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From Slavery to Servitude: Transformations and Continuities in Hacienda Labor, Well-Being, and Foodways in Eighteenth- and Nineteenth-Century Nasca

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Abstract
The nineteenth century was a dynamic period for hacienda workers on the south coast of Peru. Former Jesuit vineyards with two of the largest enslaved African-descended populations in rural coastal Peru—the haciendas of San Joseph (San José) and San Francisco Xavier (San Javier)—and their annexes in Nasca's Ingenio Valley underwent dramatic transformations with the replacement of their grapevines with cotton and the introduction of new types of workers. Cantonese indentured workers were contracted beginning in the 1830s, and the majority-enslaved workforce was legally emancipated in 1854. Seasonally, highland Andean workers joined the demographically shifting permanent hacienda population. We use evidence from excavated midden contexts at San Joseph, San Xavier, and San Joseph's annex of Hacienda La Ventilla to explore these changing agroindustrial dynamics and worker well-being in the eighteenth and nineteenth centuries. Despite the transformations at the estates, we find that culinary practices developed by enslaved Africans and their descendants during the Jesuit administration, such as the preparation of one-pot meals and stews, continued into the republican era among Cantonese indentured laborers and wage workers of Indigenous, mestizo, and Cantonese origins. We argue that such strategies centered on foodways were a crucial aspect of worker self-care regimes and broader well-being.

Resumen
El siglo diecinueve fue dinámico para los trabajadores de las haciendas de la costa sur del Perú. San Joseph (San José) y San Francisco Xavier (San Javier) y sus anexos en el valle de El Ingenio de Nasca —que en su día fueron viñedos jesuitas con las mayores poblaciones de descendientes de africanos esclavizados de la costa peruana— sufrieron drásticas transformaciones con la sustitución de sus vides por algodón y la introducción de nuevos tipos de trabajadores. A partir de la década de 1830 fueron contratados cantoneses, y en 1854 se produjo la emancipación legal de la mayoría de la mano de obra. Estacionalmente, los trabajadores andinos de la sierra se unieron también a la población de la hacienda. Además de documentación histórica, usamos evidencia de contextos de basureros excavados en dichas haciendas, para explorar sus dinámicas agroindustriales y el bienestar de los trabajadores en los siglos dieciocho y diecinueve. A pesar de las transformaciones, encontramos que las prácticas culinarias desarrolladas por los africanos y afrodescendientes esclavizados durante la administración jesuita, así como la preparación de comidas y guisos en una olla común, continuaron en la época republicana entre los cantoneses contratados y los asalariados indígenas, mestizos y cantoneses. Estas estrategias centradas en la alimentación eran cruciales en el autocuidado y bienestar de los trabajadores.

Keywords: slavery; well-being; foodways; African descendants; Jesuit haciendas; Peru

Palabras clave: esclavitud; bienestar; alimentación; afrodescendientes; haciendas jesuitas; Perú

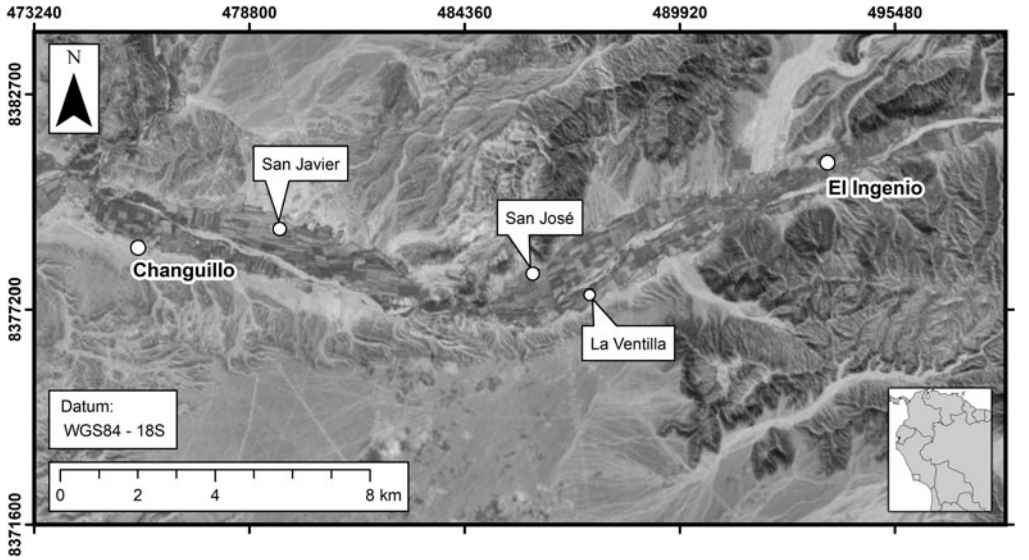

Figure 1. Locations of archaeological sites in Nasca's Ingenio Valley, discussed in the text.

The eighteenth and nineteenth centuries brought political and economic dynamism to coastal Peru, resulting in substantial transformations in labor, demography, and social organization (Armas Asín 2011; Flores Guzmán 2010). The former Jesuit vineyard haciendas of Nasca, in south coastal Peru, offer an important vantage point for observing the social and material transformations from the late colonial period through the birth of the Peruvian republic. The Haciendas of Nasca Archaeological Project (PAHN) has examined the daily lived experience of enslaved African-descended workers at the Jesuit-administered (1619–1767) haciendas of San Joseph de la Nasca (today, the town of San José) and San Francisco Xavier de la Nasca (now, San Javier)[1] and their noncontiguous annexes located throughout the Río Grande de Nasca drainage. Excavations in 2012 and 2013 of Jesuit-period domestic middens at San Joseph offer crucial evidence for well-being among the enslaved. In 2018, we conducted excavations at San Joseph's former annex at Hacienda La Ventilla, providing comparative archaeological contexts for the post-Jesuit period through the nineteenth century. Together, these contexts enable a comparative study of worker well-being during an important transition from a dominant agricultural reliance on enslaved labor to relying on wage labor and indentured servitude (Figure 1).

In this article, we conceptualize worker well-being as a holistic index of a population, one that moves beyond health and the biological necessities of life to include regimes of self-care and sourcing nutritious and culturally desirable food for the practice of culinary arts (see Reifschneider and Bardolph 2020). Among enslaved communities of the African diaspora, archaeologists have found that foodways often reveal the tensions between top-down administrative strategies for providing the bare sustenance for performing labor and the bottom-up, agentive cultural expression of self-care practices, including medicine and cuisine, that transformed raw ingredients into meals shared among families and workmates, offering a temporary respite from the relentless reality of agroindustrial labor (e.g., Brunache 2011; Franklin 2001; Wallman 2020). We track foodways and self-care practices using archaeobotanical and zooarchaeological techniques and examining relevant historical documentation. Our study aims to understand how culturally diverse workers coped with and adapted to the impact of important changes in the labor, demography, and social organization of the haciendas during this period.

