



‘THE CORRECT NAME FOR THE BREADFRUIT’: ON INTERDISCIPLINARITY
AND THE ARTIST SYDNEY PARKINSON’S CONTESTED CONTRIBUTIONS TO
THE BOTANICAL SCIENCES

by

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Breadfruit is a tropical fruit-bearing tree native to Oceania and a staple food in the diets of many Pacific Islander communities. During the so-called Age of Discovery, several European voyages returned from the Pacific with descriptions of the region’s flora, including breadfruit. Since that time, scientists have sometimes struggled to agree upon an adequate acknowledgement of those early descriptions in modern botany and taxonomy. This paper considers one such struggle: the centuries-long disagreement among botanists regarding the value of the botanical descriptions and illustrations of breadfruit, as well as the proposed scientific name for the species attributed to Sydney Parkinson, a young artist who sailed with Cook aboard HMS *Endeavour* during the late eighteenth century. While Parkinson’s descriptions were thorough, it is suggested here that his contributions were neglected by later scientists, due mainly to his status as an artist and to an approach that today we would call *interdisciplinary*. This outcome can be viewed as indicative of the tension between the arts and the sciences that remains to this day and, I suggest, continues to hamper our understanding of the natural world.

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INTRODUCTION: BOTANICAL NAMING CONVENTIONS

In a broad 1939 paper on the seed-bearing plants of Southeast Asia, botanist Edred Corner opened his section on the genus *Artocarpus* with a simple question: ‘What is the correct botanical name for the Bread-fruit?’¹ If confusion existed on this point—which, as Corner went on to explain, certainly did—that confusion had been brewing for quite some time by 1939.

Since the 1735 publication of Linnaeus’s *Systema naturae*, every biological species that scientists have formally described has been given a Latinized binomial, often referred to

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¹ E. J. H. Corner, ‘Notes on the systematy and distribution of Malayan phanerogams III’, *Gard. Bull. (Singapore)* **10**, 239–329 (1939), at p. 280.

colloquially as a *scientific name*.² These two-part names, each comprising a genus and a species, are themselves like miniature descriptions, moving from generic to specific quite literally. By convention, the first letter of the genus name is capitalized, the species name is left in lower-case, and the binomial is italicized in print. In formal usage, the surname of the first scientist to officially describe and name a species in the Linnaean system is appended to the end of the binomial. For example, since Linnaeus himself formally described human beings in *Systema naturae*, the full scientific name for our species is '*Homo sapiens* L.'. *Homo* is the genus, *sapiens* is the species and Linnaeus is the first describer. Names of prolific first describers are often abbreviated; the standard abbreviation for Linnaeus is simply 'L'.

Binomials, like the species they describe, evolve over time. Annals of the biological sciences are replete with examples of scientific renaming for myriad reasons. Research, especially in the field of genetics, may indicate that a genus includes several species where once it was thought to comprise only one. In this case, members of a newly defined species will be cordoned off and given a new name, with which they are to be distinguished from their now more distant relatives.

Another reason for renaming is the clarification of synonyms. Various scientists may be working concurrently to describe the same species, unaware of one another's efforts, each proposing a new binomial alongside their formal descriptions. Retrospective analysis may then show that what multiple scientists have described as separate species are in fact the same. In this case, one binomial is selected as the *accepted* scientific name of the species and the others, if they do indeed apply to the same species within the same biological limits, are relegated to *synonym* status.

Wherever a binomial is relegated, so goes the name of its coiner. Not unlike the evolutionary biologist observing evidence for anatomical and physiological change over time, historians of taxonomy are witness to the dynamics of fitness, occlusion, power and survival—not of organisms themselves but of the names and namers that describe and classify life. Historical analysis of taxonomic change yields insight into the way humans make sense of nature and into the changing roster of the individuals temporarily entrusted with that authority.

This paper considers one such case of nomenclatural change and its attendant controversy regarding the authority to describe and to name. The species in question is breadfruit, now known to botanists as *Artocarpus altilis* (Parkinson) Fosberg, the subject of Corner's 1939 query. Perhaps the most obvious aberration from standard naming conventions is the presence of two surnames, one parenthesized, given as first describers. One would be forgiven for suspecting that Parkinson and Fosberg were research collaborators, perhaps claiming joint credit for breadfruit's description. In fact, Sydney Parkinson, an artist, died more than a century before the botanist Ray Fosberg was born. Their generations-spanning shared credit—shared but unequal, as the parenthetical placement of Parkinson's name attests—hints at both the long-term historical disagreement over breadfruit's binomial that Corner set out to address in 1939 and a larger conflict between the arts and the sciences that remains to this day.

² Carolus Linnaeus, *Systema naturae 1735: facsimile of the first edition with an introduction and English translation of the 'Observationes'*, trans. Maria Sara Johanna Engel-Ledeboer and Hendrik Engel (Brill, Leiden, 2003).

THE COMPLEX BREADFRUIT AND THE BREADFRUIT COMPLEX

Trees of the genus *Artocarpus* evolved from wild ancestors native to Borneo and its neighbouring islands in Southeast Asia.³ This genus of large trees in the fig-mulberry family (Moraceae) has diversified through natural and artificial selection into dozens of species, several of which bear edible fruits. Within this family is breadfruit—a staple food throughout Oceania today. Breadfruit was first mentioned in writing in 1595 by Pedro Fernandes de Queirós, navigator aboard the Mendaña expedition to the Pacific.⁴ A century later, its common English name was bestowed by the pirate/explorer William Dampier, who first encountered the species in Guam and called it *breadfruit* owing to its staple role in the Chamorro diet—like ‘a Penny Loaf’ in his own country.⁵ The comparison of breadfruit to bread was often made throughout the eighteenth century and Dampier’s term has been calqued into several other European languages, giving us the common names *broodvrucht* (Dutch), *brotfuchtbaum* (German), *fruit à pain* (French), *fruta de pan* (Spanish) and *fruta-pão* (Portuguese).⁶

Here it should be acknowledged that generations of Pacific Islanders, whose ancestors found and settled nearly every island scattering the vast ocean from New Guinea to Hawai‘i, knew and still know breadfruit intimately. They described it in their stories, songs and material cultures, yet, prior to European contact, most Pacific cultures lacked writing and none were party to the Linnean system of taxonomy. The languages of the Pacific Islands include various words for breadfruit, most of which are etymologically related to a few Proto-Oceanic terms that linguists have reconstructed as *kuluR*, *baReqo*, *beta* and *ma(R)i*.⁷ For example, in the modern Hawaiian, Tahitian and Cook Islands Māori languages, breadfruit is called by the closely related terms ‘*ulu*, ‘*uru* and *kuru*, respectively. In the Solomon Islands the terms *bia* and *bulo* are used, while the similar term *beta* is correct in Vanuatu. In the Federated States of Micronesia, Kiribati, the Marshall Islands, the Marquesas, Tonga and Tuvalu, breadfruit is known as *mei* or *mai*.⁸ More precise terms are used within many Pacific Islander cultures to distinguish specific varieties of breadfruit.

