NATURAL HISTORY MUSEUM

Slavery and the natural world

Chapter 5: Diet and nutrition

Context

This material is part of a wider project on slavery and the natural world, carried out at the Natural History Museum, 2006–08. The information is based on documents held in the Museum's libraries, and explores the links between nature (especially the knowledge, and transfer, of plants), people with an interest in natural history (mainly European writers from the sixteenth to eighteenth centuries) and the history and legacies of the transatlantic slave trade[1].

More can be found in the original documents, written by natural historians at the time of slavery. Contact the Natural History Museum Library www.nhm.ac.uk/research-curation/library/ +44 (0) 20 7942 5000. The additional references section has other useful sources such as relevant articles, books, journals and websites.

1 For more background information see Chapter 1: The project.

Contents

1. Introduction

The transatlantic slave trade saw the movement of large numbers of plants across different continents, many of which were used to feed enslaved Africans.

At the time of the transatlantic slave trade, Africa was a continent with many different local foods. Some grew there naturally like rice, others, such as peanuts and maize, were imported from South America by Portuguese slave traders.

Enslaved Africans were considered economic goods, therefore enslavers fed them on board ship and on the plantations to keep them alive and economically useful. They imported foods into the Caribbean, including breadfruit (*Artocarpus altilis*) and ackee (*Blighia sapida*), to feed enslaved people cheaply. The type and amount of food given varied from place to place.

The diet of enslaved people was often high in carbohydrates, but lacked proteins and vitamins. Enslaved people depended on foods such as cassava, yams, plantains, sweet potatoes, maize and guinea corn. Poor diets, and dirty water, caused diseases, mental health problems and sometimes death. Enslaved people grew their own food and supplemented it with wild food from their environment that improved their diet and health. Important additional foods included okra, pulses, salad greens and fruits, with protein from various animals, including fish.

Plants such as breadfruit, ackee and African oil palm (*Elaeis guineensis*) show very clearly how plants and foods moved across the Atlantic and changed the environment and food habits of whole countries at the time of the transatlantic slave trade.

2. Food in Africa

Many firsthand accounts described rich and varied crops and diets in Africa in the 1600s. A former enslaved African, Olaudah Equiano, wrote that his land (now Nigeria) was abundant in vegetables, Indian corn, cotton, tobacco, pineapples and spices (Equiano, 1789).

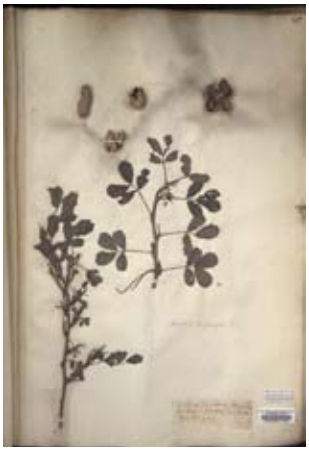
Many plants in Africa were used for food, including: guinea corn (*Sorghum vulgare*), kola (*Cola nitida*, common names – bichy, bissy, gurru nuts), yams (*Dioscorea rotundata* and *Dioscorea cayennensis*) and okra (*Abelmoschus esculentus*). Ackee (*Blighia sapida*) was in Africa but it may have been used more as a medicine or an animal food rather than a main part of people's diets. Research shows that many of these foods were taken to the Americas along with enslaved people and became important parts of American and Caribbean diets. Other foods, such as peanuts and maize, were taken to Africa from South and Central America by Portuguese slave traders[2].

3. Food on board ship: peanuts and maize

Surpluses of food such as rice, cereals, maize, yams, beans and peppers in many parts of west Africa provided traders with supplies to feed enslaved Africans when they were captured, marched to the coast and held in slave forts, and on the journey to the Americas[3]. Documents suggest Africans were often fed peanuts (*Arachis hypogaea*, common names – groundnuts, earthnuts, goobers, goober peas, pindalls, pindas, jack nuts and monkey nuts) and maize (*Zea mays*, common names – Indian corn, sweetcorn and mealies).

2 See for example Carney, 2001, p73 and 77.
3 See Carney, 2001, p69, 72–73 and 193.

'I was assured that the Negroes feed on Pindals, or Indian Earth-Nuts... Coming from Guinea hither, they are fed on these Nuts, or Indian Corn boil'd whole twice a day, at eight a Clock, and four in the Afternoon, each having a Pint of Water allow'd him.' (Sloane, vol 1, 1707, pIxxiii)



▲ Peanut (*Arachis hypogaea*), Sloane Herbarium, collected 1687–89, ID 266 © The Natural History Museum, London

Peanuts and maize were an important part of the diet of the indigenous peoples of the Americas and originated in South and Central America, and Mexico. These important crops were taken to Africa, from Brazil, early in the sixteenth century by Portuguese slave traders and became a major part of the west and central African diet[4].

Hans Sloane and Patrick Browne were natural historians who collected specimens in Jamaica. They both wrote that peanuts had been introduced to Jamaica from west Africa by slaving ships, not direct from South America. Peanuts were grown from seeds imported from Guinea, west Africa:

'I found this planted, from Guinea Seed, by Mr. Harrison, in his Garden in Liguanee. The Fruit, which are call'd by Seamen Earth-Nuts, are brought from Guinea in the Negroes Ships, to feed the Negroes withal in their Voyage from Guinea to Jamaica.' (Sloane, vol I, 1707, p184)

'The seeds of this plant are frequently imported to Jamaica, in the ships from Africa; and sometimes cultivated there...' (Browne, 1756, p295)

Peanuts therefore crossed the Atlantic in both directions as a result of the transatlantic slave trade. Language crossed the Atlantic in both directions, too. The American word for peanut, *goober*, comes from the Kikongo name (the main Bantu language spoken in the Congo region) nguba, also similar to *gub-a-gub* Henry Barham heard in Jamaica:

'Some call them gub-a-gub; and others ground-nuts, because the nut of them, or fruit that is to be eaten, grows in the ground.' (Barham, 1794, p145–6)

There was little variety in the food on board ship. Eating mainly one type of food would have caused health problems, although Henry Barham denied this:

'Some say, if eaten much, they cause the head-ache; but I never knew any such effect, even by those who chiefly lived upon them; for masters of ships often feed negroes with them all their voyage; and I have very often eat of them plentifully, and with pleasure, and never found that effect.' (Barham, 1794, p145–6)

4 See www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/.

Some captive Africans on board ship rejected food, possibly as a form of resistance or because they were ill or depressed. John Atkins, a ship's surgeon, described how they were then forced to eat:

'The common, cheapest, and most commodious Diet, is with Vegetables, Horse-Beans, Rice, Indian Corn, and Farine... This Food is accounted more salutary to Slaves, and nearer to their accustomed way of Feeding than salt Flesh. One or other is boiled on board at constant times, twice a day, into a Dab-a-Dab (sometimes with Meat in it) and have an Overseer with a Cat-of-nine tails, to force it upon those that are sullen and refuse.' (Atkins, 1737, p171)

4. Guinea worm and drinking water

A limited diet and bad hygiene on ships led to diseases, such as dysentery, and high death rates. There was also a poor supply of fresh drinking water. This was also true in the forts where enslaved Africans were held on the coast and on the subsequent sea voyages (that could last six to eight weeks). John Atkins described the water supply at Cape Coast Castle, Ghana, 1721:

'Tanks (Reservatories of Water) are in the Castle, vaulted and terrassed, capable of holding 100 Tuns or more: The Pavement leans from all parts towards them, to drain off the Rain; Water being scarce in dry Seasons, and great quantities wanted. There is only one, nasty, muddy Pond, of ill Taste, in the Neighbourhood, from whence Ships are supplied, swum off to the Boats with a great deal of trouble by the Negroes.' (Atkins, 1737, p98)

▲ Slave forts in Ghana[5], Bosman, 1721 © The Natural History Museum, London

Guinea worm (*Dracunculus medinensis*) infects people who drink water with the worm's larvae carried by microscopic water fleas causing a disease called dracunculiasis. The worms mate inside humans and grow up to a metre and a half in a year. The female forces a way out through the skin to lay her eggs, causing terrible pain and ulceration. Washing the ulcers in water helps stop the pain, but the worm then releases larvae and infects the water all over again. People do not die of Guinea worm disease, but it often stops them walking or working efficiently. There is still no other treatment than massaging out the worm. It is important to have clean drinking water to prevent infection.