Our primary focus on the enslaved Afro-Andean populations of the costal haciendas not only offers an archaeological vantage point for understanding racial slavery in Latin America but also is important in contextualizing the larger impact of European colonialism in the Andean region. Africans and their

descendants at the Nasca estates engaged with native Andeans and influenced their lifeways in south coastal Peru and the adjacent highland region. Many of the enslaved were descendants not only of Africans but also of Europeans and Indigenous Andeans. Research that takes for granted the continuities between modern rural and Indigenous communities and their ancestors has often ignored the influence of other cultural actors, such as Africans and Asians, and the dynamics of social transformative moments during the late Spanish colonial (1700–1821) and republican (1821–1914) periods.

The Society of Jesus (Jesuits) acquired its first properties in Nasca's Ingenio Valley in 1619. Proceeds from the vineyards of San Joseph and San Xavier supported the principal Jesuit secondary schools (*colegios*) in Cuzco and Lima, respectively. The orders of King Charles III to expel the Jesuits from the Spanish Empire and expropriate all Jesuit properties to the Crown's estate brought dramatic administrative changes to the Nasca haciendas (Saenz-Rico 1967:323–394). The post-Jesuit and early republican period at these estates generally corresponds in global terms to the analytical period termed by historians and archaeologists as the "long nineteenth century" (Hobsbawm 1962, 1975, 1987). This is the period that spans the age of revolutions at the end of the eighteenth century (1765–1848, marked by the birth of political liberalism in the Atlantic World) through World War I. In Peru, the Bourbon reforms, including the Jesuit expulsion, consolidated and centralized the powers of the Spanish Crown in the viceroyalty and responded to demographic transformations, the political and economic rise of the Creole and mestizo classes, and Spanish-American movements for autonomy and independence (O'Phelan Godoy 1999). After Peru gained independence in 1821, the early republican period saw rapid transformations in politics, economic organization, and trade partnerships, as well as the 1854 abolition of slavery in the young republic. When the state-administered properties of San José and San Javier and their annexes were sold into private hands in 1837, the broader political and economic realities of the Peruvian Republic and the postcolonial Americas began to play out at the smaller scale of the estates.

In this article we ask how transitions in hacienda infrastructure and labor organization, access to institutional medicine, and worker provisioning and subsistence practices affected the well-being of the hacienda populations. We seek to understand the differences and continuities between the periods of Jesuit (1619–1767) and Crown (1767–1821) administration of San Joseph and San Xavier. Second, what was the impact on worker well-being of the dynamic changes in labor organization and demographics occurring when the haciendas became private secular estates after 1837? To trace these processes between the periods of Jesuit and post-Jesuit administration and to contextualize our archaeological analysis of worker well-being, we begin by examining the historical documentation related to an epidemic that quickly spread among the enslaved populations of both haciendas in the first several years after Crown expropriation. In this scenario, institutional structures meant to support enslaved workers' health and well-being broke down, prompting questions about the nature of the structures in place and their failings. How did workers themselves contribute to their own well-being, beyond the aid of the estate administration? We turn to archaeobotanical and zooarchaeological datasets that demonstrate continuities in foodways patterns vital to worker well-being between the Jesuit and post-Jesuit periods. These foodways were not just necessary for sustenance but also constituted culinary strategies developed by enslaved Africans and their descendants during the Jesuit administration that continued into the haciendas' republican era among wage and indentured workers of Indigenous, mestizo, and Cantonese origins. In the hands of women at the Nasca estates, the preparation of meals from ingredients procured through both administrative and self-provisioning practices was an opportunity for creative and cultural expression. We find that although the agroindustrial regimes at the estates moved from vitiviniculture to cotton production, accompanied by transformations in worker demographics and organization, strategies for self-care and the practice of the culinary arts, especially in the production of stews and one-pot meals, continued over time.

Facing an Epidemic: Well-Being and the Breakdown of Institutional Support

A year after San Joseph and San Xavier were expropriated by the Crown, the first in a wave of epidemics struck San Xavier. These haciendas were particularly important to the Crown, representing the two most profitable vineyards in the viceroyalty (Macera 1966:Table 1), with a sizable enslaved population

of 584 individuals (Archivo Nacional de Chile, Santiago [ANC], Testimonio de la hacienda San Joseph de Nasca, Vol. 344, No. 17, 1767; ANC, Verdadero testimonio de la hacienda de viña nombrada San Francisco Xavier de la Nasca, Yca. Vol. 344, No. 16, 1767). By November 1768, conditions had become grave as an uncontrollable disease erupted, affecting the enslaved youth of the estate (Archivo General de la Nación del Perú, Lima [AGN], Isidro José Ortega y Pimentel, doctor protomédico general informa sobre una epidemia, GO-BI2, Leg. 98, C. 1510, 1768). The epidemic baffled the Crown-appointed administrator, Policarpo Luján, who was a member of the medical faculty of the Royal University of San Marcos in Lima.

The Junta de Temporalidades, the Crown administrative board managing the expropriated Jesuit properties within the viceroyalty, sent Isidro Joseph Ortega y Pimentel, the Chief Physician General (*protomédico general*), to San Xavier to investigate. The epidemic also perplexed Ortega y Pimentel, because it seemed at first to only affect the young: infants through adolescents. Patients suffered from weakness, abdominal pain, nausea, and a host of other symptoms that within days resulted in delirium and then death. Residents of other estates, namely San Joseph, were spared at first, despite eating the same foods, drinking from the same water supply, and mingling with residents of San Xavier. However, these observations did not lead to a diagnosis nor a cure. Ortega y Pimentel prescribed quinine (*kina* [*sic*])—a medicine commonly used to treat malaria and reduce fevers—to no avail (AGN, Ortega y Pimentel, GO-BI2, Leg. 98, C. 1510:f.4r, 1768; see Crawford 2016).

On December 13, 1768, shortly after Ortega y Pimentel's arrival at San Xavier, the Junta de Temporalidades sent from Lima a shipment of 44 medications and supplies for the hacienda's pharmacy (Archivo Histórico del Instituto Riva-Agüero, Lima, Peru [AHIRA], Medicinas remitidas a la Hazienda de San Javier de la Nasca, A-I-93:fs.16v–17r, 1768; see Table 1). These medicines, with a total value of 157 pesos ½ real, were a broad assortment of simples,[2] compounds, and prepared medicines for the treatment of many common ailments: they were the more commonly used medicines from the vast pharmaceutical stock acquired by the Crown after its expropriation of the Jesuit pharmacy at the Colegio Máximo de San Pablo in Lima (AGN, Inventario de la botica del Colegio de San Pablo, hecho a raíz de la expatriación de los PP. de la Compañía de Jesús, TP, Leg. 2, C. 28, 1768). Notably, this resupply included four pounds of quinine for the treatment of fevers. Many of the drugs served multiple purposes for a variety of diseases and conditions and could be used as laxatives or cathartics (e.g., Jalap resin, mercurous chloride, manna, diacatholicon, opium extract syrup, cream of tartar, sweet almond oil, and senna leaf). Other medicines could be used to treat coughs (camphor) or as expectorants (e.g., salt of ammonium chloride), treat eye diseases (atutia and verdigris), treat edema (Agrippa unguent) and be applied topically to reduce inflammation (potassium nitrate), heal wounds and infections (Basilicon unguent), treat various skin diseases (sarsaparilla root, complex mercury unguent, and calaguala fern), heal lesions and hasten scabbing (mercuric oxide powder), and treat blisters (vesicatory plaster). Moreover, although the arrival of these medicines a month after Ortega y Pimentel's report to the Junta de Temporalidades is likely important, the variety and assortment of medicines suggest an administrative strategy to supply Crown haciendas with a range of medicines for treating everyday conditions (see Newson 2017), beyond the specific needs of the population during this epidemic.