Rather than considering breadfruit to be a single species, botanists conceptualize a ‘breadfruit complex’, which includes three closely related tree species.⁹ The first species in the breadfruit complex is the ancestor of the others. Commonly called *breadnut* in English, its binomial is *Artocarpus camansi* Blanco. This name identifies the breadnut generically as *Artocarpus*, specifically as *camansi* and recognizes that it was first described in 1837 by the botanist Francisco Manuel Blanco.¹⁰

3 Evelyn W. Williams, Elliot M. Gardner, Robert Harris III, Arunrat Chaveerach, Joan T. Pereira and Nyree J. C. Zerega, ‘Out of Borneo: biogeography, phylogeny and divergence date estimates of *Artocarpus* (Moraceae)’, *Ann. Bot.* **119**, 611–627 (2017).

4 Clements Markham, *The voyages of Pedro Fernandez de Quiros, 1595 to 1606* (Hakluyt Society, London, 1904).

5 William Dampier, *A new voyage round the world* (Knapton, London, 1697), at p. 297.

6 Vanessa Smith, ‘Give us our daily breadfruit: bread substitution in the Pacific in the eighteenth century’, *Stud. Eighteenth-Cent. Cult.* **35**, 53–75 (2006); Noa Kekuewa Lincoln, Diane Ragone, Nyree J. C. Zerega, Laura B. Roberts-Nkrumah, Mark Merlin and A. Maxwell P. Jones, ‘Grow us our daily bread: a review of breadfruit cultivation in traditional and contemporary systems’, *Hortic. Rev.* **46**, 299–384 (2019), at p. 323.

7 Malcolm Ross, Andrew Pawley and Meredith Osmond (eds), *The lexicon of proto Oceanic: the culture and environment of ancestral Oceanic society*; vol. 1, *Material culture* (Australian National University, Canberra, 1998), at p. 127.

8 Lincoln *et al.*, *op. cit.* (note 6), p. 323.

9 Nyree Zerega, Tyr Wiesner-Hanks, Diane Ragone, Brian Irish, Brian Scheffler, Sheron Simpson and Francis Zee, ‘Diversity in the breadfruit complex (*Artocarpus*, Moraceae): genetic characterization of critical germplasm’, *Tree Genet. Genomes* **11**, art. 4 (2015) (<https://doi.org/10.1007/s11295-014-0824-z>).

10 P. Francisco Manuel Blanco, *Flora de Filipinas: según el sistema sexual de Linneo* (Santo Thomas, Manila, 1837).

The second species in the complex is the dugdug, or *Artocarpus mariannensis* Trécul. This wild member of the *Artocarpus* genus grows natively only in the Marianas Islands and Palau, but has been transplanted to a few other island groups in Oceania. The specific part of the dugdug's binomial refers to the Marianas Islands, as does one of the tree's other common English names, 'Marianas breadfruit'. It was first formally described by botanist Auguste Trécul in 1847.¹¹

Third and finally, is breadfruit itself, *Artocarpus altilis* (Parkinson) Fosberg. Breadfruit was introduced to nearly every island in the tropical Pacific by the Lapita people during their voyages of discovery and settlement between 3000 and 1000 years ago.¹² Through artificial and natural selection, new varieties of breadfruit were developed during the centuries of the Lapita's eastward migration, resulting in a broad diversity of cultivated varieties, or *cultivars*, of breadfruit found throughout the Pacific today.¹³ All breadfruit cultivars, however, are members of the same species: *Artocarpus altilis* (Parkinson) Fosberg.¹⁴

Why does the scientific name of breadfruit—unlike those of the breadnut and dugdug, or, for that matter, most other species—reference *two* first describers? Each of the other two species in the breadfruit complex, breadnut and dugdug, is attributed to a single name: Blanco and Trécul, respectively. In 1939, when Corner sought to answer his own question regarding breadfruit's 'correct botanical name', the species had two competing binomials, neither of which was *Artocarpus altilis*, nor was either attributed to Parkinson or Fosberg.¹⁵ The first was *Artocarpus communis*, submitted by the naturalist Johann Reinhold Forster, who, together with his son and protégé, Georg Forster, sailed with Cook aboard HMS *Endeavour*. The second was *Rademachia incisa*, bestowed by one of Linnaeus's students, Carl Peter Thunberg.¹⁶

To address the situation, Corner appealed to the authority of the *Rules*. According to the *International rules of botanical nomenclature*, the first binomial chronologically given to a species in a valid publication and accompanied by a thorough description becomes the official, accepted scientific name of a plant and the person who coined the binomial should have his or her own surname, or abbreviation thereof, appended as first describer. The problem in 1939 was that both the Forsters and Thunberg had published their descriptions in the same year—1776—and the *Rules* allowed no parsing of dates beyond the year of publication to determine which had priority. Nearly two centuries later, botanist Ben Stone would reveal that the Forsters had actually published a brief advance version of their description in late 1775, clearly predating Thunberg's 1776 publication, which, according to the *Rules*, should have given the Forsters and their binomial, *Artocarpus communis*,

11 Auguste Trécul, 'Memoire sur la famille des Artocarpees', *Ann. Sci. Nat.* **3**, 38–157 (1847).

12 Nyree Zerega, Diane Ragone and Timothy J. Motley. 'Breadfruit origins, diversity and human-facilitated distribution', in *Darwin's harvest: new approaches to the origins, evolution and conservation of crops* (ed. Timothy J. Motley, Nyree Zerega and Hugh Cross), pp. 213–238 (Columbia University Press, New York, 2006). Disagreement exists among Pacific archaeologists regarding the precise timing of the Lapita's settling of the Pacific, but the role of the Lapita in distributing breadfruit throughout the region is broadly accepted.

13 Some botanists prefer the term *cultigen* to *cultivar*. See Roger D. Spencer and Robert G. Cross, 'The International Code of Botanical Nomenclature (ICBN), the International Code of Nomenclature for Cultivated Plants (ICNCP) and the cultigen', *Taxon* **56**, 938–940 (2007).

14 Breadfruit trees are known to hybridize with dugdug trees. The resulting offspring, which is not a breadfruit cultivar but a hybrid, is known scientifically as *Artocarpus altilis* × *A. mariannensis*.

15 Corner, *op. cit.* (note 1), p. 280.

16 Corner, *op. cit.* (note 1).

priority.¹⁷ Whereas this fact was unknown or unconsidered at the time, the *Rules* did provide Corner with an alternative solution to the apparent dilemma.

According to Article 56 of the 1935 edition of the *International rules of botanical nomenclature*, the first of two simultaneously submitted binomials *itself* to be cited as an official scientific name by another established author, while ‘definitely treating the other as a synonym’, would become the accepted name of a species.¹⁸ Who was the first established author to cite one of breadfruit’s competing binomials? None other than Linnaeus’s own son, known as *Linnaeus filius*, who, one might think, would have favoured Thunberg, his father’s former student. Instead, the younger Linnaeus compromised, creating a new, hybrid binomial from the two competitors: *Artocarpus incisa*.¹⁹ Noting that the younger Linnaeus ‘did not actually *choose* between the two simultaneous names’, Corner found it ‘impossible to deny that he [Linnaeus filius] did not exercise a very careful judgement’ in choosing his hybridized binomial, leaving the question of ‘the correct name’ somewhat open.²⁰

To Corner, it was obvious that the Forsters’ *Artocarpus* was preferable to Thunberg’s *Rademachia* as the genus name, even based upon etymology alone. Indeed, the former derives from the Greek *άρτος* (*ártos*, or bread) and *καρπός* (*karpós*, or fruit): bread-fruit. The latter was created in honour of the botanist and founder of the Batavian Society of Arts and Sciences, J. C. M. Radermacher, and even included an unfortunate misspelling of his name—an *r* was dropped in the transition from *Radermacher* to *Rademachia*—an error attributed to the botanist Ernst Gottlieb von Steudel, not to Thunberg himself.²¹ Corner, then, attempted to settle the matter by establishing *Artocarpus incisa* Thunberg as breadfruit’s binomial in 1939.

