 1500-1800. Smithsonian Institution Press, Washington, D.C.
- DIÁZ ARRILA, L. E. 2004. Armatambo y la sociedad Ychsma. *Bulletin de l'Institut Français d'Etudes Andines, Arqueología de la Costa Central del Perú en los Periodos Tardíos*. Edited by Meter Eeckhout. TAREAC Asociación Grafica Educativa, Lima, 3(3): 571-594.
- DIÁZ ARRILA, L. E., AND F. VALLEJO. 2002. Armatambo y el dominio Incaico en el Valle de Lima. *Boletín de Arqueología PUCP*, 6: 3356-3374.
- EQUIGUREN, L. A. 1945. Las calles de Lima. *Multatuli*, Lima.
- FELTHAM, J., AND P. EECKHOUT. 2004. Hacia una definición del estilo Ychsma: Aportes Preliminares Sobre la Cerámica Ychsma Tardía de la Pirámide III de Pachacamac. *Bulletin de l'Institut Français d'Etudes Andines, Arqueología de la Costa Central del Perú en los Periodos Tardíos*. Edited by Meter Eeckhout. TAREAC Asociación Gráfica Educativa: Lima, 3(3): 643-679.
- FLORES ESPINOZA, I. 1988. La arqueología y la restauración de monumentos histórico-artísticos: Estudio de la Casa Osambela. pp. 229-237. *In* Flores, Victor Rangel, ed., *Symposium "Arquitectura y Arqueología: Pasado y Futuro de la Construcción en el Perú"*. Universidad de Chiclayo: Museo Brüning, Chiclayo, Perú.
- GADE, D. W. 1966. Achira, the Edible Canna: Its Cultivation and Use in the Peruvian Andes. *Economic Botany*, 22: 407-414.
- GAFFNEY, C., AND J. GATER. 2003. Revealing the Buried Past: Geophysics for Archaeologists. Tempus Publishing Ltd, Stroud, Gloucestershire.
- GARCILASO DE LA VEGA, I. 1966. Royal Commentaries of the Incas and General History of Peru, Parts 1 and 2 [1609]. Translated by H. V. Livermore. University of Texas Press, Austin.
- GOGGIN, J. M. 1968. Spanish Majolica in the New World. Yale University Press, New Haven, Connecticut.
- GOSE, P. 1996. The past is a lower moiety: Diarchy, history and divine kingship in the Inka Empire. *History and Anthropology*, 9(4): 383-414.
- GUAMAN POMA DE AYALA, F. 1980. El primer nueva corónica y buen gobierno [ca. 1615]. Edited by John V. Murra and Rolena Adorno. Translated by Jorge I. Urioste. 3 vols. Siglo Veintiuno, Mexico City.
- HAMPE MARTINEZ, T. 1982. Las momias de los incas en Lima. *Revista del Museo Nacional (Lima)*, 46: 405-418.
- HAMPE MARTINEZ, T. 2000. La 'loquería' del Hospital de San Andrés. *El Comercio*, Lima, 19 de mayo (Editorial).
- . n.d. La Investigación de Riva-Agüero (1937). Unpublished manuscript.

- HARTH TERRÉ, E. 1958. Las bellas artes en el Virreinato del Perú en el siglo XVII, azulejos limeños. *Revista del Archivo Nacional del Perú*, 12(2): 353-441.
- . 1963. Hospitales mayores en Lima, en el primer siglo de su fundación. *Anales del Instituto de Arte Americano e Investigaciones Estéticas* (Buenos Aires), 16: 34-47.
- IRIARTE, F. 1960. Algunas apreciaciones sobre los Huanchos. *In* *Antiguo Peru, Espacio y Tiempo*. Librería Editorial Juan Media Baca, Lima.
- JAMIESON, R. W. 2001. Majolica in the early colonial Andes: The role of Panamanian wares. *Latin American Antiquity*, 12: 45-58.
- JAMIESON, R. W., AND R. G. V. HANCOCK. 2004. Neutron activation analysis of colonial ceramics from southern highland Ecuador. *Archaeometry*, 46(6): 569-583.
- KVAMME, K. L. 2001. Current practices in archaeogeophysics: Magnetics, resistivity, conductivity, and ground-penetrating radar, pp. 353-384. *In* Paul Goldberg, Paul Vance T. Holliday, and C. Reid Ferring, eds., *Earth Sciences and Archaeology*. Kluwer Academic/Plenum Publishers, New York.