Both Europeans and Africans from the Gold Coast (Ghana) appear to have suffered most from Guinea worm disease and, as Hans Sloane said, this was due to the water supply:

5 Cape Cors Castle became the British-held Cape Coast Castle, see: www.nationaalarchief.nl/AMH/detail.aspx?page=dpost&lang=en&id=530.

'They generally are owing to the Water of the Places whence the Persons having them come ...The Blacks which come from Angola and Gamba are not troubled with them, but those from the Gold-Coast very much.' (Sloane, vol 2, 1725, p190)

Several writers described Guinea worm disease and its treatment in very similar terms in Ghana, Barbados, Nevis and Jamaica[6]:

'And with the latter they are miserably afflicted in all parts of their Bodies, but chiefly in their Legs; which occasions a grievous Pain, which they are forced to bear till they can get the Worm quite out, that being sometimes a Month ... they make it fast to a small stick, about which they every day wind a small part of it, till continuing this tedious Method, they have entirely wound out the whole, and the Patient is freed from his Pain. But if the Worm happens to break, they are put to a double Torture, the remainder part of the Worm either rotting in the Body, or breaking out at some other place. ... This Worm Disease is frequent all the Coast over; but our Men are most tormented with it at Cormantyn and Apam; which perhaps may be occasioned by the foul Water which they are obliged to drink there.' (Bosman, 1721, p94)

5. On the plantations

In British colonies in the Americas and Caribbean, enslaved plantation workers were given basic food supplies. The amount was often set by custom or local law and the need to keep people alive to work. Much of the food was imported, and the type of food varied from place to place and over time. The diet provided by plantation holders often consisted of grains high in carbohydrates (such as corn), root vegetables or fruits (such as yams or plantains) and dried or salted meat (such as salt pork or pickled herrings). Hans Sloane wrote that salted fish was very popular among enslaved people in Jamaica[7]. He said it was imported from Newfoundland, and grain and meat imported from England. Rice was also taken to the Caribbean islands from mainland America.

'The Meat of the Inhabitants of Jamaica, is generally such as is in England, as Beef, Pork, and Fish, salted and preserved, and sent from hence, and Ireland, Flour, Pease, salted Mackrels, &c. from these Places, and New-England, or New-York; on which not only the Masters feed, but also they are oblig'd to furnish their Servants both Whites and Blacks with three Pounds of Salt-Beef, Pork, or Fish, every week, besides Cassada Bread, Yams, and Patatas, which they eat as Bread, and is the natural Product of the Country.' (Sloane, vol 1, 1707, pxv)

6 Griffith Hughes (1750, p41–2), William Smith (1745, p98–9) and Patrick Browne (1756, p381–2).
7 Sloane, vol 1, 1707, pxviii.

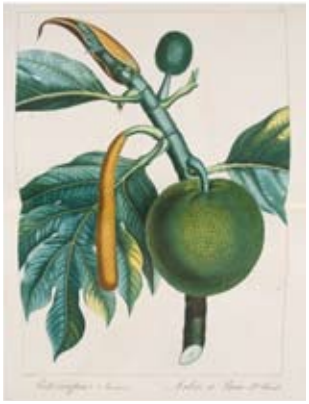
The ration was usually three pounds (1.36 kilogrammes) of dried meat and a peck of corn (about nine dry litres) per adult each week, given out on Sundays. Plantation holders did not always supply this amount, either from choice or because European wars or bad weather affected shipping and imports.

6. Breadfruit (*Artocarpus altilis*) and ackee (*Blighia sapida*)

Europeans tried to introduce new plants to grow in the Caribbean, to supply cheap high-energy food for enslaved people and reduce the need for imported foods. Two good examples were breadfruit and ackee, both of which are linked to Joseph Banks and William Bligh[8].

Breadfruit originated in the Malay Peninsula and western Pacific islands. The trees produce a lot of fruit, which are very high in energy-giving carbohydrates – a single tree can produce up to 200 or more fruits per season.

Joseph Banks, who was a natural historian and adviser to King George III, asked William Bligh to collect breadfruit from Tahiti in the South Pacific and take it to the Caribbean. William Bligh was captain of HMS Bounty, but the 1787–90 voyage failed with the famous mutiny on the Bounty. However, William Bligh's second voyage, on HMS Providence in 1793, successfully transferred several hundred young breadfruit trees to the Caribbean.



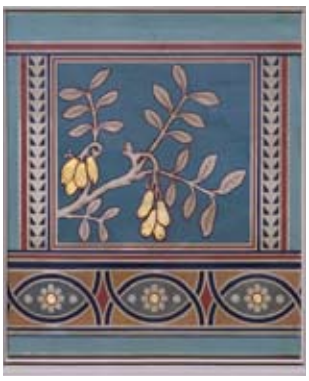
▲ Breadfruit tree (*Artocarpus incisa*[9]), de Tussac, 1808 © The Natural History Museum, London

At first, breadfruit was not widely accepted as a food among enslaved people in the Caribbean, although it is now a staple in many tropical regions. It is very rich in starch and can be roasted, baked, fried or boiled.

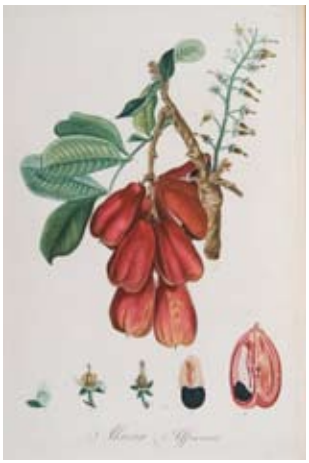
When William Bligh reached Jamaica he filled HMS Providence with hundreds of plants growing there to take back to Kew Gardens in England. Ackee, not then known to European science, was one of those plants, and it was named Blighia sapida in 1806. People often wrongly believe it was named after William Bligh because he introduced it to Jamaica, when he actually transferred breadfruit, and returned to England from Jamaica with ackee.

'Named, in honour of Captain Bligh, who first carried the Bread-fruit to the West-Indies. This tree, a native of Africa, is now very common throughout the Island.' (Macfadyen, vol I, 1837, p160)

8 See also Chapter 10: Attitudes and acknowledgement.
9 *Artocarpus incisa* is a synonym of *Artocarpus altilis*.



▲ Ackee (*Blighia sapida*), a decorative ceiling panel from the roof of the Natural History Museum's Central Hall, Picture Library reference 48852 © The Natural History Museum, London[10]



▲ Ackee (*Akeesia africana*), de Tussac, 1808 © The Natural History Museum, London

It is uncertain whether European slave traders or enslaved Africans took ackee to the Caribbean. Arthur Broughton (who catalogued plants in Jamaica) says that Dr Thomas Clarke, Government Botanist in Jamaica, introduced ackee in 1778. However, it is not clear if he imported it through a slave trader or simply planted it in the botanical gardens:

> '... brought here in a Slave Ship from the Coast of Africa, and now grows very luxuriant, producing every Year large Quantities of fruit; several Gentlemen are encouraging the propagation of it'. (Broughton, 1792, p10)

However, Thomas Dancer, Keeper of the Bath Botanical Garden in Jamaica, claimed in 1801 that 'bichey' (kola, *Cola nitida*) had been introduced 'by negroes' before Sloane's time and that ackee, 'Aka', was also introduced by enslaved Africans:

> 'by negroes in some of Mr Hibbert's ships'. (Dancer, quoted in Schiebinger, 2004, p229[11])

By 1814, John Lunan confirmed that ackee was well established in Jamaica:

> '... brought to Jamaica in a slave ship from the coast of Africa, and, having thriven well, has been generally propagated, and succeeds in most parts of the island...' (Lunan, vol 1, 1814, p8)

Ackee was described as similar to a marrow, very nutritious and often eaten by enslaved people in Jamaica in soups. It is now known that the fruits have high levels of fat, vitamin C and niacin. Only the fleshy part (aril) around the seeds can be eaten. The rest of the fruit and the seeds are poisonous. Ackee fruit that is unripe or overripe is also poisonous. Ackee poisoning causes sickness followed by seizures and can cause death in 12 hours if it is not treated. In spite of this, ackee became a favourite food on some Caribbean islands, and is part of the national dish of Jamaica, 'ackee and saltfish'.