This did not settle the matter. In the build-up to the 1940 International Botanical Congress, which was to meet in Stockholm (but would be cancelled, owing to the outbreak of the Second World War), the botanist Ray Fosberg appealed to his fellow taxonomists to consider a few suggestions for clearing up ‘misinterpretations and ambiguities’ within the official botanical nomenclature. In his characteristic Californian informality, Fosberg explained that ‘it would seem better to point out certain inadequacies in the rules before the 1940 congress than to complain about them afterward’.²² An astute reader will

17 B. C. Stone, ‘The correct botanical name for the breadfruit’, *J. Polyn. Soc.* **83**, 92–93 (1974). Stone cites Harold St John, ‘The date of publication of Forsters’ *Characteres Generum Plantarum* and its relation to contemporary works’, *Nat. Can.* **98**, 561–581 (1971). Later historical-botanical scholarship would continue to debate the validity of the Forsters’ 1775 publication. See, for example, C. Earp, ‘The date of publication of the Forsters’ *Characteres Generum Plantarum* revisited’, *NZ J. Bot.* **51**, 252–263 (2013), and Michael H. Rosove, ‘The folio issues of the Forsters’ *Characteres Generum Plantarum* (1775 and 1776): a census of copies’, *Polar Rec.* **51**, 611–623 (2015).

18 The *International rules of botanical nomenclature* are regularly updated. The 1935 version that would have been used by Corner is J. Briquet, *International rules of botanical nomenclature adopted by the International Botanical Congresses of Vienna, 1905, and Brussels, 1910; revised by the International Botanical Congress of Cambridge, 1930* (Gustav Fischer, Jena, 1935). The current edition is N. J. Turland, J. H. Wiersema, F. R. Barrie, W. Greuter, D. L. Hawksworth, P. S. Herendeen, S. Knapp, W.-H. Kusber, D.-Z. Li, K. Marhold, T. W. May, J. McNeill, A. M. Monro, J. Prado, M. J. Price and G. F. Smith (eds), *International code of nomenclature for algae, fungi, and plants (Shenzhen code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. Regnum Vegetabile 159* (Koeltz Botanical Books, Glashütten, 2018).

19 The younger Linnaeus’s use of *Artocarpus incisa* (Thunb.) L.f. is found in his 1781 *Supplementum plantarum*. Here, as with breadfruit’s current binomial, we see another example of the name of a quasi-first describer given parenthetically before the name—abbreviated, in Linnaeus filius’s case—of the scholar establishing the new, or clarified, binomial.

20 Corner, *op. cit.* (note 1), p. 281.

21 Charles Darwin, Joseph Dalton Hooker and Benjamin Daydon Jackson, *Index Kewensis*, vol. 2, part 2 (Clarendon, Oxford, 1893), at p. 679.

22 F. R. Fosberg, ‘Nomenclature proposals for the 1940 Botanical Congress’, *Am. J. Bot.* **26**, 229–231 (1939), at p. 229. Fosberg died in 1993. Regarding his ‘informality’ and his personality more broadly, I rely upon the reflections of my former research mentor, Jeffrey Gritzner, now emeritus professor of geography at the University of Montana, who knew Fosberg well during their time in the

recognize Fosberg's name from breadfruit's currently accepted binomial, and this recognition may serve to foreshadow the success with which Fosberg's 'proposal' would meet. In 1941 Fosberg would indeed propose yet another revised binomial for breadfruit, with the overt goal of rehabilitating the role of, in his estimation, its true first describer, which brings us to the oddly parenthetical placement of *Parkinson* within breadfruit's current scientific name.²³

THE SHORT, PRODUCTIVE LIFE OF SYDNEY PARKINSON

Sydney Parkinson (figure 1) was a young artist selected by Joseph Banks to join the scientific crew of Cook's first *Endeavour* voyage. Parkinson was born in Edinburgh in or about 1745, into a family of Quakers. While not wealthy, the Parkinsons provided an ample and broad education for their children. Parkinson was trained as an artist and draughtsman, possibly by William De la Cour, 'a gifted Frenchman who ran the first publicly maintained school of drawing and design in Great Britain', according to Averil Lysaght, the twentieth-century scholar of Banks and of those, like Parkinson, who became closely associated with him.²⁴

At the age of 19 or 20, Parkinson and his recently widowed mother relocated to London. There, he exhibited some of his floral paintings at the Free Society of Artists and gave lessons to younger aspiring painters. Parkinson's niche for illustrating flowers and fruits put him in contact with botanists, nursery-keepers and gardeners. One of these, James Lee—who produced the first English-language translation of Linnaeus's *Philosophia botanica* and was called by a biographer 'one of the best gardeners of his time'—hired Parkinson to teach his daughter painting.²⁵ Lee also introduced Parkinson to Banks in 1767.

The previous year, 1766, Banks had participated in a voyage to Newfoundland and Labrador aboard HMS *Niger*. Although the primary mission of the voyage was military, it afforded Banks the opportunity to collect floral and faunal specimens from this understudied region of the empire.²⁶ Upon his return to London, Banks hired Parkinson to produce illustrations of specimens he had collected during the *Niger* voyage. Lysaght writes that Parkinson's drawings and paintings of Banks's Newfoundland specimens were 'of high quality, both accurate and lively' and 'painted ... with loving care'.²⁷ Banks was evidently just as impressed.

During the planning stages of the *Endeavour* voyage—its primary stated objective being to observe the 1769 transit of Venus from Tahiti—Banks was appointed as the expedition's botanist.²⁸ The Royal Society, to which Banks had been recently elected a Fellow—he

Washington, DC, scientific community: Fosberg having been at the Smithsonian Institution and Gritzner at the National Academy of Sciences. Jeffrey Gritzner, pers. comm., 11 May 2021.

23 F. R. Fosberg, 'Names in *Amaranthus*, *Artocarpus* and *Inocarpus*', *J. Wash. Acad. Sci.* **31**, 93–96 (1941).

24 A. M. Lysaght, 'Banks's artists and his *Endeavour* collections', in *Captain Cook and the South Pacific*, The British Museum Yearbook 3 (ed. T. C. Mitchell), pp. 9–80 (Australian National University Press, Canberra, 1979), at p. 13.

25 James Lee, *An introduction to botany containing an explanation of the theory of that science, and an interpretation of its technical terms* (J. and R. Tonson, London, 1760); George W. Johnson, *A history of English gardening, chronological, biographical, literary and critical: tracing the progress of the art in this country from the invasion of the Romans to the present time* (Baldwin & Cradock, London, 1829), at p. 216.

26 A. M. Lysaght, *Joseph Banks in Newfoundland and Labrador, 1766: his diary, manuscripts and collections* (University of California Press, Berkeley, 1971).

27 *Ibid.*, at p. 103.