Ultimately, Ortega y Pimentel's efforts to treat and quarantine the disease were unsuccessful: infection spread to the adult population of San Xavier and, by 1769, affected the enslaved community of San Joseph as well. Waves of disease continued to affect these haciendas through 1773 (Barentzen 2004). The epidemics incapacitated enough of the agricultural and skilled enslaved laborers that additional Indigenous and mestizo wage labor had to be brought to the estates and overall production output was reduced by half (see Weaver 2015:136). At both haciendas, wage laborers. including fieldhands, muleteers, and ceramicists, were contracted to supplement the loss suffered among the enslaved population (see Barentzen 2004:129, 134). This documentary record of epidemic disease in the years immediately following the expropriation and the Crown administration's failure to control the outbreaks prompted our questions regarding the health and well-being of hacienda laborers.

During the Jesuit period, San Xavier and San Joseph were plugged into a vast network of institutional support. Both estates had their own modest infirmaries and pharmacies that were able to handle

Table 1. Medicines Sent by the Crown Administration to the Hacienda San Francisco Xavier de la Nasca in December 1768.

Weight		Item		Value	
Lbs.	Oz.	Original/Spanish	Common Name / English	Pesos	Reales
0	3	Resina de Jalapa	Jalap (*Ipomoea purga*) resin	9	0
0	4	Polvos de lo mismo	Powders of the same	2	0
0	8	Polvos de ruibarbo	Rhubarb (*Rheum* spp.) powders	8	0
0	4	Mercurio dulce	Mercurous chloride	4	0
8	0	Manna	Manna (*Fraxinus ornus*)	16	0
2	0	Cremor tártaro	Cream of tartar (potassium bitartrate)	2	0
2	0	Diacatholicon	Diacatholicon (complex electuary)	8	0
2	0	Triaca magna	Theriaca	8	0
1	0	Jarave de Meconio	Opium extration syrup	1	0
3	8	Azeite de almendras dulces	Sweet almond (*Prunus dulcis*) oil	7	0
0	6	Ojos de cangrejo	Rosary pea (*Abrus percatorius*)	3	0
0	8	Esperma de ballena	Sperm whale (*Physeter macrocephalus*) oil	4	0
6	0	Ungüento amarillo	Basilicon unguent	12	0
0	4	Emplasto de ranas duplicado mercurio	Poultice of frogs, treated with mercury	1	4
0	4	dicho confortativo de trigo	aforementioned, with comforting ointment of wheat	1	0
0	4	dicho Meliloto	aforementioned, with yellow melilot (*Melilotus officinalis*)	1	4
0	4	Sarssafrás	Sassafras (*Sassafras* spp.)	1	0
4	0	Sarza	Sarsaparilla root (*Smilaz* spp.)	4	0
1	0	Ungüento mercurio compuesto	Complex mercury unguent	4	0
0	6	Ungüento blanco	White lead-based unguent	0	6
0	4	Cardenillo	Verdigris (copper acetate)	0	6
0	4	Polvos de Juanes	Mercury oxide powder	1	0
1	8	Alholvas y linazas	Fenugreek (*Trigonella foenum-graecum*) and linseed (*Linum usitatissimum*)	2	5
0	6	Alcamphor	Camphor (*Cinnamomum camphora*)	3	0
0	4	Sal armoniaco	Salt of ammonium chloride	1	0
0	2	Sal de agenjas	Absinthe salt (*Artemisia absinthium)*	1	0
0	6	Nitro purificado	Potassium nitrate	0	6
4	0	Cascarilla electa	Quinine (*Cinchona officinalis*)	4	0
0	4	Visco guercino	Oak mistletoe (*Loranthus europaeus*)	1	0
2	0	Ungüento agrippa	Agrippa unguent, based on bryonia (*Bryonia* sp.)	6	0
0	4	Incienzo	Incense	1	0
0	4	Piedra lipis	Copper sulfate	0	4
0	2	Antimonio diaphoretico	Diaphoretic antimony	1	0

(*Continued*)

Table 1. (*Continued.*)

Weight		Item		Value	
Lbs.	Oz.	Original/Spanish	Common Name / English	Pesos	Reales
0	6	Confección del jacinthos	Cordial based on zircon	6	0
0	2	Emplasto promatrice	Complex plaster	1	0
0	2	Manojos escabiosa	Treatment for scabies	0	4
0	4	Azeite de María	Oil of Santa Maria (*Calophyllum mariae*)	0	4
0	6	Ungüento egipciaco	Unguent of alum, verdigis	0	6
0	2	Sen en oja	Senna leaf (*Senna* spp.)	0	4
0	2	Esponja fina	Fine sponge	0	4
0	½	Atutia	Tutty, zinc oxide, soot from mineral smelting	1	0
0	4½	Aesticulos de casthor	Beaver (*Castor* sp.) castor glands	0	2
0	6	Asufre	Sulphur	6	0
0	8	Calaguala	Calaguala fern *(Polypodium decumanum)*	0	2
0	6	Emplasto vexicatorío	Plaster for the treatment of blisters and vesicles	3	0
—	—	2 vasijas grandes de barro, á 3 reales	2 large earthenware vessels, 3 reales	0	6
—	—	3 dichas medianas, á 1½ reales	3 of the same in medium, at 1½ reales	0	4½
—	—	9 dichas pequeñas, á ½ real	9 of the same in small, at ½ real	0	4½
—	—	Papel	Paper	0	1½
—	—	Hilo	Thread	0	1
—	—	6 badanas	6 sheepskins	0	3
—	—	Por un caxón tosco	For a rough box	3	0
0	4	azafrán de castilla, á 2 pesos	Castillian saffron (*Crocus sativus*)	8	0
—	—	1 limeta de vidrio	1 glass bottle with long neck and bulbous base	0	3

Source: AHIRA, Medicinas remitidas, A-I-93:fs.16v–17r, 1768.

routine injuries and ailments. Local doctors were "on call" at the haciendas, but on occasion medical professionals were brought from Lima or enslaved patients were sent to the renowned Jesuit infirmary at the Colegio de San Pablo in Lima. The infirmary at San Xavier consisted of two rooms roofed with totora reeds and huarango-wood cross beams (ANC, Verdadero testimonio, Yca. Vol. 344, No. 16: f.239r, 1767); patients were separated by gender. San Joseph's infirmary infrastructure was evidently more elaborate, and the 1767 Crown inventory describes it in greater detail (ANC, San Joseph de Nasca, Vol. 344, No. 17:fs.274r–v, 1767). Both the men's and women's infirmaries were brick structures with wooden roofing—indicating their importance within the hacienda's built environment, which was a spectrum of formal and informal structures. The women's room had six platform beds, divided and framed with carved huarango foot- and headboards and wooden canopies. The men's infirmary was larger and consisted of two rooms, one with 20 beds and the other with six, which were described as being similar to those in the women's infirmary. Both estates also had nurseries for infants and new mothers.

