

Voltaire's Breadfruit: Thoughts on the Inspiration for an Eighteenth-Century Colonial Botanical Transfer

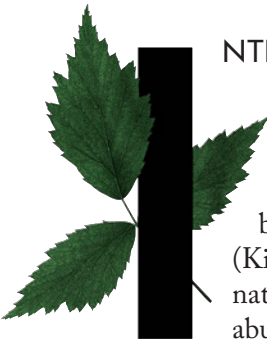


ABSTRACT

The British Government-facilitated introduction of breadfruit trees (*Artocarpus altilis*) from the Pacific to the Caribbean during the late eighteenth century was a notable feat of economic botany, but the identities of the earliest originators of the idea remain unclear. Previous historical scholarship has focused mainly upon the role of Joseph Banks as the prime mover behind the scheme, while more investigative scholarship has identified one of Banks's correspondents, Valentine Morris, as having made an early suggestion of the idea in writing. This focus on Banks and Morris, however, may have overlooked or understudied even earlier origins of the idea. After discussing several key individuals involved in the inception of the breadfruit project, this article then considers a series of passages on breadfruit in the writings of Voltaire and presents a hypothetical pathway by which those involved in the actual transfer of breadfruit from the Pacific to the Caribbean, including Banks via Morris, may have been influenced by the French philosopher.

KEYWORDS

breadfruit, Caribbean, economic botany, Joseph Banks, Voltaire



INTRODUCTION: AN IDEA WHOSE TIME HAD COME

Breadfruit (*Artocarpus altilis*) is a tree crop found throughout tropical Oceania, owing to its dispersal by Lapita voyagers centuries before European contact (Kirch 1997). Domesticated from wild ancestral species native to Southeast Asia, breadfruit trees grow fast and abundantly produce large, starchy fruits that can be prepared for consumption in myriad ways or preserved through fermentation for times of need (Williams et al. 2017). Breadfruit is nutritious, providing adequate quantities of carbohydrates, protein and several vitamins (Meilleur et al. 2004; Liu et al. 2015).

Early European descriptions referred to breadfruit in the Pacific as ‘the Staff-of-life to these islanders’ and ‘their chiefest sustenance’ (Parkinson 1773: 45; Banks 1896: 135). The plant’s English name was bestowed in Guam by the pirate/explorer William Dampier, who likened the fruit’s size, taste, texture and staple role in the CHamoru diet

to that of ‘a Penny Loaf’ in his own country (1697: 341).¹ Joseph Banks, the wealthy and well-connected amateur gentleman of science who took on the role of naturalist aboard the first voyage of the *Endeavour*, hypothesised upon first encountering the tree in Tahiti, that breadfruit’s ease of cultivation might have spiritual significance, evincing the exemption of the Tahitian people from the Biblical curse that doomed humans to ‘earn their bread with the sweat of their brow’ (1896: 134–35).

Soon after these and other descriptions began to circulate, the British Empire was gripped by what historian David Mackay has called ‘a collective national madness’, with the goal of transplanting breadfruit from the Pacific to Britain’s Caribbean colonies (1974: 61). This ‘madness’ produced the voyage of the *Bounty*, which would end in mutiny, and the follow-up voyage of the *Providence*, accompanied by the aptly named *Assistant*, which would, in 1793, successfully deliver breadfruit trees to St Vincent and Jamaica, whence they would soon be dispersed to nearly every British sugar island in the Caribbean (Newell 2010).

Literary scholar Elizabeth DeLoughrey has urged caution and nuance when reading ‘that breadfruit was desired [by Caribbean planters] because it had received glowing reports from Pacific voyagers’ (2007: 29). These reports include those of Dampier, who noted breadfruit’s ‘sweet and pleasant taste’, Captain James Cook, who referred to its flavour as ‘sweet and insipid’, and circumnavigator George Anson, who likened the taste of roasted breadfruit to that of ‘an artichoke’s bottom’ (DeLoughrey 2007: 29). But of course, as DeLoughrey makes clear, flavour was never the priority in the minds of Caribbean planters. Their appeal for breadfruit to be brought to the Caribbean had nothing to do with the distinctiveness of its taste and everything to do with its effortless and abundant productivity. The planters were seeking not a delicacy for their own table but a fuel for their enslaved workforce.

DeLoughrey has noted that ‘planters insisted that the breadfruit would be a vital complement to the slave diet and had no intention of eating it themselves’, citing one Jamaican planter who hoped it would serve as a ‘wholesome and pleasant food to our negroes’ (2007: 29). Indeed, an influential 1775 pamphlet authored by naturalist John Ellis

1 The spelling and capitalisation of the term *CHamoru* here is in keeping with the new standard established by the Commission on CHamoru Language and the Teaching of the History and Culture of the Indigenous People of Guam.

called breadfruit ‘the most useful of all the Fruits in the East Indies’, in contrast to mangosteen (*Garcinia mangostana*), which Ellis named ‘one of the most delicious’. The planters’ desire for breadfruit was economic – not gastronomic – and was indeed encouraged by their reading of ‘glowing reports from Pacific voyagers’, mainly the reports of breadfruit’s productivity, not of its flavour (DeLoughrey 2007: 29).

The phrase, ‘an idea whose time has come’, often attributed to Victor Hugo (though another French writer, Gustave Aimard, is likely more deserving of the credit), poignantly captures the inception, simultaneously and from a non-point source, of a seemingly irresistible next-step in human history.² During the late eighteenth century, percolating upward from among the many so-called improvements that European governments were then engineering in their claimed colonies, the transfer of breadfruit from the Pacific to the Caribbean may have been one such seemingly irresistible idea whose time had come. Perhaps it is this sense of inevitability that has for so long confounded historians’ efforts to trace the idea to its first originator.

TRAVELLERS’ TALES AND THE SATISFACTION OF STARVING

The eighteenth century was a time in which travel and adventure seemed to be on every English reader’s mind. Literary historian Paul Fussell has written that the travel book was then ‘one of the primary genres’ and that ‘almost every writer of consequence worked in the form’ (1962: 350). In addition to the straightforward, nonfiction accounts of actual travels, themes of exploration and discovery permeated other genres as well: fiction like Swift’s *Gulliver’s Travels* (1726) and poetry like Wordsworth’s ‘Descriptive Sketches’ (1793).