28 After observing the transit, Cook opened a second set of sealed orders, which instructed him to proceed southward as far as 40° S latitude in search of the then-hypothesized great southern continent. 'Secret Instructions for Lieutenant James Cook Appointed to Command His Majesty's Bark the Endeavour 30 July 1768'. Transcript from the Museum of Australian Democracy, <http://www.findingdocs.gov.au/item-sdid-67.html> (accessed 29 July 2022).



Figure 1. Suspected self-portrait of Sydney Parkinson, artist aboard HMS *Endeavour*. Source: Natural History Museum, London, Library and Archives. (Online version in colour.)

would later serve as the Society's president for more than four decades—formally requested that Banks, 'also, together with his Suite, being seven persons more, (that is, eight in all) together with their baggage, be received on board of the ship in command of Captain

Cook'.²⁹ The Society's request noted that Banks was 'a Gentleman of large fortune'; he was to finance his own travel as well as that of all seven members of his 'Suite', which would include the young Scottish painter who had so expertly illustrated his specimens from Newfoundland.

Throughout the voyage, and especially during their three-month stay at Tahiti, Parkinson proved to be not only a very capable illustrator but a keen observer of human societies and their interactions with elements of the natural environment. He recorded his observations in 'some 113 coloured botanical illustrations, as well as the topographical and ethnographical sketches in pen and wash'.³⁰ He also filled a journal with detailed prose descriptions of the flora, fauna and people that the expedition encountered. It was at Tahiti that Parkinson would first see, sketch and describe a breadfruit tree (figure 2). In his journal, which would later be published as *A journal of a voyage to the South Seas*, Parkinson's breadfruit description comes under the heading '*Sitodium-altile*', which plant biologist Nyree Zerega has called the 'earliest post-Linnaean binomial applied to breadfruit'.³¹

Parkinson sketched his illustrations at Tahiti and began to complete them in colour while the *Endeavour* sailed on to New Zealand, Australia and the Dutch East Indies (now, mainly, Indonesia). It was in this last country that Parkinson contracted the tropical disease, likely dysentery or malaria or both, that would claim his life before his return to England, leaving many illustrations unfinished. Sydney's brother, Stanfield Parkinson, published the journal, which included both the illustrations and their accompanying textual descriptions, posthumously in 1773.³² Almost immediately, however, and continuing to the present day, Parkinson's work was received as suspect by the scientific community.

A THORNY NOMENCLATORIAL PROBLEM

In his 1941 paper, written to establish 'the validity of the names published in Parkinson's *Journal*', Fosberg acknowledged that the publication of Parkinson's binomial, '*Sitodium-altile*', clearly predated the names proposed for breadfruit by both the Forsters and Thunberg.³³ Still, Fosberg did not argue in favour of keeping *Sitodium* as the genus name; rather—just as he had done in his 1939 paper on the same subject—he appealed to the widespread use of *Artocarpus* since 1776 among 'horticulturalists, travellers, and ethnologists, as well as by botanists'.³⁴ Although *Sitodium* came first, the majority appeared to favour *Artocarpus* as the name of the genus to which breadfruit belonged, likely owing to its straightforward and literal etymology.

This was consistent with the overall reception of Parkinson's *Journal*. Readers loved his illustrations, but as for his descriptions of unfamiliar plants and the new scientific names he proposed, 'for 170 years all botanists rejected or slighted them', according to botanist

29 Cited in Toby Musgrave, *The multifarious Mr. Banks: from Botany Bay to Kew, the natural historian who shaped the world* (Yale University Press, New Haven, 2020), at p. 49.

30 Musgrave, *op. cit.* (note 29), at p. 80.

31 Sydney Parkinson, *A journal of a voyage to the South Seas, in His Majesty's ship, the Endeavour* (Stanfield Parkinson, London, 1773); Nyree J. C. Zerega, Diane Ragone and Timothy J. Motley, 'Systematics and species limits of breadfruit (*Artocarpus*, Moraceae)', *Syst. Bot.* **30**, 603–615 (2005), at p. 603.

32 Parkinson, *op. cit.* (note 31).

33 Fosberg, *op. cit.* (note 23), at p. 95.

34 Fosberg, *op. cit.* (note 22), at p. 231.



Figure 2. The most complete of Sydney Parkinson's breadfruit pieces from the voyage of HMS *Endeavour*. Source: Natural History Museum, London, Library and Archives. (Online version in colour.)

Harold St John.³⁵ The 'rejections' and 'slights' levelled by botanists can be placed within four

³⁵ Harold St John, 'The scientific names in the German edition of Parkinson's plants of use for food, medicine etc., in Otaheite', *Biol. J. Linn. Soc. Lond.* **4**, 305–310 (1972), at p. 305.

main categories: doubt as to whether Parkinson actually authored the descriptive text and personally originated the new binomials; questions regarding Parkinson's intent to publish his journal after the conclusion of the voyage; an overcritical and pedantic cavilling regarding the punctuation used in the binomials; and, finally, the suggestion that Parkinson's descriptions were inadequate in quality or botanical detail to warrant his authoritative assertion of new binomials.³⁶ Considering the varied reasons for rejection of Parkinson's writing, his binomials presented the botanical establishment with, in Stone's words, 'a very thorny nomenclatural problem'.³⁷ Each of these reasons for rejection shall be addressed here in turn.

Suspect authorship

Among the most common reasons to reject Parkinson's binomials has been to suggest that the prose descriptions in his *Journal* were actually authored by another member of the *Endeavour's* scientific team, most likely the naturalist Daniel Solander or possibly Banks himself. To support the claim that Parkinson did not write the contents of his *Journal*, critics often remind their readers of Parkinson's vocation as an artist, especially as compared to the trained botanists with whom he sailed.

For example, St John described Banks 'and especially Solander' as 'learned botanists', contrasted with Parkinson, who was, according to St John, 'not a trained botanist, but a very young, largely self-trained artist'.³⁸ St John reached the conclusion that it was 'very unlikely that he [Parkinson], on the spot, would coin scientific names for the plants of Tahiti', and, rather, it was 'quite obvious that Sydney Parkinson obtained all of the botanical names from Solander or Banks'.³⁹ Others, such as botanists Pablo Ferrer-Gallego and Fernando Boisset, have stated matter-of-factly that 'Sydney took the names in his journal from Solander's manuscript'.⁴⁰ In an earlier volume of this journal, William Stearn of the British Museum proposed a scenario by which 'Solander coined a generic name ... and Parkinson the artist recorded it as such in his journal with unfortunate nomenclatural consequences'.⁴¹

By contrast, artist and curator Wilfrid Blunt described Parkinson as 'Joseph Banks's protégé', implying a certain degree of similitude between Parkinson and the celebrated naturalist.⁴² Similarly, art critic Mel Gooding conceded that, over the course of the *Endeavour* voyage, Parkinson 'became a decent field botanist himself', even as he reminded readers that 'it was understood clearly by Parkinson from the outset that he was engaged in a collaborative enterprise, at once of art and of natural philosophy', apparently giving Banks and Solander, the voyage's 'natural philosophers', or, in today's terminology,

36 Zerega *et al.*, *op. cit.* (note 31).

37 Stone, *op. cit.* (note 17), p. 92.

38 St John, *op. cit.* (note 35), p. 306.

39 *Ibid.*

40 P. Pablo Ferrer-Gallego and Fernando Boisset, 'The naming and typification of the breadfruit, *Artocarpus altilis*, and breadnut, *A. camansi* (Moraceae)', *Willdenowia* **48**, 125–135 (2018), at p. 127.

