Black Rice

CHAPTER ONE

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The African Origins of Rice Cultivation in the Americas
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> ***Encounters***

> *Yet these populations, whose history is scarcely known, are often bearers of a remarkable material civilization. In agriculture in particular they perfected with their farming implements different hydraulic systems.*
> *—Roland Portères, "Vieilles agricultures de l'Afrique intertropicale" (1950)*

The embarkation of the Portuguese into the Atlantic in the fourteenth century led to social and ecological transformations that brought sub-Saharan Africa within the orbit of European navigation. With the discovery of the Canary Islands in 1336, just one hundred kilometers from Morocco off the West African coast, the Portuguese found an Atlantic island archipelago inhabited by a people they called the Guanche. The Guanche, whose ancestors left the African mainland in repeated migrations between the second millennium B.C. and the first centuries A.D., were farmers and herders. They tended crops and animals originally domesticated in the Near East, which included wheat, barley, peas, and sheep and goats. But contact with Renaissance Europeans brought military defeat and enslavement. By 1496 the Guanche had ceased to exist, the first indigenous people to become extinct as a consequence of European maritime expansion. Heralding the fate that would await other peoples over the next 350 years, the islands of the Guanche became stepping stones for the diffusion of sugarcane plantations and African slavery throughout the Atlantic, a process that radically recast the relationship between Africa, Europe, and the Americas.

With the seizure in 1415 of Ceuta, located on the African side of the Straits of Gibraltar, the Portuguese established a foothold on the mainland, from where they launched reconnaissance voyages, sponsored by Prince Henry the Navigator. Over the next five years Portuguese mariners established two navigational routes for exploring West Africa, one along the coast from the mainland outpost at Ceuta, the other following the chain of Atlantic islands south from the Madeiras and the Canary Islands to the Cape Verdes, São Tomé, and Príncipe. The discovery of the Madeira Islands in 1420, named for their abundant forests, provided the fuelwood necessary to carry the expansion of sugarcane into the Atlantic, while the enclave established at Ceuta contributed to the growing familiarity of Portuguese mariners with the African coastline south from Morocco.

This was a barren coast that provided few terrestrial resources, albeit one whose offshore currents abounded in fisheries. Progress southward along this parched coastline over the next two decades as a consequence proved especially slow, but advanced rapidly when two Portuguese, Nuno Tristão and Dinis Dias, independently reached the Senegal and Gambia Rivers in the years 1444 and 1446. After hundreds

of kilometers of barren coastline, the Senegal River presented a striking ecological divide, for at this point rainfall becomes just sufficient to support agriculture. One fifteenth-century Venetian chronicler, Cadamosto, memorialized the dramatic social and ecological transformation wrought by the Senegal River on the crews of Portuguese caravels: "It appears to me a very marvellous thing that beyond the [Senegal] river all men are very black, tall and big, their bodies well formed; and the whole country green, full of trees, and fertile; while on this side [Mauritania], the men are brownish, small, lean, ill-nourished, and small in stature; the country sterile and arid."

Talking advantage of abundant marine resources for food supplies, the Portuguese established a trading fort north of the Senegal River on Arguim Island off the coast of Mauritania in 1448. The location served to provision the quickening number of Portuguese forays southward along the coast. This resulted in the discovery of the uninhabited Cape Verde archipelago, fourteen small volcanic islands some five hundred kilometers west of Senegal, on one return voyage in 1455. By 1460 the Portuguese had completed reconnaissance of the Upper Guinea Coast, the densely populated region from Senegal to Liberia that would serve as a major focus for the Atlantic slave trade.

Over the next centuries European mariners would call this region the Grain or Rice Coast after its specialized production of cereals. Following the lead of the Portuguese, others too would depend upon surplus grain production for provisions. Thus for European ships voyaging along the West African coast, passage south beyond the Senegal River brought them to a region abundant in cereals. East of Liberia, grain cultivation gradually gave way to root crops like yams. Low in protein and perishable on long voyages, these crops proved far less significant as food staples on ships than cereals. While reference to the Upper Guinea Coast conjures up images of the Atlantic slave trade, the term "Grain or Rice Coast" does not. Yet the two reveal the Janus-faced relationship of food surpluses to the dense populations that Europeans enslaved in the region from Senegal to Liberia. Widespread cereal availability resulted from the sophisticated level indigenous agriculture had already attained in Africa in the early modern period.