10 There is a mystery why the painting of ackee in the Central Hall at the entrance to the Natural History used the name *Akeesia africana*, which was given by the Frenchman de Tussac long after *Blighia sapida* was the accepted scientific name (Knapp and Press, 2005, p 87).

11 Dancer also noted that 'persons of the Jewish Nation' introduced dates and palm oil into Jamaica (Schiebinger, 2004, p284).

7. Provision grounds

Enslaved people often had to grow their own food on land called provision grounds. Patrick Browne wrote that in Jamaica:

> 'The Negroes... generally provide themselves with food in the country parts, and for this purpose every planter supplies his slaves with a rich and convenient piece of ground, where they are obliged to employ the Lord's day, as well as the few other hours allowed them, both to stock the ground and provide provisions for the following week; and yet the produce of these few hours labour, is not only sufficient to supply them with plenty in a seasonable year, but affords enough to furnish the neighbouring markets also. Every plantation, however, is provided with a plantain-walk, and quantities of yams and corn, to supply the new, and the infirm; and to relieve the others in an unseasonable year, or when their own provisions fail.' (Browne, 1756, p25)

Enslaved people worked their plantation grounds on Sundays, their day of rest. They sold any extra food they grew in Sunday markets[12]. Again, this varied from place to place. On some islands enslaved communities relied more on imported foods:

> 'Slaves in Antigua and Barbados did not have provision grounds, as the land is fairly flat and mostly arable, and therefore nearly every acre was put into sugar cultivation.' (Tobin, 2005, p60–61)

In Jamaica, with mountain areas not suitable for growing plantation crops, enslaved people grew a lot of food for themselves in the foothills. Hans Sloane suggested most rice in Jamaica at the end of the1600s was grown by enslaved workers for their own use in their own provision grounds, and John Gabriel Stedman described rice as a staple part of the Maroon diet in Suriname[13]. Maroons were communities of people throughout the Americas who escaped enslavement and often lived in mountainous areas to resist capture. They were well known for their armed resistance to the system of enslavement[14].

> 'Rice is here planted by some Negros in their own Plantations, and thrives well, but because it requires much beating, and a particular Art to separate the Grain from the Husk, tis thought too troublesome for its price, and so neglected by most Planters.' (Sloane, vol 1, 1707, pxix)

> 'The green hampers... when our men cut them open with their sabres, there burst forth the most beautiful clean rice that I ever saw... the rebels retiring, and we advancing, until we arrived in the most beautiful field of ripe rice, in the form of an oblong square, from which the rebel town appeared at a distance...' (Stedman, vol 2, 1806, p108–10, 118–21)

12 See also Chapter 4: Everyday life.
13 More information on rice, and Africans' skills in cultivating and processing it, is given in Chapter 9: Transfer and exploitation of knowledge.
14 See also Chapter 6: Resistance.

8. Staple foods

Staple foods are usually cheap high carbohydrate foods that can be stored all year. Enslaved people grew, or were given, staple foods as an essential part of their diet. Many of these foods were transferred from Africa to grow in the Americas and were familiar to enslaved people.

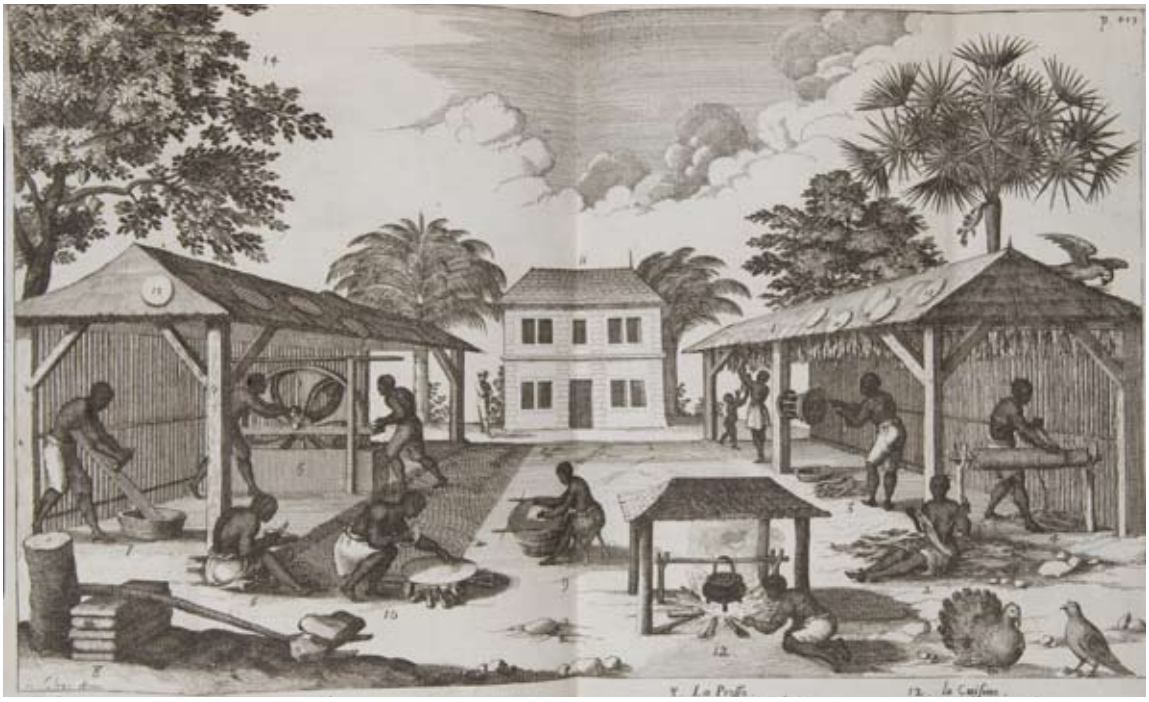
8.1 Cassava (*Manihot esculenta*)

▲ Cassava (*Manihot esculenta*), Merian, 1705, Picture Library reference 26483 © The Natural History Museum, London

Cassava (also known as manioc) originated in South America but was widely grown in Africa, and then the Caribbean. The way it was grown, processed and cooked, as well as its poisons, were described in detail by Hans Sloane[15], Henry Barham and Patrick Browne:

> 'This plant, which formerly supplied the greatest part of the sustenance of the native Indians, is now raised in most parts of America.' (Browne, 1756, p349)

> 'The root of this plant makes a very good and wholesome bread, notwithstanding the juice is a deadly poison, called manipuera, wherefore great care is taken to press out all its juice; and then, dried in the sun, beat, and finely sifted and baked upon a flat broad round iron.' (Barham, 1794, p34)[16]



▲ 'Menagerie', Du Tertre, 1671 © The Natural History Museum, London[17]

15 Sloane, vol 1, 1707, pxviii–xix.
16 See also Chapter 6: Resistance.
17 This illustration between p418–19 is of a plantation house in the French Caribbean showing (on the left) enslaved Africans grating, pressing and baking cassava and (on the right) cassava cakes baking on the roof in the sun.