- 2 Hugo wrote, in *Histoire d’un Crime* (1887: 300), ‘On résiste à l’invasion des armées; on ne résiste pas à l’invasion des idées’, which can be translated, as it was by Smith, in *History of a Crime* (1888: 237), ‘An invasion of armies can be resisted, but there is no resistance to an invasion of ideas.’ Aimard, however, was much closer to the exact phrase in circulation today when he wrote in *Les Francs Tireurs* (1861: 68), ‘... il y a quelque chose de plus puissant que la force brutale des baïonnettes: c’est l’idée dont le temps est venu et l’heure est sonnée’, which was translated by Wraxall in *The Freebooters* (Aimard 1861: 52), as ‘...there is something more powerful than the brute force of bayonets: it is the idea whose time has come and hour struck.’

Considering the overt travel narratives as well as the fiction and poetry that ‘tended to ape the travel book’, Fussell (1962: 350) suggested that,

the eighteenth-century literature we know would hardly be recognizable if we subtracted from it all its prevailing images of a rational and sturdy observer wandering about foreign parts, collecting data, patronizing the natives ... and reporting his findings for the benefit of stay-at-homes.

Some of Fussell’s ‘stay-at-homes’ would have been eighteenth-century Caribbean planters. For example, Joseph Robley of Tobago wrote how he had ‘read all the late voyages to the South-Sea Islands’, and took particular interest in the descriptions of breadfruit and other food crops growing there (1802: 362–63). Men such as Robley may have read the accounts of their contemporary travellers as a diversion from the pressures of plantation life, but they would have taken note of anything practical to be gained from their reading. Planters’ concerns were economic and political: prices on the sugar market and at the ‘slave auction’; Parliamentary debates an ocean away; and the day-to-day managerial decisions required to run a plantation reliant upon forced labour. Among these quotidian concerns was the feeding of the enslaved workforce.

As island plantations expanded and sugarcane swallowed nearly all the land with agricultural potential, encroaching upon the provisioning grounds from which enslaved labourers fed themselves, planters began increasingly to rely upon imported food to augment what they grew for their families and the families they had enslaved. For example, one late seventeenth-century government official wrote that there was ‘not a foot of land in Barbadoes that is not employed [in the production of sugarcane] even to the very seaside’ (Schlebecker 1987: 26). At this point, it simply did not make economic sense to grow food on small island land that could be placed under sugar. Even planters on larger islands like Jamaica found it difficult to provide sufficient food for the local population, both free and enslaved. Planters increased their food imports, bringing familiar comfort foods from Britain and staples from the mid-Atlantic coastline of the North American mainland. The British Caribbean imported grains in such abundance that Delaware, New York, New Jersey and Pennsylvania came to be known collectively as the ‘bread colonies’ (Schlebecker 1987: 26).

In time, this reliance became unsustainable. As early as 1708, Samuel Vetch, the first British governor of Nova Scotia, wrote that no English island in the Caribbean was,

capable of subsisting without the assistance of the [North American] Continent, for to them we transport their bread, drink and all the necessaries of humane life ... in so much that their being, much more their well being, depends almost entirely upon the Continent (Andrews 1938: 347).

Historical evidence supports Vetch's claim. In 1930, historian Agnes Whitson painstakingly compiled newspaper records from four major North American port cities in the fifteen years leading up to the American Revolution. Of the 225 ships recorded as arriving to or departing from Whitson's ports, 43 per cent – 96 ships – were trading directly with the English islands of the Caribbean.

Throughout the eighteenth century, Caribbean planters' reliance upon North American commodities deepened further. By outsourcing their food production, sugar planters were able to dedicate increasingly more land to their cash crop, growing richer by the acre. In response to the emergence of an independence movement in thirteen of England's American colonies, the British government imposed restrictive trade controls, severely limiting commerce between the North American mainland and its Caribbean island holdings and further dividing the empire along the lines of loyalty and rebellion (O'Shaughnessy 2015). This was intended 'to restrain colonial self-government', but had the unintended effect of creating food shortages – or at least the perception of food shortages – among the sugar plantations of the Caribbean (Braun 2019: 652). Planters, in response, appealed to the British government to remove the embargo on North American goods. One planter on St Vincent wrote that, 'if the importation is not allowed we must inevitably Perish or bring in Provision without Permission' (Newell 2010: 147).

Perhaps reflecting upon his formative years spent on Nevis and St. Croix, American statesman Alexander Hamilton was able to grasp how much leverage the soon-to-be independent American states held over the British Caribbean, and, by extension, Britain itself. British trade controls would be met with American export embargos. Anticipating the repercussions of the Continental Congress's decision that, as of September 1775, 'the exportation of all merchandize and every commodity whatsoever to Great Britain, Ireland, and the West Indies ought

to cease', Hamilton wrote that 'the West-Indians might have the satisfaction of starving' (Sheridan 1976: 616–17). He contextualised, based doubtlessly upon his own Caribbean experience, that,

the lands in the West-Indies are extremely valuable, because they produce the Sugar Cane, which is a very lucrative plant; but they are small, in quantity, and therefore, their proprietors appropriate only small portions, to the purpose of raising food. They are very populous, and therefore, the food raised among themselves, goes but little way. They could not afford sufficient sustenance to their inhabitants, unless they were chiefly or entirely applied to the production of necessaries; because they are so small in quantity, and so thickly inhabited (Sheridan 1976: 617).

The prospect of starving being anything but satisfactory to the West Indian planters, they began to work to avoid this outcome. As American independence and its attendant embargos loomed, some of the more well-read Caribbean planters may have thought back to the travel literature that had diverted their thoughts during easier times.

TO BELIEVE IN THE BREADFRUIT

In the eighteenth-century Caribbean, hard work was the order of the day and an entire cruel system of slavery had been instituted to enforce and maintain this order. By contrast, the accounts of voyages to the Pacific presented a wholly different way of island life. Environmental historian Jennifer Newell (2010) has identified one book, John Hawkesworth's 1773 *Account of the Voyages Undertaken for Making Discoveries in the Southern Hemisphere*, as one of the more popular and widely read tales of South Seas exploration. Hawkesworth himself was no explorer, but he compiled and edited the journals of four recent British expeditions into one bestselling book. Among these was Cook's 1768–1771 *Endeavour* voyage which, owing to the accompaniment of Banks, naturalists Daniel Solander and Herman Spöring, and the young artist Sydney Parkinson, produced some of the most glowing, scientifically valuable descriptions and lovely depictions of the region's flora, fauna and human societies yet read or seen (Fielding 2022).

