CHAPTER THREE

TIME ON THE COAST

A number of scholars have suggested that mortality during captivity on the African coast was considerable and may even have exceeded that during the Middle Passage.[1] In 1576 Father Garcia Simões suggested that in the previous year 14,000 slaves had been bought and sold in Angola, of which 4,000 had died. The figure of 14,000 has been judged as exaggerated since the Portuguese had only just established a presence in the region, but the statement suggests that significant losses were being incurred.[2] Joseph Miller has speculated that perhaps only 60 to 65 percent of Angolan slaves arrived on the coast alive and that in addition 10 to 15 percent may have died before embarkation.[3] High pre-embarkation losses have been attributed to a variety of factors including the psychological impact of the enslavement process, the movement of slaves into different disease environments, epidemics, dietary changes, as well as inadequate food, water and lodging on the coast.[4]

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[1] Curtin, *Atlantic Slave Trade*, 281–82; Jan S. Hogendorn, "Economic Modelling of Price Differences in the Slave Trade Between the Central Sudan and the Coast," *Slavery and Abolition*, 17 (1996), 213; Klein, *Middle Passage*, 87; Postma, "Mortality in the Dutch Slave Trade," 240–46; Miller, "Mortality in the Atlantic Slave Trade," 409–10, 412; Robert Stein, "Mortality in the Eighteenth-Century French Slave Trade," *The Journal of African History* 21(1)(1980): 38–39.

[2] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 146 Garcia Simões 7 Nov. 1576.

[3] Miller, "Mortality in the Atlantic Slave Trade," 413; Miller, *Way of Death*, 440; Postma, *Dutch in the Atlantic Slave Trade*, 236–38. Richard L. Stein, *The French Slave Trade in the Eighteenth Century: An Old Regime Business* (Madison: University of Wisconsin, 1979), 98 suggests that mortality on shore was as high as during the Middle Passage, both periods accounting for about half of deaths.

[4] Philip D. Curtin, "Epidemiology and the Slave Trade," *Political Science Quarterly*, 83 (1968): 199–200; Herbert S. Klein and Stanley L. Engerman, "Slave Mortality on British Ships 1791–1797," in *Liverpool, the African Slave Trade, and Abolition*, eds. Roger Anstey and P.E.H. Hair (Liverpool: University of Liverpool Press, 1976): 122; Klein, *Middle Passage*, 67, 86–89, 235; Herbert S. Klein and Stanley L. Engerman, "A Note on Mortality in the French Slave Trade in the Eighteenth Century," in *The Uncommon Market: Essays in the History of the Atlantic Slave Trade*, eds. Henry A. Gemery and Jan S. Hogendorn (New York: Academic Press, 1979), 269; Postma, "Mortality in the Dutch Slave Trade," 240–46; Stein, "Mortality in the Eighteenth-

Little is known of the impact of initial enslavement in either Upper Guinea or Angola, except that in the seventeenth century slaves in both regions were generally acquired from within a relatively short distance of the coast. In Upper Guinea they were drawn from less than 100 kilometres inland,[5] and at this time most slaves in Angola came from the Kingdom of Ndongo in the immediate hinterland of Luanda. However, in the 1630s the supply of slaves in Angola began to dry up as the region around Luanda was depopulated by wars and as the Mbundu chiefs who supplied them slaves began to retreat. This meant that *pombeiros* were forced to travel several months into the interior to acquire them. The result was "because they bring them from so far and in chains and with a lack of food [do necesario] many die on the road".[6] The process of enslavement would have had equally traumatic effects regardless of the distance travelled. However, slaves drawn from longer distances inland would not only have suffered greater hardships and mortality on the journey, but run greater risks of moving into a new disease environment and of experiencing dietary changes that might adversely affect their health. Because the distance travelled to the coast was shorter in the early years of the slave trade, losses in transit would probably have been lower than they were in the eighteenth century.

If the time spent travelling to the coast was shorter, the period that slaves might spend on the coast prior to shipment was significantly longer. This was despite the fact that in the early seventeenth century there does not seem to have been a shortage of potential slaves and ships tended to be smaller. Slave ships averaged only about 100 tons, with the largest not more than 250 tons.[7] However, markets and communications were less developed so that despite the smaller size of ships it probably took slave traders longer to complete their

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Century French Slave Trade," 38–39; Miller, "Mortality in the Atlantic Slave Trade," 414–18; David Eltis, "Mortality and Voyage Length in the Middle Passage: New Evidence from the Nineteenth Century," *Journal of Economic History*, 44 (1984): 308; Herbert S. Klein and Stanley L. Engerman, "Long-Term Trends in African Mortality in the Transatlantic Slave Trade" *Slavery and Abolition*, 18 (1997): 45–46; Klein, *Atlantic Slave Trade*, 141–42; Klein, Engerman Haines and Shlomowitz, "Transoceanic Mortality," 101–102, 109–110.

[5] See Chapter 2 for the discussion of the main sources of slaves on the Upper Guinea Coast.

[6] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 8: 243 Gonçalo de Sousa 6 Jul. 1633.

[7] Vila Vilar, *Hispanoamérica y el comercio de esclavos*, 129–34.

cargoes. It took Manuel Bautista Pérez ten months, from July 1613 to April 1614, to assemble 227 slaves. These were collected fairly consistently throughout the period with only a slight increase in purchases occurring in the last three months before departure.[8] On the second expedition between 1617 and 1618, he similarly spent nearly eleven months acquiring slaves.[9] The Papel, who controlled Cacheu, had the reputation of delaying the delivery of slaves and goods in order to extract more gifts or imports from slave traders. As a result ships might have to wait up to a year to complete their shipments.[10] But these long periods on the coast arose not only from difficulties in assembling a slave cargo, but also because the slave traders were interested in trading other commodities.[11] In the eighteenth century slave traders spent less time on the coast in order to safeguard the health of the crew who quickly succumbed to malaria and other tropical diseases.[12] In fact at that time ships generally anchored at the port of Bissau for only two months.[13] In the seventeenth century tropical fevers may not have been as life threatening, and therefore an obstacle to a long stay on this coast, as they became in the eighteenth and nineteenth centuries, when the commercial production of wet rice expanded creating good breeding grounds for mosquitoes.

Little is known of the average time spent by ships collecting slaves in Angola. Tropical fevers were probably not such a significant fac-

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[8] AGNL SO CO Ca 18 doc 197 pp. 153–4, 165–6, 173–4, 179–82 Upper Guinea accounts 1613–1618.

[9] Accounts only exist of slave acquisitions and accommodation from 4th January 1618, but it is known that Manuel Bautista Pérez arrived in Cacheu on May 8th 1617. By January 4th he had purchased 261 slaves and 76 were being accommodated on board the ship, which departed on 25th March.

[10] Rodney, "Portuguese Attempts at Monopoly," 315; Vila Vilar, *Hispanoamérica y el comercio de esclavos*, 146. This was probably not a factor affecting the acquisition of slaves by Manuel Bautista Pérez since the largest batches came from regions outside Papel territory, essentially from among the Banhun at Bichangor, from the Biafada on the Grande River, from the Mandinga and Biafada at Gêba and from the Bijagós.

[11] Brásio, *Monumenta missionaria africana* Ser. 2 vol. 5: 6 Consulta da junta sobre o baptismo dos negros 27 Jun. 1623.

[12] Dutch slave-traders in the early eighteenth century remained on the Guinea coast for seven to eight months (Postma, "Mortality in the Dutch Slave Trade," 244), while in the late eighteenth century British slave ships stayed an average of only 71.5 days on the Upper Guinea Coast and 95.2 in Angola (Klein and Engerman, "Slave Mortality on British Ships," 116). They also tried to stay away from the shore as much as possible (Philip D. Curtin, "White Man's Grave": Image and Reality," *Journal of British Studies* 1(1961): 99).

[13] Carreira, *Os Portuguêses*, 44.

tor encouraging short stays on the coast as they came to be on the Guinea Coast. The dry coast of northern Angola does not favour the reproduction of the malaria parasite and later accounts suggest that the coast was healthier than that of Senegambia.[14] Probably a more significant factor causing longer stays on the Angolan coast were wars for although they generated slaves for sale they also led to shifting sources of supply and disrupted trade networks.[15] One shipmaster, Captain Baltasar Amat, justified his late arrival in Cartagena in 1615 on the grounds that among others things he had spent fifteen months completing his cargo in Luanda because the supply of slaves had been disrupted by wars and the death of the King of Kongo.[16]

Lodging

Once the slaves had been acquired they were accommodated quite differently in Cacheu and Luanda. In the early years of the European slave trade on the Upper Guinea Coast, the slaves were collected on board ship, but later they were also lodged on land. According to Manuel Bautista Pérez's accounts for 1617 and 1618 some slaves were sent aboard regularly, generally in larger batches than they had been acquired, but others were housed on shore.[17] At the beginning of January 1618 about 30 percent of his slaves were being accommodated on the ship while the rest remained on land. It is not clear on what basis slaves were selected to be sent aboard, but during the three months prior to departure at the end of March no less than eighty three slaves had to be taken off the ship because they were sick, some of *mal de Loanda*, while onshore fifteen died. It is not clear whether those who died were some of those who had been sent

[14] K. David Patterson, "Disease Ecologies of Sub-Saharan Africa," in *The Cambridge World History of Human Disease*, ed. Kenneth F. Kiple (Cambridge: Cambridge University Press, 1993), 450; Stephen D. Behrendt, "Crew Mortality in the Transatlantic Slave Trade," *Slavery and Abolition*, 18 (1997): 59–60; Klein, *Atlantic Slave Trade*, 141.

