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Trans-Cultural Consumption in Spanish Latin America

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Chapter 7

Rice Revisited From Colonial Panama: Its Cultivation and Exportation

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7 Rice Revisited From Colonial Panama

Its Cultivation and Exportation¹

Bethany Aram and Manuel Enrique García-Falcón

In the sixteenth century cultivated rice and West African cultural influence reached the Isthmus of Panama, where they remain prominent to the present day. The contemporary ubiquity of rice (sometimes cooked in coconut water) at meals and a popular children's fable, The Little Mandinga Cockroach, testify to the enduring legacy of cultural and culinary exchange. The Caribbean tale, whose endearing Panamanian version has been compared to Romeo and Juliet (Sinan 1974), features a young female cockroach who finds a coin while sweeping the steps of her house and uses it to purchase ribbons to adorn her hair. Seeing the little cockroach so attractive, a bull, a dog, a cock and, finally, a dapper mouse ("el Ratón Pérez") propose marriage to her before the little cockroach agrees to marry the well-attired mouse. The following day, after straightening up her house, the little Mandinga sets a pot of rice with milk to boil before going to the river to collect water. Although the Mandinga cautions her husband against dipping into the pot of rice, in her absence el Ratón Pérez succumbs to temptation, falls into the pot and meets his death. The Mandinga's loss precipitates a chain of calamities: in sympathy, a pigeon clips her wing, the queen cuts off her leg, the king abandons his crown, the river dries out and so on (Lyra 2018). In short, the mishap of el Ratón Pérez reveals his dependence, like that of many others, on the Mandinga and disrupts the social order, highlighting the perils as well as the possibilities of cultural mixture.

The Little Mandinga Cockroach has been told for centuries in regions largely elided by the "Black rice" debate (Hawthorne 2003, 2010a; Eltis, Morgan, and Richardson 2010; Bray et al. 2015). Yet the arguments that Carney developed with reference to present-day Senegambia and eighteenth-century South Carolina, like those of Hawthorne with respect to Guinea-Bissau and Brazil, hold important implications for the sixteenth- and seventeenth-century Spanish Main. Carney seeks to recover the agency of enslaved Africans, particularly women from the Senegambia region, in the transfer and adaptation of the skills and knowledge essential to cultivate, harvest, husk, prepare and consume rice (Carney 1998, 2001).

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While enabling South Carolina's planters to develop a new product, Carney argues that slaves of African origin who raised rice established cultural continuities with their traditional forms of subsistence and initially obtained nutritional and other benefits, such as increased autonomy. Adding nuance to Carney's observations, Hawthorne differentiates between the sophisticated and productive riziculture that the Mandinga developed in inland Senegambia, where they benefitted from access to iron, and rice cultivation along Guinea Bissau's coasts and rivers, practiced by less centralized ethnic groups including the Bran, Floup and Biafada (Hawthorne 2003, 2010b, 152) or, alternatively, the Baga and the Nalu (Fields Black 2008). Indeed, the diversity of rice-producing systems in West Africa may have facilitated adaptation of rice cultivation to Cape Verde and, subsequently, Spanish America, where it became a means of subsistence for groups of enslaved as well as free Africans who adapted traditional and adopted new agricultural and dietary practices.

Important reasons emerge for including the sixteenth-century Isthmus of Panama in the global history of rice. Beginning in the sixteenth century, the increasing majority of this precocious rice-growing and exporting region's inhabitants from West Africa entered into contact with other Africans and indigenous peoples of a variety of "nations" as well as with different groups of Europeans. One of the chief criticisms of Carney's thesis – the fact that more Africans from rice-growing regions fell victim to the trans-Atlantic slave trade before than after the 1670s (Eltis, Morgan, and Richardson 2010), points to the need to examine material and technological transfers from West Africa to the Americas during this earlier period and before the rise of large-scale plantation slavery in North America and Brazil. Slaves from the rice-growing regions of Upper Guinea, mainly Senegambia and Sierra Leone, constituted between 75–100% of those shipped to the Americas before the late 1500s, when Angola became the place of departure for most American-bound slaves (Wheat 2016, 23).

Rice in the sixteenth- and seventeenth-century Greater Caribbean, including the Spanish Main, may be relevant for additional reasons. More than one century before enslaved labourers from Senegambia reached South Carolina or the Maranhão, maroons from the same regions appear to have cultivated and consumed rice on the Isthmus of Panama, where they transferred knowledge of the grain to other Africans and native Americans. The sixteenth-century context provides the possibility of considering technological and cultural transfers, as well as gender roles and hybridization, with reference to African and Americanborn cattle herders and rice growers who overcame slavery. Two of Panama's maroon communities, fortified in the hills of Portobelo and the Chepo (Bayano) river basin in the 1570s, negotiated their freedom with the Spanish Crown, whose strategic interests in the region required the support of free Blacks. To some extent, the maroon experience could

have mitigated the "deculturating" effect of enslavement (Hawthorne 2015), without precluding other forms of exploitation, including military service and tribute. Finally, the isthmus's geographical importance facilitated complex cultural transfers, transformations and adaptations, involving Africans of multiple ethnicities, different indigenous groups, European adventurers and all of their American-born offspring of diverse parentage.

The riziculture developed on the Isthmus of Panama and in the Caribbean may have influenced the transfer of knowledge and technologies to cultivate, process and consume the cereal from the coast of upper Guinea to other parts of America. Indeed, the maroon experience offers fresh perspectives on issues of agency, power and hybridization informed by (and relevant to) the "Black rice debate". It also permits a distinction between early modern globalization, represented by access to rice and other new products where they previously had been unknown, and the rise of market-oriented production, which entailed a later, separate process in most areas of the world. The role of rice on the early modern Isthmus of Panama, moreover, invites attention to matters of basic nutrition and survival that arise alongside and even before those of economic (or proto-capitalist) development. In this context, understanding the role of women, seeds and knowledge from Senegambia requires an assessment of the impact of an early convergence of peoples and products from four continents on the Panamanian crossing in light of the quantity, quality and diversity of the food resources they could cultivate and consume.

Exploring the alimentary implications of the Columbian exchange (Crosby 1973, 1986), Rebecca Earle has elucidated Spanish conquistadores' attempts to maintain their own traditional food supplies in line with humoural medicinal beliefs, in order to keep themselves strong and to distinguish themselves from Amerindians. She has, moreover, shown that Europeans' belief in the disruptive nature of dietary change supported their understanding that the health of enslaved Africans would improve if they were able to consume familiar foods (Earle 2012, 54–59). Such humoural beliefs, alongside slave traders' and owners' attempts to ensure their captives' survival and productivity, encouraged the transfer of crops from the western coast of Africa to the Greater Caribbean well before they reached North America. Rice, millet and yams numbered among the foodstuffs that most commonly accompanied and fed enslaved Africans shipped across the Atlantic (Newson and Michin 2007).

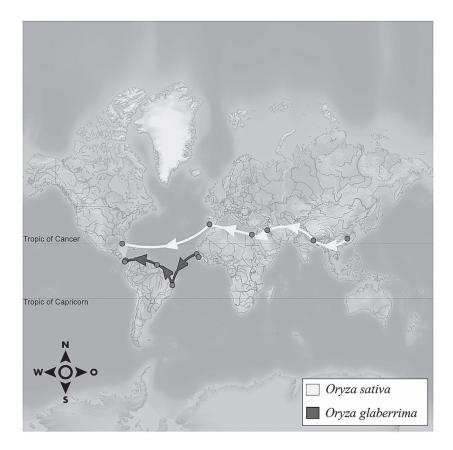
Recent attention to historical foodways and culture on the Isthmus of Panama, a strategic bridge between North and South America as well as between the Atlantic and Pacific Oceans, has shown little interest in rice. While the domestication and varieties of corn (Piperno 2017), as well as the spread of cattle (Castro Herrera 2004), have attracted more attention, the exogenous origins of bitter manioc and especially plantains – celebrated as a "national food" (Castillero Calvo 2010) – have inspired heated debates.²

A comparative lack of scholarly interest in Panama's rice parallels the only recent emergence of research on its African communities (Tardieu 2009; Piqueras y Laviña 2015; Laviña et al. 2015) and persistent dearth of early modern women's and gender history regarding the region. Thus, the study of rice can benefit from and contribute to knowledge of the African diaspora as well as gender history.