Hawkesworth's three-volume *Account of the Voyages* mentions breadfruit dozens of times but the most thorough description comes from Volume 2, during the account of the *Endeavour* voyage under Cook.

Here, after a description of the tree itself ('about the size of a middling oak... leaves... like those of the fig-tree') attention is turned to the fruit and its quality as a food (Hawkesworth 1773: 80). According to Cook, via Hawkesworth, a breadfruit is,

about the size and shape of a child's head, and the surface is reticulated not much unlike a truffle: it is covered with a thick skin, and has a core about as big as the handle of a small knife: the eatable part lies between the skin and the core; it is as white as snow, and somewhat of the consistence of new bread: it must be roasted before it is eaten, being first divided into three or four parts: its taste is insipid, with a slight sweetness somewhat resembling that of the crumb of wheaten-bread mixed with a Jerusalem artichoke (1773: 80–81).

In the 1773 edition of Hawkesworth's *Account of the Voyages*, this description is interrupted by a page break, within which are two plates: one showing a view of Matavai Bay in Tahiti, and the other, a botanical illustration of a breadfruit branch with leaves, flowers and three large breadfruits.

Later in the same volume, Hawkesworth includes a section attributed to Banks, which has become famous within breadfruit literature. In describing the livelihoods of the Tahitian people, it reads,

Of the many vegetables serving them for food, the principal is the bread-fruit, to procure which costs them no trouble or labour but climbing a tree: the tree which produces it, does not indeed shoot up spontaneously; but if a man plants ten of them in his lifetime, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the native of our less temperate climate can do by ploughing in the cold of winter, and reaping in the summer's heat, as often as these seasons return (1773: 197).

These and other contemporary descriptions contributed to breadfruit's reputation among Caribbean planters who would have been interested in just such a niche commodity: not a rich, flavourful fruit but a bland, reliable, abundant and nearly labour-free source of energy for the workers they had enslaved. Historians Emma Spary and Paul White referred to breadfruit, in the context of its eighteenth-century reputation among Europeans, as 'a superior staple' (2004: 75). Some may have concluded that breadfruit, if brought to the Caribbean, could relieve their sense of food insecurity and make their plantations more like those idyllic Pacific islands of their reading and their dreams. They were, in the words of one of Banks's biographers, 'eager to believe in the breadfruit' (O'Brian 1993: 232).

Of course, this was asking too much of a single plant. Pacific historian Greg Dening laid out what he called ‘the basic paradox’ that the breadfruit tree, ‘the very symbol of a free and unencumbered life, from the island of freedom, Tahiti’, would be brought ‘to the islands of bondage, the West Indies and their slave plantations’ (1992: 11). Whether motivated by a desire to recreate the Tahiti of their imaginations – Bougainville’s ‘nouvelle Cythère’ – or the more prosaic need for a reliable local food supply, late eighteenth-century sugar planters dearly wanted breadfruit to grow in the Caribbean (Commerson 1769: 197).

Eventually success came, but at the cost of more than thirty months at sea – not including the time Bligh and his loyalists spent adrift in a lifeboat following the *Bounty* mutiny – and uncounted lives lost.³ A modern Jamaican author, Michael Morrissey, has advised that, ‘when we in the Caribbean are next enjoying the scent of roasting breadfruit, we must remember the many who lost lives and their loved ones to the breadfruit project of the late 18th century’ (Morrissey 2021: 29).

MAJOR PLAYERS

Why such effort, expense and loss for breadfruit? Travellers’ tales described so many plants of Asia and Oceania that were new to Europeans, many of which were eventually brought to the Caribbean, but with far less public appeal or government-backed effort. Why was such attention given to breadfruit? Even if this was, as I have suggested, an idea whose time had come, it can be illuminating to trace the idea back to whomever first put it into words. Several potential originators have been suggested in the subject’s broad literature. Here I shall briefly discuss some of the more frequently named major players in the breadfruit transfer operation and then present a more extensive discussion of some overlooked passages in the writings of Voltaire which may have inspired those who later proposed, and then carried out, the idea.

Banks

In tracing the history of the idea of transplanting breadfruit to the Caribbean, many scholars have justifiably focused their attention on

3 Published accounts of the ‘breadfruit voyages’ abound. Here, I have relied mainly upon three sources: Bligh 1790, Oliver 1988 and Newell 2010.

Joseph Banks. Mackay stated that ‘it may well have been Banks who suggested to the West Indians the idea of transplanting breadfruit’ (1974, 63). Similarly, historian Rebecca Earle wrote that ‘the conviction that the West Indies needed breadfruit seems to have originated with Joseph Banks’ (2017: 176).

Banks first encountered breadfruit in Tahiti while traveling aboard Cook’s *Endeavour*. One of his biographers, Toby Musgrave, wrote – probably with pun-intended – that ‘the *Endeavour* voyage sowed the seed in [Banks’s] mind of the potential economic rewards to be reaped from the acquisition and transfer of commodity plants to existing British colonies’ (2020: 138). Historian John Gascoigne credited Banks with having ‘largely initiated’ the *Bounty* voyage, but also credits Thomas Falconer – a relative of Banks by marriage – with having ‘considerable foresight in recommending that Banks pay particular attention to the breadfruit tree while in the South Seas’ (2003: 91).

Later in life, long after his voyaging days had ended, Banks oversaw the British system of what environmental historian Richard Grove has called ‘green imperialism’, built upon networks of linked botanical gardens spread throughout the tropics (1995: 339). Grove described a worldwide operation, beginning about 1770, by which more than a hundred collectors would range throughout the tropical locales of the British Empire, providing rare and unknown (to the British) plants for about fifteen gardens established mainly in South Asia and the Caribbean. From Kew Gardens, Banks oversaw the entire operation. When new specimens were ‘discovered’, they would be transplanted elsewhere as part of what Musgrave referred to as reciprocity ‘in floral kind’, first to Kew where most were unlikely to grow outside of greenhouses but could be rigorously examined and formally described, and then among Britain’s tropical colonies (2020: 190). Grove described ‘the main tropical axis’ for these inter-garden transfers as ‘running between Calcutta and St. Vincent and having a central and essential transit point at St. Helena’ (1995: 339). Indeed, when breadfruit was finally, successfully, brought from the Pacific to the Caribbean, its first stop was remote St Helena in the Atlantic, where twelve young trees were delivered before the rest were carried across to St Vincent and then Jamaica (Oliver 1988).