[15] Ernst van den Boogaart, and Pieter C. Emmer, "The Dutch Participation in the Atlantic Slave Trade, 1596–1650," in *The Uncommon Market: Essays in the History of the Atlantic Slave Trade*, eds. Henry A. Gemery and Jan S. Hogendorn (New York: Academic Press, 1979), 361–62.

[16] AGI Escribanía de Cámara 1079B part 1 fol. 43v Antonio Fernández de Elvas . . . contra Baltasar Amat 1620.

[17] AGNL SO CO Ca 18 doc 197 pp. 653–655, 677, 681 Upper Guinea accounts 1613–1618. Altogether 519 slaves were purchased.

ashore and therefore whether this reflected poorer conditions on the ship. In any case it seems that sick slaves were accommodated on land.

On land the slaves were kept in large mud or thatch houses covered with leaves that during the dry season were a considerable fire risk. At these times the roofs were sometimes replaced by sailcloth.[18] Accommodation in Cacheu was said to be expensive with slave traders having to pay 1,000 *cruzados* (1,250 pesos) to rent houses to accommodate their slaves.[19] This might be compared with the 400 *cruzados* (500 pesos) needed to provide food and lodging for a priest and his servant for a year.[20] In 1613 Manuel Bautista Pérez paid 480 *panos* (300 pesos) for the houses in which he stayed, which at that time was equivalent to the value of three slaves.[21] Philip Curtin suggests that the value of an ordinary house in Senegal was usually equivalent to the price of one slave.[22]

According to Alonso de Sandoval slaves were kept on board ship and shackled together with long chains called *corrientes*.[23] Such chains were probably used on land where there were greater opportunities to escape. Manuel Bautista Pérez accounts include the purchase of a number of locks for metal chains (*cadeados de corrente*). In the eighteenth century slaves at Bissau were secured by long chains that were fixed to rings in the wall and linked them together by the feet or waist. Various other types of metal and wooden shackles and fetters were also used.[24] In Luanda slave traders had a ready-made secure location in the form of the Ilha de Luanda where the slaves were often kept in barracoons.[25] It was difficult to escape from the island so these slaves may not have been chained together as they probably were in Cacheu. However, some were probably kept in houses in Luanda and only transferred to the island for final departure.[26]

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[18] George E. Brooks, *Eurafricans*, 77. For protection of merchandise against fire it was stored in houses with earthen roofs (Coelho, *Duas descrições*, 149).

[19] Brásio, *Monumenta missionaria africana* Ser. 2 vol. 4: 248 Sebastião Fernandes 20 Apr. 1607.

[20] Brásio, *Monumenta missionaria africana* Ser. 2 vol. 4: 314 Vice-provincial March 1608.

[21] AGNL SO CO Ca 18 doc 197 p. 68 Upper Guinea accounts 1613–1618.

[22] Curtin, *Economic Change in Precolonial Africa*, 238.

[23] Sandoval, *Tratado sobre la esclavitud*, 152.

[24] Carreira, *As companhias pombalinas* (1st ed.), 77.

[25] Sandoval, *Tratado sobre la esclavitud*, 152.

[26] Miller, *Way of Death*, 405–406.

The office of the *factoria* where the slaves were assessed for taxation purposes and dispatched was located on the island.[27] The higher incidence of wounds and sores among Upper Guinea slaves compared to those from Angola, which will be discussed below, may reflect differences in the way the slaves were secured in the two ports.

Food

There were important differences in the types of provisions used to support slaves while in captivity in Upper Guinea and Angola, as there were in the diets of Africans in general on these coasts. These differences stemmed essentially from variations in indigenous agricultural practices and environmental conditions. Although some attention has been paid to the nature of slave diets in captivity, less attention has been paid to differences in the nutritional and health status of Africans prior to enslavement that might have affected their stature and health and hence their ability to survive the gruelling conditions of captivity.[28] An exception is Joseph Miller's research on the Portuguese slave trade that attributes high mortality on the Middle Passage and in Brazil to drought, food shortages and famines in Angola.[29] The evidence presented below for the health of slaves on arrival in Cartagena also reveals that they suffered from many chronic and permanent conditions that would have been present from childhood or reflected working and living afflictions prior to enslavement. Although their health on arrival in Cartagena would have been affected by conditions on the Middle Passage, since in the early seventeenth century slaves were shipped directly to Cartagena from Africa without refreshment in the Caribbean islands, their health on arrival more closely reflected conditions in Africa than at later periods. Therefore in addition to examining the foods fed to slaves, the follow account includes an extended discussion of the foods normally

[27] AGNB Negros y Esclavos Bolívar 15 fol. 271 António Fernandes d'Elvas contra Juan de Santiago 1620.

[28] This is noted in Klein, *Middle Passage*, 235 and Postma, *Dutch in the Atlantic Slave Trade*, 246, but it has generally not been investigated directly.

[29] Miller, "Significance of Drought," 28–30; Miller, "Mortality in the Atlantic Slave Trade," 412, 417–18.

consumed by the inhabitants of both the Upper Guinea Coast and Angola.

The Upper Guinea Coast

Contemporary observations on agricultural production on the Upper Guinea Coast between the Gambia and Grande Rivers indicate that the main staples raised in the late sixteenth and early seventeenth centuries were *milho*, rice and beans.[30] Here provisions were raised in such large quantities that already at the beginning of the sixteenth century there was an export trade to Cape Verde, both to supply visiting ships and to support the local population.[31] By the late sixteenth century the Portuguese had established a substantial trade in provisions, including *milho*, rice and sesame, with the Bran and Banhun on the São Domingos River.[32] About 1615 Cacheu was importing about 1,000 *moios* of *milho* and rice annually,[33] much of which came from Bichangor, Buguendo and from the upriver ports of Songo, Jandem and Sarar.[34] *Milho* seems to have remained the dominant crop among the inland Banhun in the seventeenth century, with individual villages producing more than 500 *moios*.[35] Because of the high demand for provisions, prices in Cacheu were often higher than elsewhere.[36] To the south around the Grande River, according to Almada,

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[30] Fernandes, *Description de la côte occidentale*, 46–49, 54–57; Almada, *Tratado breve*, 19, 30, 44, 73, 76, 90, 105, 116, 126; Gamble and Hair, *Discovery of the River Gambra,* 104–105, 162–63; Donelha, *Descrição*, 81; Coelho, *Duas descrições*, 120, 141, 143, 145, 153, 206, 216.

[31] António Correia e Silva, "Espaço, ecologia e economia interna," in *História geral de Cabo Verde.* Vol. 1 eds. Luís de Albuquerque and Maria Emília Madeira Santos (Lisboa: Centro de estudos de história e cartografía antiga, 2001): 276–79. Between March and September 1610 alone four Santiago traders imported 16,000 *alqueires* of *milho* from the São Domingos River (María Manuel Ferraz Torrão, "Rotas comerciais, agentes económicos, meios de pagamento," in *História geral de Cabo Verde.* Vol. 2 ed. Maria Emília Madeira Santos (Lisbon: Centro de estudos de história e cartografía antiga, 2001), 36).

[32] Almada, *Tratado breve*, 73, 76, 84.

[33] A *moio* is the equivalent of 60 *alqueires*.

[34] Manuel Álvares, *Etiópia menor*, chap 5: 4. In Bichangor 300 *moios* were being sold annually, while Cacheu received about 400 *moios* from Buguendo. See also Brásio, *Monumenta missionaria africana*, Ser. 2 vol. 4: 167–68 Baltasar Barreira 1 Aug. 1606.

[35] Coelho, *Duas descrições*, 153.