- LASTRES, J. B. 1940. Terremotos, Hospitales y Epidemias de la Lima Colonial. *Revista del Museo Nacional* (Lima), 9(2): 243-251.
- MAITA AGURTO, P. 2005. Arqueofauna prehispánica y colonial de San Andrés. Unpublished report submitted to the Instituto Nacional de Cultura (Lima) as part of the final project report for the San Andrés Historical and Archaeological Project.
- MENA, CRISTOBAL DE. 1929. The conquest of Peru as recorded by a member of the Pizarro expedition [1534]. Translated by Joseph H. Sinclair. New York: New York Public Library.
- MENDIETA OCAMPO, I. 1990. Hospitales de Lima Colonial Siglos XVII-XIX. Universidad Nacional Mayor de San Marcos, Seminario de Historia Rural Andina, Lima.
- MOGROVEJO ROSALES, J. D. 1996. Arqueología urbana de evidencias coloniales en la ciudad de Lima. Cuadernos de Investigación. Pontificia Universidad Católica del Perú, Instituto Riva-Agüero, Lima.
- MOGOLLÓN AVILA, V. 2005. Análisis Malacológico. Unpublished report submitted to the Instituto Nacional de Cultura (Lima) as part of the final project report for the San Andrés Historical and Archaeological Project.
- MURÚA, M. DE. 1962. Historia general del Perú, origen y descendencia de los Incas ... [ca. 1615]. Edited by M. Ballesteros-Garbrois. Biblioteca Americana Vetus. Instituto Gonzalo Fernández de Oviedo, Madrid (Loyola Manuscript).
- OSBORN, R., AND C. CAMPOS NAPAN. 2005. Osteological inventory/analysis for test excavations at San Andrés, Lima. Unpublished report submitted to the Instituto Nacional de Cultura (Lima) as part of the final project report for the San Andrés Historical and Archaeological Project.
- PACHACUTI YAMQUI SALCAMAYHUA, J. DE SANTA CRUZ. 1950. Relación de antigüedades deste reyno del Perú [ca. 1613], pp. 207-281. *In* Jiménez de la Espada, Marcos, ed., *Tres relaciones de antigüedades peruanas*. Editora Guaranda, Asunción del Paraguay.
- PIZARRO, P. 1986. Relación del descubrimiento y conquista de los reinos del Perú [1571]. Pontificia Universidad Católica del Perú, Lima.
- POLO, J. T. 1877. Momias de los incas. Documentos literarios del Perú. 10: 371-378. Editorial Manuel de Orduizola, Lima.
- POLO DE ONDEGARDO, J. 1990. Notables daños de no guardar a los indios sus fueros [1571], pp. 33-113. *In* González, Laura, and Alicia Alonso. *El mundo de los incas*. Historia 16, Madrid.
- RABI CHARA, M. 2005. La protección de la salud, pp. 365-455. *In* Arbulu, L. Gutierrez, ed., *Lima en el siglo XVI*. Fondo Editorial de la PUCP-IRA, Lima.
- RIVA-AGÜERO, J. DE LA. 1966. Sobre las momias de los Incas [1938]. *In* Pacheco Vélez, César, ed., *Estudios de historia peruana. Las civilizaciones primitivas y el Imperio Incaico* (Obras completas de José de la Riva-Agüero). Pontificia Universidad Católica del Perú, Lima. 5: 393-400.
- . 2003. Epistolario (La Rosa-Llosa) (Obras completas de José de la Riva-Agüero, vol. 18, parts 1 and 2). Pontificia Universidad Católica del Perú, Lima.
- ROSTWOROSKI DE DIEZ CANSECO, M. 1999. History of the Inca Realm. Translated by Harry B. Iceland. Cambridge University Press, Cambridge.
- RUIZ DE NAVAMUEL, A. 1882. La fe y testimonio que va puesta en los cuatro paños ... [1572], pp. 245-257. *In* Jiménez de la Espada, Marcos, ed., *Informaciones acerca del señorío y gobierno de los incas hechas por mandado de Don Francisco de Toledo*, Tomo 16. Colección de Libros Españoles Raros ó Curiosos. Imprenta de Miguel Ginesta, Madrid.
- SALINAS SANCHEZ, A. 2000. Medicina y Salubridad en el Siglo XIX. Universidad Nacional Mayor de San Marcos, Seminario de Historia Rural Andina, Lima.
- SANCHO DE LA HOZ, PEDRO. 1917. An account of the conquest of Peru [1534]. Translated by Philip Ainsworth Means. New York: The Cortés Society.