While Banks’s role in overseeing the breadfruit transfer project is well-established, owing to his roles as both the President of the Royal Society and scientific director at Kew Gardens, few historians have

committed to assigning the origin of the idea to Banks himself and none, of which I am aware, has brought forward evidence of Banks's priority. Historian Jordan Goodman summarised his role well:

Banks, as one of the few people in England who knew anything about this plant, and who had actually been to Tahiti, was the perfect person to advise on the project, even though he did not initiate it (2020: 123).

With due credit, then, given to Banks, let us consider other major players in the breadfruit transfer who might be said to have initiated the project.

Fothergill

Colin Leakey – a botanist from the famous family of paleoanthropologists – together with crop scientist Laura Roberts-Nkrumah wrote that John Fothergill, a British physician and plant collector, 'is credited with the initial proposals to introduce breadfruit to the West Indies' (2016: 34). Gascoigne credited Fothergill only with having '*helped* to initiate' such proposals (2003: 78, emphasis added). Banks himself had written of Fothergill's influence on the project, albeit in the subjunctive:

He liberally proposed rewards to those, whose circumstances and situations in life gave them opportunities of bringing hither plants which might be ornamental, and probably useful to this country, or her colonies... If the troubles of war had permitted, we should have ... introduced by his means ... the Breadfruit, Mangosteem, &c. into the West Indies (quoted in Letsom 1809: 124).

Fothergill was closely involved with British maritime efforts in the South Pacific, having supplied the *Endeavour* with casks of citrus juice to ward off scurvy and having served as a mediator in the dispute over the posthumous publishing of Sydney Parkinson's journal, which would be later recognised as containing the first scientific description of the breadfruit (Fosberg 1941; Carr 1983; Musgrave 2020; Fielding 2022). I am aware, however, of no documentary evidence – that Fothergill's efforts to transplant breadfruit to the Caribbean – 'the troubles of war' notwithstanding – predated any of the other proposals.

Pitt

Historian Richard Drayton has concluded, from his reading of an 1815 letter written by Banks, that Prime Minister William Pitt personally planned the breadfruit-importation project and this conclusion

has been interpreted by other historians to indicate that the idea itself had originated with Pitt (2000: 114).⁴ Analysis of Banks's actual words, however, indicates far less. The letter, written to Sir John Barrow, then Second Secretary to the Admiralty, advised Barrow not to spare too many expenses when outfitting ships, and used Bank's experience with the *Bounty* expedition as an example. Banks wrote,

I was, many years ago, employed by William Pitt to arrange for him a Plan for bringing the Bread Fruit from the South Sea Islands to our Western dependencies, but was strictly required to use every feasible degree of economy. I proposed a Lieut. Commander, a Master's Mate, as his Lieut. &, &, & this niggardly arrangement produced the Mutiny of the *Bounty*, which began by turning the Commander adrift, & ended in the Peopling of Pitcairn's Island, a less economical outfit succeeded; & the business was happily effected (Banks 1815: np).

It is clear from the text itself that Banks ascribed to Pitt the role of patron – if a stingy one – for the expedition but stopped short of crediting Pitt with having originated the idea.

East

In July 1784, Hinton East, a Jamaican planter, wrote to Banks that, 'the acquisition of the best kind of the Breadfruit wou'd be of infinite importance to the West India Islands in affording ... a wholesome and pleasant Food to our Negroes'. Further, the breadfruit, in contrast to the plantain, then among the most important provisions offered to the enslaved, 'wou'd be rais'd with infinitely less labour' (Mackay 1974: 63). While East's letter was among the more passionate appeals for the introduction of breadfruit, it was by no means the first.

Long

A decade before East's letter, in 1774, a Jamaican planter by the name of Edward Long, wrote the first published book in English that would clearly recommend that breadfruit might be introduced to the Caribbean. Goodman made this point in his discussion of Banks's involvement with the project (2020: 125). What Long actually wrote was not so much an appeal, nor even a reasoned argument, but merely a list – a catalogue – enumerating, as he called them, 'such foreign Plants as

4 On deference to Drayton's claim, see, for example, Newell 2010: 148.

might be introduced, and cultivated, in Jamaica, with great propriety' (1774: 903). The penultimate entry in this catalogue of nearly fifty species names 'Bread-fruit of the South Sea' and notes that the species grew in the 'East Indies, and George's Island', the latter being a now-defunct British colonial name for Tahiti (Long 1774: 905). Although Long's suggestion takes precedence among published appeals for the transfer of breadfruit to the Caribbean written in English, a survey of archived, unpublished personal correspondence from the time yields at least one earlier suggestion of the same idea.

Morris

The first person to write directly to Banks with the idea of bringing breadfruit to the Caribbean seems to have been Valentine Morris, a planter originally from Antigua, later to be appointed Governor of St Vincent. The author Charles Bucke called Morris 'one of Nature's worthiest sons' (1823: 321) and geographer Richard Howard noted that he was 'an ardent horticulturist' (1954: 383). Although it appears he accepted the governorship of St Vincent somewhat unwillingly, Morris, according to historian William Coxe, still 'distinguished himself with so much zeal and activity in promoting the cultivation of that island' (1801: 394). It should come as no surprise, then, that Morris would appeal to Banks for aid with the horticultural improvement of Britain's Caribbean holdings. He was after all, according to Royal Society historian Julia Bruce, an 'old Eton schoolfellow of Banks' (1993: 818).

In April 1772, Morris was in London and he wrote to Banks to ask, 'whether there was no possibility of procuring the bread tree ... so as to introduce that most valuable tree into our American Islands'. If breadfruit could be brought to the Caribbean, Morris continued, he was 'certain it would be the greatest blessing to the inhabitants'. If his concern was for the *enslaved* inhabitants of their 'American Islands', however, it is worth noting that Morris, a slaveholder, might have instead considered emancipation as an even-greater blessing. Morris's biographer Ivor Waters (1964) wrote that he had become intrigued with breadfruit after reading Banks's descriptions from his *Endeavour* voyage, which were widely available as compiled by Hawkesworth (1773).

Many scholars have agreed that, among Banks's correspondents, Morris was the first to suggest the transplantation of breadfruit. For example, David Fairchild – the twentieth-century botanist himself credited

with introducing thousands of plant species into the United States – referred to Royal Society historian and secretary Henry Trueman Wood’s 1913 account of breadfruit’s history in the Caribbean, writing that, ‘the names of Valentine Morris and Hinton East, two forceful characters of St Vincent and Jamaica who urged Sir Joseph Banks to approach the King are here given credit for “starting the ball rolling”, with regard to the breadfruit project (1946: 5, note).