[36] Álvares, *Etiópia menor*, chap. 5: 4.

the staples of the Biafada were *milho* and rice that were made into bread balls. These were made twice a day because they had to be eaten hot.[37] The *milho* was referred to as *milho-massaroca*. Some authors have equated *milho massaroca* with maize (*Zea mays* L.), but descriptions of the flour and form of processing as well as linguistic analyses suggest that it was a variety of millet.[38] Manuel Álvares noted the cultivation of *milho branco* and *massaroca* by the Biafada, but suggested they produced little rice.[39] At this time rice was less commonly cultivated by the Balanta, who produced *milho* and *funde* as well as root crops,[40] while the Bijagós produced large quantities of *milho, macarra, mafafa*,[41] rice, beans and yams.[42]

Milho and rice were the most important foods fed to slaves. Although bread (*pão*) and biscuit (*biscoito*) and some flour referred to as *farinha*[43] appear in the account books, these provisions were issued on credit shortly after the ships arrived on the coast rather than acquired prior to departure. This suggests that they were part of the cargo brought from Spain or acquired in Cape Verde for sale on the coast, rather than to support slaves. The provisions for slaves were acquired on the coast. The Portuguese Manueline laws of 1519 governing the slave trade encouraged the establishment of plantations and clearings using slave labour in order to provide food for the slaves.[44]

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[37] Almada, *Tratado breve*, 105.

[38] António Carreira and A. Texeira da Mota, "O milho zaburro e o milho maçaroca na Guiné e ilhas de Cabo Verde," *Revista de historia económica e social* no. 17 (1986): 5–19. For the debate on the introduction of maize see: Roland Portères, "L'introduction du maïs en Afrique," *Journal d'agriculture tropicale et de botanique appliquée*, vol. 2 (10–11) (1955): 477–510; Frank Willett, "The Introduction of Maize into West Africa: An Assessment of Recent Evidence," *Africa*, 32 (1962): 1–13; Marvin P. Miracle, "Interpretation of Evidence on the Introduction of Maize into West Africa, *Africa*, 33 (1963): 132–35; M.D.W. Jeffreys, "How Ancient is West African Maize?," *Africa* 33 (1965): 115–31.

[39] Álvares, *Etiópia menor*, chap. 13: 4.

[40] Almada, *Tratado breve*, 81; Álvares, *Etiópia menor*, chap. 12: 1. There was, however, an expansion of paddy rice cultivation from the mid-seventeenth century, partly due to the greater availability of iron for the manufacture of appropriate tools (Walter Hawthorne, "Nourishing a Stateless Society During the Slave Trade: The Rise of Balanta Paddy-Rice Production in Guinea-Bissau," *Journal of African History* 42 (2001), 13–14, 19).

[41] Almada, *Tratado breve*, 90 refers to Ma[n]car[r]a. This is later called mafafa by Coelho and described as like an onion which when cooked with beans was served as a common foodstuff (Coelho, *Duas descrições*, 184).

[42] Álvares, *Etiópia menor*, chap. 9: 1

[43] Most likely this was flour made from European cereals rather than manioc.

[44] Correia Lopes, *A escravatura*, 40–41.

However, on the Upper Guinea Coast access to land was based on the land use rather than ownership, so that Portuguese residents or *lançados* were unable to acquire land and therefore had to rely on native producers for their supplies.[45] Native leaders later expanded the commercial production of provisions employing slaves to work the land in the rainy season prior to being sold to slave traders.[46] However, there is little evidence for this form of production in the early seventeenth century. Some provisions were bought in the local market, but most were purchased from Portuguese middlemen. In many cases they were acquired as payment for goods they had received on credit. Manuel Bautista Pérez acquired about 3,700 *alqueires*[47] of provisions from twenty named and a few other unnamed persons. The major supplier was Nicolau Rodrigues who on the 1613 to 1614 slaving venture supplied him with over 56 percent of the *milho* and 80 percent of the rice he acquired. Many of those supplying provisions, including Nicolau Rodrigues who was based in Buguendo, were also involved in trading slaves.[48] Other traders acquired provisions from Bichangor and the Bijagós.[49]

Of the 3,700 *alqueires* of provisions acquired by Manuel Bautista Pérez between June 1613 and March 1614 about two-thirds were expended on supporting slaves (Table 3.1). *Milho* accounted for 85 percent of the total provisions traded and 88 percent of those used to support slaves.[50] There was, however, a clear timing in the acquisition of different foodstuffs that reflected the agricultural calendar and hence the availability and price of different cereals. The price of an *alqueire* of *milho* was generally one *pano*,[51] but in seasons of shortage such as June and July it reached 3 *panos*. During the period

[45] Brooks, *Eurafricans*, 50.

[46] Boubacar Barry, *Senegambia and the Atlantic Slave Trade* (Cambridge: Cambridge University Press, 1998), 107–108, 117–18; Postma, "Mortality in the Dutch Slave Trade," 238; Rodney, *Upper Guinea Coast*, 265; Curtin, *Economic Change*, 170.

[47] An *alqueire* was a dry measure of 13.80 liters or about 25 lbs.

[48] AGNL SO CO Ca 18 doc 197 pp. 169–170 Upper Guinea accounts 1613–1618. Another supplier of foodstuffs who also traded in slaves was Jorge Fernandes Gramaxo [p. 151].

[49] AGNL SO CO Ca 18 doc 197 p. 89 Upper Guinea accounts 1613–1618; Almada, *Tratado breve*, 90, 92; Coelho, *Duas descrições*, 184.

[50] The breakdown of provisions acquired for slaves was: *milho* 88.1 percent, couscous 5.4, rice and beans 1.8 percent each, *funde* 1.0 percent and unspecified provisions 1.9 percent.

[51] See also Álvares, *Etiópia menor*, chap 5: 4.

Table 3.1. Purchases of Slaves and Provisions on the Upper Guinea Coast 1613 to 1614

	Milho *alqueires*	Rice *alqueires*	Couscous *alqueires*	*Funde* *alqueires*	Beans *alqueires*	General provisions	Total	Slaves purchased	Cumulative total of slaves purchased
1613									
June	20						20		
July	110		96		53		259	2	2
August			11				11	15	17
September			44				44	32	49
October				21			21	16	65
November		148	22.5				170.5	16	81
December	223	60					283	2	83
Unspecified month 1613	75			26		47	148		
1614									
January	533	15					548	5	88
February	438						438	56	144
March	249						249	44	188
April								39	227
Unspecified month 1614	1500						1500		
Total	3148	223	173.5	47	53	47	3691.5	227	227
Total expended on slaves	2208	44	135.5	26	44	47	2504.5		
Percentage of total provisions purchased	85.28	6.04	4.70	1.27	1.44	1.27	100		
Percentage of total provisions expended on slaves	88.16	1.76	5.41	1.04	1.76	1.88	100		

Source: AGNL SO CO Ca 18 doc 197 *passim* Upper Guinea accounts 1613–1618.
These figures are the amounts of provisions acquired, which include those used to support slaves that are listed separately (pp. 151–52). It excludes 346 *alqueires* of provisions that were acquired and sold on to third parties.

from June to December when *milho* was in short supply, couscous, beans and *funde* dominated, while rice made its appearance in November slightly earlier than *milho*.[52] During this period it seems that Pérez resorted to fairs to acquire provisions and also imported some couscous from Cape Verde. Apart from the increase in purchases prior to departure, these acquisitions clearly reflected seasonal availability with the *milho* harvest occurring in November.[53]

Philip Curtin has estimated that slaves required one kilogram of millet a day.[54] This approximates the amount purchased by Manuel Bautista Pérez in 1613 to 1614. The 2,208 *alqueires* of *milho* acquired for slaves would have represented about 25,082 kilograms. Taking account of the dates on which the slaves were purchased 20,288 daily rations were needed, so this amount would have provided a daily ration of about one kilogram and it does not include other cereals or foods that were purchased.[55] However, it includes the provisions acquired for the transatlantic journey. For an average journey of between 35 and 40 days,[56] this would have added about 40 percent to the amount of food required.[57] That said further provisions would have been loaded in Cape Verde.

Milho was by far the most important staple purchased by slave traders,[58] and to a large extent this reflected its local availability. The relatively small amount of rice purchased is perhaps surprising. By the eighteenth century rice dominated among the cereals used to support slaves.[59] In the seventeenth century the price of rice compared favourably with other cereals. One *alqueire* of rice generally cost one *pano*, while one *alqueire* of *milho* varied between 1 and 3 *panos* and an *alqueire* of couscous was about 2 *panos*. Since rice was

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[52] Rice was generally planted in April and May and harvested in September and October at the end of the rainy season (Behrendt, "Markets," 181).

[53] P.E.H. Hair, Adam Jones and Robin Law eds. *Barbot on Guinea: The Writing of Jean Barbot on West Africa, 1678–1712* (London: Hakluyt Society, 1992), vol. 1: 109.

[54] Curtin, *Economic Change*, 169.

[55] This does not take account of the 12 who died or those who were loaned out, who would have accounted for 1,720 daily rations.

[56] Vila Vilar, *Hispanoamérica y el comercio de esclavos*, 148 n. 69.

[57] This is based on 215 slaves that were eventually dispatched on this journey

[58] See also Almada, *Tratado breve*, 73, 76.