Finally, in conjunction with other foods, rice offers a new angle to examine the impact of the Columbian exchange and early globalization on the different populations involved. The proliferation or, to the contrary, disappearance and restriction, of dietary options and practices becomes crucial to consider the possibility of cultural as well as biological survival and hybridization, including the extent to which groups and individuals could resist, benefit or suffer from the alimentary revolution. The positions espoused in the current literature range from a view of a diversification of available foods and nutrients (Jiménez and Cooke 2001; Castillero Calvo 2006; Aceituno and Martín 2017) to one of a progressive homogenization of dietary options (Martín and Rodríguez 2006; Saldarriaga 2011a), depending upon the sources available and informing the research underway. Thus the present chapter will consider the debated presence and impact of other products, such as plantains and yuca, the reliance on corn, and, finally, the expansion of bovine livestock and mule teams, to assess and to contextualize the role of rice in the region.

Food, Conquest and Survival

Deeply rooted global histories of rice converged in sixteenth-century America, as illustrated in Map 7.1. Thousands of years before the Common Era, the domestication of rice from wild species took place independently in Asia and Africa. In Central and South America, the wild species Oryza glumaepatula, O. alta, O. latifolia and O. grandiglumis predated Europeans and Africans.³ In the Old World, the most famous species, O. sativa, was domesticated in the Pearl River basin of Zhujiang, China between 11500 and 6200 BCE (Huang et al. 2012) and subsequently spread to the Ganges, Tigris and Euphrates river basins, as well as that of the Nile, and through North Africa, where the Greeks and Romans encountered it (Medina et al. 1996). At the same time, at roughly 1000 BCE, a wild species of rice, O. barthii, underwent a separate process of domestication in the upper Niger River delta, to produce the species O. glaberrima, which extended along the coast and rivers of the Senegambia region in West Africa (Linares 2002, 2011; Wang et al. 2014). Under the Roman Empire, traces of O. glaberrina and O. sativa probably reached the Iberian Peninsula, where Islamic rule encouraged a more systematic cultivation of O. sativa by the eleventh century in regions such as Valencia and Seville (Hernández Bermejo and Garcia Sánchez 2008).



Map 7.1 The Global Circulation and Cultivation of Rice. Source: designed by Manuel Enrique García-Falcón using stepmap.com.

The global spread of rice encompassed multiple species and itineraries (Portères 1960). In the early sixteenth century, O. sativa would have reached the Caribbean and mainland America on ships from Seville and O. glaberrima on vessels sailing from the coast of Guinea as well as the Cape Verde Islands. After mid-century, O. sativa also reached America across the Pacific on the Manila-Acapulco galleons (Gasch-Tomás 2015). The consumption of rice during sea voyages, especially those originating in Asia or Africa, and the subsequent circulation of any surplus, gave rice planters and consumers on the Spanish Main a variety of options. O. glaberrima, shipped in unshelled (plantable) as well as husked or clean (edible) form, proved more durable and resistant to salinity. The finer grains of O. sativa, on the other hand, were favored by more sporadic, elite consumers.

Sources also testify to the elite consumption of Asian rice in colonial America. The Jesuit José de Acosta noted in his Historia Moral y Natural de Indias (1589) that the most select grains of rice reached sixteenthcentury Peru and New Spain from China. The cargo of the Manila galleons typically included clean as well as unshelled rice (Bernabéu 2012, 300; Bonialian 2016, 12), as did trans-Altantic slave voyages from the coast of Africa (Carney 2004, 10), carrying milled rice for consumption as well as rice in the husk that could be milled on board or planted in the case of any surplus upon arrival. Such practices would explain botanical evidence of O. sativa as well as O. glaberrima observed in the region of El Salvador (Portères 1960). Environmental conditions (particularly salinity) as well as cultural inclinations may have led Panama's first rice farmers to prefer O. glaberrima, in counter distinction to elite consumers. Indeed, elite consumption of O. sativa did not preclude free workers' cultivation and consumption of O. glaberrima. Europeans may have been reluctant to consume O. glaberrima, which, conversely, could have sustained groups of West Africans and Native Americans in times of hunger.

The introduction of rice in the Americas entailed a complex, multidirectional process involving Atlantic as well as Pacific trade. Archaeologists and historians, while increasingly explicit about the limitations of the sources consulted and methodologies applied, agree that the Isthmus of Panama, with an estimated pre-Hispanic population of 150,000– 200,000 inhabitants, found it diminished by 90% in the twenty years following contact with Europeans and Africans (Cooke et al. 2003; Castillero Calvo, 2010). The devastation wreaked by unfamiliar pathogens, warfare and coerced labour was exacerbated by the demands of the conquest of Peru after 1531. Paleo-ecological evidence has been interpreted to confirm the view of a sudden drop in population possibly preceding and certainly exacerbated by contact with Europeans, pointing to an abrupt cessation of large-scale slash-and-burn farming on the isthmus and its reforestation, probably in the early sixteenth century. The resurgent forests, if a boon for shipbuilding, would recede gradually before the rise of Pacific navigation, demographic recovery and the proliferation of cattle on the isthmus (Castro Herrera 2004). Plants, animals and peoples were uprooted and relocated on an unprecedented scale, with different degrees of utility from the imperial perspective and, therefore, visibility in the sources.

Scholars also agree on the overwhelming importance of corn – whether "panified" and thus acceptable to Europeans or consumed in less laborintensive and more liquid forms such as chicha, masato or mazamorra (Saldarriaga 2011b) – for subsistence in the region. On the other hand, scholars debate the presence (or absence) of manioc and bananas on the isthmus before European contact. According to Alfredo Castillero Calvo, the plantain for cooking flourished on the isthmus well before Europeans arrived with the Guinea, or African, banana (Castillero Calvo 2006,

488–93). This understanding of the roots of a national dish, based on early Spanish testimonies, while contrasting with the view of geneticists, highlights the importance of human uses of the flora, beyond records of its mere presence. People consume "male" and "female" bananas differently: one food had to be baked or fried, while the other could be eaten directly from the tree. In the sixteenth century, the maroons of Bayano, in particular, cultivated large banana plantations, as well as corn, yuca, sweet potatoes and other vegetables (Aguado 1913 [1581], 114, 130).

While the banana has inspired controversy, the opposite, if less explicit, difference has arisen regarding manioc (Manihot esculenta), also known as yuca or cassava. Archaeologists have recorded evidence of domesticated vucca on the isthmian land bridge, along with corn, from pre-ceramic times, thousands of years before European contact (Dickau, Ranere, and Cooke 2007). Yet one of the region's leading historians has argued that Europeans introduced yucca in the area from the coast of present-day Venezuela (Castillero Calvo 2006, 433-43, 452).4 The use and consumption of sweet yucca, which the natives of Darién planted with corn, differed remarkably, from the toxic root cooked and ground to make cassava bread on Hispaniola. Sweet yuca supposedly nourished natives and Africans more than it did Europeans, who demanded "bread" in times of blight or hunger. In this sense, Gregorio Saldarriaga has emphasized the dependence of early Spanish settlements on the labour of indigenous women who prepared and amassed the available carbohydrates, especially corn in the case of Tierra Firme, into bread (Saldarriaga 2011a). Bitter plantains and sweet yuca, while providing essential calories and nutrients, largely remained outside the scope of urban and imperial regulation.