Wood’s original text prioritised Morris over East, stating that ‘the first suggestion that the bread-fruit might be introduced into the West Indies is said to have come from Valentine Morris, the Captain-General of St. Vincent, who wrote in 1772 on the subject to Sir Joseph Banks’ (1913: 95). To support his ‘is said to have’ qualification, Wood cited Edward Smith’s 1911 biography of Banks, which, after discussing East’s 1784 petition for breadfruit, remarked that ‘the first suggestion of this project seems to come from Valentine Morris’, and cited Morris’s 1772 letter (Smith 1911: 123–24).

Goodman, in his history of Banks’s botanical transfers, contrasted Banks’s thoughts regarding the breadfruit – ‘only ... a plant food that provided the Tahitians with easy nourishment’ – with Morris, who, upon learning about breadfruit, ‘immediately began to envisage a new possibility for the plant’ (2020, 124). Goodman also made the assumption that Morris first learned about breadfruit directly from Banks, setting a scene in which, ‘it was probably shortly after Banks returned to London from his *Endeavour* voyage [in 1771] that he told Morris about the breadfruit’.

Among historians who have studied the transfer of breadfruit to the Caribbean, Julia Bruce has explored the matter of its initial suggestion most thoroughly. She reasoned that, since before Morris’s 1772 letter, prominent publications arguing for plant introductions had not included breadfruit among the ‘dozens of plants from all over the world for transportation specifically to the American colonies’, such an idea had not yet been put to print (1993: 818). Bruce hypothesised that,

perhaps Morris formulated this idea after talking with his old schoolfriend [Banks], fresh back from his first-hand experience of the plant in Tahiti. Although it is impossible without further evidence to accredit the idea of breadfruit translocation to Banks, he may well have inspired Morris to come up with the suggestion that it be done (1993: 818–19).

Whether Morris arrived at the idea in conversation with Banks or independently, Bruce concluded that Morris's letter is 'the first known, written suggestion that breadfruit be transported to the West Indies' (Bruce 1993: 818). This assessment seems correct, when restricted to the correspondence conveyed within the British Empire, but it might not hold true within a broadened view of all relevant writing of the time.

Voltaire

Overlooked in most historical breadfruit scholarship is a progression of increasingly focused statements regarding breadfruit in the works of the French historian and philosopher François-Marie Arouet, better known by his pen name, Voltaire. Literary scholar Juliane Braun is among the very few to cite Voltaire in a study of breadfruit, remarking that, 'in France, Voltaire idealized the plant as one that could "serve to nourish and satisfy the hunger of humankind" ("serviraient à nourrir & à désaltérer le genre humain")' (2019: 664, n.2).⁵ Not included in Braun's citation was Voltaire's qualification that the potential nourishment and satisfaction offered by 'these two trees' (breadfruit and coconut) would be realized only upon the condition that 'they could multiply in other climates' – a clear suggestion of geographical transplantation, though without an explicitly defined destination, that predates Banks, Morris and the rest of the British and West Indian authors previously discussed (Voltaire 1770: 104).

These remarks about breadfruit were included as an entry titled 'Arbre à pain' ('Breadfruit', or literally, 'Tree of bread'), in the first of Voltaire's multivolume *Questions sur l'Encyclopédie par des Amateurs* – an obscure work that literary scholar James Hanrahan has called, 'a significant Enlightenment text', but one that had 'fallen between the cracks of editorial history' (2011: 157). Scholars at Oxford University's Voltaire Foundation for Enlightenment Studies have noted that *Questions* is 'Voltaire's longest work, and yet it is one of his least known'. Hanrahan marvelled at the topical variety represented within *Questions*, 'which is

5 Braun provided the translation quoted here; all other translations of excerpts from Voltaire are my own. It was from Braun's insightful inclusion of this statement – though passingly footnoted – that my own curiosity into Voltaire's possible role in inspiring the transfer of breadfruit was originally piqued.

vast and escapes easy categorization or synthesis, including as it does articles on literature, religion, law, history, philosophy, and natural sciences' (2011: 158). Indeed, the alphabetically ordered articles comprising the volume bear little relationship one to the next when read consecutively. 'Arbre à pain' is preceded by 'Ararat', which Voltaire describes as the 'Armenian mountain where the [Noachian] ark stopped' and is followed by 'Arbre a suif', an entry on the small evergreen tree known to botanists today as *Myrica cerifera*, which has several medicinal and practical uses, including the production of a wax used in candle making.

In 1769, as Voltaire began writing the first three volumes of *Questions* – which were to be published in November and December of 1770 – the *Endeavour* was anchored in New Zealand's Te Whanganui a Hei, later to be called 'Mercury Bay', where Cook and Charles Green, the expedition's astronomer, observed the transit of Mercury. Banks was onboard, field notes about breadfruit's role in the agricultural – and possibly spiritual – lives of the Tahitians in hand. Europe was yet to read Hawkesworth. Morris's letter was still more than two years off.

Voltaire had not seen breadfruit himself, but was familiar with the tree and its fruit through his own reading of the accounts of Pacific voyages, particularly Dampier's own 1697 account of his voyage around the world (see Curran 2011: 137–38) and the 1740–1744 circumnavigation led by British Admiral George Anson (Hanrahan 2015); both voyagers are named specifically in the 'Arbre à pain' entry. The inclusion of an entry on breadfruit in *Questions*, along with other topics that later readers would classify as 'natural history' may be viewed as evincing Voltaire's interest in what Spary has called 'the study of the natural economy – the cycle of processes which governed the perpetuation of nature, as the totality of organized bodies upon earth' (2000: 99). In this, Voltaire was joined in his efforts by other great *philosophes* of the Enlightenment.

Although the Caribbean region was not named directly in *Questions* (1770: 105), Voltaire mentioned the possibility of transplanting breadfruit 'as the coffee tree was' (in context, 'Si cet arbre était transplanté comme l'a été l'arbre à café...'). He would have known the popular history of coffee: its introduction to the Caribbean island of Martinique in 1723 by the French naval officer Gabriel de Clieu. By then, coffee was already growing in the Dutch colony of Surinam on the northern coast of South America and even in the French Caribbean colony

of Saint-Domingue (now Haiti), but de Clieu's self-aggrandising account features sufficient drama to have captured public attention from Voltaire's time to the present day (Wild 2004). Historian William Ukers called de Clieu's adventures 'the most romantic chapter in the propagation of the coffee plant' (1922: 6). The story even foreshadows the travails later associated with efforts to transplant breadfruit: larceny, piracy and the rationing of sailors' fresh water to keep the plants alive at sea. When Voltaire suggested transplanting breadfruit 'as the coffee tree was', he was likely thinking of both de Clieu's adventure and his eventual Caribbean destination.