[59] See Carreira, *Companhias pombalinas* (1st ed.), 167–170 for the provisions loaded on three vessels dispatched from Bissau and Cacheu in the mid-1770s. Interestingly *milho* was not listed in any of the three, while yams figured as the next most important staple.

generally cheaper, it suggests that *milho* was preferred, perhaps because it could be prepared in a variety of forms or because of its reputation as a better food; it contains more protein and fat than rice. It is interesting that rice featured less significantly among the provisions fed to slaves than the proportion of the total amount of cereals traded, again suggesting a preference for *milho* as a slave food. In the early sixteenth century the provisions exported to Cape Verde similarly included less than 10 percent rice,[60] while the recommended provisions for slaves that were being transported to the Iberian peninsula in the early sixteenth century were in the ratio of 8 *milho* to one rice.[61] Although rice production was well established when the Portuguese arrived, especially on the Gambia River and coastal regions inhabited by the Bran and Folupo,[62] its cultivation only expanded significantly in the mid-seventeenth century in response to the demand for provisions and the greater availability of iron tools to facilitate its cultivation.[63] It is possible therefore that rice was being imported from the Nunez River and Serra Leoa where it was regarded as the staple food.[64]

In the New World couscous was generally made from maize, but the couscous referred to in the Manuel Bautista Pérez's accounts is likely to have been made from *milho* rather than maize (*maíz*).[65] *Maíz* is not mentioned in his accounts covering Upper Guinea, but the same accounts consistently refer to *maíz* as one of the main items purchased for the maintenance of slaves on the American stretch of the journey. Contemporary observers in Upper Guinea refer to maize infrequently. It has been suggested that the term *milho zaburro* was used to refer to maize, but others have disputed this, in any case this term does not appear very often in early seventeenth-century

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[60] Correia e Silva, "Espaço," 265–267.

[61] Sixty slaves were supposed to be given four *moios* of *milho*, ten quintals of biscuit, ten *alqueires* of rice and ten *pipas* of water for the journey to the Iberian peninsula in 1527 (Correia e Silva, "Espaço," 298).

[62] G.R. Crone ed. *The Voyages of Cadamosto*. (London: Hakluyt Society, 1937), 70; Duarte Pacheco Pereira, *Esmeraldo de Situ Orbis*, ed. George H.T. Kimble (London: Hakluyt Society, 1937), 91; Rodney, *Upper Guinea Coast*, 21.

[63] Hawthorne, "Nourishing a Stateless Society," 10 and *Planting Rice*, 35–39; Judith A. Carney, *Black Rice: The African Origins of Rice Cultivation in the Americas*. (Cambridge, Mass., Harvard University Press, 2001), 13–22.

[64] Almada, *Tratado breve*, 115, 126; Coelho, *Duas descrições*, 216; Donelha, *Descrição*, 81.

[65] For a description of how to make couscous from *milho* see Hair, *Barbot on Guinea* vol. 1: 122–23.

sources.[66] The 1613 accounts also show that 47 *alqueires* of *funde* (fonio) (*Digitaria exilis* (Kippist) Stapf) were purchased. This cereal is called 'hungry rice' because although it is a millet it tastes like rice and, since it is drought-resistant, it is a useful standby when other crops fail.[67] It was commonly cultivated on the Upper Guinea Coast.[68]

Apart from cultivating cereals, the Banhun and Bran raised cattle, goats and chickens, and were also skilled fishermen to the extent that fish were very cheap.[69] Stock raising was more prevalent among groups to the north, where although plenty of fish was available they preferred meat.[70] Cacheu was described as well supplied with all kinds of provisions including fish and meat.[71] Diets on the Upper Guinea Coast may have been reasonably well balanced with meat and fish occasionally supplementing the main staples of *milho* and rice. However, they often preferred to trade meat and fish rather than consume it.[72] Fish was often dried and traded inland,[73] while in the Cape Verde islands in large quantities of turtles were salted.[74] There was an active trade in salt from Sierra Leone,[75] which among other things was used for salting fish,[76] while on the Gambia River chickens were preserved for sale to the Portuguese.[77] On the 1617–1618 expedition Manuel Bautista Pérez purchased a few barrels of sardines and *bacalhao*, as well as some cattle, probably for consumption

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[66] See the references in footnote 38 for the debate on the antiquity of maize on the West African coast.

[67] De Wet. J.M.J., "Millets," in *The Cambridge World History of Food*, ed. Kenneth F. Kiple and Kriemhild Conèe Ornelas (Cambridge: Cambridge University Press, 2000) vol. 1: 116; J. Pablo Morales-Payán, J. Richard Ortiz, Julio Cícero and Francisco Taveras "*Digitaria exilis* as a Crop in the Dominican Republic". Supplement to *Trends in New Crops and New Uses*, eds. J. Janick and A. Whipkey (ASHS Press. 2002), S1–S2.

[68] Álvares *Etiópia menor*, chap. 3: 12, chap. 11: 1, chap. 13: 4; Brásio, *Monumenta missionaria africana* Ser. 2 vol. 4: 277 Relação das coisas da Guiné May 1607; Donelha, *Descrição*, 81.

[69] Almada, *Tratado breve*, 79; Álvares, *Etiópia menor*, chap. 7: 1, chap. 8: 1; Guerreiro, *Relação annual*, vol. 1: 405.

[70] Álvares, *Etiópia menor*, chap. 6: 5; Hair, *Barbot on Guinea*, vol. 1: 71–72.

[71] Brásio, *Monumenta missionaria africana* 2nd Ser, vol. 4: 2–3 Lopo Soares de Albergaria ca. 1600.

[72] Jobson, *Discovery of the River Gambra*, 105.

[73] Almada, *Tratado breve*, 214; Coelho, *Duas descrições*, 99–100, 110, 145.

[74] Crone, *Voyages of Cadamosto*, 65.

[75] Almada, *Tratado breve*, 128.

[76] Jobson, *Discovery of the River Gambra*, 232.

[77] Jobson, *Discovery of the River Gambra*, 105.

on the journey. Compared to Angolan slaves, those drawn from the Upper Guinea Coast had a more balanced diet before captivity, which was reflected in their stature and robustness. However, the foods they were fed while awaiting transhipment and during the Middle Passage were more limited in quality and quantity, so that, as will be shown, they often arrived in the New World in poor health.

Angola

During the early seventeenth century the Portuguese slave trade focussed on the region immediately to the east of Luanda.[78] Although a new slave-trading colony was established at Benguela in 1615, in the early seventeenth century most slaves were exported via Luanda. The rainfall in the hinterland of Luanda between the Kwanza and Dande Rivers is moderate though it varies from east to west; the coast is notably drier with about 900mm of rain a year and it rises inland to about 1,400mm in the west near the Kwango River.[79] The rainfall is also highly seasonal, being heaviest in February and March, and then light and irregular from September or October to December. This relatively low and highly variable rainfall meant that droughts, to which millet and sorghum production were particularly sensitive, were common. Severe droughts lasting several years occurred about every generation leading not only to famines, but also to conflict that fuelled the slave trade.[80] There was a prolonged period of drought in the late sixteenth century and a period of severe aridity between 1615 and 1620.[81] The overall shortage and irregular nature of food supplies on the coast meant that provisions to support the slave trade had to be imported, either from Brazil or from the interior where the rainfall was higher and agriculture more productive. As a consequence provisions were expensive.[82] In 1622 it was estimated that

[78] Miller, *Way of Death*, 148; Birmingham, *Trade and Conflict*, 78–80.

[79] Joseph C. Miller, *Kings and Kingsmen: Early Mbundu States in Angola* (Clarendon Press, Oxford, 1976), 35.

[80] Sandoval, *Tratado sobre la esclavitud*, 134; Joseph C. Miller, "The Paradoxes of Impoverishment in the Atlantic Zone", in *History of Central Africa* vol. 1, eds. David Birmingham and Phyllis M. Martin (Longman, London, 1983), 140–41; Miller, "Significance of Drought," 20, 28–29.

[81] Miller, "Significance of Drought," 21, 24, 40–43.

[82] Boogaart and Emmer, "Dutch Participation," 364–65; Behrendt, "Markets," 184.

the average cost of food to support a slave prior to embarkation in Angola and Kongo was sixty reals compared to only twenty-five reals in Upper Guinea.[83]

In the 1560s the Ndongo region was described as fertile and densely settled. The main crops cultivated were "many kinds of *milho* and *fegones*, calabashes, yams; other roots called *tanbas*,[84] which are like radishes". The inhabitants also had a few bananas and many palm trees.[85] In addition they reared many chickens, as well as some goats and sheep, although they were all expensive.[86] They also supplemented their diets with game, fish and gathered foods. Early observers converged in their views that the main foods consumed were *milho* and beans.[87] Today, however, manioc and maize are the major staples north of the Kwanza River,[88] and it is generally accepted that both crops were introduced from the Americas.[89] Manioc, which was almost certainly introduced from Brazil, has the advantages that it can be cultivated on soils of very low fertility and is drought and pest resistant. In addition it can be stored easily by being left in the ground and harvested when other crops fail.[90] There is more controversy over the introduction of maize. The Portuguese or other Europeans probably introduced it to West Central Africa, though it may also have arrived in West Africa by an overland via the

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[83] AGI Santa Fe 52 N172/2 Tribunal de cuentas 27 Jun. 1622.