The events of the Jesuit expulsion and the wave of epidemics affecting San Joseph and San Xavier ushered in a new era of dependence on contractual and migratory labor, as enslaved workers and

children of all ages continued to die. The continuity of administrative practices and the institutional network that had stabilized the Jesuit haciendas for nearly 150 years were broken with Crown expropriation. In 1819, late in the Crown's administration of the haciendas, food scarcity was listed as the primary complaint by a cohort of 34 enslaved fugitives from San Xavier who sought to lodge an official complaint in the courts of Lima (AGN, Autos que se siguieron con motivo de la fuga de 34 esclavos de la hacienda San Xavier de la Nasca, C-13, Leg. 70, C. 3, 1819). Shortly after Peruvian independence, the young republic sought to sell these Nasca properties. Potential buyers remarked at the ruined condition of the formerly important colonial vineyards (Echenique 1952:103–104). In 1837, agribusinessman and prominent Peruvian politician Domingo Elías purchased both estates and their annexes located throughout the Nasca drainage. He diversified the estates' productive fields, replacing grapevines with cotton and introducing new types of laborers (see Saponara 2008:197). Cantonese indentured workers were contracted, and the majority-enslaved workforce was legally emancipated in 1854 (Rodríguez Pastor 2012). Seasonally, highland Andean workers joined the demographically shifting permanent hacienda population. Thus, the nineteenth century was a dynamic period of change for hacienda workers on the south coast of Peru and the culmination of a process that began with the Jesuit expulsion in 1767. Additionally, as the haciendas became more reliant on wage rather than enslaved labor, the responsibilities for worker health were relegated to the workers themselves.

It is evident, however, that institutional medical support, including emergency access to the highest-ranking and best-educated doctors in the viceroyalty, was not sufficient to ensure the health of the enslaved population. The epidemics at the outset of the Crown's administration demonstrate this point. Although the Crown brought in the leading public health official and the hacienda administrator had access to the Royal University's medical resources, there was ultimately a breakdown in the ability to maintain health at the estates. Archaeology offers both the prospect of moving beyond the administrative concern for health and the opportunity to holistically approach worker well-being by focusing on foodways and the culinary arts in the hands of hacienda laborers.

Comparing Haciendas across Time: San Joseph and La Ventilla

PAHN has carried out ethnohistorical and archaeological research on the Jesuit haciendas of Nasca since 2009, in collaboration with the former estates' modern descendant communities (Weaver et al. 2022). A major survey of San Joseph, San Javier, and their annexes, as well as excavation at the main hacienda cores, was carried out in 2012 and 2013, with subsequent excavations at San Joseph's annex of La Ventilla in 2018. Given that the domestic and productive cores of the sites of the former haciendas San Joseph and San Xavier are occupied by the modern villages of San José and San Javier, our team has worked closely with the communities to minimize the impact of our field research on daily life and to use the archaeology to answer questions of relevance to the community. Our research team and the community have a shared interest in identifying the areas to excavate that would yield the broadest range of contexts related to domestic, productive, and religious life at the ex-haciendas. This goal was aided through the use of archival data and an extensive geophysical survey. Between the two principal sites, a total of 36 m^2, amounting to a volume of 52.5 m^3, was excavated among 10 contexts in the 2012 and 2013 field seasons.

These excavations at the domestic and productive hacienda cores resulted in many findings revealing daily life among the enslaved populations of the seventeenth and eighteenth centuries. As evident in the material and spatial conditions of the estates, the Jesuit administration made use of coercive technologies reflecting a spiritual ideology of labor as Christian discipline (Weaver 2016, 2021a). Additionally, midden contexts established the entangled character of the enslaved population's domestic and agroindustrial tasks, as demonstrated by waste from productive activities carried out within kitchens and the domestic environment (Weaver et al. 2019). Yet, the enslaved residents created opportunities for self-expression: they constructed meaning through the ceramics that enslaved potters produced and their daily engagement with the material of the hacienda environment—evoking signs and referencing aspects of West and West-Central African political, religious, and folk traditions (Weaver 2018, 2021b). Domestic middens also revealed the importance of self-provisioning within the Jesuit administrative strategy (Weaver et al. 2019).

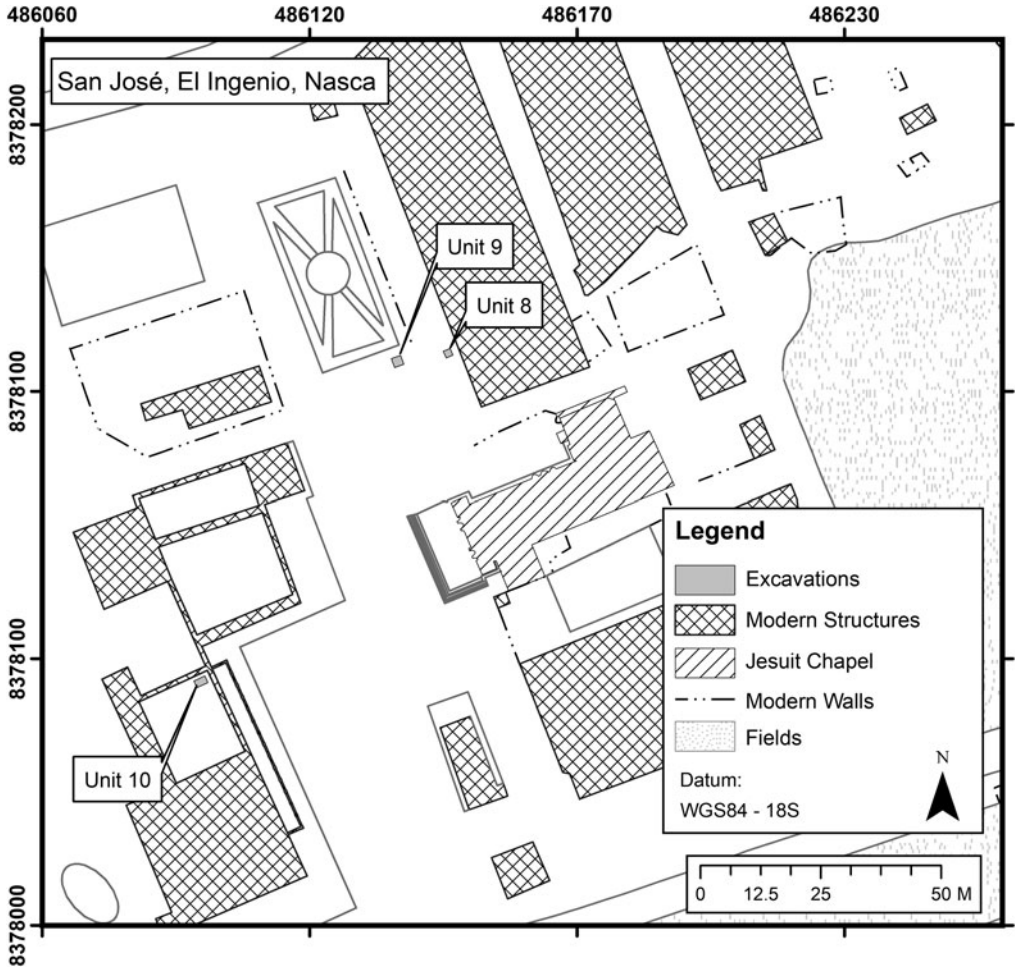

Figure 2. Town of San José at the productive and residential nucleus of the former Jesuit hacienda San Joseph de la Nasca, indicating the locations of 2013 excavation units discussed herein.