41 William T. Stearn, 'A Royal Society appointment with Venus in 1769: the voyage of Cook and Banks in the "Endeavour" in 1768–1771 and its botanical results', *Notes Rec. R. Soc. Lond.* **24**, 64–90 (1969), at p. 75.

42 Wilfrid Blunt, 'The voyage of the *Endeavour*', in *Sydney Parkinson: artist of Cook's Endeavour voyage* (ed. D. J. Carr), pp. 1–13 (British Museum [Natural History] and Australian National University Press, Canberra, 1983), at p. 1.

scientists, their due.⁴³ Fosberg himself believed that Parkinson might have played an active role in originating the binomials given in his *Journal*, concluding that they were ‘bestowed on the plants by Banks and Solander, and possibly also in part by Parkinson’.⁴⁴

The botanist Elmer Merrill was perhaps the most vociferous of Parkinson’s critics. In his 1954 monograph, *The botany of Cook’s voyages and its unexpected significance in relation to anthropology, biogeography and history*, Merrill devotes one chapter to the discussion, and eventual dismissal, of Parkinson’s binomials. At the outset of this chapter, Merrill expressed his ‘wish to make it clear that, in no case (except where typographical errors may occur), is Parkinson the true author of any binomial’, and instead credited the scientific names and their accompanying descriptions to Solander.⁴⁵ An enthusiastic employer of scare-quotes, Merrill used the punctuation to call into question whether Parkinson’s ‘botanical’ writing was even legitimately ‘published’.⁴⁶ It is clear from the vigour with which Merrill went on to disparage Parkinson’s contributions that any ‘significance’ today credited to the young artist would indeed be—to Merrill, at least—most ‘unexpected’.

Modern authors have often cited one another’s conjectures and opinions on this matter, but the primary source used to support the assertion that Parkinson’s botanical descriptions were not his own appears to be the following section from Parkinson’s *Journal*:

During our stay here [in Tahiti], Mr. Banks and Dr. Solander were very assiduous in collecting whatever they thought might contribute to the advancement of Natural History; and, by their directions, I made drawings of a great many curious trees, and other plants; fish, birds, and of such natural bodies ...⁴⁷

The phrase ‘by their directions’ certainly indicates that Parkinson took instruction from Banks and Solander, but falls far short of transferring credit to these ‘learned botanists’ for the descriptions included in Parkinson’s *Journal*. Citing the common practice of ships’ crews collaborating with one another, historian Geoff Bil suggested that ‘it is impossible to know which aspects of the *Journal* derived from Parkinson and which originated elsewhere’ and that the *Journal* ‘may well have been a reworking of Solander’s notes, or might equally well have drawn upon analogous scraps in Parkinson’s or another crewmember’s own hand’.⁴⁸

Still, even if the suspicion was confirmed that Parkinson’s binomials and botanical descriptions did not originate with Parkinson, this would not be sufficient to warrant their rejection. Parkinson’s *Journal* was the first published account of the new binomials and, as St John reluctantly concluded, it included ‘no statement or hint that someone else is the author of the botanical names, so he must be accepted as the author of them’.⁴⁹

43 Mel Gooding, ‘The making of Banks’ *Florigelium* II: the *Florigelium*, 1772–1990’, in *Joseph Banks’ Florigelium* (ed. D. Maberley, M. Gooding and J. Studholme), pp. 296–305 (Thames and Hudson, London, 2017), at pp. 298 and 301.

44 F. R. Fosberg, ‘Introggression in *Artocarpus* (Moraceae) in Micronesia’, *Brittonia* **12**, 101–113 (1960), at p. 102.

45 Elmer D. Merrill, *The botany of Cook’s voyages and its unexpected significance in relation to anthropology, biogeography and history* (Chronica Botanica, Waltham, 1954), at p. 328.

46 *Ibid.*, pp. 328 and 329.

47 Parkinson, *op. cit.* (note 31), at p. 36.

48 Geoff Bil, ‘Tangled compositions: botany, agency and authorship aboard HMS *Endeavour*’, *Hist. Sci.* **60**, 183–210 (2022).

49 St John, *op. cit.* (note 35), at p. 306.

Intent to publish

Even among those who accepted Parkinson's authorship of the descriptions found in his journal, other objections to his binomials have been raised. Zerega has explained that Parkinson's descriptions were considered suspect because he may have not intended to publish them and that his brother Stanfield had made that decision independently after Sydney Parkinson's death.⁵⁰ While the *International rules of botanical nomenclature* give no indication that an author's intent regarding publication matters with regard to the acceptance of that author's botanical description and binomial, it is worthwhile to briefly consider the controversy surrounding Stanfield Parkinson's decision to publish his deceased brother's journal.

It is well documented that the timing of the *Journal's* public release was controversial. St John wrote of Sydney Parkinson:

It is not clear that he intended to publish formal botanical descriptions of new genera of Tahitian plants ... and there is no evidence that he intended to rush an account into print and forestall any publication by his employer, Sir Joseph Banks, or by Dr Daniel Solander ... There is abundant evidence that Stanfield, in assembling the notes left by his deceased brother and other notes into a book manuscript and rushing it into print, had the sole intention of making a large financial profit. He expected to do this by capitalizing on the fame of Captain Cook and the wide interest of people in many lands in the wonders revealed by Cook's voyages.⁵¹

As the 'official' narrative of the voyage—which was to be an edited volume combining information from Banks, Cook and others—was being prepared for publication, John Hawkesworth, the editor and publisher, filed an ultimately unsuccessful injunction against Parkinson's publication in an attempt to give his own client's version precedence.⁵² Owing to the speed with which Stanfield Parkinson brought his deceased brother's *Journal* to publication, it would become—whether Sydney Parkinson intended it or not—the first publication to document the achievements, the adventure and particularly the new botanical discoveries of Cook's first *Endeavour* voyage. We should also note that Solander's own manuscripts and botanical indices were never published and that the first complete, full-colour edition of Banks's *magnum opus* on the botanical discoveries of the voyage, the *Florilegium*, on which he collaborated with Solander and relied upon Parkinson's sketches and paintings, was first published, and then only in a very limited run, in 1980—more than two centuries after the end of the *Endeavour's* first voyage.⁵³

⁵⁰ Zerega *et al.*, *op. cit.* (note 31).

⁵¹ St John, *op. cit.* (note 35), at p. 308.

⁵² On the controversy surrounding the timing of the publication (and, in some ways, the publication at all) of Parkinson's *Journal*, see D. J. Carr, 'Preface', in *Sydney Parkinson: artist of Cook's Endeavour voyage* (ed. D. J. Carr), pp. ix–xv (British Museum [Natural History] and Australian National University Press, Canberra, 1983). Carr refers to John Fothergill's 'Reply to the preface' in the second edition of Parkinson's *Journal: Sydney Parkinson, A journal of a voyage to the South Seas, in His Majesty's ship, the Endeavour, 2nd edition, to which is now added remarks on the Preface by the late John Fothergill* (Dilly and Phillips, London, 1784), as well as John Cawte Beaglehole (ed.), *The Endeavour journal of Joseph Banks, 1768–1771* (Angus & Robertson, Sydney, 1962). A good, concise history of the controversy can be found in Bil, *op. cit.* (note 48).