[84] João António Cavazzi de Montecúccolo, *Descrição histórica dos três reinos do Congo, Matamba e Angola* vol. 1 (Lisboa: Junta de Investigações do Ultramar, 1965), 57. These roots were possibly *Coleus dazo* A. Chev. and Perrot) and like other roots, such as yams, were reduced to a consistency where they could be mixed with sorghum or *milho* to make balls or other foods.

[85] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 2: 510 António Mendes 9 May 1563.

[86] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 135–36 Garcia Simões 20 Oct. 1575, vol. 3: 249 Baltasar Afonso 3 Oct. 1583, vol. 3: 320 Diogo da Costa 20 Jul. 1585, vol. 6: 460 Garcia Mendes Castelo Branco 1620; Miller, *Kings and Kingsmen*, 35–36.

[87] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 135–36 Garcia Simões 20 Oct. 1575, vol. 3: 249 Baltasar Afonso 3 Oct. 1583, vol. 3: 317 Diogo da Costa 28 Jul. 1585, vol. 6: 336 Baltasar Rebelo de Aragão 1618, vol. 6: 460 Garcia Mendes Castelo Branco 1620.

[88] Bruce F. Johnston, *The Staple Food Economies of Western Tropical Africa* (Stanford: Stanford University Press, 1958), 76, 78, 84–87.

[89] For brief overviews of the introduction of these crops see: Johnston, *Staple Food Economies*, 174–181; William O. Jones, *Manioc in Africa* (Stanford: Stanford University Press, 1959), 60–69.

[90] Johnston, *Staple Food Economies*, 106–109; Jones, *Manioc in Africa*, 15–28.

Mediterranean and Egypt.[91] There is little difference in the nutritional value of the cereal crops, but they do have different ecological requirements. Sorghum generally replaces millet as a dry land crop where the rainfall exceeds 600mm, while maize is generally preferred where rainfall is over 1,200mm.[92] Maize has the advantage over sorghum that it can produce two or more crops a year.[93] While manioc is better adapted to rain forest environments, in recent years its better storage qualities, its resistance to pests and its tolerance of poor soils have favoured its expansion at the expense of maize.[94]

In attempting to reconstruct the diet of Angolans in the early seventeenth century, the question arises as to what extent maize or manioc had become established in the region. Apart from the advantages that these crops possess, their early adoption was encouraged by the initial receptiveness of the Kongolese to Portuguese culture.[95] Maize may have spread more rapidly because it could be fitted into the existing agricultural system more easily. The adoption of manioc, at least to make coarse flour known as *farinha*, would have required knowledge of the complex method of processing needed to remove its poisonous juices.[96]

The evidence from Angola for the sixteenth and early seventeenth centuries is fragmentary. In the late sixteenth century the trader Duarte Lopes writing on the Kongo distinguished *milho branco*, which was indigenous and was probably millet (*Pennisetum glaucum* [L.] R. Br.), from *maís*, which was called massa Mamputo.[97] However, he indicated that maize was not esteemed and was fed to pigs. In 1575 Garcia Simões described the main provisions in Luanda as beans

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[91] For the debate on the introduction of maize see the references above in footnote 38.

[92] De Wet, "Millets," 114.

[93] Johnston, *Staple Food Economies*, 175.

[94] Johnston, *Staple Food Economies*, 175, 178.

[95] Jones, *Manioc in Africa*, 60–61; Johnston, *Staple Food Economies*, 176.

[96] Jones, *Manioc in Africa*, 30.

[97] Filippi Pigafetta and Eduarte Lopes, *Relação do reino do Congo e das terras circunvizinhas* (Publicações Alfa, Lisbon, 1965), 61. The text reads "There is milho branco called 'massa do Congo', that is the grain of Kongo; and maize, which is the most worthless and fed to pigs; and also rice, which is also held in little esteem, and the maize they call 'massa Mamputo' that is Portuguese grain." Duarte Lopes was a trader in Kongo for 5 years from 1578 and he returned to Europe and gave his account to Filippo Pigafetta (Birmingham, *Trade and Conflict*, 2).

and *milho grosso*. In the seventeenth century the latter was also called *milho zaburro*, a term that has often been interpreted to mean maize. However, Garcia Simões likened the cereal to dried coriander seeds, which suggests that it was probably sorghum rather than maize. The term *grosso* was probably used to distinguish it from millet whose seeds are about one-third of the size of sorghum. The early date of this observation also suggests it was not maize, as do the dry conditions on the coast which would not have favoured its cultivation. When maize cultivation was developed it would have taken place in the more humid interior, but at this time this region had not been conquered and settled.

By the mid-seventeenth century maize appears to have been more widespread. In 1620 Garcia Mendes Castelo Branco distinguished "*masa grosa* which is like *milho zaburro* and *milho* like ours which is better, which makes good bread."[98] This suggests that *milho zaburro* was indigenous, but that there was another 'milho', which was probably maize. In the mid-seventeenth century captain António de Olivera de Cadornega recorded that *milho miúdo* and *grosso* were being cultivated in on the banks of the Kwanza River and its tributaries and were the principal foods of both the local people and whites, who looked down on "farinha de pão ou de mandioca".[99] He noted that *milho miúdo* was different from that in Portugal and he described *milho grosso* as being known in Portugal as *milho zaburro*.[100] His description of *milho miúdo* producing dense bunches of seeds on tall stems suggests that he was describing millet or sorghum and that, unlike Castelo Branco, he was using the term *milho grosso* or *zaburro* to refer to maize. Certainly maize was being widely cultivated at that time for the Capuchin Father João António Cavazzi suggested that *massama-Mputo*, or the cereal from Portugal, that is maize, was the most common.[101]

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[98] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 460 Garcia Mendes Castelo Branco 1620.

[99] António de Oliveira de Cadornega, *História geral das guerras Angolanas* (Lisboa: Divisão de publicações e biblioteca, Agência geral das colónias, 1942), vol. 3: 135. Captain António de Oliveira de Cadornega arrived in Angola with Governor Pedro César de Meneses in 1639. He remained in the region until his death in 1690, publishing his history of the Angolan wars in 1680 and 1681 (See Cadornega, *História geral*, vol. 1: 8–10).

[100] Cadornega, *História geral*, vol. 3: 45, 53.

[101] Cavazzi de Montecúccolo, *Descrição histórica*, 37.

The cultivation of manioc probably spread more slowly. The first reference to what appears to be manioc dates from the 1570s when Father Baltasar Afonso wrote that people living on a bar at the mouth of the Kwanza were cultivating "raizes de tabua de Portugal", which were eaten raw, roasted and dried in the sun, and after being ground were made into *farinha.*[102] However, there are few references to the cultivation of manioc. Sir Richard Hawkins's voyage in 1593 encountered a Portuguese ship sailing for Angola to acquire slaves that had been loaded in Brazil with ". . . meale of cassavi, which the Portingals call Farina de Paw," which was to be used to support the crew and slaves on the return journey, as well as to sell in Angola, suggesting that there it was in short supply.[103] At the beginning of the seventeenth century Angola was still dependent on the importation of *farinha de guerra* from Brazil. Olfert Dapper dates the commercial cultivation and processing of manioc in the hinterland of Luanda to 1629 and 1630 when the governor, Fernão de Souza, distributed lands to those who had taken part in the conquest of the region, exhorting them to develop agricultural production and assigning them lands according to the number of slaves they possessed.[104]

Whether or not the introduction of manioc occurred earlier, it is clear that the extension of Portuguese control to the east of Luanda and the expansion of the slave trade created a market for provisions in Luanda that stimulated the establishment of plantations, particularly inland where the rainfall was higher. The main areas of production were the lower Bengo and Dande Rivers, as well as along the Lukala and the Kwanza River at Massangano.[105] The Bengo region was noted for the production of manioc, where in the 1660s it was described as the main staple.[106] At the same time, the province of Musseque, near Massangano, was producing *farinha de mandioca* for the local garrison and supplying Luanda with 35,000 to 40,000 bags

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[102] Brásio, *Monumenta missionaria africana* Ser. 1 vol. 3: 181–82 Baltasar Afonso 14 Jan. 1579.

[103] C.R. Drinkwater Bethune, ed. *The Observations of Sir Richard Hawkins, Knt.* (London: Hakluyt Society, 1847), 95.

[104] Ogilby, *Africa*, vol. 2: 555–57. See also Cadornega, *História geral*, vol. 1: 40, vol. 3: 136n; Mario José Maestri Filho, *A agricultura africana nos secúlos XVI e XVII no litoral angolano* (Porto Alegre: Instituto de Filosofia e Ciências Humanas, Universidade Federal do Rio Grande do Sul, 1978), 45–46.