Despite the significance of these agricultural systems in the regional economy and commerce with Portuguese caravels, the cereals produced along the Upper Guinea Coast have received little attention in historical scholarship. More research has focused on the food staples of New World provenance introduced into Africa, such as maize, manioc, and peanuts, than on those the Portuguese found in West Africa during the first century of exploration. Yet increased scholarly attention to the Grain or Rice Coast reveals a hidden narrative of the Atlantic slave trade, one that contributes significantly to the historical recovery of the African experience in the Americas.

Dependent upon the surpluses produced and marketed by African societies, Portuguese caravels voyaging along the sub-Saharan coast took note of the agricultural systems they encountered. The indigenous African cereals, millet and sorghum, were among the first crops described in the region between the Senegal and Gambia Rivers. When mariners proceeded to the wetter areas of the Upper Guinea Coast south of the embouchure of the Gambia River, their accounts mention the cultivation of rice. Thus rice, millet, and sorghum were the three cereals grown along the Grain or Rice Coast reported in the earliest European accounts.

The societies of the Upper Guinea Coast had a rich and varied food supply. The Portuguese, and other seafaring Europeans who followed, contributed to the complexity of the agricultural systems found along the Guinea Coast and the surpluses available for sale to slave ships crossing the Middle Passage. Africans readily adopted imported food staples such

as maize, peanuts, tomatoes, and manioc and frequently experimented with these American introductions long before they became established in Europe. The introduced seeds rapidly became part of African cropping systems, and they were cultivated and prepared in the same manner as the indigenous food staples. A similar process characterized the European adoption of imported American seeds, although dependence on one crop out of a cropping complex, as with maize and potatoes, at times resulted in malnutrition.

During the Atlantic slave trade, Europeans knew where cereals were grown in West Africa as well as where to find food surpluses. But over the ensuing centuries of slavery, this knowledge was overlooked and seemingly lost; the enslavement of Africans dehumanized its victims and disparaged their achievements in agriculture and technology. The indigenous African cereals were viewed as nothing more than a few "inferior and miserable food staples."

Since the undermining of African agricultural accomplishments proved a legacy of the Atlantic slave trade, it was also assumed, incorrectly, that the Portuguese must have introduced rice from Asia. The discovery of a maritime route to Asia at the end of the fifteenth century had brought Europeans into contact with hierarchical Asian societies based on rice. When Europeans encountered irrigated rice along the West African coast, they believed those systems represented a transfer of technology from Asian societies. Certainly, it could not be the product of the nonstratified societies that Europeans found growing irrigated rice along the Upper Guinea Coast. Credit to the Portuguese for bringing rice and irrigated culture to West Africa persisted without question well into the twentieth century despite the fact that accounts of Portuguese introduction of the crop to West Africa seldom addressed how mariners might have transferred knowledge of irrigated rice to Africans.

To begin the process of the historical recovery of African agricultural achievements and their linkage to the Americas, we need to examine early accounts of rice cultivation along the West African coast. Conventional scholarship has placed the knowledge and extent of African rice cultivation in the context of Portuguese exploration and the transoceanic crop exchanges that subsequently became known as the "Columbian Exchange." Highlighting the Columbian Exchange usually emphasizes seed transfers, a process that assigns Europeans the principal role in global agricultural history. Instead we will explore the indigenous knowledge systems in which crops developed, a process which brings a West African rather than a European protagonist to the history of rice cultivation and its dissemination.

Early accounts of rice in West Africa should provide answers to three primary questions on the crop's cultural origins, beginning with whether the historical record suggests that the cultivation of rice was already established along the West African coast prior to the arrival of the Portuguese. The second concern is to determine whether descriptions of rice culture from the initial period of contact with Europeans indicate a sophisticated system of production. These would include methods of water control associated with irrigated rice, such as growing the crop under submergence, transplanting, and constructing dikes and embankments for flooding and drainage. A final, and related, consideration aims to determine to what extent the ecological and social factors that characterize the cultivation of rice in the contemporary period are evident in the past.

Early Descriptions of Rice Culture

Senegambia, the name given to the region encompassed between the

Senegal and Gambia Rivers, was the first section of the Grain or Rice Coast reached by Europeans (Figure 1.1). South of the Senegal River along the Upper Guinea Coast, precipitation increases steadily. The dominant cereals adapted to semiarid conditions, sorghum and millet, grade into rice over the broad region extending down the Atlantic coast from the Gambia River to Liberia, the area that would become known as the Grain or Rice Coast. Decades before ships would reach India, the Portuguese chronicler Gomes Eanes de Azurara recorded the first European mention of rice in West Africa. In 1446 Stevam Alfonso reached the mouth of a large river—possibly the Gambia—where he encountered the cultivation of wetland rice on floodplains: "They arrived sixty leagues beyond Cape Verde, where they met with a river which was of good width, and into it they entered with their caravels ... they found much of the land sown, and many fields sown with rice ... And he said that land ... seemed like marsh."