Midden contexts from both San Xavier and San Joseph certainly inform our general impressions of domestic activities among enslaved residents during the Jesuit period in the seventeenth and eighteenth centuries. However, to provide a sample to compare with the post-Jesuit middens of La Ventilla, we isolated our archaeobotanical and zooarchaeological analysis from contemporaneous midden contexts from three contexts excavated at San Joseph: Units 8, 9, and 10 (Figure 2). These middens contained refuse from nearby kitchens that served adolescent and adult single men and women who lived in the gender-segregated slave barracks, as well as the hearths of individual enslaved families residing in their own simple homes. Unit 8 is located in front of the westernmost residential block of the modern community at San José, and Unit 9 is placed over a linear anomaly encountered in our geophysical survey of the gentle slope just to the south of the town's current plaza; it is only 8.7 m west of Unit 8. The two units encompass an area dense with alternating strata of seventeenth- and eighteenth-century domestic and agroindustrial waste. Unit 10, which is within the courtyard of the former casa hacienda, is a Jesuit-era midden with domestic refuse from enslaved households.

Our post-Jesuit sample comes from a context (Unit 11) excavated within the Jesuit-era brandy distillery (*aguardentera*) complex at La Ventilla (Figure 3). Our 2.3 × 2 m excavation along the western face of the aguardentera's *alberca*, or cooling pool, yielded 10 loci dating from about 1830 through the 1930s, using refined earthenware sherds and early twentieth-century newspaper as temporal

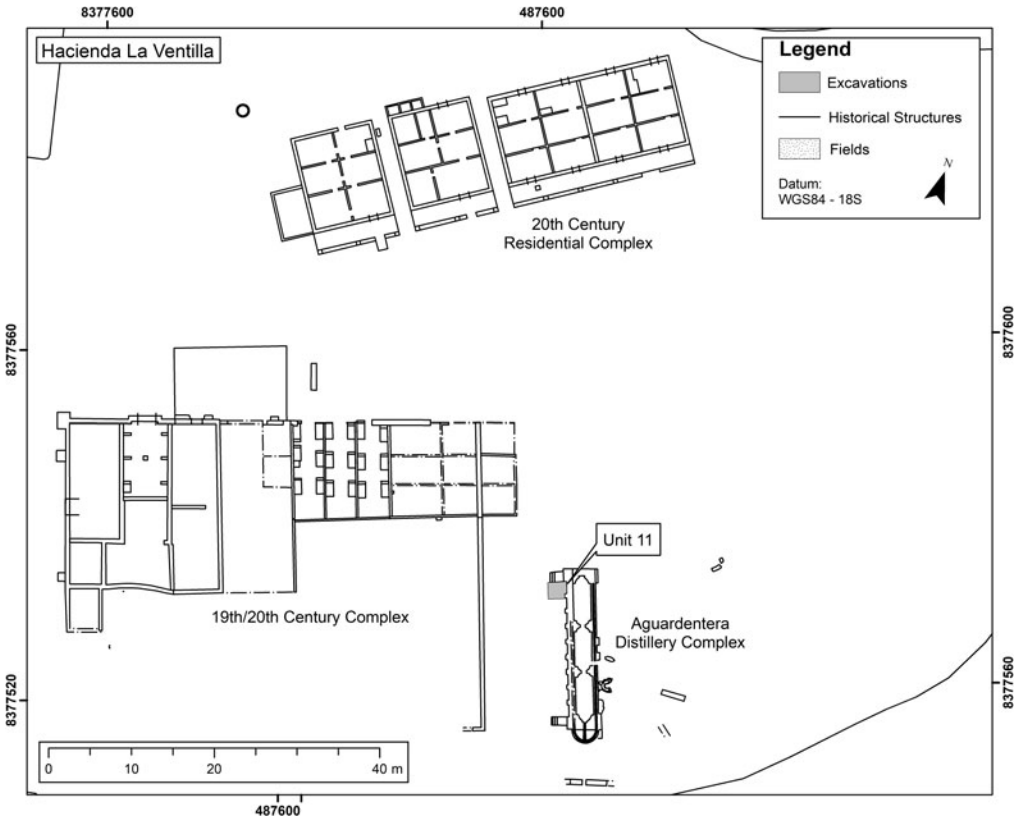

Figure 3. Map of the core of the site of Hacienda La Ventilla, with the location of Unit 11, excavated in 2018.

indices. After the abandonment of the distillery, the immediate vicinity became a midden for the annex's workers.

Our team conducted an analysis of excavated faunal remains (under the direction of Karen Durand) and macrobotanical remains and soil samples (under the direction of Lisette Muñoz) from San Joseph, San Xavier, and La Ventilla, following standard methods described in detail elsewhere (Weaver et al. 2019). Zooarchaeological analysis was aimed at assessing the specific variability of the faunal assemblages and followed standard recording procedures (Reitz and Wing 2008). Durand made use of her private comparative collection of Peruvian faunal specimens at her lab facilities in both Lima and Cuzco. She also consulted additional comparative materials held at the Museo de Historia Natural of the Universidad Nacional Mayor de San Marcos as well as identification guides (García-Godos 2001). Because of the high degree of heavy fragmentation of most of the mammal specimens, the minimum number of individuals (MNI) was not calculated. Rather, our analysis records the number of individual specimens (NISP) of each taxon to the lowest taxonomic level possible.

We classified all botanical materials at the lowest possible taxonomic level by comparing the material recovered through excavation to a digital repository of photographic catalogs that includes images of Andean seeds stored at the McCown UC Berkeley Archaeobotany Laboratory, as well as seeds stored at the Museo Contisuyo in Moquegua, Peru. Additionally, we relied on drawings and digital photographs of seeds and other relevant organic materials recovered and classified in previous PAHN field seasons. As suggested in existing protocols outlined by Pearsall (2000), we also relied on identification keys (Martin and Barkley 1961), which offered a sequence of identification steps for making taxonomic determinations. Our classification efforts of partially preserved archaeological materials resulted in determinations, as opposed to complete identifications (Hather 1994). To more consistently compare materials from Jesuit and post-Jesuit contexts, we analytically combined our determinations

into known, documented ethnobotanical uses, or both (Brack Egg 1999; Soukup 1970; Ugent and Ochoa 2006). The archaeobotanical data we present here are based on taxon density (expressed as proportions) and further organized in "groupings" of specimens of medicinal and edible relevance.