[105] Miller, *Way of Death*, 251.

[106] Cavazzi de Montecúccolo, *Descrição histórica*, vol. 1: 31; Maestri Filho, Mario José, *Agricultura africana*, 88.

a year.[107] The production of *farinha* involved the construction of large sheds for drying the grated manioc that were a hundred feet long by thirty or forty feet wide and were fitted with over twenty furnaces. Even a small holder would employ fifty to sixty slaves in the production of *farinha*, while slaves awaiting transport to the New World were often employed to plant or cut the manioc.[108] While the Portuguese depended on provisions produced in these plantations, the adoption of both manioc and maize by the local African population is less certain. In 1682 the Capuchin missionary Jerome Merolla da Sorrento visiting Portuguese stations further north at the mouth of the Kongo River noted that manioc was "more used by the Portuguese than Blacks".[109]

If Africans had adopted manioc then it seems likely that it was first prepared in the same way as yams that is simply by peeling, slicing and boiling.[110] The more complex process of producing flour was later adopted in some parts of West Central Africa, but the production of manioc meal has never become common in Angola; most is still made into a paste made directly from the fresh roots.[111] This process was noted in the late 1660s when the inhabitants of Luanda were said to pound the manioc to produce a paste and then make it into cakes that were wrapped in a leaf and steamed or boiled.[112] In the 1680s Jerome Merolla also noted it was not made into bread, but was eaten raw or softened in broth.[113] This process may have been African in origin and was probably used for crops other than manioc, such as plantains or yams. However, about the same time Cavazzi noted that both the rich and poor also made manioc flour into gruel, which expanded more than European flour.[114]

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[107] Cavazzi de Montecúccolo, *Descrição histórica*, vol. 1: 32. It was also known as *farinha da guerra*.

[108] Ogilby [Dapper], *Africa*, vol. 2: 557, 562.

[109] Jerom Merolla da Sorrento, "A Voyage to Congo and several other countries chiefly in southern Africk," in *A Collection of Voyages and Travels*, ed. A. Churchill (London, 1752), vol. 1: 563.

[110] Jones, *Manioc in Africa*, 63, 103.

[111] Jones, *Manioc in Africa*, 102.

[112] Michael Angelo of Gattina and Denis de Carli of Piacenza, "A Curious and Exact Account of a Voyage to Congo in the years 1666 and 1667," *A Collection of Voyages and Travels*, ed. In A. Churchill (London, 1752), 491; Jones, *Manioc in Africa*, 108.

[113] Merolla da Sorrento, "Voyage to Congo," vol. 1: 563.

[114] Cavazzi de Montecúccolo, *Descrição histórica*, vol. 1: 56.

Yams and manioc are both low in protein, but manioc more so than yams (See Apppendix D).[115] Also, manioc is very low in thiamine (vitamin B_1) and riboflavin (vitamin B_2). Manioc is, however, rich in vitamin C, though most of this is lost when it is processed to make flour or meal. However, the leaves are rich in vitamin A and C and they may have been used as 'spinach' as they are today.[116] Yams consist mainly of carbohydrate, but they contain more protein than many root crops and are a good source of iron and vitamins C and B_2.[117] Yams are distinctly better food than manioc, particularly with respect to protein. It seems that manioc was probably adopted in Angola not because of its greater nutritional value, but because it provided greater food security, and possibly because of the greater commercial value placed upon it by the Portuguese. The cereals would have contained more protein than the root crops, but there appears to be little difference between millet, sorghum and maize in terms of their nutrient composition.[118] As such the adoption of maize probably owed more to the fact that it could be cropped more than once a year.[119]

The basic diet of Angolans in the sixteenth and early seventeenth centuries prior to captivity was therefore *milho*, beans, and roots crops such as yams. The flour from cereals was used to make a porridge or made into paste, called *infunde*, from which they formed balls which were cooked to form a kind of unleavened bread, whereas roots were pounded to produce a mash that was roasted or boiled in a leaf.[120] To these might be added palm oil and occasionally some meat, fish or vegetables. Palm trees were abundant throughout the region,[121] but vegetables were in short supply on the dry coast. As noted above meat was expensive and had to be brought in from the interior. However accounts of the Kwanza Valley suggest that fish

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[115] Johnston, *Staple Food Economies*, 160–162; Jones, *Manioc in Africa*, 6–10.
[116] Jones, *Manioc in Africa*, 10, 109–11.
[117] D.G. Coursey, *Yams* (London: Longmans, 1967), 154–69.
[118] Johnston, *Staple Food Economies*, 160, 165.
[119] Johnston, *Staple Food Economies*, 175.
[120] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 135–36 Garcia Simões 20 Oct. 1575, vol. 3: 349 Anon. 15 Dec. 1587; Angelo and Carli, "A Curious and Exact Account of a Voyage to Congo," vol. 1: 491; Merolla da Sorrento, *Voyage to Congo*, 563.
[121] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 337 Diogo da Costa 31 May 1585, vol. 6: 460 Garcia Mendes Castelo Branco 1620; Cadornega, *História geral*, vol. 3: 40.

were particularly abundant,[122] while on the coast the inhabitants were said to live on little else but smoked fish and wine from millet bran.[123] Angolan slaves testified to the Jesuit, Alonso de Sandoval in Cartagena, that there was a shortage of provisions on the coast, but inland there was maize, *milho* and some beans.[124] Even though *milho* and beans may have been the dominant staples, some may have consumed manioc in the form of *farinha*, particularly in Luanda that depended on imported provisions and on the recently established manioc plantations. In captivity slaves were probably fed a less balanced diet of porridge made of *milho* or manioc flour, supplemented by palm oil and by salted fish, which were abundant on the Ilha de Loanda and were widely used as slave provisions.[125] Nevertheless, it was said that in the coastal slave sheds slave traders tried to fortify their slaves after they had weakened on the journey to the coast, by giving them food, drink and palm oil for their skin.[126]

Palm oil would also have been an important dietary supplement, since it would not only have added some carbohydrate to the diet, but facilitated the transport of vitamins A, D and E.[127] Vitamin D is essential for the absorption of calcium and phosphorus by bones and teeth.[128] The small stature of Angolan slaves, indicative of poor nutritional status, was probably related not so much to a chronic imbalance in the nature of the foods available, but to their unreliability. Periods of drought would have destroyed cereals leaving the population to depend on nutrient-deficient root crops and little else. Severe food shortages were often accompanied by disease as malnourished individuals fell victim to infections. Hence in 1626 Governor Fernão de Sousa reported that 4,000 were sick or dying due to small-

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[122] Cadornega, *História geral*, vol. 3: 40, 43–44.

[123] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 172 Baltasar Afonso 25 Aug. 1578.

[124] Sandoval, *Tratado sobre la esclavitud*, 134. According to Sandoval the *milho* was called *mazafioli* and *mazamambala*, and the maize *mazamamputo*.

[125] Luis António de Oliveira Mendes, *Memória a respeto dos escravos e tráfico da escravatura entre a costa d'Africa e o Brazil*, ed. José Capela (Porto: Escorpião, 1977), 47.

[126] Ogilby [Dapper], *Africa*, vol. 2: 562.

[127] K.G. Berger and S.M. Martin, "Palm Oil," in *The Cambridge World History of Food*, ed. Kenneth F. Kiple and Kriemhild Conèe Ornelas (Cambridge: Cambridge University Press, 2000), vol. 1: 407.

[128] P.M. Gaman and K.B. Sherrington, *The Science of Food*, 4th edn. (Pergamon: Oxford, 1996), 122.

pox and shortages of food.[129] These periods of drought would have affected normal growth rates and resulted in poor nutrition. For these reasons Angola slaves were generally of lower stature and were said to be more prone to sickness and death than other African slaves.[130]

Health and Mortality

During their captivity in Africa slaves suffered from a number of diseases and their health deteriorated as a result of poor food and the conditions in which they were kept. Some of the health problems they faced reflected environmental conditions that affected all Africans, whether in captivity or not, but others were clearly related to the squalid and crowded living conditions in which they were kept, as well as their poor diet. Other ailments derived directly from their captivity. These included wounds inflicted during capture or by chains and shackles that failed to heal.

The African coasts gained a reputation for being unhealthy for Europeans, largely because of the prevalence of tropical fevers,[131] but these and river blindness were found only in certain environments. The Upper Guinea Coast was later regarded as being unhealthy, but except for isolated pockets this does not appear to have been the case in the seventeenth century.[132] The Gambia River was described as somewhat unhealthy because it was covered with very tall trees that impeded the wind and resulted in the presence of many mosquitoes.[133] Some also regarded Cacheu as unhealthy because

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[129] Beatrix Heintze, *Fontes para a história de Angola do século XVII*. Studien zur Kulturkunde 75 (Franz Steiner Verlag Wiesbaden, Stuttgart, 1985), 253 Relação de Fernão de Sousa, no date [1625–1639].