⁵³ J. A. Diment and C. J. Humphries, *Banks' Florilegium* (Alecto, London, 1980), cited in Ferrer-Gallego and Boisset, *op. cit.* (note 40).

Punctuation problems

A common, yet risibly pedantic, objection to the acceptance of Parkinson's binomials is that, because he placed hyphens between his generic and specific names—for example, '*Sitodium-altile*'—they were not actually binomials at all, but a kind of nonstandard, hyphenated monomial. St John noted that previous Parkinson critics had ignored, dismissed or even *defended* Parkinson's use of the hyphens but, according to St John, the hyphenation of binomials was indeed disqualifying.⁵⁴ St John appealed to the then-current 1966 *International code of botanical nomenclature* for rules governing the use of hyphens in genus and species names.⁵⁵ Before judging the merits of St John's appeal to the 1966 *Code*, we should consider the point made by Fosberg and his colleague, Marie-Hélène Sacht, that, at the time of Parkinson's writing, 'there were not even conventions as to how binomials were to be written, let alone rules'.⁵⁶ Still, St John appealed to his contemporary 1966 rules to disqualify Parkinson's hyphenated 1773 monomials.

What the 1966 *Code* actually stipulated, however, was not that a hyphen between the genus and species would disqualify the binomial; rather, in Article 20, the *Code* stated that the 'name of a genus may not consist of two words, unless these words are joined by a hyphen' and, in Article 23, that, if a species name 'consists of two or more words, these must either be united or hyphenated'.⁵⁷ The *Code* appears to have been silent on the use of a hyphen *between* proposed genus and species names. St John dismissed the opinions of 'some botanists' that 'the hyphens were mere punctuation and that nothing was meant by them' or that 'the hyphenation was surely a printing accident', and argued instead that Parkinson's use of the hyphen between the genus and species names he proposed indicated the intent 'to tie the two words into one, that is into a monomial'.⁵⁸

After concluding his case against Parkinson's use of hyphens, St John surprisingly reversed course and presented evidence that would seem to support the young artist's contributions to botanical taxonomy—though indirectly. Through what Stone would later call 'some bibliographic detective work', St John found that an abridged 1774 German translation of Parkinson's *Journal* omitted the apparently disqualifying hyphens and concluded that 'the new plants named in this German edition of 1774 are certainly valid'.⁵⁹ Having been republished in 1774, the binomials in Parkinson's *Reisebeschreibung* still predated the Forsters' and Thunberg's binomials.

The identity of the translator of this edition was a mystery, since only a single initial, 'Z', was given. St John, assuming (correctly, it would turn out) that the translator was male, concluded that 'Herr Z did an acceptable job', then, seemingly unable to resist another dig at the young artist, continued, 'which is more than can be said for the botanical efforts of

54 St John, *op. cit.* (note 35).

55 The authority to which St John referred was known as the 'Edinburgh Code' and is formally cited as Joseph Lanjouw (ed.), *International code of botanical nomenclature* (International Bureau for Plant Taxonomy and Nomenclature, Utrecht, 1966).

56 F. R. Fosberg and Marie-Hélène Sacht, 'Plants of the Society Islands', in *Sydney Parkinson: artist of Cook's Endeavour voyage* (ed. D. J. Carr), pp. 76–107 (British Museum [Natural History] and Australian National University Press, Canberra, 1983), at p. 80.

57 Lanjouw, *op. cit.* (note 55), pp. 27 and 30.

58 St John, *op. cit.* (note 35), pp. 307 and 308. St John made a valid point in his response to the suggestion that the hyphens were a printing accident, rejecting the claim 'in view of the fact that it appeared 73 times', that is, in the case of almost every 'Latin name' proposed by Parkinson.

59 Stone, *op. cit.* (note 17), p. 92; St John, *op. cit.* (note 35), p. 309; the abridged German edition of Parkinson's journal is Sydney Parkinson, 'Die Pflanzen der Insel Outahitée, aus der Parkinsonischen Reisebeschreibung gezogen, und mit Anmerkungen erläutert', *Der Naturforscher* 4, 220–258 (1774).

the two Parkinson brothers'.⁶⁰ St John concluded by suggesting that Fosberg's recently proposed revision of breadfruit's binomial be modified slightly to acknowledge 'Z' and, it would turn out, to credit himself for the notion. St John's suggested modification, which was never embraced by the botanical community, was '*Artocarpus altilis* (Parkinson ex Z) Fosberg modified by St. John'. My own search of the literature uncovered no subsequent references to St John's proposed alteration of breadfruit's binomial.

As an interesting coda to the story of the hyphen controversy, Herr Z, mysteriously known to some as 'the breadfruit author', was identified in 2006 as Friedrich August Zorn von Plobsheim, 'an elusive naturalist' from Gdansk with 'an apparent inclination to anonymity'.⁶¹ The discoverer of Z's true identity, zoologist Harald Pieper, has called for the revision of any binomials that would otherwise have referred to Z as the first describer instead to acknowledge 'Z. Plobsh.', Pieper's suggested standard abbreviation. Pieper, however, did not challenge breadfruit's accepted binomial, which does not reference Z and has been standard since Fosberg's 1941 revision.⁶²

An utter lack of botanical data

Along with the critiques previously considered, some scholars have dismissed Parkinson's botanical descriptions—and, by association, their accompanying binomials—as insufficiently detailed owing to their 'utter lack of botanical data', as Merrill put it.⁶³ In 1959 botanist Frances Jarrett recorded her view that 'Sydney Parkinson's notes are totally unscientific and mostly very brief' and, while 'the account of the Breadfruit happens to be rather longer than the others', it was still 'merely a general description'.⁶⁴

Later scholars dissented from this opinion. For example, in 2005 Zerega and her co-authors conceded that Parkinson's descriptions had included 'an adequate description accompanying the binomial'.⁶⁵ Others rejected their dissents. Here, let us not rely solely on the opinions of later scholars; let us instead consider Parkinson's description of the breadfruit as it was actually written. The textual description of the breadfruit, as published in Parkinson's *Journal* and, presumably, written by the attributed author reads as follows, only slightly reduced here for length.

E ooro.

Sitodium-altile.

This tree, which yields the bread-fruit so often mentioned by the voyagers to the South-seas, may justly be stiled the Staff-of-life to these islanders; for from it they draw much of their support. This tree grows to between thirty and forty feet high, has large palmated leaves, of a deep grass-green on the upper-side, but paler on the under; and bears male and female flowers, which come out single at the bottom or joint of each leaf. The male flower fades and drops off; the female, or cluster of females, swell and yield the fruit, which often weighs three or four pounds, and is as big as a person's head when full grown. It is of a green colour; the rind is divided into a number of polygonal sections; the general shape a little longer than round, and white on the

60 St John, *op. cit.* (note 35), p. 309.

61 Harald Pieper, "'Z"—the breadfruit author identified', *Willdenowia* 36 (Special issue), 589–593 (2006), at pp. 589 and 591.

62 *Ibid.*, p. 591.

63 Merrill, *op. cit.* (note 45), p. 330.

64 Frances M. Jarrett, 'Studies in *Artocarpus* and allied genera, III: a revision of *Artocarpus* subgenus *Artocarpus*', *J. Arnold Arbor* 40, 113–155 (1959), at p. 116.