Enslaved Well-Being and Foodways at Jesuit-Era San Joseph

Enslaved foodways at the Jesuit haciendas of Nasca were situated at the nexus of top-down and bottom-up practices. The estate administration provisioned basic foodstuffs, but to achieve a culturally desirable and flavorful diet, these were supplemented with items from gardens and usufruct plots (Cushner 1975:182–183); in the hands of enslaved women, these ingredients were transformed into cuisine (Weaver et al. 2019). Orders were issued in the mid-eighteenth century by Jesuit provincial superior Fr. Jayme Perez regulating the minimum rations of meat to be given to enslaved workers. Jesuit administrators were to provision a minimum ration of beef, lamb, or jerked beef at least once a week (Macera 1966:67–68). Historian Nicholas Cushner (1980:92), using purchase records from the Hacienda Bocanegra, calculated that in most cases the allotments of meat likely exceeded the weekly minimum, potentially affording enslaved workers about seven servings of meat per month. However, this amount did not provide a sufficient supply of protein and was certainly supplemented through practices of self-provisioning and strategies that maximized the nutritional benefits of these servings.

San Joseph's middens contained the byproducts of a diet that—if viewed as a baseline for comparison—was relatively diverse and even flavorful (Figures 4 and 5). More than 20 botanical families are represented in our sample from the San Joseph middens (Weaver et al. 2019:1024). Documentation reveals that portions of meat and staples like lentils and maize were rationed by the hacienda administration, but these foodstuffs were likely supplemented by small animal husbandry, usufruct fields, and garden plots. Caprines—either sheep (*Ovis aries*) or goats (*Capra hircus*) based on historical estate inventories[3] and osteological features—were the most frequent species in our sample. Beef (*Bos taurus*) and domestic chicken (*Gallus gallus*) played a relatively small role in the population's diet. Small amounts of fish from the Pacific, likely provisioned as dried and salted and consumed in one-pot meals, were also present. In all the contexts, unidentified mammals represent between 50% and 90% of the collection; a common factor among them was the high degree of fracturing, which prevented species identification. However, in many cases the splintering was caused by percussion on long bones for marrow extraction. Animal fat, such as that contained in marrow, yields more calories per gram than carbohydrates and proteins, contains vitamins and minerals essential for proper metabolic function, and is a highly predictable food source in periods of stress. Additionally, the presence of certain plants suggests that the procurement strategy was to use a variety of sources. We found native crops (such as maize and squash), wild taxa (such as purslane), and provisioned—or even purchased—staples (such as lentils), as well as spices (hot pepper), fruits (such as passion fruit), and vegetables that could be grown in small garden plots. Many of these ingredients, together with marrow, could be easily combined in a single pot, to prepare a stew that would require little supervision throughout the cooking process.[4] One-pot cooking is a commonly reported feature of early-modern African diasporic foodways (DeCorse 1999:150; Franklin 2001; Marshall 2020).

In addition to the edible botanical remains recovered in excavation, we found some evidence of the use of home remedies drawing on African herbal medicine. In the hands of enslaved curers, these traditional remedies probably acted as the first line of medical treatment before the institutional care of pharmaceutical and medical interventions of the Jesuit administration. At San Joseph, we found seeds of *Ricinus communis* (the castor bean or castor oil plant) that—when processed—are the raw material necessary to produce castor oil. The medicinal properties of castor oil are well documented in the ethnobotany (Ghazanfar 1994) and archaeology (A-Magid 2014:Table 1) of the Old World (Akbar 2020). Castor oil, sometimes combined with date (*Phoenix* sp.) pulp, has laxative effects. Date pulp may have made this purgative sweeter and thus more palatable, which speaks to our understanding of a more compassionate approach to well-being facilitated by enslaved curers as a first line of routine medical

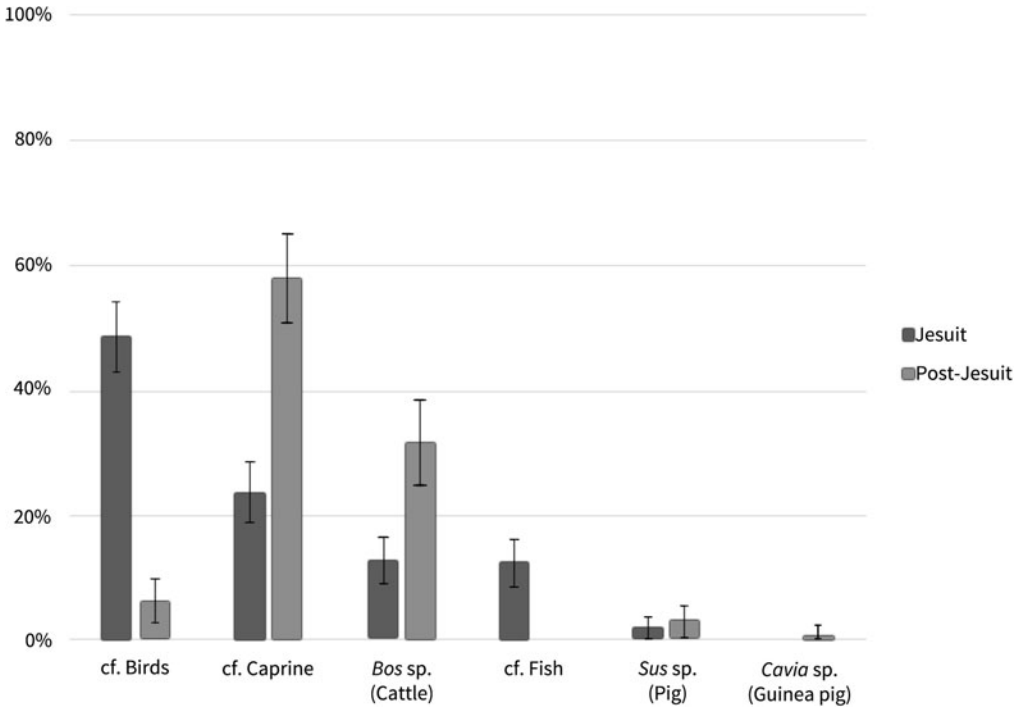

Figure 4. Bar graph of proportions of Jesuit (NISP = 625) and post-Jesuit (NISP = 373) zooarchaeological remains. Categorization corresponds to the lowest possible level of edible taxa. Error bars represent error ranges to a 99% confidence level.

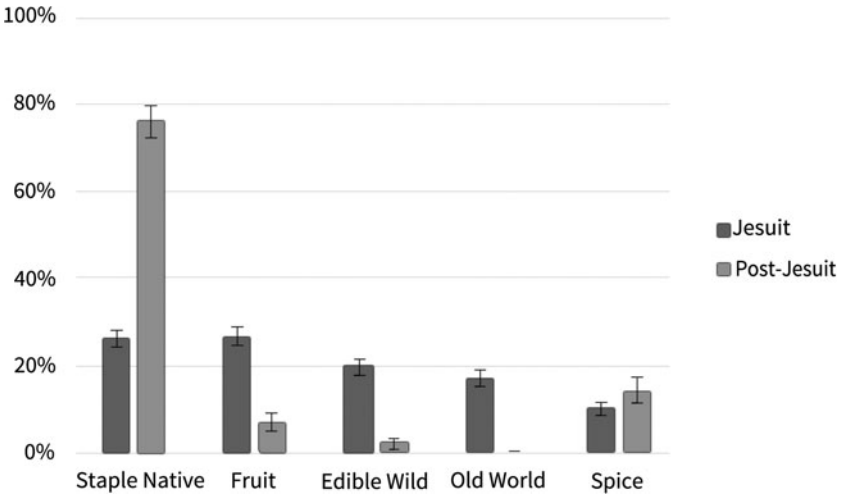

Figure 5. Bar graph of density of Jesuit (n = 912) and post-Jesuit (n = 271) archaeobotanical remains. Density is expressed as the number of items recovered per soil volume (Miller 1988). Categorization corresponds to the lowest possible level of edible taxa further grouped based on their known ethnobotanical/ethnohistorical affiliation. Error bars represent error ranges to a 99% confidence level.

care (Reifschneider 2018; Reifschneider and Bardolf 2020). Additionally, date pulp and castor oil have been historically important remedies used by women to induce labor. We recovered *Ricinus* sp. and *Phoenix* sp. seeds in the same midden context (Locus 1310, Unit 8).