While recording an extraordinary diversity of flora and fauna, new-comers to sixteenth-century Tierra Firme depended upon corn as well as native labor and know-how to plant, harvest and process it. As Carmen Mena has argued, hunger played a crucial role: Vasco Núñez de Balboa confessed that hunger had forced his men to value a kernel of corn more than a nugget of gold (Mena García 1997). Yet such warnings reached the Iberian Peninsula too late to save more than 700 of the settlers who embarked with Pedrarias Dávila in 1513 and succumbed to hunger, illness and death within months of reaching Tierra Firme (Andagoya 1986 [1544], 86).

Before founding the city of Panamá, Dávila charged his alcalde mayor, Gaspar de Espinosa, with exploring its Pacific hinterland in order to secure a supply of corn.⁵ A slave uprising in 1535 followed a similar strategy, involving men of sub-Saharan African origins: Juan Marinero, Pedro Manicongo, Juan Zape, Cristóbal Gelofe (or Wolof, owned by Espinosa himself), Francisco Tumbador, Juan Valenciano, Hernando Portugués, Francisco Capitanejo, Damián (whose master, Juan Portugués, perhaps also of sub-Saharan African origin, claimed to have lived more

than 100 years⁶), and a *morisco* (converted Muslim), Pedro Canario, among others. They were slaves with previous experience as domestic servants, fishermen, stablemen and lumberjacks on Hispaniola and/or the Iberian Peninsula. Their contradictory testimony, some of it extracted under torture, articulated a plot to seize corn and native women (as well as men, in some accounts) from Espinosa's ranch, among others, to cross the Chepo River, and to plant the corn ("hacer sus rozas y maizales") in the countryside.⁷

The would-be rebels' survival, like that of their masters, depended upon the appropriation of corn and indigenous women, adaptation and cultural exchange. While plotters planned to consume fish as well as corn, their testimony makes no mention of yuca, bananas or rice. A supply of corn, on the other hand, had become essential. It was considered property whose theft would have exacerbated the consequences of rebellion. Newcomers to the isthmus, whether born in Europe, Africa or America, may have consumed bananas and yuca, as available, but sought to appropriate corn.

Unlike corn, rice reached mainland America in the Armada of 1513, if not before. Carmen Mena García's study of the Armada's dispatch indicates that its provisions for 800 men (consumed by some 1,500) included 3,000 quintals of bizcocho (cake), 15,000 arrobas of (wheat) flour and 12,000 arrobas of wine, yet only fifty arrobas of rice purchased from the merchant Diego de Ervás in Seville.⁸ As Mena notes, additional provisions to send thirteen fanegas of wheat, each of a different variety, suggest that the Crown retained hopes that one of them might grow in the region. Rice, on the other hand, appears in smaller quantities, as did almonds from Huelva (Mena García 1998, 375, 404), as if intended for medicinal purposes. Upon reaching Tierra Firme, merchants and officials allegedly made a profit by selling remaining staples at abusive prices. According to the officials' testimony, hungry colonists purchased "oil and wine and medicine and honey and rice and almonds, and many other things of that quality, at very high prices due to all of their great need".⁹

Widespread starvation and illness in the colony may have been one factor that led the Crown to offer incentives for farmers to emigrate to Castilla del Oro after 1519. These *labradores y trabajadores* were promised free passage, medical attention, provisions until they could grow their own food and even pigs and cattle if they were married and travelled with their spouses. The Further incentives for farmers included twenty years of exemption from the *alcabala* and other taxes, seeds, tools and, remarkably, bonds (or *juros*) offered to the first farmer able to grow or to collect silk, spices (cloves, ginger, cinnamon) or rice. The crown preserved the illusion of having approached the East Indies, a land of abundant silk, spices and rice.

Meanwhile, the demand for corn increased on the isthmus. New animals competed with humans to consume it. The impact of livestock,

especially cattle and mules, on the region's food supply can be summarized as divergent: the widening availability of cattle made beef the cheapest source of calories available in the sixteenth and seventeenth centuries, to the point that a hen cost much more than a cow (Castillero Calvo 2006, 456). On the other hand, a reliance on convoys of 500–1,200 mules to transport silver across the isthmus periodically limited the supply of corn available for human consumption during the *trajín*, or trans-isthmian crossing when the mules fed on corn, leading to extreme scarcities in 1570–71 (Castillero Calvo 1980, 21). These shortages may have catalyzed the human consumption of and adaptation to other foods like beef and rice.

African Towns, Cattle and Rice

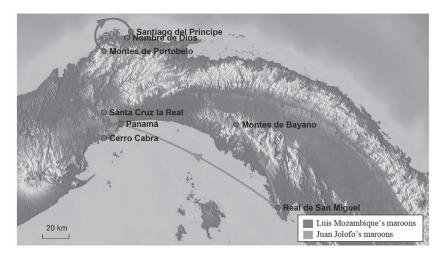
Cattle-raising and rice growing proved complementary in upland as well as swampy regions of Senegambia, which the animals grazed and fertilized during the dry season (Carney 1993, 19; Fields-Black 2008, 45). The Wolof and the Mandinga, known for raising livestock as well as rice, may have transferred knowledge of such complementarity to Panama's Pacific coast, where cattle and rice flourished in the sixteenth century (Jaén Suárez 1981, 48; Castillero Calvo 2010, 111). However successful, both species' adaptation to the region took place progressively and irregularly, with dramatic consequences for the land's inhabitants.

The alimentary stress and periods of hunger suffered on the isthmus stemmed from competition for corn among natives, Africans, Europeans and mules. Another problem, recognized from the early sixteenth century and exacerbated by the death or flight of natives as well as enslaved Africans, entailed a lack of inhabitants able and willing to farm the land. The population on this strategic military and economic lifeline of the Spanish Empire, which swelled with the arrival of the galleons and annual (later biannual) fairs, demanded yet failed to produce important quantities of food. Indeed, the perpetual shortages and high prices of basic foodstuffs on the isthmus influenced the Spanish crown's decision to establish peace with its maroon or runaway Black communities, who had provided crucial support to Francis Drake and other English corsairs in the 1570s.

The royally authorized process of "pacification" or "reduction" of these communities undertaken from 1579 through 1582, led by Panama's Royal Tribunal and documented extensively in the official archives, entailed the strategic foundation of two towns of free Blacks. In exchange for loyalty and military service to the Crown, the inhabitants of these towns received "letters of freedom" as well as livestock and seed. Through a series of negotiations with the Royal Tribunal and its representatives, the new settlers were encouraged to plant and to raise food for themselves as well as the cities of Nombre de Dios, in proximity to Santiago el Príncipe, where the maroons from the hills of Portobelo agreed

to settle in 1579, and Panama, some three leagues from the town of Santa Cruz, where the Royal Tribunal progressively sought to relocate its former opponents in the vicinity of the Bayano or Chepo River in 1582 (see Map 7.2).¹³ The progress of both settlements, as well as the rosters of their inhabitants, normally including Christian first names and African ethnonyms, suggest that their experiences on the isthmus and leadership, more than ethnic origins or affiliations, influenced these communities' alimentary strategies, abilities, and willingness to raise certain products, particularly cattle and rice.