As well as eating the cassava root:

> 'The negroes boil and eat the leaves as a green.' (Long, quoted in Lunan, vol 1, 1814, p163)

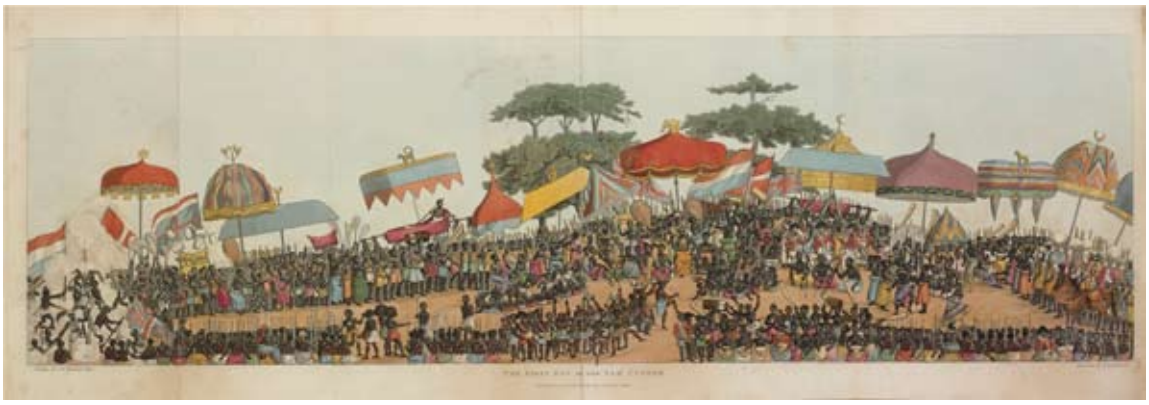
8.2 Yams (*Dioscorea rotundata*, white and *Dioscorea cayennensis*, yellow)

Types of yam (*Dioscorea rotundata, Dioscorea cayennensis*) originated in Africa as well as others in southeast Asia. The Portuguese also imported Asian yams to Africa and Brazil in the fifteenth and sixteenth centuries[18].

Yams were so commonly grown in west and central Africa at the time of the transatlantic slave trade that they became an important part of the culture and an essential staple food. The common names for yam, 'Guinea yam', 'Eboe/Ibo yam' and 'Negro country yam', reflect their importance in Africa. The word yam probably came from *inhame*, which was the Portuguese form of the West African Wolof word *nyam* meaning to taste or eat.

Griffith Hughes, writing in Barbados, said:

> 'This very serviceable Root was formerly the peculiar Growth of Africa, and the most common Food of its Inhabitants. In all Probability, it derives it's Name from the Verb Yam, to eat; which is a Word made use of, and equally understood, by most, if not all the several Nations upon the Coast of Guiney...' (Hughes, 1750, p226–7)

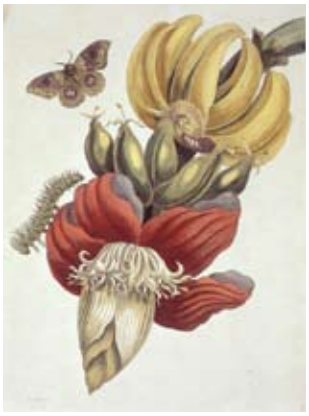


▲ The First Day of the Yam Custom, Bowdich, 1819 © The Natural History Museum, London

Hans Sloane also described how yams were cultivated as well as cooked[19].

18 See: www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/.
19 Sloane, vol 1, 1707, p140.

8.3 Plantains (*Musa paradisiaca*)



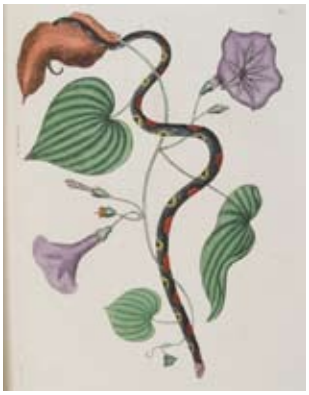
▲ Plantain (*Musa paradisiaca*), Merian, 1705, Picture Library reference 4877 © The Natural History Museum, London

Plantains originated in southeast Asia[20], and it is again likely the Portuguese took them to the Caribbean and Americas. Hans Sloane and Patrick Browne wrote of how important they were for enslaved people and poorer Europeans, and described how they were cooked:

> 'Plantains is the next most general support of Life in the Island. They are brought in from the Plantain-Walk, or place where these Trees are planted, a little green; they ripen and turn yellow in the House, when, or before they are eaten... A Drink is also made of them.' (Sloane, vol 1, 1707, pxix)

> 'This plant is cultivated with great care in all our sugar-colonies, where the fruit supplies the principal part of the sustinence both by the negroes and poorer sort of white people.' (Browne, 1756, p363)

8.4 Sweet potatoes (*Ipomoea batatas*)



▲ The Virginian potato (with coral bead snake), Catesby, 1771 © The Natural History Museum, London

Sweet potatoes (also called Virginia potatoes, which are sometimes called yams in the USA[21]) are now known as a good source of vitamin A, especially darker orange ones, but if the diet lacks fats the body cannot absorb the vitamin.

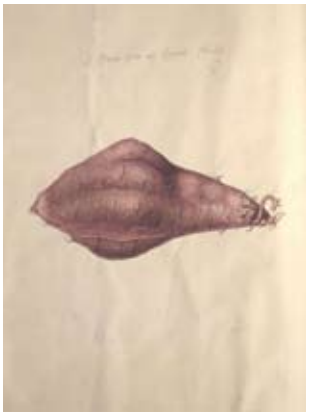
William Smith described sweet potatoes growing in Nevis:

> 'The Negroes are fed, generally speaking, upon Salt Herrings, and their Potatoes, which are sweet, and of the Spanish kind...' (Smith, 1745, p232)

A fermented drink, *mauby*, was made from sweet potatoes, as was bread and a plum cake called *pone*. Selling *mauby* on the streets of Barbados was a common job for enslaved women.

> 'With the express'd Liquor of either the red or the white Potato is made what we here call Moby, or a Sort of cool Drink, answering to small Beer in England. The Method of making this, is to mix the raw express'd Juice of the Potatoes with a certain Quantity of Water; this in a seasoned Vessel will soon ferment, and in about four and twenty Hours be ready for Use; it tastes cool and sharp, and it is generally esteem'd a healthy Liquor.' (Hughes, 1750, p228)

20 See: www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/.
21 These are not the same as the potato commonly eaten in Britain, *Solanum tuberosum*.



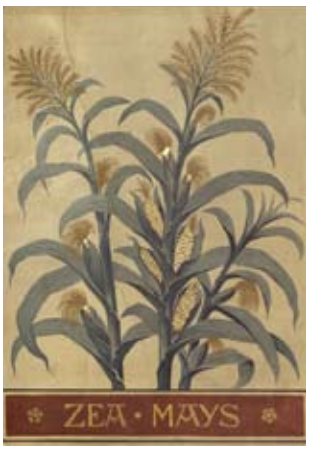
▲ Sweet potatoes (*Ipomoea batatas*), Sloane Herbarium, collected 1687–89, ID 152 © The Natural History Museum, London

As Mark Catesby wrote, sweet potatoes were eaten by poorer Europeans as well as enslaved Africans:

> 'In all our Colonies of America, as well Islands as Continent, these roots are in great esteem and use; the common White people, as well as the Negro slaves, subsisting much upon them: nor are they thought unworthy a place at principal tables.' (Catesby, vol 2, 1771, plate 60)

8.5 Maize (*Zea mays*)

Maize (*Zea mays*, common names – Indian corn or sweetcorn) was used to feed enslaved people in Africa and on board ship, and it was widely grown in the British Caribbean and American colonies, often among the sugar cane as Patrick Browne described:



▲ Maize (*Zea mays*), a decorative ceiling panel from the roof of the Natural History Museum's Central Hall, Picture Library reference 37183 © The Natural History Museum, London