Alvise da Cadamosto, who visited the Gambia River in 1455 and again the following year, remarked upon the significance of rice as a dietary staple: "In this way of life they conduct themselves in almost all respects similarly to the negroes of the kingdom of Senega [Senegal]; they eat the same foods except they have more varieties of rice than grow in the country of Senega."

By 1460, less than twenty years after the first caravel sailed past the Senegal River, Portuguese ships had completed reconnaissance of the one thousand kilometers spanning the Upper Guinea Coast as well as the Cape Verde Islands. From this period commentaries on rice become even more abundant. Journeying along the West African coast in 1479-80, Eustache de la Fosse observed the cultivation of rice along coastal estuaries as well as the active purchase of surpluses by Portuguese vessels. Duarte Pacheco Pereira similarly noted during travels in 1505-1508 that rice and meat were in great abundance in the region of Guinea-Bissau. Valentim Fernandes, a German of Moravian birth who worked in Lisbon with early Portuguese mariner accounts, recorded in the period 1506-1510 the active trade in rice, millet, milk, and meat among the Gambian Mandinka: "They eat rice, milk, and millet ... Poor people who don't have sweet potatoes, have rice ... Their food is like that of the Wolof [of Senegal] except that they eat more rice and they have so much that they take it to sell and exchange, also [palm] wine, oil, and meat and other foodstuffs. Because this Mandinka land is very rich in food like rice and millet, etc."

For most of the fifteenth century trading was confined to ships, but by the end of the century Portuguese and Cape Verdean traders were being admitted to some West African communities. Subsequent European scholarship assumed these same Portuguese navigators and traders introduced irrigated rice cultivation to Africans along the Upper Guinea Coast. Yet in this early period, the Portuguese were attempting to understand this form of rice cultivation. Attributing the sophisticated irrigated system to Portuguese tutelage in later centuries failed to question how they came by this presumed knowledge, nor did it accord with mariner accounts.

Along the coast south of the Gambia River to Sierra Leone, a distance of about five hundred miles, rice proved so abundant that Portuguese ships routinely purchased it for provisions, often from the non-stratified rice-growing ethnic groups like the Baga, with whom they initiated an early trade in indigo. When English privateer, buccaneer, and slaver John Hawkins raided an island offshore Sierra Leone in 1562 and 1564, one chronicler recounted: "The Samboses had inhabited there 3 yeeres before our coming thither, and in so short space have so planted the ground, that they had great plentie of mill [millet], rise [sic], rootes, pompions, pullin, goates ... In addition to seizing all the captives they could, the English stole all the inhabitants' grains and fruits they could

conveniently transport."

The trade in rice along the African coast was extensive; ships increasingly depended on African cereal surpluses for their voyages. Rice sales were frequently brokered with female traders, as the Portuguese-African (Luso-African) trader André Donelha observed around 1625 in Guinea-Bissau, "and here the black women hold a market when ships are in port; they bring for sale rice."

Settlement of the Cape Verde Islands involved the import of slaves amid an active trade with the mainland that included a diverse array of commodities: gold, ivory, kola nut, melegueta pepper, cowhides, animal pelts, cotton, iron, dye wood, beeswax, and food staples. The Cape Verdes were a crucial trading entrepôt for the expanding commerce with Portugal; ships bound for long Atlantic voyages in the fall and winter headed there with the prevailing northeast winds and followed the southward flow of the Canary Current before continuing on to Brazil, the West African coast, or India.

As the slave population on the islands grew, African agricultural staples became the basis for subsistence, with surpluses often sold to ships. By the early 1500s rice was being planted on the Cape Verde island most propitious for agriculture, Santiago, along with other key African domesticates such as yams, sorghum, and millet. In 1514 rice appears on cargo lists of ships departing the Cape Verde Islands, and one record from 1530 mentions the deliberate export of rice seed to Brazil. Portuguese vessels carried nearly all the slaves that made the trip to the Cape Verde Islands and the Americas prior to the 1620s, and they left the region with provisions on board. After crossing the Middle Passage, these vessels routinely stopped in Spanish Jamaica and Portuguese Maranhão to replenish victuals before continuing on to slave markets elsewhere. With the arrival in Cape Verde of ships from other European nations in the last decades of the sixteenth century and the growing number of trading forts established along the coast, references to rice increase; both settlement and trade relied upon African cereals for food.