After years of preying upon trans-isthmian travelers and trade, in June 1578, the Portobelo rebels led by Don Luis Mozambique decided to accept the King of Castile's offer and to support his rule against corsairs and runaway slaves in exchange for their own freedom as well as land. At Panama on 30 June 1579, Luis Mozambique and the "Black men and women of diverse nations under his command", pledged obedience to the Spanish crown in exchange for amnesty for crimes committed and letters of freedom for themselves as well as their wives and children. In order to establish a settlement, the Royal Tribunal offered Luis Mozambique and his company the savannah and hills of Chelibre, between the warehouse of Cruces and the Chagres River "with its rivers, grasses and watering places, with everything annexed and convenient to it", six and a half to seven leagues from Panama City.14 After visiting the land offered, however, Luis Mozambique and his maestre de campo, Pedro Zape, reported "that the said site of Chelibre was not conducive to the health and growth of the said Blacks, being fields and swamps and lacking hills, which were most important for their farming and planting."15



Map 7.2 Maroon Groups in Tierra Firme and Their Settlements, 1579–1582. Source: designed by Manuel Enrique García-Falcón using stepmap.com.

In light of these objections, the Royal Tribunal offered the former rebels of Portobelo an alternative settlement next to the Fonseca River, near the Spanish city of Nombre de Dios, with a military garrison of thirty soldiers, given its situation on the Caribbean coast. The town, founded as Santiago del Príncipe in September 1579, agreed to plant eight bushels of corn to sustain the garrison each year as well as to raise poultry. The Crown provided hens and fruit trees for the new settlers' sustenance and profit, encouraging them to raise pigs and cattle, while cultivating fruit trees and, particularly, banana fields. Finally, the settlers agreed to assist the Crown against corsairs as well as the Cimarrons of Bayano, who continued to oppose the Spaniards. 16

Royal officials reported promising developments within one year after the foundation of Santiago del Príncipe. According to one witness interviewed in August 1580, the new settlers were already selling poultry, swine and corn in Nombre de Dios, where such goods had previously been scarce or excessively expensive. According to the garrison's governor, moreover, the former rebels of Portobelo, and especially the Congo men among them, provided effective support against the Bayano rebels and could encourage them to submit to royal authority.¹⁷

In spite of the governor's prediction, the Cimmarons of Bayano, identified with the Congo nation, proved some of the last to resist Spanish authority. On 20 January 1582, the Royal Tribunal oversaw the foundation of a settlement of some of the former Bayano rebels in the region previously offered to those of Portobelo. Seven captains from Bayano, Juan Jolofo (or Wolof), Antón Mandinga, Pedro Ubala, Juan Angola, Bartolomé Mandinga, Juan Cazanga and Pedro Zape, agreed to settle with their followers to the west of Panama, where they were transferred by sea from Bayano. After disembarking at the mouth of the Río Grande, the captains, visibly pleased with the terrain, founded another settlement, Santa Cruz. The Crown gave the newcomers 3,000 cattle, foodstuffs and seed, forgoing payment on them until the population could sustain itself. The Crown gave the newcomers 3,000 cattle, foodstuffs and seed, forgoing payment on them until the population could sustain itself.

Efforts to establish towns of Black farmers in Santiago del Príncipe and Santa Cruz produced a remarkable amount of information about their members. A comparison of the lists of the first inhabitants of each settlement, established in 1580 and 1582, respectively, facilitate a number of comparisons. The registered population of Santiago del Príncipe, led by Luis Mozambique and Pedro Zape, included 97 men, women and children of diverse African and Creole origins. The list compiled at the town's founding on 6 October 1580 appears to be the most complete, in spite of the reported absence of some of the community's members in Panama city and in the war on Bayano.²⁰ The population of Santa Cruz, in contrast, numbered 181 inhabitants upon its foundation on 20 January 1582, and grew to 274 individuals with the arrival of additional settlers in March and April. Beyond the size of these communities,

their most significant difference appears to have been their relations with indigenous populations: the maroons of Portobelo, settled at Santiago del Príncipe, included American-born creoles or *criollos del monte*, particularly children, but no Indians. On the other hand, the maroons of Bayano who went to Santa Cruz included a number of natives and offspring of Africans and natives, termed *zambahijos*. The influx of natives into Santa Cruz in March and April 1582 became so considerable that royal officials authorized another settlement, San Antonio de Padua, on the other side of the river, for Indians who wished to live in proximity to Santa Cruz. Men initially constituted the majority of settlers at Santiago el Príncipe and Santa Cruz (61% and 62%, respectively, at the founding of each town). In the case of Santa Cruz, however, relations with natives appear to have mitigated the sex imbalance.²¹

Most of the new settlers' ethnonyms pointed to origins or antecedents from Upper Guinea (approximately 86% of the population of Santa Cruz and 81% in Santiago del Príncipe), with different appellatives registered for the partners in almost all of the couples at Santiago, and inner-ethnic unions possible only in a minority of cases where men and women shared the same ethnonyms at Santa Cruz. The most common ethnonyms among the first inhabitants of Santiago and Santa Cruz proved "Biafra" (sixteen in Santiago and thirty-one in Santa Cruz) and "Zape" (twenty-seven in Santiago and thirty-two in Santa Cruz). The slightly higher percentage of former maroons from Upper Guinea in Santa Cruz, however, reflects a much more significant number of male and female Mandinga, Wolof and Nalu in the Bayano group. Whereas Santiago included only one male and no female Mandinga, nine male and two female Mandinga witnessed the foundation of Santa Cruz. Another factor influencing the election of lands to settle or crops to plant appears to have been each community's leadership: Luis Mozambique led his followers to Santiago, while Juan Wolof commanded other captains at Santa Cruz, including Antón Mandinga and Bartolomé Mandinga. Other settlers reported ethnonyms including Congo, Angola or Terranova, including a group from Bayano that chose to settle in Santiago rather than Santa Cruz.²²

African antecedents as well as American experiences in and out of slavery shaped the communities' preferences and choice of leaders. The maroons of Portobelo elected to reside in the hills outside Nombre de Dios, whereas the Bayano group embraced swampy riverbeds and marshes in the Chagres River basin. Marsh landscapes, undoubtedly familiar to the Mandinga and Wolof, also favoured the cultivation of rice.

Conditions and goods offered to the settlers at Santa Cruz reflected negotiations, exchanges and agreements with their captains, led by Juan Jolofo, the designation of common lands and resources, and the distribution of other plots among the former rebels. On 11 February 1582, the royal judge Alonso Criado de Castilla met with the Bayano group's leaders and agreed that the Crown would receive one-third of the crops

the new settlers cultivated on common lands, "be they of maize, sugar, cotton, rice, beans, or other vegetables".23 Several months later, concerned that the new settlers appeared more inclined to festivities than labour, Criado de Castilla met with the same captains to set a minimum for the common yield due to the Crown at thirty bushels of "dry seed" that would be harvested beginning in September, and repeated that this one-third of the harvest should apply to all of the seeds planted on the common lands "as are beans, rice, cotton, sugar cane, yuca, potatoes, and any other fruits planted, excepting the fields and plantations that each [settler] would plant privately, which would be his, without owing anything to the King". 24 Common plots may have facilitated the collaboration and exchange of knowledge among Mandinga and other planters, which would have been essential for successful rice cultivation. Rather than adopt a monoculture, the settlers reportedly cultivated a variety of African and American plants, in addition to raising chickens, cattle and pigs, and hunting local deer.