Foreshadowing arguments later to be made by sugar planters, Voltaire predicted that breadfruit 'could largely take the place of the invention of Triptolemus', the mortal hero who, after having nursed at the breast of Demeter, the goddess of the harvest, taught agriculture to the Greeks (1770: 105).⁶ After suggesting that breadfruit might be transplanted, and that its near labour-free productivity could replace agriculture, Voltaire devoted the rest of the 'Arbre à pain' entry in *Questions* to a discussion of other staple crops of the world: wheat, maize, cassava and rice.

The discussion of these crops supported Voltaire's assertion that, although wheaten bread may be the 'food to which we are accustomed' and may even be considered 'a part of our being', it 'is not the food of most of the world' (1770: 106). A whirlwind tour then commenced, with Voltaire listing large and densely populated world regions – 'all of southern Africa ... the immense Indian archipelago ... part of China' – which either 'ignore bread' or in which 'wheat is absolutely unknown' (1770: 106). Placed as such within a brief essay suggesting the transplantation of breadfruit 'as the coffee tree was', this denunciation of the essentiality of wheaten bread may have led an attendant reader with knowledge of the Caribbean plantation economy to question the rationale underlying the expensive and – particularly in the late eighteenth century – politically challenging process of importing provisions from the so-called bread colonies further north, all to fuel an enslaved workforce taken originally from southern Africa, where bread was said to be 'ignored' anyway.

6 On Triptolemus, see Matheson 1994.

While Voltaire did not limit breadfruit's potential replacement of agriculture to the provisioning of the enslaved, we know that he was aware of, and at times sympathetic toward, the plight of those forced to labour on Caribbean sugar plantations. Voltaire's novella *Candide* – subtitle: *l'Optimisme* – includes a character whose mutilated body testified to the corporal punishments commonly endured by the enslaved. 'This is the custom', the man says to Voltaire's protagonist, the title character Candide. 'C'est à ce prix que vous mangez du sucre en Europe.' ('This is the price at which you eat sugar in Europe') (1759: 136). In response, Candide swore that upon witnessing this abomination, he would renounce *not sugar*, but his namesake optimism.

This is not to say, as some have done, that Voltaire was unambiguously abolitionist and, to use a modern term, anti-racist. While some scholars, such as the historian David Wootton, have attributed to Voltaire the normative political philosophy that 'slavery is never legitimate' and, following this, that, 'rebellion against tyrants and slave-owners is always legitimate, and one can only wish that it was more often successful' (2022: 72), others, including philosopher Margaret Watkins have viewed Voltaire's positions on slavery and race as more 'complex', noting in particular that his views on slavery seem to have evolved over time (2017: 2).

Watkins has highlighted the work of literary scholar Andrew Curran, who 'traces the persistence of Voltaire's racism' throughout his writing (2017: 3). Voltaire was a polygenist, 'viewing people of different races as having been created separately by God', as Curran and other scholars, including historian Gianamar Giovannetti-Singh (2022: 23) have reminded readers. Literary scholar Madeleine Dobie's work has synthesised Enlightenment views on race and slavery by concluding that, exemplified by Voltaire, 'many writers found slavery to be repugnant [but] their underlying perception that Africans were in essential respects different from or inferior to Europeans fostered a climate of ambivalence' (2010: 299). Giovannetti-Singh put it simpler, citing historian Christopher Miller (2008: 76) to state, bluntly, that 'polygenism made it "easier to justify slavery"' (2022: 29). So, in Voltaire, scholars have found a philosophical champion of liberty whose racist views have given quarter to those who would defend bondage. Indeed, Wootton, an expert on the man and his work, has lamented that, 'nothing about Voltaire is straightforward' (2022: 84).

If, in 1770, Voltaire was indeed suggesting the possibility that breadfruit could be transplanted to the Caribbean, perhaps to provision the enslaved, then this is an idea that he developed over time. Thanks to Voltaire's prolific writing, we can see the concept grow chronologically throughout his body of work. First, breadfruit makes a brief appearance in his *Essai sur les Mœurs*, originally published in 1756, as one item in a list of several Southeast Asian curiosities: crocodiles in Pegu, female palace guards in Java, white elephants in Siam. As a subset of these, Voltaire catalogued what he considered to be several culinary oddities of the region including 'no wheat in Malabar', 'the use of fire ... unknown' in the Marianas, and, in general, 'bread and wine are ignored in all the islands'. But, Voltaire conceded, amid the absence of wheat, fire, and the bread that together they make possible, the region did possess at least one panary commodity that Europe lacked: 'We see on one of the Philippines a tree whose fruit resembles the tastiest bread' (1756: 335).

In a subsequently-appended section to *Essai sur les Mœurs*, which would be published separately in 1768 as *Précis du siècle de Louis XV*, we can see how Voltaire's thoughts on breadfruit had progressed. He first described, on the island of Tinian in the Marianas, that 'what we found most singular, is a tree whose fruit resembles the taste of the best bread' (1768: 55).⁷ Then, in the same text, Voltaire took the next tentative step by suggesting that breadfruit is 'a real treasure which, if transplanted, if possible in our climates' would soon surpass the 'conventional riches ... at the ends of the earth' (1768: 222). The use of the phrase, 'in our climates', indicates that the transplantation Voltaire then had in mind involved an importation of breadfruit into Europe – this was actually accomplished by both the French and the British; breadfruit trees eventually grew, albeit in heated greenhouses, at the Jardin des Plantes and Kew Gardens.

In 1770, two years after the release of the *Précis*, *Questions* was published, including its suggestion for transplanting breadfruit 'as the coffee tree was'. If Voltaire was indeed suggesting that the breadfruit tree be transplanted to the Caribbean, his suggestion predated Morris's letter to Banks by two years and Long's published 1774 catalogue of transplantable crops by four. Thus, in terms of historical priority, we should recognise Voltaire as the first to suggest, in writing, that breadfruit be

7 A later revision of Voltaire's *Précis*, published in 1824, stated that this was a tree 'whose fruit of a pleasant taste can replace bread'.

introduced to the Caribbean. This, in 1770, was the culmination of Voltaire's increasing engagement with the subject beginning at least as early as 1756.