> 'This plant is much cultivated in all parts of Jamaica, and thrives very luxuriantly every where. It is generally planted among the young canes, and grows to a perfection before these shoot to any considerable height.' (Browne, 1756, p335)

Maize was also used as food for animals:

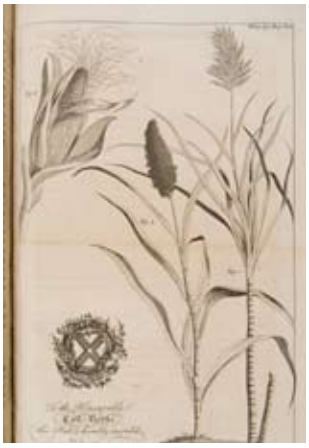
> '... this is thought by them (slaves) very delicious, and call'd Mutton; but tis most us'd for feeding Cattle and Poultry'. (Sloane, vol 1, 1707, pxix)

8.6 Guinea corn (*Sorghum vulgare*)

Guinea corn (*Sorghum vulgare*) originated in Ethiopia and transferred to the Sudan and across Africa thousands of years ago. It was introduced to the Americas in the sixteenth century directly as a result of the transatlantic slave trade[22]. Sorghum is also called Sudan grass or sweet sorghum. Griffith Hughes writing about its use in Barbados commented that:

> 'The different Sorts of this Corn are generally distinguished into that of the Loose-ear Guiney Wheat, the White, and the Red, the Loaf, or the Clove-corn... This Grain made into Bread, or otherwise used, is justly esteemed very wholsome. It is with this that the Slaves are generally fed, each being allowed from a Pint to a Quart apiece every Day.' (Hughes, 1750, p253)

22 See: www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/.



▲ Guinea corn (*Sorghum vulgare*) figure 3, Hughes, 1756 © The Natural History Museum, London

9. Deficiencies in the diet

Some plantation holders provided some of these staple foods; enslaved people grew others on their provision grounds. Even with these staples, enslaved people's diets lacked key nutrients, especially the B-vitamins thiamine, niacin and riboflavin that are needed to use protein and convert carbohydrates to energy (this was only understood at a chemical level in the 1930s).

The main health problems for enslaved people were that their diets lacked some basic nutrients. It is now known that peanuts are a rich source of protein but lack some essential amino acids found in dairy products or cereal grain. Peanuts are high in fat, especially monounsaturated fats, but lack Omega-3 fats.

Maize is rich in carbohydrate and several vitamins and minerals, but too much maize or sorghum leads to niacin deficiency (vitamin B3), which causes pellagra (known as the disease of the three 'D's – dermatitis, diarrhoea and dementia). Maize was a major part of the indigenous people of the Americas' diet, but they mixed it with ashes or lime when it was cooking which releases niacin[23]. Europeans and Africans without this knowledge suffered significantly from pellagra[24].

'... the Native American customs of preparing maize grain in alkali solutions and frequently consuming the grain in combination with leguminous vegetables tended to increase both the niacin availability and the protein quality of the maize, thus greatly improving its nutritional value. But when maize was adopted as a staple food by Old World populations, and by non-natives (blacks and whites) in North America, these customs failed to accompany it, with pellagra the result.' (Kiple and Ornelas, eds, vol 2, 2000, p1805–6)

Too much cassava, dried or salted meat and fish, and a shortage of fats and oils inhibit the uptake of thiamine (vitamin B1), which causes beriberi (beriberi was also common where people eat a lot of mill-polished rice, which removes all the thiamine). Beriberi takes several forms and can cause weight loss, emotional disturbances, impaired senses, pain in the limbs, fever, irregular heart rate and swelling or oedema leading to severe mental illness before heart failure and death. A shortage of fats and oils also meant a lack of vitamin A, which can cause eye problems.

Thiamine is also easily destroyed by light and heat and when foods are soaked in water. When cassava is soaked and dried in the sun, the thiamine content is almost completely destroyed. The same happens when fish and meat are dried in the sun, salted and later soaked.

Vitamins are also affected by different ways of cooking. Enslaved communities had little time or resources (especially fuel and pots) for cooking. One-pot cooking, with ingredients cooked slowly over a fire for hours while people were working, destroyed much of the vitamin content of vegetables and of the dried meat or fish. Fruit and vegetables that were eaten raw provided better nutrients.

23 Indigenous peoples avoided pellagra, see: www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/. See also Messer, in Kiple and Ornelas, eds, 2000, vol 1, p97–112, especially p103 and p109.

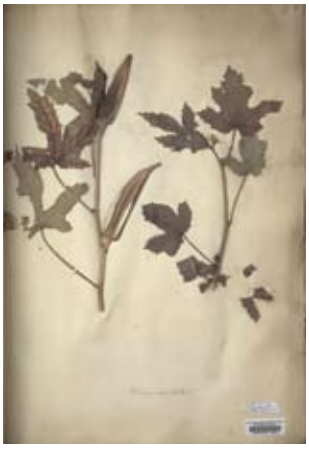
24 Carney, 2001, p12, states that European dependence on one crop such as maize and potatoes led to malnutrition, and she also quotes Roe, 1973, *A Plague of Corn: The Social History of Pellagra*.

People can live without enough vitamins for a long time without showing symptoms other than tiredness, which plantation holders may have attributed to laziness. Most diseases caused by poor diets affect the nervous system and therefore people's mental health. Only when symptoms became severe were enslaved people seen as being physically ill.

10. Additional foods

Enslaved people grew other foods, especially green vegetables and pulses (peas and beans), on their provision grounds. These provided important nutrients in addition to the high carbohydrate staple foods that made up most of their diets.

10.1 Okra (*Abelmoschus esculentus*)



▲ Okra (*Abelmoschus esculentus*), Sloane Herbarium, collected 1687–89, ID 442 © The Natural History Museum, London

Okra (*Abelmoschus esculentus*) is of west African origin, and the word is related to the Igbo word *okuru*. Another common name, gumbo, is also probably of African origin. Okra is also known across the world as ladies' fingers, gumbo, bhindi and bamyah.

In the seventeenth and eighteenth centuries, Europeans thought okra had originated in the Americas. However, it is now thought it was taken to the Americas, from Africa, as a direct result of the transatlantic slave trade25.

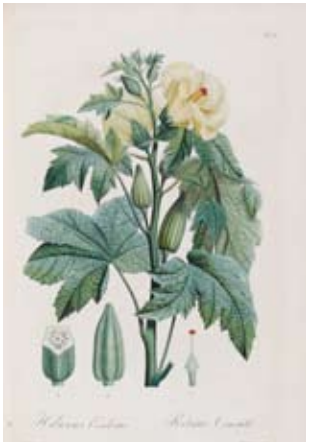
It is now known that okra is rich in vitamins A and C, and folate (B6 and B12) and it is also a source of magnesium.

Okra was important in one-pot cooking – a way of preparing food that was also probably transferred from Africa to the Caribbean and America. One-pot dishes flavoured with pepper, called pepper-pots or, in Jamaica especially, callalu, were a key part of many west African diets. John Atkins described how okra was used in soups in Sierra Leone in a very similar way to Patrick Browne describing them in Jamaica:

'Black Soupee is a favourite Dish, as well at our Factories, as among the Negroes; we make it of Flesh or Fowl, stew'd sweet, with some uncommon tasted Herbs; but the ascendant Taste is Pepper, Ochre, and Palm-Oil.' (Atkins, 1735, p71)

'The pods of this shrubby plant are full of a nutritive mucilage; and the principal ingredient in most of the soops, and pepper-pots, made in America; dishes frequently used in those parts of the world.' (Browne, 1756, p285)

25 See Carney, 2001, p77; Kiple and Ornelas, eds, 2000, vol 2, p1824; and Boswell, 1957, p146: 'Okra originated, according to one study... [in] an area that includes present-day Ethiopia, the plateau portion of Eritrea, and the eastern, higher part of Sudan...The routes by which okra was taken from Ethiopia to North Africa, the eastern Mediterranean, Arabia, and southeast Asia, and when, are by no means certain... It had been brought to the New World, however, before 1658, reaching Brazil supposedly from Africa. It was known in Surinam in 1686'.