Because of their proximity to navigation routes, the first African rice systems to receive mention were the ones located in coastal estuaries as well as upstream along the river floodplains of Senegambia. These rivers are low-lying and affected by marine water in the lower seventy to one hundred kilometers. Venturing upstream in search of potable water and safe anchorage, the Portuguese came across tidal floodplain cultivation. Valentim Fernandes (c. 1506-1510) recorded the first description of rice cultivation along tidal floodplains: "From Cape Vert until here there are two rainy seasons and two rains each year. Twice they sow and twice they harvest rice and millet etc., knowing they will harvest in April and in September, and when they gather in the rice then they sow yams and these they cultivate year round."

Here rice was submerged by tidal flow. Fernandes's account confuses the presence of two harvests with two rainy seasons; the climatological and historical record shows that this part of Senegal, then as now, only experiences a single rainy season in the months from May/June to September/October. What his description alludes to, however, is the practice of flood-recession agriculture, sometimes known by its French name, décrue, which likely accounts for the two harvests he mentions. Flood-recession cultivation is a system of planting on the floodplain after the onset of the dry season, when the reduced volume in river water has caused available fresh water to retreat. As the account of Fernandes indicates, décrue planting on soils with stored moisture reserves occurred in late fall or early winter, with harvesting taking place at the height of the dry season in April or May. Flood-recession agriculture remains to this day extremely important in the Sahel, the region south of the Sahara Desert, and especially along the Senegal and Niger Rivers.

Richard Jobson, an English trader and explorer who navigated upstream along the Gambia River in 1620-21, also described the tidal floodplain system. Jobson's ship traveled up the Gambia, where permanently saline water grades into seasonally fresh water in the section of the river from 70 to about 240 kilometers. In the interval between the first rains and the shift in the river from brackish to sweet water, farmers established rice seedbeds on inland swamps near their villages for later transplanting to the floodplain. Jobson's account provides an early indication of a second environment planted to rice, namely inland swamps, where seedlings were established for later transplanting once freshwater conditions returned to the floodplain: "But in Rice they do set it first in smal [sic] patches of low marish grounds, and after it doth come up, disperse the plants, and set them in more spacious places, which they prepare for it, and it doth yield a great increase."

No rice production system, however, received as much attention and interest as that practiced in the estuaries along the coast, known as mangrove rice. This system of production involved the creation of irrigated perimeters from coastal mangrove swamps. Its proximity to maritime routes along the coast as well as the sophisticated transformation it wrought upon the landscape elicited considerable European commentary, even when salinity forced abandonment of the paddies. When a prolonged cycle of drought prevented mangrove rice cultivation in the Sine-Saloum estuary north of the Gambia River, land use shifted to collecting the accumulated salt deposits. Diogo Gomes, in 1456 the first Portuguese captain to enter the estuaries of the Geba (Guinea-Bissau) and Gambia Rivers, observed that the regional trade in a red salt originated on such abandoned rice fields.

The mangrove system, unlike tidal floodplain production, required building huge embankments to prevent overspill from marine tides, ridging for soil aeration, and the construction of canals and dikes for miles along the coast. In 1594, almost a century before the colonization of South Carolina where similar systems would eventually predominate, André Alvares de Almada, a Luso-African trader based in Santiago, Cape Verde, provided a detailed description of this irrigated rice system found in estuaries along the coast from the Gambia River south to Guinea Conakry. He noted that "the residents were growing their crops on the riverain deposits, and by a system of dikes had harnessed the tides to their own advantage." This was the same system European scholarship would subsequently attribute to Portuguese introduction. De Almada noted the use of dikes to impound rainwater for seedling submergence, ridging, and the embankment of plots to capture water. His account establishes the technique of transplanting nearly twenty-five years before Jobson described it along the Gambia, and in an entirely different environment sown to rice: "The Blacks make rice fields in these plains; they make ridges from the earth because of the river, but in spite of that the river breaks them and inundates many a time. Once the rice has sprouted they pull it up and transplant it in other lands better drained where then it becomes grain." Despite errors in interpreting the function of ridges and canals, de Almada's description leaves no doubt that West Africans were quite familiar with planting irrigated rice, as in Asia, and possessed the sophisticated knowledge that is emblematic of a fully evolved wet rice culture.