- SARMIENTO DE GAMBOA, P. 1906. Segunda parte de la historia general llamada Indica ... [1572]. *In* Pietschmann, Richard, ed., *Geschichte des Inkarreiches von Pedro Sarmiento de Gamboa. Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen, Philologisch-Historische Klasse, Neue Folge*, vol. 6, no. 4. Weidmannsche Buchhandlung, Berlin.
- SOCIEDAD, DE BENEFICENCIA PÚBLICA DE LIMA 1868. Memoria presentada por el Director de la Sociedad de Beneficencia Pública Don Manuel Pardo a la Junta General reunida el 17 de diciembre de 1868. Ediciones de la Imprenta del Teatro-Portal de San Agustín, Lima.
- . 1869. Memoria de la Sociedad de Beneficencia Pública presentada por su Director Don Francisco Carassa a la Junta General Reunida el 28 de diciembre de 1869. Ediciones de la Imprenta del Teatro-Portal de San Agustín, Lima.
- . 1880. Memoria presentada a la Sociedad de Beneficencia Pública de Lima por su Director J. A. García a la junta general reunida el 31 de diciembre

- de 1880. Ediciones de la Imprenta del Teatro-Portal de San Agustín, Lima.
- . 1911. *Establecimientos Públicos de la Sociedad de Beneficencia Pública de Lima*. Beneficencia Pública de Lima, Lima.
- . 1913. *Album fotográfico de los establecimientos de su cargo*. Impresión de la Casa Editora M. Mora, Lima.
- STRONG, W. D., AND J. M. CORBETT. 1943. A ceramic sequence at Pachacamac. *Archaeological Studies in Peru 1941–1942*. Columbia Studies in Archaeology and Ethnology, vol. 1, New York.
- VALLEJO BERRIÓS, F. 2004. El Estilo Ychsma: Características generales, secuencia y distribución geográfica. In Eeckhout, Peter, ed., *Bulletin de l'Institut Français d'Etudes Andines. Arqueología de la Costa Central del Perú en los Periodos Tardíos*. TAREAC Asociación Gráfica Educativa, Lima. 3(3): 595–642.
- VAN DEUSEN, N. E. 1999. The “alienated” body: Slaves and Castas in the Hospital of San Bartolome in Lima, 1680–1700. *The Americas*, 56(1): 1–30.
- VAN DE GUCHTE, M. J. 1990. *Carving the world: Inca monumental sculpture and landscape*. Ph.D. dissertation, Department of Anthropology, University of Illinois at Urbana-Champaign. Microfilms, Ann Arbor, Michigan.
- VAZQUEZ DE ESPINOSA, A. 1948. *Compendio y descripción de las Indias Occidentales [1628]*. Transcribed from the original by Charles Upson Clark. *Smithsonian Miscellaneous Collections*, vol. 108. Smithsonian Institution, Washington D.C.
- VILLANUEVA, C., C. A. 1999. El Santo Oficio y los judaizantes en Lima, 1939: El “Tapadito” del Respaldo de San Andrés. *Fénix: Revista de la Biblioteca Nacional (Lima)*, 40–41: 101–146.
- VILLAR CÓRDOVA, P. 1935. *Las Culturas Prehispánicas del Departamento de Lima. Homenaje al IV Centenario de la Fundación de Lima: O Antigua Ciudad de los Reyes*. Edición auspiciada por la H. Municipalidad de Lima, Lima.
- WARREN, A. 2004. *Piety and danger: Popular ritual, epidemics and medical reforms in Lima, Peru, 1750–1860*. Ph.D. Dissertation, Department of History, University of California, San Diego.
- WATSON, L. 2006. *Análisis de bio-anthropología de materiales de Zona 49*. Unpublished report submitted to the Instituto Nacional de Cultura, Lima, as part of the final project report for the San Andrés Historical and Archaeological Project.
- WILLIAMS, P. R., N. COUTURE, D. BLOM, J. JANUSEK, B. VINING, AND C. DAYTON. 2004. Ground-based remote sensing and early state development in the south-central Andes, pp. 149–157. *In Proceedings of the International Conference of Remote Sensing Archaeology*. Joint Laboratory of Remote Sensing Archaeology, Chinese Academy of Sciences, Beijing.
- XEREZ, FRANCISCO DE. 1985. *Verdadera relación de la conquista del Perú [1534]*. Edited by Concepción Bravo. Madrid: Historia 16.
- ZARATE CÁRDENAS, E. 2005. *Los inicios de la Escuela de Medicina de Lima*. Asamblea Nacional de Rectores, Lima.





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