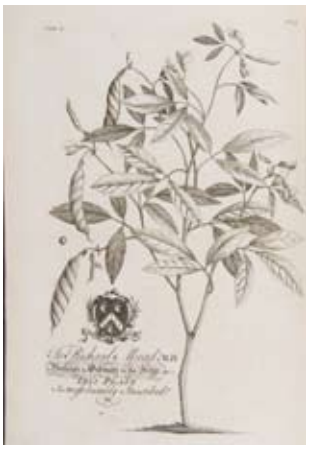
▲ Okra (*Abelmoschus esculentus*), de Tussac, 1808 © The Natural History Museum, London

The mucilage (the thick glutinous or slimy interior) of the okra pods was used as medicine – as a soothing cream and to help excretion[26].

10.2 Pulses

Beans, such as the kidney bean (*Phaseolus vulgaris*) and pigeon peas (*Cajanus cajan*, also called Angola peas, toor/tuvar dal, red gram, Congo pea, Gungo pea and no-eye pea), were good sources of protein for enslaved people.

> 'Pease, Beans, and Pulse of sorts different from those of Europe, are here very common. They are eaten when green, as ours of Europe, and when dry, boil'd, afford the Negros very good and strong Provision.' (Sloane, vol 1, 1707, pxix)



▲ Pigeon peas (Cajanus cajan), Hughes, 1756 © The Natural History Museum, London

Growing pulses requires less work than other foods, and Patrick Browne wrote about their cultivation and that poorer Europeans as well as enslaved Africans ate them:

> '[Pigeon or Angola peas] This shrub is frequently cultivated by the negroes, because it is a perennial, and does not require so much care... The seeds are much used among the poorer sort of people, and reckoned a hearty wholesome pulse.' (Browne, 1756, p291–296)

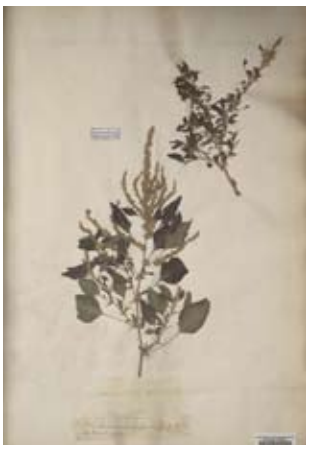
10.3 Salad greens

Plants producing edible green leaves, such as callalu (*Amaranthus spinosus*, colilu/calalu/callaloo), branched callalu and hoho (*Corchorus hirsutus*) grew wild in parts of the Caribbean, and were used as salad greens.

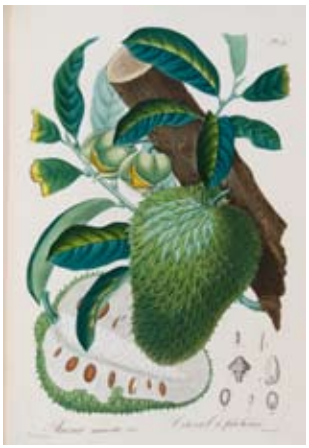
Salad greens were used in a way similar to spinach[27] and had medicinal uses (as well as acting as a purgative – cleaning the bowels):

> 'This plant is more for food than physic, and is much the same as English spinage; some say it exceeds it, especially young and fresh gathered. It grows in great plenty every where, without cultivating, after rains; and is of great service to poor slaves, who, if they can but get salt to season it (otherwise it is apt to purge them, if they eat too much of it), they will live upon it weeks together.' (Barham, 1794, p44)

26 See Chapter 8: Medicines.
27 See also Browne, 1756, p174.



▲ Callaloo (*Amaranthus spinosus*), Sloane Herbarium, collected 1687–89, ID 681 © The Natural History Museum, London



▲ Soursop (*Annona muricata*), de Tussac, 1808 © The Natural History Museum, London

▲ Breadnut (*Brosimum alicastrum*), de Tussac, 1808 © The Natural History Museum, London

Griffith Hughes described the use of hoho in Barbados:

> 'The Leaves of the Plant are made use of by the Negroes, as boiled Sallad; but seldom, if ever, made use of by the White Inhabitants.' (Hughes, 1750, p164, p211)

Patrick Browne described how plants had multiple uses – the leaves of the silk cotton-tree were used as a food, while the cotton was used for bedding and the tree trunks for canoes (Browne, 1756, p277).

10.4 Fruits: soursop (*Annona muricata*) and breadnuts (*Brosimum alicastrum*)

A wider range of sweet tropical fruits is cultivated in the Caribbean today than were available in the sixteenth and seventeenth centuries. Two important fruits were soursop (*Annona muricata*) and breadnuts (*Brosimum alicastrum*).

Soursop was traditionally used in medicine in the tropical Americas, and research is now looking at its role in treating cancer[28].

Soursop is high in niacin, vitamin B3 and vitamin C, and may have helped prevent pellagra among some enslaved people (see section 9). In Jamaica, traditional medicine used parts of the plant for fevers, dysentery, colds and nervous conditions (which can result from niacin deficiency).

> 'This shrubby tree grows wild in all the low lands of Jamaica, and is one of the most common plants in every Savanna. ... and bears a very large succulent fruit, which is generally agreeable to new comers, and most other over-heated habits: but it is so common, and so much in use among the negroes; that it is now hardly ever used among the better sort of people.' (Browne, 1756, p255–6)

Breadnuts (*Brosimum alicastrum*, also known as Mayan breadnut, Maya nut, ramon and snakewood) are high in starch, proteins, folic acid, and vitamins A, E and C. They were an important part of the diet in ancient Mexico, but were often seen more generally as a famine food:

28 See Chapter 8: Medicines, Pinto et al, 2005, www.icuc-iwmi.org/files/R7187_-_Annona%20monograph%202005.pdf; and: www.nhm.ac.uk/nature-online/life/plants-fungi/roots-herbs/index.jsp.

'... it would also furnish a rich resource in times of scarcity, or famine, as food for the Negroes'. (Lunan, vol 1, 1814, p115)

Patrick Browne described how common breadnut trees were in Jamaica and how the fruits were cooked:

'The fruit, boiled with salt-fish, pork, beef, or pickle, has been frequently the support of the negroes and poorer sort of white people, in times of scarcity; and proved a wholesome and no unpleasant food: when roasted, they eat something like our European chesnuts, of which they may probably be a species.' (Browne, 1756, p372)

10.5 Animals and fish

▲ Flying fish (*Cheilopogon* sp.), detail, Catesby, 1771, Picture Library reference 14808 © The Natural History Museum, London

Enslaved people also gathered foods from their surroundings. These provided some important missing nutrients, especially B-vitamins, which are essential to make use of proteins and carbohydrates. They also provided essential proteins, minerals, especially iron and calcium, vitamins A, C and E, and oils and fats. This gave enslaved people some control over their nutrition and health.

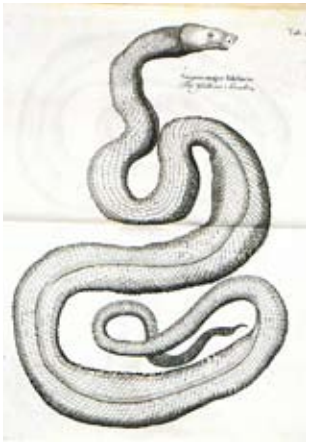
As well as plants growing wild such as salad greens and fruits, enslaved people caught and ate snakes, rats, common sea crabs, fish (especially flying-fish) and grasshoppers for fresh meat, providing valuable sources of protein. Flying fish were very common in parts of the Caribbean.