Worker Well-Being at Post-Jesuit and Early Republican La Ventilla

Our excavations at the Hacienda La Ventilla offer a comparative domestic sample to understand how patterns established at San Joseph and San Xavier changed in the post-Jesuit period and during the dramatic labor/demographic transformations of the nineteenth century. Begining in 1706, the site was a secondary wine and brandy production facility for San Joseph (AGN, Títulos de la hacienda La Ventilla, TP, Leg. 21, C. 4151706, 1706), and its distillery has been the main target of our excavations. In the late eighteenth century, Francisco Angulo rented San Joseph along with its annexes, including La Ventilla, from the Junta de Temporalidades, undertaking the diversification of the estate by planting a number of fields with cotton (AGN, Francisco Angulo, subastador de la hacienda San Joseph de la Nasca. C-13, Leg. 95, C. 3, 1790). In the early nineteenth century under Domingo Elías, La Ventilla remained an annex of San José, as the hacienda had become known by the nineteenth century, and the estate was primarily dedicated to cotton production. Our excavation of the distillery demonstrates that by the early nineteenth century it ceased to function as such, becoming a caprine corral and midden for domestic refuse. However, Elías continued to produce wine at his Pisco and Nasca estates, particularly San Javier, for an international market through the 1850s. Large quantities of high-quality dry white wines were sent from the haciendas to London, Hamburg, and New York (Basadre 1968a:369–370).

It is evident that Elías invested heavily in the modernization and rehabilitation of the Nasca haciendas. In 1837, the year he acquired San José and San Javier, José Rufino Echenique (president of Peru, 1851–1855) visited the estates as a prospective buyer and commented on the ruined condition of the haciendas, as well as the malcontent and "demoralization" of the enslaved community (Echenique 1952:104). According to the research of historian Jorge Basadre (1968b:287), Elías acquired the Nasca properties along with more than 600 enslaved individuals, some of whom he sold. Although it is uncertain what documentation Basadre consulted in making this assessment, it seems that the horrific loss of life among the enslaved population in the post-Jesuit epidemics did not result in a permanent reliance on wage laborers, and subsequent administrators continued to invest in slave labor. Among the last documents prior to the state sale of San José and San Javier to Elías are receipts (AGN, Cuenta de cargo y deuda que yo don Pedro Ugalde administrador de las haciendas del Estado San José y San Javier, Ministerio de Hacienda, O.L. 256-2376:fs.11r–13r, 1837) for the distribution of fabric for clothing to 140 enslaved individuals—the female heads of individual households, as well as single adult women and men—supporting Basadre's assertion of a large enslaved population. In 1849, Elías and several contemporaries were the first to import Chinese laborers to Peru (Paroy Villafuerte 2012:133; Situ Chang 2019:57). By the time slavery was abolished at the end of 1854, Elías, following the lead of British and Cuban agroindustrialists, had already heavily invested in Cantonese indentured laborers for his agricultural and guano extraction enterprises (Paroy Villafuerte 2012:132; Rodríguez Pastor 2000:50–51). In 1862, the post-emancipation permanent population of San Javier was recorded at 212 individuals and 220 at San José (Paz Soldán 1877:479, 484). This population would have included formerly enslaved individuals and their descendants, along with Cantonese laborers and highland-to-coastal migrants, primarily from Ayacucho.

The agroindustrial transformations in the valley are also indexed by seed distributions from post-Jesuit contexts. Our botanical analysis of 10 soil samples of 3.5 L each from Unit 11 at La Ventilla found significantly higher numbers (density/ubiquity) of cotton seeds at early republican La Ventilla than at Jesuit San Joseph. This corroborates the transition to an economy reliant on cotton processing. La Ventilla was central to the Elías family's production and processing of cotton, a crop requiring a different organization of labor than vitiviniculture. In Peru, cotton can produce two crops a year, with a labor-intensive harvest (Bell 1985; Dunn 1923; Ugent and Ochoa 2006:186–188). La Ventilla would have housed a minimal permanent population; most workers present at the site would have been highland Andean migrant workers who came to the valley for the cotton harvest. Ruins of a housing complex for single, male temporary workers dating to this period consist of a structure subdivided into three rooms, with a total of 18 brick platform beds that were capped with concrete in the early twentieth century (Figure 6).

Figure 6. Low-to-ground drone photograph of the cement-capped brick bed platforms at the ruins of the Hacienda La Ventilla.

It is tempting to focus on the statistically significant differences presented in Figures 4 and 5. However, under the restrictions imposed by oppressive systems—namely, enslavement, followed by economic precarity—we highlight the energy and time investment required to maintain access to particular culinary preferences. What may have been perceived as nonessential taxa, such as fruits, continued to be present, even if in reduced frequencies. In general, both botanical and faunal analysis show a high degree of continuity of the foodways patterns established during the Jesuit period at San Joseph, especially with regard to the culinary arts practiced by female hacienda workers and their reliance on making stews and one-pot meals. Even though African-descended laborers were replaced by Cantonese indentured workers and highland Indigenous and mestizo migrants in this later period, women cooking for multiple households and the shared nature of meals were likely reasons for this continuity.

Caprines continued to be the principal source of protein, followed by beef. There was a notable decrease in the ratio of beef relative to caprines but a significant increase in the consumption of both compared to the Jesuit period. This was likely due to the estate administration's provisioning of meat from these large domestic animals. These large mammals would have been supplied by the estate, in contrast to other forms of protein likely acquired by the enslaved. The near-absence of fish during the post-Jesuit period at both San José and La Ventilla was perhaps indicative of the disruption of former Jesuit coastal supply networks. Guinea pig (*Cavia porcellus*) remains are not identified in the La Ventilla sample but were present at post-Jesuit San José in very small numbers. Perhaps the introduction of higher numbers of Andean wage workers allowed for the very sporadic introduction of Andean species to the haciendas.

There was continuity in the pattern and degree of anthropic fracturing of the animal bones, particularly those associated with the last stages of processing; this was closely related to the exploitation and consumption of marrow and medulla fat. This fracturing was also suggestive of a continuity in the culinary arts, particularly in the production of broths for soups, stews, and one-pot meals more generally. Ceramic evidence supported the continued importance of cooking vessels of a thickness sufficient for long durations on the hearth.[5] However, these vessels were also significantly thinner than during the Jesuit period,[6] perhaps because of the impact of demographic shifts and disruptions to labor on the continuity of local utilitarian potting traditions.