65 Zerega *et al.*, *op. cit.* (note 31), p. 604.

inside, with a pretty large core. ... it is a very handsome tree to look at, of a beautiful verdure, and well clothed with leaves, bearing a vast quantity of fruit, which appears to hang in bunches, and, by its great weight, bends down the branches: it bears fruit a great part of the year, and there are several sorts of it, some smaller and others larger, which are ready to pluck at different seasons. They generally pluck it before it is ripe, using a long stick with a fork at the end of it for this purpose; and, before they roast it, scrape all the rind off with a shell; and then, ... having prepared one of their ovens in the ground, with hot stones in it, they lay the fruit upon these, ... covering up the whole close with earth, and, in two or three hours time, it is done; it then appears very inviting, more so than the finest loaf I ever saw; the inside is very white, and the outside a pale brown; it tastes very farinaceous, and is, perhaps, the most agreeable and best succedaneum for bread ever yet known, and, in many respects, exceeds it. ... The leaves of this tree are very useful to wrap fish and other eatables in, when put into the oven to be baked. Of the wood they build canoes, and make several other sorts of utensils; and, of the bark of young plants of it, which are raised on purpose, they make very good cloth ...⁶⁶

Upon reading this section, we might agree with Fosberg, who assessed Parkinson's breadfruit description as having been 'as complete as those in many accepted works of the time'.⁶⁷ Here, I would go further to suggest that it may have been the *completeness* of Parkinson's work that actually contributed to its own rejection. For Parkinson—called 'a genius' in the introduction to his illustrated biography and 'the intellectual equal of Joseph Banks' by art historian Bernard Smith—was an observer and chronicler of the complete Tahitian breadfruit–human relationship.⁶⁸ He recorded observations not only about the biology of the tree and its fruit, but also, since he judged it to be 'the Staff-of-life to these islanders', described its appeal to both Tahitians and Europeans as a thing of beauty and a valuable commodity to be appreciated, honoured and cared for.⁶⁹ Parkinson did not only describe the breadfruit, he contextualized it within the complete, integrated Tahitian human–environmental system.

REJECTION ON THE BASIS OF INTERDISCIPLINARITY

Upon reflection, one gets the impression that Parkinson's critics and detractors may really have taken issue with the artist's failure to keep to his assigned role as artist aboard the *Endeavour*. Indeed, with direct reference to Parkinson's status as an artist, as well as his youth, Pacific botanists Otto and Isa Degener considered the acceptance of Fosberg's suggested binomial, along with its parenthetical homage to Parkinson, to be 'outrageously presumptuous'.⁷⁰ The Degeners instead suggested removing the name of 'the artistic youngster Sydney Parkinson hardly out of his teens' from *Artocarpus altilis* in order to 'unburden ourselves of dead wood so to speak'.⁷¹

⁶⁶ Parkinson, *op. cit.* (note 31), pp. 45–46.

⁶⁷ Fosberg, *op. cit.* (note 22), p. 230.

⁶⁸ Rutherford Robertson, 'Foreword', in *Sydney Parkinson: Artist of Cook's Endeavour Voyage* (ed. D. J. Carr), p. v (British Museum [Natural History] and Australian National University Press, Canberra, 1983); Bernard Smith, *Imagining the Pacific in the wake of the Cook voyages* (Melbourne University Press, Victoria, 1992), at p. 44, cited in Bil, *op. cit.* (note 48), at p. 197.

⁶⁹ Parkinson, *op. cit.* (note 31), p. 45.

⁷⁰ Otto Degener and Isa Degener, 'Outrageously presumptuous! Again breadfruit, *Artocarpus altilis* (J. P. du Roi) Deg. & Deg. and Tahiti-chestnut, *Inocarpus fagifer* (J. P. du Roi) Deg. & Deg.', *Phytologia* **39**, 143–146 (1978), at p. 143.

⁷¹ *Ibid.*, p. 144.

Censures, such as the Degeners', of Parkinson's contributions to the botanical sciences are legion. Nearly all make explicit reference to his vocation as an artist. It is far rarer to find criticism of his drawings, paintings and sketches on artistic grounds. The strongest artistic denouncement of his artistic abilities that I found, mild as it reads, suggested that Parkinson 'would probably never have achieved such renown as he did, had he not in the main directed his undeniable, though by no means sensational, talents to the restricted field of the natural sciences'.⁷² In other words, Parkinson was a great artist *in service to the natural sciences*, perhaps not a great artist without such qualification. Does this mild criticism not also serve to validate Parkinson for holding at least a degree of scientific aptitude? Writing in support of the validity of Parkinson's breadfruit description, Fosberg and Sachet indicated that, while most of the plants Parkinson described were identifiable 'either from native names and uses or from the descriptive information', Parkinson's descriptions were further 'confirmed by his excellent drawings'—art as adjunct to, not merely in the service of, science.⁷³

Parkinson's approach was what we would today call 'interdisciplinary'. Bil called the *Journal* 'a publication without precedent, especially with regard to Tahitian plant knowledge' and singled out Parkinson among the crew of the *Endeavour* as uniquely interested in—and willing to listen to—the indigenous Tahitian perspective.⁷⁴ It may have been Parkinson's seeming ambivalence regarding the eventual publication of his journal that permitted his more authentic and local-led engagement with Tahitian culture, especially as compared to Cook and Banks, who curated their own journals 'with an eye toward publication'.⁷⁵ Bil presents Parkinson as more faithfully adhering to the instructions that Linnaeus handed down to future naturalists, specifically that they engage meaningfully with 'local botanists', doing what today we would call *ethnobotany*.⁷⁶ Parkinson certainly engaged with the local people wherever he went ashore. For example, Bil estimates that more than 40% of the *Journal* focuses upon linguistics—another field in which Parkinson had no formal training. Indeed, Parkinson developed a working knowledge of the Tahitian language during the voyage through his determined engagement with local people, especially Tupaia: the priest, navigator and artist who joined the crew of the *Endeavour* at his home island of Ra'īātea and died, along with Parkinson, at Batavia. In terms of cultural connections, it is relevant to note that Parkinson received a tattoo while in Tahiti. He records in his *Journal* that, together with 'some others of our company', he 'underwent the operation and had our arms marked ... the stain left in the skin' being 'of a lively bluish purple'.⁷⁷ Parkinson's deep engagement with both the natural environment and the human culture of Tahiti, his language-acquisition and tattoo serving as but two examples of the latter, is reflected in the interdisciplinary nature of his *Journal*.

Parkinson's *Journal* provides a rich botanical description based upon his own keen-eyed artist's observations. He accurately provides the average and maximum heights of the tree, describes the physical appearance of its trunk, fruits 'as big as a person's head' and leaves,

72 Wilfrid Blunt, 'Sydney Parkinson and his fellow artists', *Sydney Parkinson: artist of Cook's Endeavour voyage* (ed. D. J. Carr), pp. 14–45 (British Museum [Natural History] and Australian National University Press, Canberra, 1983), at p. 15.

73 Fosberg and Sachet, *op. cit.* (note 56), p. 77.

74 Bil, *op. cit.* (note 48), p. 185.

75 *Ibid.*

76 *Ibid.*, p. 187, cites Carl Linnaeus, 'Instructions for naturalists on voyages of exploration', in *The Linnaeus apostles: global science & adventure, vol. 1: introduction* (ed. Lars Hanson *et al.*), pp. 204–210 (IK Foundation & Co., London, 2010).