We should then consider whether a possible route exists by which this idea might have proceeded from Voltaire to Banks, who formed and enacted the plan to carry out the actual introduction. Certainly Morris, whom many credit with the idea's origination, might have come up with it independently of Voltaire – through reading accounts of travels in the Pacific, for example, or through personal conversations with Banks; it does indeed seem to have been 'an idea whose time had come'. Alternatively, the possibility remains that Morris may have been inspired directly by Voltaire.

A VOLTAIRE–MORRIS CONNECTION?

Born on Antigua in 1727 and descended from both wealthy landowners and pirates who sailed with Henry Morgan, Morris inherited the Welsh estate Piercefield upon his father's death in 1743 and moved there ten years later (Waters 1964). At Piercefield, Morris established his reputation as a keen developer of landscape by constructing walks, clearing views, planting trees and shrubs, and even hewing an artificial cave 'out of the solid rock without the mark of a tool to be seen' (Waters 1975: 9). When Banks visited his 'old Eton schoolfellow' at Piercefield in 1767, he wrote of being convinced that the estate was, 'the most beautiful place I ever saw' (Bruce 1993: 818; Waters 1975: 14).

The population of the surrounding county, Monmouthshire, was poor and Morris was known for his generosity and dedication to the public good. His obituary states that, 'at Piercefield the rich were entertained, the poor fed, and the naked clothed' (Thicknesse 1789: 862). He was, perhaps, too generous, though. One historian described his charitable 'liberality', combined with his propensity for gambling, as 'having induced some pecuniary embarrassments', resulting in Morris being 'compelled to leave the lovely residence that he had formed for a government in the West Indies' in 1772 (Tymms 1834: 128). Piercefield was placed into a trust and Morris sailed first to his native Antigua, then to St Vincent to enter the colonial service. There, he was appointed Lieutenant-Governor in December 1772 and promoted to Governor

in October 1776 (Waters 1964). Despite this relocation, Morris was not deterred in his quest to improve the lives and landscapes of his surroundings.

After arriving at St Vincent, Morris spent his time 'promoting the cultivation of that beautiful island, and almost raised another Piercefield there' (Thicknesse 1789: 862). Morris's dream for cultivating St Vincent included the propagation of breadfruit, as his 1772 letter to Banks indicated. The fact that Morris would not live to see the plan come to literal fruition is but one part of his sad demise. Morris's promotion to the governorship of St Vincent came in the same year as the American Revolution, leaving him to preside over a volatile period in the colonial history of the region. He spent much of his time worrying about – and preparing for – conflict with both the French and St Vincent's own indigenous Carib population, the latter led by the powerful chief Joseph Chatoyer. Morris's fear was realised in 1779 when, facing an imminent Carib-aided French invasion, he was forced to sign a treaty, surrendering the island to France.

This peaceful relinquishment surely saved countless lives as it meant that the colonists 'continued to live more or less as before, except that they now had to pay for the upkeep of French troops and obey orders' (Waters 1964: 69). For Morris, however, it meant that the British Government and public alike would question the zeal with which he defended the island he was given to command. Morris returned to England, in debt and in doubt, after a two-year exile in Antigua, and published a defence of his actions in St Vincent (Morris 1787). He did all he could, Morris claimed, to defend the island until it became clear that defeat was imminent, and then he sought to effect a peaceful surrender on terms that were as favourable as possible to the Vincentian people.

While Morris was under investigation, the Government withheld the salary he was due as Governor, a pattern that had begun during his second year in office, and Morris spent his time in England, 'avoiding creditors and pressing his own claims against the Treasury' (Waters 1964: 72). Historian Stephanie Barczewski has clarified that, while Morris was governor of St Vincent, 'the American Revolution prevented him from collecting the duties from planters that were supposed to pay his salary, [and] he was forced to spend his own money to defend the island from the French' (2014: 21). After losing the island and returning to England, Morris was unsuccessful both at avoiding creditors

and making claims against the Treasury; being unable to pay his debts, he was sent to the King's Bench Prison in 1782. Piercefield was sold at a loss, as were the estates Morris still owned in Antigua. He was released from prison but, without a home, was forced to lodge with family or friends until his death in 1789. Morris likely would have known of the *Bounty* expedition – sent from England to Tahiti in 1787 to collect breadfruit saplings for eventual transplantation to the Caribbean. At the time of Morris's death, however, news of the mutiny had not yet reached England; Bligh, having been deposed and set adrift, was still *en route* to Batavia from his near-miraculous lifeboat voyage to Timor and the mutineers were yet to settle on Pitcairn Island (Newell 2010).

One of Morris's Monmouthshire neighbours, Philip Thicknesse, himself a writer of travellers' tales and a self-described eccentric, wrote that Morris 'had a good library' (1791: 157). There is evidence, though circumstantial, that this good library may have contained the works of Voltaire – either owned or borrowed – and, if it did, that this might have been the avenue by which Morris came up with the idea he presented to Banks in 1772. When Morris faced the forced sale of his estate, Thicknesse wrote how he himself was invited to 'come over to Piercefield, and pick out a hundred volumes, such as suited my reading' (1791: 158). Could the works of Voltaire, particularly those that first suggested the prospect of transplanting breadfruit to the Caribbean, have been included among these 'hundred volumes', of the 'good library' out of which they were selected? There is reason to believe that they may.

Morris was educated; he studied at Peterhouse College, Cambridge, could read and write well in French, and was practised in translation from French to English (Waters 1964; 1983). Morris entered Cambridge in 1745, a time at which Voltaire, like other major Continental authors, 'had not broken silence' in the English university curriculum, according to historian and clergyman Christopher Wordsworth's near-exhaustive 'account of the studies at the English universities in the eighteenth century' (Venn and Venn 1924; Wordsworth 1968: 122). While French Enlightenment authors likely would not yet have been included among those read and discussed officially at Cambridge, Morris may have read Voltaire independently, after completing his university education. This seems especially likely, considering the company Morris kept.