'This species is very common in all the harbours of Jamaica, and furnisheth a good part of the food of the negro fishermen.' (Browne, 1756, p421)

'They are so common about Barbadoes in some seasons of the year, that many people buy them for their negroes: they eat very delicate and tender... ' (Browne, 1756, p442)

Hans Sloane and Patrick Browne described enslaved people in Jamaica eating cotton-tree worms (*Stenodontes damicornis*) and yellow snakes (*Epicrates subflavus*, the Jamaican boa).

'They [worms] are sought after by Negroes and Indians, and boyl'd in their Soups, Potages, Ollios, and Pepper-pots, and are accounted of admirable Taste, like to, but much beyond, Marrow. They are also roasted a little at the Fire by Negroes, and eat with Bread as delicious Food, without any other Cookery.' (Sloane, vol 2, 1725, p193–4)



▲ Sloane's yellow snake (*Serpens major subflavus*), Picture Library reference 30549 © The Natural History Museum, London

'Many of the negroes eat these reptiles, and look upon them as a rich and delicate food; but they generally preserve the fat, which is considered as a good resolutive, and highly recommended for such purposes.' (Browne, 1756, p461)

Rats that lived among the sugar cane were often caught and eaten on many Caribbean islands:

'Rats are likewise sold by the dozen, and when they have been bred amongst the Sugar-Canes, are thought by some discerning people very delicious Victuals.' (Sloane, vol 1, 1707, pxx)

'I have known some of them to be fond of eating Grasshoppers, or Locusts; others will wrap up Cane Rats, in Bonano-Leaves, and roast them in Wood Embers.' (Smith, 1745, p232; see also p209)

'Numbers of the negroes roast these animals in the stoke-holes, and eat them; and I have been informed by men of character, who have tasted of them, that they are very delicate meat.' (Browne, 1756, p484)

11. African oil palm (*Elaeis guineensis*)

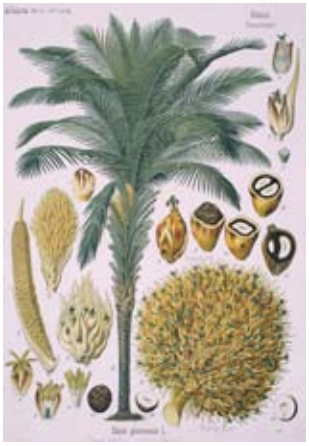
▲ African oil palm (*Elaeis guineensis*) Sloane, 1725, Tab 214 © The Natural History Museum, London

African oil palm (*Elaeis guineensis*) clearly shows how plants moved from Africa to the Americas directly as a result of the transatlantic slave trade.

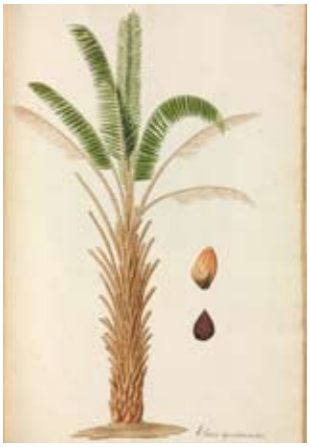
'This Tree was brought over with some others from Guinea in Tubs water'd by the Way, and then planted by Colonel Collbeck in his Plantation now belonging to Mr. Bernard.' (Sloane, vol 2, 1725, p114)

Palm oil was very important in Africa as a food and as a salve for the skin29. William Bosman described palm oil as a key part of pepper-pot dishes in Ghana in 1695.

29 See also Chapter 4: Everyday life for more information about the use of palm oil on the skin.



▲ African oil palm (*Elaeis guineensis*), Picture Library reference 8957 © The Natural History Museum, London



▲ African oil palm (*Elaeis guineensis*), Jacquin, 1780 © The Natural History Museum, London

▲ Red negro oil bush (*Ricinus communis*), Sloane Herbarium, collected 1687–89, ID 656 © The Natural History Museum, London

'Their common Food is a Pot full of Millet boiled to the Consistence of Bread, or instead of that Jambs [yams; *Dioscorea*] and Potatoes; over which they pour a little Palm-Oyl with a few boiled Herbs, to which they add a stinking Fish… ' (Bosman, 1721, p106–7)

African oil palm plants were taken from Africa to the Americas. Palm oil was a key ingredient in pepper-pots, one-pot cooking, and provided an important source of fats. Enslaved people's food was generally very low in fat and therefore palm oil was highly valued:

'… when ripe, a considerable Quantity of fine sweet Oil, which the Slaves, after the whole Fruit is first roasted in the Embers, greedily suck'. (Hughes, 1750, p111)

Oil palm fruit is also very rich in vitamins A and E and provides magnesium. It was also fermented to make wine.

Red or white oil was also obtained from plants such as the castor oil plant or 'negro oil bush' of which there were two species: red (*Ricinus communis*) and white (*Ricinus viridus*), commonly called common palma christi, and green palma christi. Hughes wrote that oil was extracted from berries of the red bush and was used in soups in Barbados (Hughes, 1750, p117).

12. Alternative interpretations

This chapter presents research information and context. The evidence itself can be seen in different ways and raises many questions and some further areas for research. Through the Natural History Museum's slavery and the natural world public programme many alternative interpretations and questions relevant to this chapter have been collected and some of these are summarised below:

- What legacy has the diet of enslaved people had on the health of descendant populations today?
- What other foods may be a legacy from the movement of plants at the time of the slave trade?
- Enslaved people did not initially eat breadfruit introduced by Europeans. It later became an important part of the Caribbean diet. Did enslaved people refuse to eat it as a form of resistance or because they preferred familiar foods?
- It seems like foods migrated to Caribbean lands as Africans were enforced migrants to the Caribbean. Will their descendants ever find out which part of the African continent they were taken from?
- Europeans traded in palm oil as a legitimate trade with Africa after the end of the transatlantic slave trade. What issues are still associated with growing palm oil today?

Was food supply used as a method of control by enslavers?

The question of enslavers' motivation was hotly debated. There was a desire to know how many calories were in the enslaved workers' daily ration. It was: 'Very interesting showing how much food slaves would get' and people wanted to know if there was 'any documentation on how much is spent feeding slaves?' One participant said: 'I don't think the enslavers imported much food for the enslaved.'

- What was the evidence of planters' attitudes to nutrition – did they see enslaved people's diet as fundamental to productivity?
- Did anyone, did enslavers, did the plantation owners know the effect of nutrient and the lack of nutrient on your health?

Some people felt that, 'surely the poor diet given to the slaves on the ships and elsewhere was not deliberate – it was due to ignorance of what was necessary. Poor health resulted in poor prices or no price at all.' 'Enslavers didn't understand the value of a balanced diet.'

Others disagreed and said: 'I think they did because on all the slave ships they made sure there were physicians on board and there is a lot of documented evidence if you look in the parliamentary archives. They have details of what happened on the ships and how they had

to help to cure them and things like that. They definitely knew.'

There were many views:

'... if the enslavers had seen that these things hurting their workforce it would have been common sense for them to introduce something more nutritious so that their workforce will not be so ill and so work more so it seems strange that if they did see the effect on the enslaved people but they did not introduce steps to introduce something more nutritious because it was in their self interest.'

'Was it, that they would have reduced the food intake so that they control them, if they gave them too much it will mean they will be too healthy and so they would limit it that way. Is that one of the reasons?'

'I just wanted to respond to that – about the breeding programme that they had on the plantations. They would have had to ensure that the women and men of a particular age group had good diet so that they can bring forth healthy children.'

It was also pointed out that knowledge would have developed over time:

'I just want to add one more thing – because slavery went on for over four centuries – 400 years, they learnt different aspects of plants and nutrition so what they did not know say in the 60s in 1500 they learnt by the 70s and so forth. You have got to understand that it is over a long time and period of time.'

Ackee

There was a lot of discussion about ackee and where it originated (its origins in Africa were not widely known):

'I am not quite sure but I know when I did history they said it was taken to Jamaica by William Bligh.'