77 Parkinson, *op. cit.* (note 31), p. 25.

and even explains the process of pollination and fruiting in this monoecious species. Parkinson goes on to describe the different varieties of breadfruit he encountered in Tahiti, provides a transliteration of its name in the local language ('E ooroo', cf. the Tahitian *te 'uru*) and discusses the fruit's seasonality and its ethnobotany—the ways by which the Tahitians harvested, prepared and preserved the fruit, as well as some of the local uses of the leaves, wood and bark. Are those facts not botanical data?

As for his training as an artist, rather than a scientist, I would argue—following Fosberg and Sachet—that Parkinson's illustrations and aesthetic descriptions *enhance*, rather than detract from, his botanical descriptions.⁷⁸ Only in a siloed world where art and science occupy separate spheres of the human experience could such rich artwork and literary writing disqualify one's scientific accomplishments. With specific reference to Parkinson's *Journal*, Bil has cautioned against 'assuming a clear-cut division of Enlightenment scientific and artistic labor', as doing so risks 'project[ing] contemporary disciplinary categories onto a matrix of intellectual activity in which these groupings were as yet far from established'.⁷⁹ Parkinson—and for that matter, Banks, Solander and even Cook—would not have recognized such disciplinary boundaries. We today might consider the value of that less-siloed approach.

Prose like Parkinson's—'it is a very handsome tree to look at, of a beautiful verdure, and well clothed with leaves'—and the art it accompanies do not invalidate his botanical descriptions of the leaf's palmation, the fruit's multiple inflorescences and the flowers' monoecious reproduction.⁸⁰ It is relevant here to consider that Linnaeus's own description of the breadfruit tree, from the 1806 English translation of *Systema naturae*, reads in its entirety: 'Artocarpus incisa. Tree 30 feet high: leaves alternate, oblong, deeply cut, 9 lobed, villous and rugged: flowers terminal.'⁸¹ Are all the trees '30 feet high'? How does this fruit tree, of which many varieties are known to be seedless, reproduce? Where is the rich image of a fruit as big as your head? How can one even describe the breadfruit without mentioning the fruit at all?

CONCLUSION: THE TENSION AND HARMONY OF ART AND SCIENCE

The rejection of Parkinson's proposed binomial for breadfruit, '*Sitodium-altile*', along with a broader rejection of his botanical writing as not original to Parkinson, never intended for publication, incorrectly punctuated or insufficiently detailed, exemplifies an uncomfortable relationship between the arts and the sciences that, I argue, unfortunately persists—in a complicated, fluid, and contingent way—to this day. The arts in general, and artists like Parkinson specifically, contribute toward the advancement of science despite their frequent relegation to roles limited to the production of paintings as brightening illustrations or poems to be excerpted as pithy epigraphs. Artists provide more than mere flourishes. Parkinson's contributions, both artistic and scientific, to the European understanding of the

78 Fosberg and Sachet, *op. cit.* (note 56).

79 Bil, *op. cit.* (note 48), p. 209.

80 Parkinson, *op. cit.* (note 31), p. 25.

81 Sir Charles Linné, *A general system of nature, through the three grand Kingdoms of animals vegetables, and minerals, systematically divided into their several classes, orders, genera, species and varieties, with their habitations, manners, economy, structure and peculiarities: vol. 6* (trans. William Turton) (Lackington, Allen and Co., London, 1806), at p. 1533. Note the Anglicization of Linnaeus's name and title of ennoblement as given in the authorship of this translation.

natures and cultures of Oceania should be celebrated as exemplifying what evolutionary biologist Stephen Jay Gould has called ‘the tension and harmony of art and science’.⁸²

In the end, it was Fosberg who gave us the current binomial for breadfruit. After acknowledging the legitimacy of Parkinson’s 1773 name, ‘*Sitodium-altile*’, Fosberg reluctantly conceded to popular botanical opinion in keeping the generic name *Artocarpus*. As for the specific name, after discussing the relative merits of the Forsters’ *communis* and Thunberg’s *incisus*, Fosberg suggested a third way. In a graceful nod to Parkinson, Fosberg settled the matter by establishing *altilis*—a slightly more Latinized form of Parkinson’s original *altile*—as breadfruit’s specific name, and parenthetically honouring the name’s originator and breadfruit’s first formal scientific describer before his own name, thus giving us breadfruit’s present binomial, *Artocarpus altilis* (Parkinson) Fosberg.⁸³ He listed Forster’s and Thunberg’s binomials as synonyms.

In doing so, Fosberg established the legitimacy of Parkinson’s breadfruit description, along with its accompanying binomial, ‘*Sitodium-altile*’, although he replaced the generic name, modified the specific and dropped the troublesome hyphen. This is the reason for the parenthetical placement of Parkinson’s name after breadfruit’s current binomial: while his suggested genus name was supplanted by one far more popular and etymologically poetic, and the spelling of his species epithet was slightly altered, Parkinson’s description was both legitimately published and scientifically sufficient; its accompanying binomial was shown to be terminologically ancestral to *Artocarpus altilis*. Most importantly, Parkinson predated his competitors by at least three years. Fosberg’s name follows Parkinson’s as the coiner of the now-current ‘correct name for the breadfruit’ in acknowledgement of his own work of sorting out the relevant evidence.⁸⁴

POSTSCRIPT: VINDICATION BY TYPE

In addition to a binomial and the name of its first describer, each botanical species should ideally also have a type specimen. Normally, this is a single, preserved tissue sample—such as a leaf or a flower—from the species being named and described, known as a *holotype*, which has been observed, handled and designated by the describer and is available, usually stored in an herbarium, for future scientists to inspect. If a suitable holotype does not exist, or cannot be found, later taxonomists may select and designate a *lectotype*: a type specimen chosen from among several to serve in place of a true holotype.

In 2018, noting that Fosberg had not designated a lectotype alongside his resurrection and rehabilitation of Parkinson’s binomial, nor had Parkinson selected a holotype during his observations in Tahiti, Ferrer-Gallego and Boisset set out to establish one. They considered the breadfruit tissue specimens known to exist in the world’s herbarium collections that might serve in this role. None was appropriate since no clear connection between any specimen and Parkinson, breadfruit’s now-established first describer, could be found. In the absence of any actual plant material suitable to serve as breadfruit’s type specimen, and following a recommendation first made by Fosberg in 1960, the pair of botanists officially

82 Stephen Jay Gould, ‘Church, Humboldt and Darwin: the tension and harmony of art and science’, in *Frederic Edwin Church* (ed. Franklin Kelly), pp. 94–107 (National Gallery of Art and the Smithsonian Institution Press, Washington, DC, 1989).

83 Fosberg, *op. cit.* (note 23), p. 95.

84 Corner, *op. cit.* (note 1), p. 280.

designated ‘Parkinson’s excellent finished watercolor’—the painting itself reproduced above in figure 2—as the lectotype for *Sitodium altile* and, therefore, for *Artocarpus altilis* (Parkinson) Fosberg.⁸⁵ Thus Parkinson, whom Fosberg had already recognized as the namer and first describer of breadfruit, became not the collector but the *creator* of the species’ type specimen.

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DATA ACCESSIBILITY

This article has no additional data.

85 Fosberg, *op. cit.* (note 44), p. 107; Ferrer-Gallego and Boisset, *op. cit.* (note 40), p. 131.