One motive for celebrations at Santa Cruz may have been the arrival of another captain, Antón Tiguere, who spoke Spanish well enough to declare that he was no Christian, with a population described as "thirty soldiers" and "of the Congo nation". Following Tiguere's arrival, royal officials interviewed all of the captains at Santa Cruz in an attempt to ascertain how many rebels remained in Bayano. The obligatory questions involved in official legal proceedings led these same captains, all of them described as "Ladino" (Spanish-speaking) to relate aspects of their own life histories on the isthmus. As a boy, Juan Jolofo reported, he had fled Nombre de Dios for the mountains of Bayano, where he had led "his own population (pueblo) . . . of blacks of diverse nations, as are the Wolofs, Berbesies, Nalu, and Biafra" for more than twenty-seven or thirty years; Antón Mandinga related that he had been a captain in Bayano for ten years, governing "a population of the Mandinga nation" before deciding to lead seventy-one soldiers, "black men and black women (soldados piezas negros e negras)" to Santa Cruz. Pedro Ubala reported that he had governed a "black people of the Biafra nation" in Bayano for thirteen years; Juan Angola likewise recalled living thirteen years in the hills of Bayano, and reported leading more than forty Blacks, without specifying their nations; during some twenty-six years in the mountains, Juan Nalu recalled that he had risen to the status of captain under Juan Jolfo; Pedro Zape registered having commanded "a Zape population under his charge and orders" for fourteen years; and Juan Cazanga claimed to have led his own group for two years after following Antón Mandinga for twelve. The captains agreed, moreover, on reporting that only fifteen or sixteen rebels remained in Bayano, identifying their leaders as Mazatamba or Alonzo Cazanga (Wheat 2016, 62) and Diego Congo, and excusing their absence by alleging they might not have received notice of the royal amnesty.²⁵

Ten years after the foundation of Santa Cruz, the observations of another royal judge from Panama indicate that the settlement retained an important degree of autonomy. Without reaching the levels of production that the crown would have liked, the judge reported that the inhabitants of Santa Cruz, an estimated one hundred black men and their wives, "raise fowl, maize, rice, yams, potatoes, and other foodstuffs more abundantly than in their land." These agriculturists sold enough goods to purchase tools and clothing at Panama City, yet refused to produce more, according to the judge, who labeled them lazy, and argued that "they could even be rich if they would work". The settlement's strategic importance obliged the Crown to allow the Santa Cruz community to regulate its own sustenance and production.²⁶

With reference to the organization of Santa Cruz, Tardieu and Wheat have argued that maroon communities formed associations based on African ethno-linguistic origins and affinities. However, unlike the population of Santiago, that of Santa Cruz included an important and growing number of female and male Indians, as well as the offspring of Indian and African relations. The settlers of Santa Cruz reported a significant number of unions with indigenous women as well as the ensuing presence of mixed (African-Indian, or *zambo*) offspring in their community. Hence the differences between the maroons of Portobelo and those of Bayano reflected specific, decade-long struggles for survival in opposition to the crown of Castile as well as decade-old and, as Wheat has pointed out, plural and malleable, ethnic affiliations. Their leaders' biographies as well as their rosters of inhabitants point to very different experiences in America that informed the choices of the groups offered royal amnesty.

These communities' decision or refusal to cultivate rice and other food-stuffs depended on a series of factors, including socio-cultural roots, the land and workforce available to each group as well as previous experiences in Africa, on the isthmus and elsewhere in the Caribbean. Much the same could be said for the possibility of technological and cultural transfers, and even cultural exchange, within and among ethno-linguistic groups, including specific indigenous populations. Even when rice was planted, as in Santa Cruz, it was only one product among many chosen and raised primarily for subsistence.

The Price of Rice

Rice emerges in the documentary record during royal negotiations with the maroons of Bayano when they settled in Santa Cruz. Following attacks by Francis Drake and other corsairs who found support in the maroon communities, the Spanish Crown sought to win them over by offering freedom, land and supplies to the former rebels who agreed to settle and assist the Crown against corsairs as well as escaped slaves. The accounts of the expenditures involved in this "pacification"

punctuated and followed an important military effort. They reflect the diverse resources available on the isthmus, as well as, potentially if less directly, the interests and capabilities of the different groups involved. One of these groups, the maroons of Bayano, had inhabited the delta of the Bayano or Chepo River, which flowed into the Pacific Ocean south of Old Panama City. This area and its surrounding hills had also been the goal of the slaves who fled Old Panama in 1535.

Upon agreeing to settle in Santa Cruz, the Bayano maroons received edible as well as unhusked rice from the crown. The royal tribunal spent fifty-two pesos for two bushels (*fanegas*) of clean rice for the settlers' consumption and another twenty-four pesos on two bushels of rice in the husks, "for the Blacks reduced to the service of His Majesty among the maroons of Bayano to plant", along with another two bushels of clean corn, at five pesos per bushel, deposited at the ranch in the Cerro Cabra hills, not far from Santa Cruz.²⁷ In these accounts, a bushel of edible rice cost more than five times the equivalent amount of corn. The price of rice – even before it was cleaned and hand milled – clearly limited the amount available in 1582.

In the right hands, rice flourished. Reports compiled in 1607 from geographical surveys undertaken in previous years mention abundant rice on the isthmus. The 1607 "Description of Panamá and its Province" listed corn, rice and beans as grown in the region, with corn yielding 100 seeds to every seed planted, and rice and beans even more. While the area produced some 50,000 bushels of corn each year, only rice grew abundantly enough to be exported. According to this account, "Blacks and Indians" planted corn and rice at the beginning of the wet season in March or April each year. The rice, planted on the banks of swamps, reportedly yielded an annual surplus exported to Peru in some 500 earthen jugs (botijas of approximately five litres) worth three pesos each (BN Ms. 3064, "Descripción de Panamá" 1607, Relaciones Históricas y Geográficas de América Central 146–48, 170–74).²⁸

A contemporary description of the viceroyalty of Peru, likewise elaborated from geographical questionnaires, noted the difficulty of cultivating Spanish products on the Isthmus of Panama, due to its great humidity. At the same time, the description highlighted the importance of corn, claiming that one bundle planted yielded a harvest of 200 bundles, as well as the abundance of inexpensive livestock and presence of tropical fruits (bananas, guavas and mameys) that did not grow in Peru. The description noted, moreover, the availability of fish and poultry, even if "the best and most important [resource] they have is the pearl fishery, from which they extract a good sum every year", while adding, almost as an afterthought, "a lot of rice is also gathered" ("Descripción del Virreinato del Peru", c. 1607, 117; Lewin 1958). Rather than grouping rice with other general foodstuffs, it was mentioned only after profits from pearls, which also depended upon African labor (Tardieu 2008).

The cultivation of rice along Panama's Pacific coast is also mentioned in the report that Captain Diego Ruiz de Campos compiled for the Crown in 1631. According to Ruiz de Campos, rice was grown in the Cerro Cabra hills near Old Panama as well as in the Caymito and Chiriquí River deltas. In those locations, Ruiz de Campos described rice being grown along with other crops, including bananas, sweet potatoes, yuca or beans, and in the presence of animals including cattle, pigs and chickens. Finally, Campos noted the mixed (European, African and American) ancestry of the peoples inhabiting these rice-growing regions.²⁹

Although mentioned in the accounts of 1607 and 1631, rice was not noted in the report compiled by the maestreescuela of Panama's cathedral, Juan Requejo de Salcedo, in 1640. Requejo did explain, however, that corn and yuca, unlike wheat and barley, were grown in the region and made into tortillas, "which is the bread that the land gives". The cleric referred to bananas as "the sustenance of Blacks", while admitting that they were "eaten by many Spaniards, not for sustenance, but for pleasure ('regalado'), and noted the abundance of good fish and shellfish in the region including clams along the shore, although different from those of Castile (Requejo Salcedo 1640, 73-76). The possibility that different groups consumed foods in distinct ways - either for sustenance or "recreation" - suggests that only a portion of the population may have found nourishment in the consumption of rice, as opposed to corn. Hence the possibility of exporting surplus rice – but not corn – from the region. Most consumers on the isthmus remained dependent upon corn, with or without rice.³⁰

The exportation of rice to Peru probably responded to the need to provision ships and to feed African slaves sent south from Panama. Silver, wheat and wine then made the return trip from Peru to Panama, notwithstanding campaigns against the supposed health hazards of Peruvian wine that were designed to protect trans-isthmian and Andalusian commercial interests (Castillero Calvo 2006, 430–32). There emerges a complex panorama of locally produced and imported carbohydrates, with corn most visible and rice occasionally overlooked in the sources.