It was said that,

'ackee was not very much used in west Africa but used a great deal in Jamaica', and the question was raised, 'what was it called before it was introduced to the Caribbean?'

Its poisonous qualities were also discussed:

'One correction – to say the skin is poison, the ackee itself is poisonous if you open it before it is mature but as long as it reaches maturity it is fine... But the red bit also when you take the fruit out if you do not pick it properly and you boil it, with that red bit, it is also poisonous.'

A participant also explained how ackee was used for washing:

'The skin you get it in some water, you keep sodden the clothes and rub it on the clothes until it forms the sod and then you use for washing.'

The importance of ackee in Jamaica was not shared across the Caribbean.

'The point I would like to make is that various islands in the West Indies have not got ackee. I am from St Lucia and I never saw or heard of ackee until I came to the UK. Now we have got a plum type of fruit we call that ackee in St Lucia which muddies the waters even more.'

Okra

There were even more points of view shared in a discussion about okra[30]. People either loved or hated the slimy texture. One suggestion for cooking it was:

'What you can do to get rid of the slime is that you would let the pan get hot, put your okra in it and when the slime starts to come out, add a bit of vinegar and stir and it will dry up the slime.'

People wanted to know more. What was its nutritional value and scientific name? The different common names used for okra, including ladies' fingers, were shared.

'I come from Somalia and okra we call bamyah and all the Arab countries also call bamyah. In Greek it is called bamyahs so that is a very interesting point as well. Interesting that the Arabic and Greek are very similar. I wonder what it is in Turkish if anyone knows.'

It was pointed out that people from different Caribbean islands have different names for food, and this was also the case in Africa:

'Quite often people think that Nigeria has one word for everything – no. In Nigeria we have a lot of languages over there so I am an Ibo [Igbo or Ebo] person, I may not understand what a Yoruba man is talking about, I may not even understand what an outside person is talking about so if you say that Nigerians call it 'okro' you talk to a Yoruba person he will say that is not what we call it. So I am talking from an Ibo point of view, I am an Igbo man from the Eastern part of Nigeria. We call it koori [okuru].'

Yams

The significance of yams in Africa was picked up:

'...yam which is very important to me. The Ibos celebrate eating of new yam and we use it if we are going to marry. Quite often we have to give a good number of yams, a specific number, before the introduction of money a man's wealth was measured by the amount of yams he had in his barn...I want to know where yam, which we value so much in my own village, originated from. The importance we attach to yam I seem to believe, I have not got any scientific evidence to prove that it comes from Nigeria or something so that is why I posed this question – it will be good to find out exactly where it comes from[31].'

People also commented that:

- Diet and Nutrition was interesting, it's a start to further research.
- Jamaica has a number of different ways of cooking things.
- Museum needs to talk about the diets of Africans.
- Enslavers in NY found diet of enslaved resulted in weak bone structure.
- Skeletons dug up in New York show compacted vertebrae from poor diet and carrying heavy loads.
- Lots of foods originated in South America – potatoes/ tomatoes.
- African-Americans used iron Dutch pot: oil, cabbage, greens, turnips with ham hocks, neck bones.
- Sorghum can be used to make beer.
- When I first arrived in the UK you could not find calaloo for love and money.
- 1959-ish people started growing calaloo in their gardens because it was expensive to get it fresh and it was hard to get.

30 See also Chapter 8: Medicines.

31 The research described in section 8.2 showed that yams originated in Africa as well as in southeast Asia. The Portuguese imported Asian yams to Africa as well as to Brazil. See: www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/.

- Palm oil is not used in the Caribbean today but coconut juice. Run-down is made from coconut juice. Stop-U-A-Pass thickens and it is so good you have to stop for some!
- Bammy made from ground cassava flour. Farofa is a condiment made from cassava in Brazil.
- Pound ripe breadfruit into pulp and it can be used to preserve meat etc.
- Prepare red kidney beans with care in a slow cooker. Must boil them for 15 minutes to get rid of toxins. Not an issue for people from the Caribbean – always boil them, not simmer.
- Salt fish was loaded onto slave ships at Liverpool Docks. Still known as Salt Cod Docks! Caribbean's favoured food.
- I saw a caster oil plant growing in Ladbrook Grove the other day.
- Rum was known as 'Kill Devil'.
- The elder community with high salt diet would use jelly coconut with lime to bring down the blood pressure.
- I have seen Guinea worm back home.

But the session raised even more questions, people asked:

- Is there any evidence of bartering/trade of food between enslaved people ie not sharing but for gain?
- If the trade was done as a 'triangle' then why/how did Portuguese carry maize and nuts to Africa?
- Were cooking techniques universal in all countries during slavery?
- Did enslaved people carry their food out into the field?
- Is it an African style to eat from one pot? There was one-pot cooking in Europe too.
- Q. Who supplied the Dutch Pot – was it the slaver?
  A. The Dutch introduced it from the Netherlands to the Caribbean in the 1600s and enslaved people traded products to get the pots.
- Dutch pot very similar to pots used in South Africa – so where did Dutch get their idea?
- How were the slaves able to smuggle seeds (ie palm seeds) to the Caribbean?
- Did physicians onboard slave ships take out Guinea worms?
- Is white corn found in South America?
- How did the enslaved eat the corn?
- Is there no alcohol in the African diet?
- Was there any beer and tobacco in the enslaved diet?
- What are the values from salt fish – proteins? Vitamins?
- What is the difference between a plantain and banana?
- Was palm oil used for deep frying food or soap?
- How did garlic get to the Caribbean?
- Is cassava related to 'cava'? I think I used it in the Pacific Islands.
- Certain cassava was poisonous, not all?
- Is cassava tapioca?
- Breadfruit: is it a fruit or vegetable?

13. Additional references

There is a full list of references, including all of the research documents, in Chapter 1: The project. These references offer additional reading specifically relating to this chapter.

Information on key plants, their origin and cultivation:
www.nhm.ac.uk/jdsml/nature-online/seeds-of-trade/

Boswell, Victor R, 'Our vegetable travelers', in ***The World in Your Garden***, National Geographic Natural Science Library, p146, Washington, D C, 1957

Carney, Judith Ann, ***Black Rice: The African Origins of Rice Cultivation in the Americas***, Harvard University Press, 2001

Equiano, Olaudah, ***The Interesting Narrative of the Life of Olaudah Equiano, or Gustavus Vassa, the African***, 1789, reprinted as ***The Interesting Narrative and Other Writings***, ed Vincent Carretta, Penguin Classics, 2003

Kiple, Kenneth F and **Kiple**, Virginia H, 'Deficiency diseases in the Caribbean', ***Journal of Interdisciplinary History***, vol 11, no 2, p197–215, 1980

Kiple, Kenneth F, 'The nutritional link with slave infant and child mortality in Brazil', ***Hispanic American Historical Review***, vol 69, p677–90, 1989

Kiple, Kenneth F and **Ornelas**, Kriemhild Coneè eds, ***The Cambridge World History of Food***, vol 1 and 2, Cambridge, 2000

Knapp, Sandra and **Press**, Bob ***The Gilded Canopy: Botanical Ceiling Panels of the Natural History Museum***, The Natural History Museum, 2005

Pinto, A C de Q et al, ***Annona species***, International Centre for Underutilised Crops, University of Southampton, UK, 2005
www.icuc-iwmi.org/files/R7187_-_Annona%20monograph%202005.pdf

Roe, Daphne, ***A Plague of Corn: The Social History of Pellagra***, Cornell University Press, 1973

Schiebinger, Londa, ***Plants and Empire: Colonial Bioprospecting in the Atlantic world***, Harvard University Press, 2004

Tobin, Beth Fowkes, ***Colonizing Nature: The Tropics in British arts and Letters***, 1760–1820, Philadelphia, 2005[32]

32 Chapter 2 of the book is 'Provisional Economics: Slave Gardens in the Writings of British Sojourners'.