In addition to the decidedly edible faunal taxa encountered in the post-Jesuit midden contexts at La Ventilla, we recovered 16 frog or toad bones (cf. Anura). It is unknown whether these amphibian bones

were associated with meals, were for medicinal use, or were not related to human activities at all, other than their remains having been mixed in with domestic refuse. Several species of toads and frogs are among the potential regional fauna during summer months, when the Ingenio River runs with surface water, and could have been collected locally. Frogs and toads, especially toad species with natural bufotoxins, were commonly used in early modern folk medicinal practice among West Africans and Europeans and were important in both African and Andean divination practices. Early modern European medicine drew on classical treatises, such as the pharmacopoeias of Pliny and Dioscorides, that called for the use of frogs as part of a recipe for a special poultice (Vallejo and González 2015); this poultice was one of the pharmaceutical products sent to San Xavier by the Crown in 1768 (Table 1). This *emplasto de ranas* (poultice of frogs) also appears as a common item in a number of pharmacy inventories in colonial Lima (Newson 2017:286). The use of Anura by African and African-descended healers in Latin America has also been widely documented (Gómez 2014:133; Jouve Martín 2014:42), including in seventeenth-century Lima by Dominican friar and healer St. Martín de Porres (Padilioni 2018:146–152). It is possible that, even though Anura bones have thus far been found only in post-Jesuit contexts from La Ventilla, such a healing tradition began much earlier at the Jesuit haciendas among enslaved Africans and their descendants.

With regard to edible botanical taxa, La Ventilla's record suggests a narrowing of dietary options. The variety of food sources represented in Jesuit San Joseph (obtained by foraging, garden plots, provisioning, and from the marketplace) was replaced by a marked increase in two native staples: maize and squash. This clear difference nevertheless reflects the continuity noted earlier: there continued to be a reliance on ingredients that—when added to soups or stews—served to provide foods with a thicker texture and thus a more filling sensation. We cannot conclusively determine the reason for the reduced number of edible botanical taxa at post-Jesuit La Ventilla. Reasons could range from a lack of the economic means to purchase this produce to the lack of free time that would allow for trips to markets in the towns of El Ingenio, Palpa, or Nasca. Nevertheless, the presence of sweet fruit remains conveys a taste for the occasional treat to punctuate a meal. As noted earlier, some fruit could also be consumed for medicinal purposes, and we continued to find dates and guava seeds among La Ventilla's botanical remains, both of which are rich in fibers that support digestive health.

Final Remarks

The archaeology of colonial and early republican agroindustrialism in Peru offers opportunities to understand important transformations among rural communities over the *longue durée*. The traditional focus of Andeanist archaeology, until recently, has been on precontact cultures, and the period spanning the late Spanish colonial occupation and birth of the Andean republics remains understudied archaeologically. Although historical archaeology within the region has substantially increased in the last several decades (VanValkenburgh et al. 2016), this subdiscipline developed within this traditional archaeological framework and largely focuses on the early periods of Spanish colonialism and the colonial impact on native Andean societies. Our exploration of well-being among enslaved, and later coerced, hacienda workers focuses holistically on health and access to nutritious and culturally desirable food sources used in the culinary arts at the former Jesuit estates of Nasca. This study is among the first attempts to understand both administrative and worker strategies for Andean hacienda labor, especially from a temporally comparative perspective.

In the post-Jesuit period, and particularly in the nineteenth-century contexts, we observe a disruption in certain food provisioning practices, specifically in the diversity of plant-based foodstuffs and access to fish from the Pacific. However, continuity in the reliance on caprines and certain bone fracturing patterns, along with botanical and ceramic evidence, suggests an enduring tradition in the preparation of stews. The new arrivals of the nineteenth century appear to have adapted to local consumption practices and foodways that developed under the harsh conditions of slavery and continued to be important in maintaining worker well-being among contracted wage laborers. These practices remained important as institutional healthcare support waned during the transition from Crown estates to private agribusiness in the 1830s.

Historical documents describe the period of the Crown administration of the former Jesuit haciendas as an especially difficult time for the enslaved population, who faced epidemic disease and commodity chain and food quality disruptions. During the post-Jesuit period, archaeological evidence suggests a narrowing of both faunal and botanical dietary resources. However, the patterns in food preparation and provisioning under control of the nineteenth-century hacienda workers of Cantonese, African, and Andean ancestry had their origins in strategies devised by enslaved workers of African descent. This study contributes to a new model (see Chirinos Ogata and Saucedo Segami 2021; Chuhue et al. 2012) for considering archaeology's role in constructing a comparative and analytical bridge between the interests of precontact archaeology and the anthropology of the ethnographic present (Van Buren 2016) and one that also considers a broader spectrum of Andean populations and their cultural entanglements spanning the intervening centuries.

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Data Availability Statement. The archaeological data included in the analysis are deposited at the Museo Regional de Ica, Ministerio de Cultura del Perú (Proyecto Arqueológico Haciendas de Nasca).

Competing Interests. The authors declare none.

Notes

1. By the nineteenth century, orthographic conventions changed with regard to these haciendas, and San Joseph de la Nasca is typically referred to as Hacienda San José. Likewise, San Francisco Xavier de la Nasca became Hacienda San Javier.
2. Simples are non-compounded medicines of a single ingredient.
3. The 1767 Crown inventories list a total of 520 sheep ("*carneros de Castilla*") at San Xavier (ANC, Verdadero testimonio, Yca. Vol. 344, No. 16:f.245v, f.275r, 1767), while at San Joseph a thousand salted portions of goat are listed in the hacienda's stores (ANC, San Joseph de Nasca, Vol. 344, No. 17:f.269v, 1767). At San Joseph's annex of Locchas in the nearby highlands of Ayacucho, the inventory lists 418 ewes, 58 rams, 69 buck goats, 266 doe goats, 116 juvenile goats, and 134 kids (ANC, San Joseph de Nasca, Vol. 344, No. 17:f.281v, 1767).
4. Ceramic evidence—heavily sooted cooking vessel sherds from Jesuit-era middens at San Joseph—also supports this assertion. In Jesuit-era midden contexts in Unit 8 we recovered 72 sherds, with a total weight of 678.6 g and an average wall thickness of 7.9 mm. In Unit 9 we found 70 sherds (560.6 g, 7.0 mm average wall thickness). In the same era in Unit 10 we found 12 sherds (59.6 g, 6.9 mm average wall thickness).
5. The continuity of one-pot meals is supported in ceramic evidence in post-Jesuit-era contexts at San Joseph and La Ventilla. In post-Jesuit-era midden contexts in Unit 9 we recovered 13 heavily sooted cooking pot sherds, with a total weight of 67.3 g and an average wall thickness of 6.9 mm. Unit 10 post-Jesuit-era contexts contained 67 sherds (237g, 5.7 mm average wall thickness). At La Ventilla in Unit 11 post-Jesuit era contexts, we found 28 sherds (508.3 g, 6.0 mm average wall thickness).
6. The 155 Jesuit period cooking pot sherds recovered at San Joseph ($M = 7.4$, $SD = 1.5$) were on average significantly thicker than the 108 post-Jesuit period cooking pot sherds ($M = 5.9$, $SD = 1.0$), $t\ (263) = 10.7$, $p < 05$.

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