Conclusions

The different species of rice that reached the sixteenth-century Isthmus of Panama highlight the importance of the choices maroon farmers made for their own and others' sustenance. Although price series are not available for this period, the sale of only a minimal part of the rice the "reduced" settlers produced would caution against any overreliance upon records of sales. On the rare occasions when the sale or purchase of rice is recorded, the variety of rice (O. sativa vs. O. glaberrima) and its intended consumers (cloistered nuns vs. slaves reshipped to Peru),

become crucial variables. Whatever the price of rice in Panama, the price of not cultivating and consuming it could have been greater.

The history of rice appears crucial to assess the effect of early globalization on the Isthmus of Panama as well as the impact of peoples and goods settling in or crossing the isthmus during the period of early modern globalization. It also points to the decisive roles and decisions of free Blacks of African and Creole origins who agreed to settle and to raise food for themselves as well as the importance of strategic, urban population centers including Panama and Nombre de Dios/Portobelo. The Crown's need for loyal subjects and dependence upon them militated against the imposition of any single crop or market-oriented production. Since the nineteenth century, industrial processing techniques, which O. sativa withstands better than does O. glaberrima, have led to the global extension of "Asian" (white) at the expense of "African" (red) rice, which is cultivated only residually today. Hence industrialization has reduced the domesticated varieties of rice available to (but not necessary embraced by) individuals of diverse origins. Cultural admixture, while seductive, entailed clear perils. Not only el Ratón Pérez but the colonial order depended upon the Mandinga's skills and knowledge.

From the standpoint of the global spread of rice, there remains the question of whether the convergence of continents upon and across the isthmus led to an expansion or reduction of dietary and socio-cultural options. The response is yes to both, which highlights a paradox of early globalization. An increased variety and abundance of foodstuffs coincided with scarcities and privations. Resources multiplied, exceeded only by the demands upon them.

Notes

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- 2. The final session of ArtEmpire's first International Conference, in Panama on 21 April 2017, featured an exchange between Richard Cooke and Alfredo Castillero Calvo of contrasting positions on the origins of the banana.
- 3. Evidence of pre-Hispanic rice cultivation recently found at the archaeological site of Monte Castelo (the Amazon) (Hilbert et al. 2017) points to the need for further studies in order to elaborate a clear map of pre-Hispanic and modern varieties of rice in the New World.
- 4. Under Philip II, the *regidor* Alonso de Luque requested a monopoly on *cazabe* bread. AGI, Panamá 236, King Philip to Alonso de Luque, 21 December 1573.
- 5. Securing a supply of maize and other provisions to permit the foundation of Panama numbered among the merits that earned Espinosa a coat of arms.

- AGI, Panamá 233, L. 1. f.393-394v, Don Carlos to licenciado Gaspar de Espinosa, 5 March 1524.
- 6. AGI, Patronato 92, N.2, R.1, f. 6v-7v, "Testimonio de Juan Portugues en la probança de Nuflo de Villalobos", 10 March 1529.
- 7. AGI, Justicia, 364, f. 306–648v. The isthmian population, whether of African, European or local origins, depended upon maize, and increasingly meat, to survive. Defending the "good treatment" of the natives he claimed in encomienda, Pedro de los Ríos asserted that he had purchased maize and pigs for their consumption. AGI, Justicia 1043, "Probanza de Pedro de los Rios contra Pedrarias de Avila", 18 February 1533.
- 8. A leap in the price of rice in Seville between 1519 (489 maravedíes/quintal) and 1563 (1,360 maravedies/quintal) appears significant (Mena García 1998, 379, 388, 397).
- 9. AGI, Patronato 193, R.3, N.2, "Fe del cargo y data de Alonso de la Puente hasta en fin de diciembre de 1515" and AGI, Patronato 193, R.3, N. 3, "Testimonio de como Alonso de la Puente demandó al factor los derechos de la hacienda de Su Alteza", 18 January 1516.
- 10. AGI, Panamá 233, f. 246v-247v, King Charles to Lope de Sosa, 5 July 1519.
- 11. AGI, Panamá 233, L. 1, f. 246v-247v, 247v-248, King Charles to Lope de Sosa and to his officials on Hispaniola, 5 July 1519.
- 12. AGI, Panamá 233, L. 1, f. 230v-231v, Royal decree, 15 May 1519. The King would encourage rice production on Hispaniola as late as 11 March 1573, AGI, Santo Domingo 868, L. 3, f. 5v.
- 13. With the general offer of amnesty and freedom, the other maroons registered included four or five men and women led by Francisco Berbesí in Cerro de Cabra (outside Panama City, on the road to Natá), who reportedly settled in Panama City, where they worked to earn their living.
- 14. AGI, Panamá 46, N. 1 and AGI, Patronato 234, R.1, f. 292-295, Acta de "reducción y vasallaje" de Don Luis Mozanbique y los negros cimarrones de Santiago el Príncipe, 30 June 1579, and "Ordenanzas para la reducción y asentamiento de los negros de Santiago del Príncipe", 20 September 1579.
- 15. "... que el dicho sitio de Chelibre no era tal qual convenía para la salud y aumento de los dichos negros, por ser sávanas y ciénegas y ser falto de montes que era lo mas principal para sus labranzas y sementeras". AGI, Panamá 46, N. 1, "Ordenanzas para la reducción y asentamiento de los negros de Santiago del Príncipe", 20 September 1579.
- 16. AGI, Panamá 46, N.1 and AGI, Patronato 234, R.1, f. 292–295, op cit.
- 17. Opponents of the reductions and expenses they entailed included the accountant Juan de Vivero, who feared that an uprising of Tierra Firme's large Black population could threaten the kingdom "with greater ease than the Moriscos of Granada". AGI, Panamá 33, N.121, Letter of Juan de Vivero, contador de Tierra Firme, 23 May1581.
- 18. AGI, Patronato 234, R.6, N.2 f.392, "Testimonio de los Autos . . . en la Real Audiencia de Panamá cerca de la paz y reducción y población de los negros de Bayano poblados en la villa de Santa Cruz la Real", 20 January 1582.
- 19. AGI, Panamá, 33, N.129, Royal decree for the officials on Tierra Firme, 8 May 1584.
- 20. AGI, Patronato 234, R.6, f. 297v-303v, "Relación de personas de Portobelo asentados en Santiago del Príncipe," 6 October 1580.
- 21. AGI, 234, R.6, N.2, f. 427v-428v, "Asiento de indios en San Antonio de Padua," 11 February 1582.
- 22. AGI, Patronto 234, R.6, N.2, image 449v and ss, Population of Santa Cruz la Real, 4 April 1582.