[130] Sandoval, *Tratado sobre la esclavitud*, 141; Miller, "Significance of Drought," 30.

[131] Curtin, "White Man's Grave," 95; Behrendt, "Crew Mortality," 59–60; Klein, *Atlantic Slave Trade*, 141.

[132] Brásio, *Monumenta missionaria africana* Ser. 2 vol. 4: 2–3 Lopo Soares de Albergaria ca. 1600, vol. 4: 170 Baltasar Barreira 1 Aug. 1606. The Jesuit, Sebastião Gomes, claimed the climate of Cape Verde was bad for the health of Europeans. However, he may have been using it to bolster his argument for abandoning Jesuit activities there in favour of Ormuz in India or Havana where he thought they might make more converts (Brásio, *Monumenta missionaria africana* Ser. 2 5: 325, 328 Sebastião Gomes 1637).

[133] Almada, *Tratado breve*, 58.

it was swampy and surrounded by water for its defence.[134] However, given the significant Portuguese presence on the coast, there are surprisingly few references to fevers or to Europeans falling sick, and there is no mention of malaria or sleeping sickness (*Trypanosomiasis*).[135] It contrasts with the early experience of the English on the coast of Benin where from an early date they confined their visits to the dry season in order to reduce the risk of fever.[136] Most likely the incidence of malaria on the Upper Guinea Coast expanded with the development of wet rice cultivation that created stagnant pools for breeding mosquitoes. As will be noted below, slaves arriving in Cartagena from Upper Guinea did not commonly suffer from fevers, which in any case could have been associated with other diseases, such as gastrointestinal infections.

Similarly the dry coast of northern Angola was probably largely free of malaria.[137] In the sixteenth century Luanda was described as healthy and enjoying fresh air, though it was noted that some interior regions, particularly along banks of the River Kwanza where there were lakes and swamps, were unhealthy.[138] Although many soldiers on sixteenth-century expeditions fell sick most likely this was when they penetrated inland where the climate is more humid.[139] Sickness was particularly prevalent during the rainy season from November to April.[140] Since the coast of Angola where the slaves were lodged prior to transhipment would have been relatively healthy, the incidence of fevers among Angolan slaves arriving in Cartagena was probably related to infections other than malaria.

African slaves commonly suffered from impaired vision. Although impaired vision can be associated with a large range of diseases, it

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[134] Brásio, *Monumenta missionaria africana* Ser. 2 vol. 4: 170 Baltasar Barreira 1 Aug. 1606; AGI Escribanía de Cámara 1079A Ramo 8 Pieza 2 fol. 35 Antonio Fernández de Elvas . . . con Jorge Morales 1617.

[135] Carreira, *Os Portuguêses*, 20.

[136] A.F.C. Ryder, *Benin and the Europeans 1485–1897* (London: Longmans, 1969), 81–84.

[137] K. David Patterson, "Disease Ecologies," 450; Stephen D. Behrendt, "Crew Mortality," 58–60; Klein, *Atlantic Slave Trade*, 141.

[138] Brásio, *Monumenta missionaria africana*, Ser.1 vol. 3: 182, Baltasar Afonso 14 Jan. 1579 and vol. 4: 547 Pero Rodrigues [1 May 1594].

[139] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 4: 565 Pero Rodrigues [1 May 1594]. Between 1575 and 1584 the Portuguese lost all but 300 of 2,000 soldiers that were sent to Angola.

[140] Ratelband, *Os holandeses*, 148.

is possible that some were associated with river blindness, which is caused by the roundworm *Onchocerciasis volvulus* whose vector, the blackfly, reproduces in swiftly flowing rivers.[141] The distribution of the disease is patchy but it appears to have been particularly prevalent south of the Sahara from Senegal to Sudan and not extensive in Angola.[142] Nevertheless, one seventeenth-century account noted that there was an unnamed disease in Angola that caused impaired vision.[143] It is interesting that health inspections of slaves landed at Cartagena, which will be discussed in the following chapter, reveal a higher incidence of impaired vision on slaves from Upper Guinea.

A major health hazard in the barracoons was smallpox. Smallpox was quite common in Angola, where it was noted that often people died of the disease because they did not know how to treat it.[144] Crowded conditions in the barracoons and ships where the slaves were housed would have encouraged its spread. Manuel Bautista Pérez lost a number of his slaves to smallpox in Cacheu before departing for Cartagena in 1614.[145] However, many Africans would have acquired some immunity to smallpox in childhood, so the numbers dying of smallpox were relatively small and did not generally erupt into epidemics, with children being the most vulnerable to infection. Other slaves died of scurvy.[146] Scurvy is a nutritional deficiency disease that breaks out after four to six months' deprivation of vitamin C, usually associated with a shortage of fresh fruit and vegetables. It is characterised by internal bleeding evident in swollen, purple and soft gums and may ultimately result in coma and death.[147] Infection, injury and poor physical condition are known

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[141] K. David Patterson, "Onchocerciasis", in *The Cambridge World History of Human Disease*, ed. Kenneth F. Kiple (Cambridge: Cambridge University Press, 1993), 895–97; Chandler, "Health and Slavery," 216.

[142] WHO, *Onchocerciasis and Its Control.* WHO Technical Report Series 852 (Geneva: WHO, 1995), 25–35. The present-day distribution of onchocerciasis in Africa has been significantly altered by disease control programmes.

[143] Ogilby [Dapper], *Africa*, vol. 2: 555.

[144] Ogilby [Dapper], *Africa*, vol. 2: 555.

[145] AGNL SO CO Ca 18 doc 197 pp. 17,18, 69 Upper Guinea accounts 1613–1618.

[146] AGNL SO CO Ca 18 doc 197 pp. 654, 656, 768 Upper Guinea accounts 1613–1618.

[147] Kenneth F. Kiple, *The Caribbean Slave: A Biological History* (Cambridge: Cambridge University Press, 1984), 59, 90; Roger K. French, "Scurvy," in *The Cambridge World History of Human Disease*, ed. Kenneth F. Kiple (Cambridge: Cambridge University Press, 1993), 1000.

to induce scurvy more rapidly.[148] Scurvy was so common in Angola that it was referred to as 'mal de Loanda'.[149]

Although they are noted less frequently, it seems likely that amoebic and bacillary dysentery, referred to as 'cámaras', were common sources of sickness and death. The two types of dysentery are not easily distinguished but bacillary dysentery has a much shorter incubation period of less than seven days, whereas amoebic dysentery may take twenty to ninety days. The former may thus break out as explosive epidemics and watery stools can cause dehydration and death within twelve days. They are both characterised by diarrhoea, bleeding and dehydration, and even death.[150] Intestinal infections such as dysentery gave rise to an affliction known as *bicho*, which was inflammation of the rectum that resulted in anal prolapse and the onset of gangrene.[151] Both can be contracted directly through the fecal-oral route, but they are most commonly spread through contaminated food or water. They are often associated with conditions of stress and lowered resistance. There seems little doubt that conditions in the barracoons and on ships awaiting dispatch would have favoured the spread of gastrointestinal infections.

Many of the gastrointestinal infections probably derived from polluted sources of water. Except in the wet season when rainwater could be collected, Cacheu depended on springs that were controlled exclusively by Africans.[152] The nearest water supply was regarded as insalubrious and the cause of much sickness.[153] On the dry coast of Angola shortages of water were even more acute. In Luanda people depended on pits or wells for their supply of water, but these often ran dry in time of drought.[154] In the 1660s the Capuchin friar,

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[148] Zachary B. Friedenberg, *Medicine Under Sail* (Annapolis: Naval Institute Press, 2002), 43.

[149] Oliveira Mendes, *Memória*, 56–57; Fernández, *Apostólica y penitente vida*, 198; Miller, *Way of Death*, 383.

[150] David K. Patterson, "Amebic Dysentery," in *The Cambridge World History of Human Disease*, ed. Kenneth F. Kiple (Cambridge: Cambridge University Press, 1993), 568–70 and "Bacilliary Dysentery," in *The Cambridge World History of Human Disease*, ed. Kenneth F. Kiple (Cambridge: Cambridge University Press, 1993), 604–605; Kiple, *Caribbean Slave*, 59.

[151] Rudolph Hoeppli, *Parasitic Diseases in Africa and the Western Hemisphere: Early Documentation and Transmission by the Slave Trade* (Basel: Verlag für Recht und Gesellschaft, 1969), 187–88; Chandler, "Health and Slavery," 103; Miller, *Way of Death*, 429–30.

[152] Rodney, "Portuguese Attempts at Monopoly," 318.

[153] Álvares, *Etiópia menor*, chap 4: 1.

[154] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 131 Garcia Simões 20 Oct.