An independent confirmation of de Almada's description of mangrove rice cultivation in coastal estuaries came in 1685, when Sieur de la Courbe journeyed overland through Diola settlements from the Gambia to the Geba River in Guinea-Bissau. He remarked that "there was no house which did not have a rice nursery nearby, while along the river banks the landscape had been transformed into a pattern of causeways with rice plants appearing above the flooded fields" and described the extensive system of dikes and rice paddies developed along river estuaries: "It had already begun to rain and I saw the rice fields which are all along the river.

They are crossed by small embankments ... to prevent the water from running off." André Brüe, traveling through Senegambia in 1694 and 1724, observed other ethnic groups involved in irrigated rice alongside coastal estuaries. The Baïnouks of Casamance also constructed small canals to irrigate their polders.

As the Atlantic slave trade deepened and seized many of the coastal peoples involved in growing wet rice, the mangrove system became associated with the expertise of one group of its practitioners, the Baga, who survived the earliest wave of Atlantic slavery. The Baga system of irrigated rice production so captured the interest of one slave captain, Samuel Gamble, that he depicted and described their cultivation practices in Guinea Conakry around 1793 (Figure 1.2):

> *The Bagos are very expert in Cultivating rice and in quite a Different manner to any of the Nations on the Windward Coast [Sierra Leone]. The country they inhabit is chiefly loam and swampy. The rice they first sew [sic] on their dunghills and rising spots about their towns; when 8 or 10 Inches high [they] transplant it into Lugars [places/fields] made for that purpose which are flat low swamps, at one side ... they have a reservoir that they can let in what water they please, [on the] other side ... is a drain out so they can let off what they please ... The instrument they use much resembles a Turf spade [kayendo] with which they turn the grass under in ridges just above the water which by being confined Stagnates and nourishes the root of the plant. Women & Girls transplant the rice and are so dextrous as to plant fifty roots singly in one minute. When the rice is ready for cutting they turn the water off till their Harvest is over then they let the Water over it and let it stand three or four Seasons it being so impoverished.*

Besides providing an excellent overview of irrigated rice cultivation in cleared mangrove swamps, Gamble's commentary reveals a significant feature of Baga production that would emerge in the crop's diffusion across the Atlantic: a division of labor by task that represented specialized, gendered systems of knowledge. Females transplanted the seedlings while males prepared the irrigated paddy with the flat-bladed shovel known as the kayendo. The latter was a long-handled specialized spadelike shovel used by men to lift and turn over the heavy clay soils planted to mangrove rice. Along the Upper Guinea Coast from Casamance, Senegal, into Guinea Conakry, where mangrove rice is planted, this specialized implement is synonymous with the labor involved in transforming the landscape into irrigated fields. Cadamosto describes its use in rice planting as early as 1455: "Their manner of farming is that four or five of them line up in the field with some paddles [shovels], throwing the earth ahead of them but not deeper than four fingers in the earth, which is heavy and sticky, yet enables the germination of all that which is sown." This description of the key implement of mangrove rice, coming just ten years after the Portuguese encountered the Senegal River, clearly indicates the antiquity of irrigated rice cultivation and its development prior to their arrival.

As the Portuguese moved south along the Upper Guinea Coast along the littoral of Sierra Leone, a region known as the Windward Coast, they entered another major area of rice cultivation. From the late sixteenth century other European nations established trading enclaves along the

Windward Coast, which brought traders into contact with rice systems not easily evident from shipboard. Their accounts take note of rain-fed rice cultivation in areas of moderate to heavy rainfall.

Relying upon information supplied by Dutch merchants operating along the Windward Coast in the region between Sierra Leone and Liberia, Amsterdam geographer Olfert Dapper provided a clear exposition of the rice farming system around 1640. His account captured a fundamental principle of West African rice production, the importance of planting along a landscape gradient in distinct environments that include floodplains, inland swamps, and uplands:

> *Those who are hard-working can cultivate three rice-fields in one summer; they sow the first rice on low ground, the second a little higher and the third ... on the high ground, each a month after the previous one, in order not to have all the rice ripe at the same time; this would bring them into difficulty with regard to cutting the rice, since it is cut ear by ear or stalk by stalk—a very wearisome task. This is the commonest practice throughout the country ... The first or early rice, sown in low and damp areas ... the second, sown on somewhat higher ground ... the third, sown on the high ground ...*

(Continues...)