Thicknesse, Morris's friend and neighbour, considered Voltaire 'his favourite author', according to a biographer, referring to him as 'the

most agreeable writer, and the most intelligent Historian of this, or perhaps of any age' (Gosse 1952: 282). This was hardly a unique opinion in Britain during the latter half of the eighteenth century. Thicknesse owned, or had access to, the 36-volume Smollett edition of *The Works of M. de Voltaire*, an English translation published in 1761 (Fletcher 1934). The preface to this edition described Voltaire as having 'lived to see his fame flourishing not only in his own country, but also diffused over all the civilized kingdoms and states of Europe' (Voltaire 1761: vol.1, *iii*). This prefatory paean continued:

But how much soever he [Voltaire] may be admired in other countries, he seems to be peculiarly adapted by nature, for the entertainment of the English people ... This congenial affinity remarkably appears in that eagerness with which his works are procured, translated, and perused by the natives of Great Britain...
(*iv*)

The Smollett edition of *Works* included both Voltaire's initial description of 'a tree ... whose fruit perfectly resembles the finest bread' and his suggestion that this tree would be of great benefit, 'if it could be transplanted to our climates' (1761: vol.4, 174; 1761: vol.8, 51). Therefore, Thicknesse himself had access to Voltaire's suggestion that breadfruit should be transplanted and, if as the bookseller Ifan Kyrle Fletcher has written, Thicknesse 'frequently ... loaned his friends copies of books he had just bought', he may have loaned these volumes to Morris (1934: 50).

But still, was Thicknesse's admiration for Voltaire shared by Morris? Thicknesse adored Voltaire and may have loaned his books to Morris, as was his custom. Or, if Morris's 'good library' had contained anything by Voltaire, it is likely that Thicknesse would have taken it when invited to do so. Ideally, we could examine both men's libraries to search for books by Voltaire. Unfortunately for our quest, however, the estates of both Morris and Thicknesse were sold, the books that remained at Piercefield dispersed, and those 'hundred volumes' that Thicknesse had chosen from Morris's collection lost somewhere in transit between Bristol and Antigua (Thicknesse 1791; Gosse 1952; Waters 1964). Perhaps future archival scholarship will reveal information that clearly links Voltaire to Morris, but for now that gap is spanned only by informed conjecture.

In the absence of definitive evidence that Morris read Voltaire and was influenced thereby to petition Banks to initiate the voyages that would bring breadfruit to the Caribbean, we can only summarise the

evidence suggesting that such a sequence may have occurred. Voltaire had written progressively more detailed passages about breadfruit from 1756 to 1770, eventually culminating in the suggestion that this ‘real treasure’, ‘whose fruit resembles the taste of the best bread’, might be transplanted to – in slightly veiled terms – the Caribbean, where it ‘could largely take the place of’ agriculture and would ‘serve to nourish and satisfy the hunger of humankind’ (Voltaire 1769: 55; 222; 1770: 105; Braun 2019: 664, note 2). Morris was educated and well-read, a Caribbean-born British Francophile with ‘a good library’ at a time when Voltaire’s writings were eagerly ‘procured, translated, and perused by the natives of Great Britain’ (Thicknesse 1791: 157; Voltaire 1761: vol.1, *iv*). Among his closest friends was Thicknesse, a generous, book-lending neighbour who called Voltaire his ‘favourite author’ and had a copy of the 36-volume Smollett edition of *Works* (Gosse 1952: 282).

These facts, along with Morris’s interests in both horticulture and improving the lives of the poor, though blinded as he was to seeing beyond the cruel system of slavery, suggest that he was just the kind of person to take note of Voltaire’s ideas on breadfruit. As Governor of St Vincent and a close friend of Banks, he was in exactly the position to petition for their implementation. Therefore, a reasonable scenario to imagine is one in which Thicknesse loaned Morris his copies of Voltaire (if Morris did not own them already) and Morris took note of the breadfruit passages, realised their applicability to the Caribbean plantation system he knew well and wrote the 1772 letter to Banks that would initiate the very transplantation that Voltaire had first suggested two years earlier. This is, of course, conjecture, but, I argue, informed and reasonable.

CONCLUSION: VOLTAIRE’S CARIBBEAN LEGACY

In 1777 the Royal Society of Arts offered a prize for the first successful introduction of breadfruit to the Caribbean. Many in the British Caribbean feared the French might have already achieved this goal. In February 1787 George Yonge, Secretary at War, wrote to Banks: ‘it seems past a doubt that the ... Breadfruit tree is arrived in the French West Indies ... It must therefore be acknowledged the French are beforehand with us’ (Drayton 2000: 114). Yonge was, however, wrong. A cargo of

Asian plants had arrived in Saint-Domingue but it included only the closely related breadnut (*Artocarpus camansi*), not the true breadfruit.⁸

In 1786, Banks brought the idea to King George. Royal attention to the subject, encouraged by perceived competition with the French, had managed to start the process. Banks was authorised to acquire and outfit the *Bounty*, to place it under the command of Bligh, and to appoint two Kew gardeners to accompany the voyage and to look after the young trees that they would acquire in Tahiti. When the sailors mutinied soon after sailing out of Matavai Bay, Banks's meticulous plans sunk like the potted saplings tossed overboard and the hopes of the English planters in the Caribbean were set adrift like Bligh and his loyalists, defeated.⁹

Bligh rallied and returned to England in March of 1790, where a court-martial fully exonerated him for the loss of the *Bounty*. Banks immediately began outfitting a second vessel, the *Providence*, to complete the *Bounty*'s mission. This time the ship would be heavily armed and accompanied by another, the *Assistant*, so that any incipient mutinous talk could be promptly quashed. Less than a year and a half after returning from his ordeal, Bligh set out again on his second breadfruit voyage. This time he met success and his 'floating forest' arrived triumphantly in Kingstown harbour, St Vincent, on 23 January 1793 (Tobin 1791–1793: 301).

Bligh received the Royal Society's medal and Banks was commended (Powell 1977). Subsequent histories have largely agreed upon Morris's role in instigating the endeavour, but Voltaire's name has been all but left out entirely. Perhaps now, when tracing the history of breadfruit's introduction to the Caribbean, we should leave room for the possibility that the French philosopher may have inspired Morris's idea that such an introduction might be made, just 'as the coffee tree was' (Voltaire 1770: 105).

8 On French efforts to introduce breadfruit to Saint-Domingue and other French colonies in the Caribbean, see ch. 3 in Spary 2000. On breadnut in the Caribbean, see Aurore et al. 2014.

9 Banks's detailed instructions for outfitting the *Bounty* are reproduced verbatim in Musgrave 2020, 218–20.

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