- 23. AGI, Patronato 234, R.6, N.2, f. 430–431, "Tributo acordado con el asentamiento de Santa Cruz la Real," 11 February 1582.
- 24. "... la dicha tercia parte del comun sea por lo menos 10 hanegas de senbra dura y de ay arriba por manera que la roza del comun de la qual se ha de pagar la dicha tercia parte sea de 30 hanegas de senbra dura y desde arriba [461] y lo mismo se ha y se entienda no solo del mayz que senbraren como dicho es, mas de todos los demas frutos que cogieren en lo que senbraren por via de comunidad como es frijoles, arroz, algodon, caña dulze, yuca y patata e otros qualesquier frutos que senbraren porque de todos ellos han de acudir y pagar con la dicha tercia parte excepto en las rozas e sementeras que cada uno hiziere para si en particular, porque estas han de ser suyas syn pagar dellas ninguna cosa a su magestad". AGI, Patronato, R.6, N.3, f. 457–461, "Asiento y capitulación que el señor doctor Alonso Criado de Castilla dio a los negros Cimarrones reducidos de Bayano", 5 April 1582.
- 25. AGI, Patronato 234, R.6, f. 438–445, Testimony of the maroon captains, 1 April 1582.
- 26. "Crian aves, maiz, arroz, ñames, patatas y otros géneros de mantenimientos en más abundancia que en su tierra. . . . Venden en esta ciudad de las aves y mantenimientos que crian lo ques les basta para herramientas y vestidos, y aun serian ricos si travajasen, mas son flojos y holgazanes. No guardan ni quieren más de aquello que gastan, e sustentase este presidio de tanta costa por no dar lugar a que estén más negros huidos deste reyno y de Cartagena . . . " AGI, Panamá 14, R.4, N.27, Letter of the judge Lic. Antonio de Salazar to the King, 14 June 1589.
- 27. AGI, Contaduría 1459, R.1, f. 4–4v, "Purchases for Bayano's War", October 1582 (transcribed in Jopling 1994, 394–95).
- 28. BN Madrid, MS. 3064, "Descripción de Panamá y su provincia (1607)," in *Relaciones Históricas y Geográficas de América Central* (Madrid: Libería General de Victoriano Suñarez, 1908), 170.
- 29. BN Madrid, ms. 9573, "Relación sobre la costa panameña en el Mar del Sur por el capitán Diego Ruiz de Campos (1631)," f. 11, en Colección de documentos inéditos sobre la geografía y la historia de Colombia (Bogotá: J.J. Pérez, 1892), 25.
- 30. In 1579, Gaspar Rodríguez, the native chief on the Isle of the Pearls, sold royal officials corn for the war on Bayano on the condition that the proceeds would be used to purchase tools and cloth his people required and that the maize would be returned to him upon request. AGI, Contaduría 1459, R.1, f. 4–4v.

Bibliography

- Aceituno, Francisco Javier, and Juan Martín. 2017. "Plantas Amerindias en la Mesa de los primeros Europeos en Panamá Viejo." *Latin American Antiquity* 28 (May): 127–43. https://doi.org/10.1017/laq.2016.9.
- Acosta, José. 2003 [1589]. *Historia natural y moral de las Indias*. Madrid: Biblioteca Virtual Universal.
- Aguado, Fray Pedro. 1913 [1581]. *Historia de Venezuela*, II: 99–123. Caracas: Imprenta Nacional.
- Andagoya, Pascual de. 1986 [1544]. *Relación y documentos*. Edited by Adrián Blázquez. Madrid: Historia 16.

- Bernabéu, Salvador, and Catia Brilli. 2012. "A bordo del Galeón de Manila: la travesía de Gemelli Carreri." *Anuario de Estudios Americanos* 69 (1): 277–317. https://doi.org/10.3989/aeamer.2012.1.11
- Bonialian, Mariano. 2016. "La Seda China en Nueva España a principios del Siglo XVII. Una Mirada Imperial en el Memorial de Horacio Levanto." *Revista de Historia Económica/Journal of Iberian and Latin American Economic History*, 1–25. https://doi.org/10.1017/S0212610915000385.
- Bray, Francesca, Peter Coclanis, Edda Fields-Black, and Dagmar Schafer, eds. 2015. *Rice: Global Networks and New Histories*. New York: Cambridge University Press.
- Carney, Judith A. 1993. "From Hands to Tutors: African Expertise in the South Carolina Rice Economy." *Agricultural History* 67 (3): 1–30.
- ——. 1998. "The Role of African Rice and Slaves in the History of Rice Cultivation in the Americas." *Human Ecology* 26 (4): 525–45.
- . 2001. Black Rice. The African Origins of Rice Cultivation in the Americas. Cambridge, MA: Harvard University Press.
- Castillero Calvo, Alfredo. 1980. *Economía terciaria y sociedad. Panamá*, *Siglos XVI y XVII*. Panamá: Impresora de la Nación/INAC.
- 2006. Sociedad, Economía y Cultura Material. Historia Urbana de Panamá La Vieja. Panamá: Imprenta Alloni.
- ——. 2010. Cultura Alimentaria y Globalización. Panamá, Siglos XVI a XXI. Panamá: Editora Novo Art.
- Castro Herrera, Guillermo. 2004. "Ganado y Galeones: Elementos para una historia ambiental de Panamá." *Anuario IEHS: Instituto de Estudios Histórico Sociales* 19: 191–230.
- Cooke, Richard, Luis Alberto Sánchez Herrera, Diana Rocío Carvajal, John Griggs, and Ilean Isaza Aizpurúa. 2003. "Los Pueblos Indígenas de Panamá durante el siglo XVI: Transformaciones Sociales y Culturales desde una Perspectiva Arqueológica y Paleoecológica." *Mesoamérica* 45: 1–34.
- Crosby, Alfred W. 1973. The Columbian Exchange. Biological and Cultural Consequences of 1492. Westport, CT: Greenwood.
- ——. 1986. Ecological Imperialism: The Biological Expansion of Europe 900–1900. Reprint. Cambridge: Cambridge University Press.
- "Descripción de Panamá y su provincia". 1908 [1607]. *Relaciones Históricas y Geográficas de América Central*, 137–70. Madrid: Librería General de Victoriano Suárez.
- Dickau, Ruth, Anthony J. Ranere, and Richard Cooke. 2007. "Starch Grain Evidence for the Pre-ceramic Dispersals of Maize and Root Crops into Tropical Dry and Humid Forest of Panama." *PNAS* 14 (9): 3651–56.
- Earle, Rebecca. 2012. The Body of the Conquistador: Food, Race and the Colonial Experience in Spanish America, 1492–1700. Cambridge: Cambridge University Press.
- Eltis, David, Philip Morgan, and David Richardson. 2010. "Black, Brown, or White? Color Coding American Commercial Rice Cultivation with Slave Labor." *The American Historical Review* 115 (1): 164–71. https://doi.org/10.1086/ahr.115.1.164