Michael Angelo, complained that the local water was of poor quality. He described two sources that were used:

> It [water] is brought from a neighbouring island, where they dig a trench even with the sea, and the water freshes as it strains through the sand, but not thoroughly. Else they go for it to a river twelve or fourteen miles from Loanda, and load their canoes which are boats made of one piece of timber. These canoes have a hole in the bottom, which they open when they are in the river, and stop it up when the canoe is full enough. When they come home they strain it from the dirt and let it stand some days to settle.[155]

Evidence from some medical inspections conducted in Cartagena in 1633 indicates that 70 percent of incidences of dysentery and 95 percent of cases of *bicho* were associated with Angolan slaves (Table 4.2). *Bicho*, known as *bitios de kis*, was common in Angola, where it was treated with anal applications of lemon, a concoction of tobacco, salt and vinegar, or with a clyster.[156] Malnourished individuals are more prone to dysentery and intestinal infections and the high incidence of intestinal infections and *bicho* among Angolan slaves most likely relates to their poor diet, and possibly to the poorer water supplies, on the Angolan coast.

In the early seventeenth century a slave trader Jorge López de Morales, claimed that in Cacheu there was much sickness and that many slaves died every day.[157] Manuel Bautista Pérez's experience with the slaves he acquired in 1618 provides some insight into the health of African slaves while in captivity in Cacheu. During the final three months of the period over which he acquired 519 slaves, 83 were sent ashore, all but two because they were sick. The accounts do not specify the ailments of all the slaves, but two were suffering from *mal de Loanda*, ten had a pain in the mouth, one had toothache, one stomachache and one a pain in the arm. Most likely the ten with a pain in the mouth were also suffering from scurvy, which among other things is associated with swollen gums.[158] During the

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1575; Cavazzi de Montecúccolo, *Descrição histórica*, vol. 1: 23; Miller, *Way of Death*, 395–397.

[155] Angelo and Carli, "Voyage to Congo," vol. 1: 491.

[156] Ogilby [Dapper], *Africa*, vol. 2: 554–55. Clysters were made from a local herb called Orore de Bitos, dried rose leaves, egg yolks, a little alum and rose oil.

[157] AGI Escribanía de Cámara 1079A Ramo 8 Pieza 2 fol.35 Antonio Fernández de Elvas . . . con Jorge Morales 1617.

[158] French, "Scurvy," 1003; Kiple, *Caribbean Slave*, 90.

same period 15 slaves died on shore, some of them probably the same slaves who had been taken off the ship. When the ship departed eight sick slaves were left with Manoel de Olivera, which included one who was suffering from smallpox, one who was pregnant, one Balanta with a bad mouth and one Biafada with dysentery.[159] The death of 15 out of 519 slaves acquired represents a mortality of 2.9 percent. However, the death toll may have been higher than this since in a letter to his uncle, Diogo Rodrigues de Lisboa, Manuel Bautista Pérez claimed that 15 had died suddenly of *mal de Loanda* in the three weeks prior to departure and these may have been different from those noted in the accounts.[160] Some, but not all of these were recorded in the account book, so that the death toll may have been higher. In any case the relatively low mortality experienced by Pérez's slaves while onshore was counterbalanced by exceptionally high losses from *mal de Loanda* during the Middle Passage.

A mortality of just under 3 percent while awaiting embarkation is not dissimilar to the 3 to 5 percent estimated by Johannes Postma among slaves shipped by the Dutch from the Guinea (Gold) Coast in the early eighteenth century.[161] This level of mortality prior to embarkation is considerably lower than under the Companhia Geral do Grão Pará e Maranhão in the late eighteenth century. Using records of the number of slave deaths and the number of slaves embarked between 1766 and 1777 Jean Mettas suggests that the level of mortality prior to embarkation was 8.6 percent for Cacheu and 11.7 percent for Bissau.[162] These figures do not include any slaves who may have been left behind because they were sick and who may have died subsequently.[163] For the longer period 1758 to 1788 comparative figures for Upper Guinea and Angola suggest that the percentages dying from sickness or in revolts while onshore were

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[159] AGNL SO CO Ca 18 doc 197 p. 678 Upper Guinea accounts 1613–1618.

[160] AGNL SO CO Ca 18 doc 197 Borrador de carta de Manuel Bautista Pérez a Diogo Rodrigues de Lisboa 30 Jul. 1618–13 Aug. 1618.

[161] Postma, "Mortality in the Dutch Slave Trade," 243 and *Dutch in the Atlantic Slave Trade*, 238.

[162] Jean Mettas, "La traite portugaise en Haute Guinée, 1758–1797: Problèmes et méthodes," *The Journal of African History* 16 (3) (1975): 357.

[163] It was a common occurrence for sick slaves to be left ashore, sometimes in large numbers. See Carreira, *Companhias pombalinas* (1st ed.), 454–65. This seems to have been a more common occurrence in Angola, with ships occasionally leaving 20, 30 or 40 slaves on shore.

8.6 percent and 7.2 percent respectively.[164] Joseph Miller proposes a mortality of between 10 and 12 percent among slaves awaiting embarkation in Angola in the eighteenth century.[165] These estimates of mortality relate to distinct time periods, different geographical regions and to the different ways in which the slave trade was organised. However, it might be expected that mortality onshore would be higher in Angola where there were greater problems with food supplies and there was a higher incidence of scurvy.

Little is known of the medical treatments used to cure sick slaves in Africa, but they were probably similar to those used on the journey from Cartagena and Lima, which are described in Chapter 8. It is known that sick slaves were treated on shore rather than on board the ship. In the early seventeenth century only about 15 percent of the registered slave-trading ships carried a barber or surgeon on board.[166] Very often these medical practitioners were working their passage to Spanish America. While they may well have treated slaves being acquired in Cacheu, more often the services of local healers were probably bought in, for example to heal a wound.[167] Nevertheless, the services of barber-surgeons appear to have accounted for a considerable proportion of expenditure in Africa and during the Middle Passage. It was estimated that eleven reals per slave were spent on barber-surgeons (Table 2.5), which may be compared with the amount spent on food, which was twenty-five reals in Upper Guinea and sixty reals in Angola.[168] Since the cost of medical care was estimated to be the same for both regions, there is a suggestion that the scale of the health problems faced in the two regions was not significantly different.

In general, however, the approach to treating sick slaves was probably to improve their food. Interestingly, as early as 1620 slave traders arriving at Cartagena considered that *mal de Loanda* could be treated by landing the slaves on shore and giving them 'cosas agrias'.[169] The

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[164] Carreira, *Companhias pombalinas* (2nd ed.), 87.

[165] Miller, "Mortality in the Atlantic Slave Trade," 413.

[166] An analysis of 149 slave-trading ships registered in Seville between 1610 and 1640 for which information on the crews is available, indicates that only 22 (nearly 15 percent) carried a barber or less commonly a qualified surgeon (AGI Contratación 2878 to 2896 Registros de esclavos 1616–1640).

[167] AGNL SO CO Ca 18 doc 197 p. 277 Upper Guinea accounts 1613–1618.

[168] AGI Santa Fe 52 N172/2 Tribunal de cuentas 27 Jun. 1622.

[169] AGI Escribanía de Cámara 1079B Pieza 3 fol. 226v. Antonio Fernández de Elvás . . . contra Baltasar Amat 1620.

'sour things' perhaps represented an early recognition of the value of citrus fruits in the treatment of scurvy, even if they were not routinely used on long voyages. Citrus fruits commonly figured among the fruits purchased for slaves in Cartagena, but there is no evidence for their purchase in Upper Guinea or Angola, even though they had been grown in both areas since the sixteenth century.[170]

In conclusion, during the early seventeenth century Portuguese slave traders often stayed on the coast for eight months to over a year, not only acquiring slaves but also trading more widely. Since slaves were acquired consistently throughout this period, it meant than some slaves spent extended periods in captivity, during which they were housed in crowded and unsanitary conditions that facilitated the spread of disease, particularly intestinal infections and smallpox. Moreover, they were fed a monotonous and inadequate diet, which evidenced by the high incidence of scurvy particularly in Angola, lacked fresh vegetables and fruit. Even though mortality on the Upper Guinea Coast appears to have been less than 3 percent, it may well have been higher in Angola that often experienced food shortages and even famines. In any case, by the time ships were dispatched those who had survived were in a considerably weakened state and unprepared for the Atlantic crossing which was to take a heavier toll on their lives.

[170] Brásio, *Monumenta missionaria africana*, Ser. 1 vol. 3: 338 Diogo da Costa 31 May 1586, vol. 8: 109 Gonçalo João 10 Feb. 1632; Fernandes, *Côte occidentale*, 54, 126, 146; Pigafetta and Lopes, *Relação*, 61; Almada, *Tratado breve*, 127; Jobson, *Discovery of the River Gambra*, 167; Cadornega, *História geral*, vol. 3: 372.