- Fields-Black, Edda L. 2008. Deep Roots: Rice Farmers in West Africa and the African Diaspora. Bloomington: Indiana University Press.
- Gasch-Tomás, José Luis. 2015. "Mecanismos de funcionamiento institucional en el imperio hispánico. El comercio de los Galeones de Manila y el Consulado de comerciantes de México en la década de 1630." *Revista de Historia Jerónimo Zurita* 90: 55–74.
- Hawthorne, Walter. 2003. Planting Rice and Harvesting Slaves. Transformations along the Guinea-Bissau Coast, 1400–1900. Portsmouth, NH: Heinemann.
- ——. 2010a. From Africa to Brazil. Culture, Identity, and an Atlantic Slave Trade, 1600–1830. New York: Cambridge University Press.
- . 2010b. "From 'Black Rice' to 'Brown': Rethinking the History of Risiculture in the Seventeenth- and Eighteenth-Century Atlantic." *American Historical Review*, 151–63.
- 2015. "The Cultural Meaning of Work: The 'Black Rice Debate' Reconsidered." In *Rice: Global Networks and New Histories*, edited by Francesca Bray, Peter Coclanis, Edda Fields-Black, and Dagmar Schafer, 279–90. New York: Cambridge University Press.
- Hernández Bermejo, Esteban, and Expiración García Sánchez. 2008. "Las gramíneas en Al-Andalus." *Ciencias de la naturaleza en Al-Andalus. Textos y estudios VIII*. Madrid: Consejo Superior de Investigaciones Científicas.
- Hilbert, Lautaro, E. G. Neves, F. Pugliese, S. B. Whitney, M. Shock, E. Veasey, C. A. Zimpel, and J. Iriarte. 2017. "Evidence for mid-Holocene rice domestication in the Americas." *Nature Ecology and Evolution* 1 (11): 1693–98.
- Huang, Xuehui, Nori Kurata, Xinghua Wei, Zi-Xuang Wang, Ahong Wang, Quiang Zao et al. 2012. "A Map of Rice Genome Variation Reveals the Origin of Cultivated Rice." *Nature* 490 (7421): 497–501.
- Jaén Suárez, Omar. 1981. "Nuevos hombres y ganado y su impacto en el paisaje geográfico panameño entre 1500 y 1980." In Hombres y ecología en Panamá. Panamá: Editorial Universidad de Panamá, Smithsonian Tropical Research Institute.
- Jiménez, Máximo, and Richard Cooke. 2001. "Análisis Faunístico de Los Restos Excavados En Las Casas de Terrín (Panamá La Vieja): Una Aproximación a La Dieta y a La Ecología." *Arqueología de Panamá La Vieja*, 89–116.
- Jopling, Carol F., ed. 1994. Indios y negros en Panamá en los siglos XVI y XVII: selecciones de los documentos del Archivo General de Indias. Antigua, Vermont: Centro de investigaciones regionales de Mesoamérica.
- Laviña, Javier, Tomás Mendizábal, Ricardo Piqueras, Guillermina I. De Gracia,
 Marta Hidalgo Pérez, Maritxell Tous, Rubén López, and Jordi Tresserras.
 2015. "La Localización de La Villa de Santiago Del Príncipe, Panamá." Canto Rodado: Revista Especializada En Temas de Patrimonio 10: 125–48.
- Lewin, Boleslao [c. 1607] 1958. Descripción del virreinato del Perú. Crónica inédita de comienzos del siglo XVII. Rosario: Universidad Nacional del Litoral.
- Linares, Olga F. 2002. "African Rice (Oryza Glaberrima): History and Future Potential." *Proceedings of the National Academy of Sciences* 99 (25): 16360–65. https://doi.org/10.1073/pnas.252604599.
- ——. 2011. "Deferring to Trade in Slaves: The Jola of Casamance, Senegal in Historical Perspective." *History in Africa* 14 (1987): 113–39.

- Lyra, Carmen, ed. 2018. "La Cucarachita Mandinga." Cuentos de mi Tía Panchita. Consulted April 8, 2018. https://albalearning.com/audiolibros/lyra/cucarachita.html
- Martín, Juan Guillermo, and Félix Rodríguez. 2006. "Los moluscos marinos de Panamá Viejo. Selectividad de recursos desde una perspectiva de larga duración." *Canto Rodado* 1: 85–100.
- Martín, Juan Guillermo, Javier Rivera Sandoval, and Claudia Rojas Sepúlveda. 2009. "Bioarqueología. Su Aporte al Proyecto Arqueológico Panamá Viejo." *Canto Rodado* IV: 117–44.
- Medina, Xavier, R. Alonso, Juan José Álvarez, L. Álvarez Sala, Josep Bernabeu-Mestre, Francisco Grande Covián et al. 1996. *La Alimentación Mediterránea: Historia, Cultura, Nutrición*. Institut Català de la Mediterrània d'Estudis i Cooperació.
- Mena García, María del Carmen. 1997. "La frontera del hambre: construyendo el espacio histórico en el Darién." In *Entre el hambre y el dorado: Mito y contacto alimentario en las huestes de conquista del XVI*, edited by Ricardo Piqueras Céspedes. Sevilla: Diputación, 215–56.
- . 1998. *Sevilla y las Flotas de Indias: La Gran Armada de Castilla Del Oro (1513–1514)*. Sevilla: Universidad de Sevilla, Secretariado de Publicaciones.
- Newson, Linda, and Susie Michin. 2007. From Capture to Sale. The Portuguese Slave Trade to Spanish South America in the Early Seventeenth Century. Leiden, The Netherlands: Koninklijke Brill NV.
- Piperno, Dolores R. 2017. "Assessing Elements of an Extended Evolutionary Synthesis for Plant Domestication and Agricultural Origin Research." *Proceedings of the National Academy of Sciences of the United States of America* 114 (25). National Academy of Sciences: 6429–37. https://doi.org/10.1073/pnas.1703658114.
- Piqueras, Ricardo, and Javier Laviña. 2015. "El Poder de la Marginalidad: Panamá y Cartagena de Indias en la colonia." In *Construcción Social y Cultural del Poder en Las Américas*, 61–74. Barcelona: Fundació Casa Amèrica Catalunya.
- Portères, Roland. 1960. "Riz subspontanés et Riz sauvages en El Salvador (Amérique Centrale)." *Journal d'agriculture tropicale et de botanique appliquée* 7 (9): 441–46.
- Requejo Salcedo, Juan. 1908 [1640]. "Relación Histórica y geográfica de la provincia de Panamá (1640)." In Relaciones Históricas y Geográficas de América Central. Madrid: Libería General de Victoriano Suárez.
- Rojas-Sepúlveda, C. M., J. Rivera-Sandoval, and J. G. Martín-Rincón. 2011. "Paleoepidemiology of Pre-Columbian and Colonial Panamá Viejo: A Preliminary Study." Bulletins et Mémoires de La Société D'anthropologie de Paris 23 (1–2): 70–82.
- Saldarriaga, Gregorio. 2011a. Alimentación e Identidades en el Nuevo Reino de Granada, Siglos XVI Y XVII. Bogotá: Ministerio de Cultura.
- 2011b. "Alimentación, comunidad y poder en las fundaciones tempranas de Tierra Firme: claves para entender la mortandad de modorra en Santa María de la Antigua del Darién." In *Tierra Firme*. El Darién en el Imaginario de los Conquistadores, edited by Paolo Vignolo and Virgilio Becerra, 257–84. Bogotá: Universidad Nacional de Colombia.
- Sinan, Rogelio. 1974. "Divagaciones sobre la fábula de La Cucarachita Mandinga y sobre una posible resurrección del Ratón Pérez." *Loteria*, 21–26.

- Tardieu, Jean-Pierre. 2008. "Perlas y Piel de Azabache. El Negro en las Pesquerías de las Indias Occidentales." *Anuario de Estudios Americanos* 65 (2): 91–124.
- 2009. Cimarrones de Panamá. La Forja de Una Identidad Afroamericana en el Siglo XVI. Madrid: Iberto.
- Wang, Muhua, Yeisoo Yu, Georg Haberer, Pradeep Reddy Marri, Chuanzhu Fan, Jose Luis Goicoechea et al. 2014. "The Genome Sequence of African rice (Oryza glaberrima) and Evidence for Independent Domestication." *Nature Genetics* 49 (6): 982–88.
- Wheat, David. 2016. *Atlantic Africa and the Spanish Caribbean*, 1570–1640. Chapel Hill, NC: University of North Carolina Press.