

Early Contributors and Makers of Indian Herbaria: Networks, Specimens, and Legacies

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Abstract: There are over eight thousand herbarium specimens of Indian plants gathered in the late-seventeenth and early-eighteenth centuries. The majority are found today in the herbaria of the Natural History Museum, London (BM) and the University of Oxford (OXF). In this paper, we give an overview of the main collections of Indian plants from this period and of the individuals who contributed specimens to those collections. We consider where the plants were collected and the networks that facilitated the circulation of botanical specimens and knowledge between India and England during this period. We identify 26 different individuals responsible for contributing Indian specimens to fourteen different collections. Some individuals contributed many hundreds of specimens but others many fewer. Many of the contributors were medical practitioners employed as surgeons, typically aboard the ships or at the factories of the English East India Company (EIC). Other contributors were EIC merchants or officials, demonstrating the pivotal role played by the EIC in the development of knowledge of the Indian flora by Europeans. The significance of the EIC in shaping collecting during this period is also evident in the geography of the collections with most of the places recorded corresponding to EIC factories. Only two of the contributors identified were female. Moreover, all of the named collectors were Europeans. Nevertheless, Europeans had to negotiate with Indians to obtain specimens and knowledge, and evidence of such co-creation can be read from the names of plants in Indian languages, the details of uses that accompany specimens and, in one case, the explicit acknowledgment

of an ‘Indian Druggist’ (i.e. an Indian medical practitioner). Collections made by Samuel Browne, from sites in the interior of modern-day Tamil Nadu and Andhra Pradesh, also reflect his collaboration with Moghul rulers. We show that some of the individuals named on collections did not collect plants in India or assemble collections themselves but rather acted as ‘intermediaries’ in the circulation of Indian botanical specimens. We also demonstrate that most specimens represented in these collections date from 1690 to 1710 and were assembled by a small and closely connected group of individuals. Many of the specimens lack the provenance data we would expect of specimens made today but they nevertheless provide a unique resource for investigating environmental change and changes in the ways in which people have perceived, understood and engaged with plants over the last three centuries.

Keywords: Biodiversity Archives, Charles Dubois, Colonial Science, Digitisation, Early Modern Botany, English East India Company, Hans Sloane, Hidden Histories, James Petiver, Samuel Browne.

Introduction

Herbaria—collections of dried, preserved plants—constitute one of the most enduring legacies of early modern natural history. In South Asia, the systematic collection of plants by European surgeons, apothecaries, and merchants began in the late-seventeenth century, facilitated by the expanding reach of the English East India Company (EIC). These collections, now preserved in European institutions, are invaluable records of botanical diversity, vernacular knowledge, and the

Received: 04.07.2025; Revised & Accepted: 20.09.2026

Published Online: 30.09.2026

colonial networks through which natural history was produced and circulated.

This article examines some of the earliest Indian herbaria, with particular attention to the collections at the Natural History Museum, London (BM) and the University of Oxford, Oxford (OXF). These herbaria are pre-Linnaean, because they were collected, assembled and named before the binomial system of nomenclature became widely adopted following the publication of *Species Plantarum* (Linnaeus, 1753). The herbaria considered here were therefore all, at least initially, named using often long, descriptive polynomial names. Moreover, the data that accompanies specimens from this period often does not meet modern standards. Collectors may or may not be recorded; localities, if recorded, are often imprecise, and collection dates are rare. However, specimens may record other information such as local names or indigenous use value. Furthermore, the physical organisation of these collections can make them difficult to navigate and use. Nevertheless, and despite these challenges, we highlight the significance of these collections for both contemporary biodiversity research and historical scholarship.

Drawing on recent research and digitisation efforts, we first give an overview of the main pre-Linnaean collections in the UK that include Indian specimens. We next provide an account of the named individuals who contributed specimens together with the ‘makers of the herbaria’, i.e. those individuals who did not gather specimens themselves but rather assembled collections that include Indian specimens. We then consider the networks circulating Indian botanical specimens and discuss the modern use of those collections.

Early Botanical Collections from India in the United Kingdom

While there are specimens from the pre-Linnaean period in the herbaria of the Royal Botanic Gardens, Kew (K, acronym in *Index Herbariorum*, (Thiers, 2025, continuously updated) and Royal

Botanic Garden, Edinburgh (E) and, indeed, in other institutions in the UK (e.g. CGE and LIV), they are limited in scale and extent in comparison with the pre-Linnaean collections found at the Natural History Museum, London (BM) and the Oxford University Herbaria, Oxford (OXF) and these latter two collections are the focus of this article. Both collections also benefit from detailed catalogues (Dandy, 1958; Clokie, 1964, respectively) and increasing digital access, facilitating the analysis of their holdings.

The Natural History Museum: At the Natural History Museum, the botanical collection of Hans Sloane (1660 to 1753) constitutes the largest pre-Linnaean botanical collection in existence (Scott *et al.*, 2025). It comprises two distinct parts, the herbarium itself and the ‘Collection of Vegetables and Vegetable Substances’. Other collections at the Natural History Museum that include pre-Linnaean specimens from India are the herbaria of Samuel Browne (d. 1698) and that of Samuel Dale (1659–1739). In this section, we provide accounts of the collections; accounts of the individuals themselves are given later.

The Sloane Herbarium: A herbarium comprising 337 numbered *Horti Sicci* (literally ‘dry gardens’) bound in 265 volumes (Fig. 1). Each folio within those volumes may contain from one to more than 50 specimens. In total, there are around 120,000 specimens. More than 300 named individuals and specimens from more than 70 different countries and territories worldwide are represented (Scott *et al.*, 2025). Both the Sloane Herbarium and his collection of Vegetables and Vegetable Substances should be considered ‘collections of collections’. Sloane only collected around 3,000 specimens himself, 2.5% of his entire collection of dried plants. The remainder were purchased, bequeathed or donated to him. Scott *et al.* (2025) recognised 46 different collections within the Sloane Herbarium, each of which was initially assembled by a different individual before its acquisition by Sloane. Several contain

specimens from India (Fig. 2) and the individuals responsible for those collections are described below in the 'Makers of the Herbaria' section. In total, we estimate that there are more than 3,300 specimens from India in the Sloane Herbarium.

Dandy (1958) provides the standard published guide to the Sloane Herbarium. This has recently been supplemented by two publicly available datasets that facilitate searches of the herbarium. Scott *et al.* (2024) provides high level information on the contents of each folio together with the people and places identified for any given folio by Dandy (1958), together with some corrections and additions. Pickering *et al.* (2024) provides a dataset that allows the herbarium to be searched by the pre-Linnaean names used by Sloane to catalogue a significant proportion of the collection.

Sloane's Collection of Vegetables and Vegetable Substances:

A unique collection of more than 8,000 samples of seeds, leaves, pieces of bark, roots, gums, plant fossils and other plant-related items assembled by Sloane. Several hundred are stored in Materia Medica trays and some in modern boxes but the majority are housed in individual boxes that have glass tops and bottoms, and wooden sides sealed with decorative papers and label details (Fig. 3). This unique preservation method may account for the longevity of the collection (Scott *et al.*, 2025). Sloane documented his Vegetable and Vegetable Substances collection in a three-volume handwritten catalogue that included 12,750 entries, meaning that around a third of the collection no longer survives. Two hundred and seventy five Vegetable Substance catalogue entries refer to India.



Fig. 1. Herbarium of Hans Sloane. Arranged in 265 bound volumes, the Sloane Herbarium includes many specimens collected from India. It is the largest pre-Linnaean Herbarium in existence. The portrait shows Hans Sloane[© The Trustees of the Natural History Museum, London].

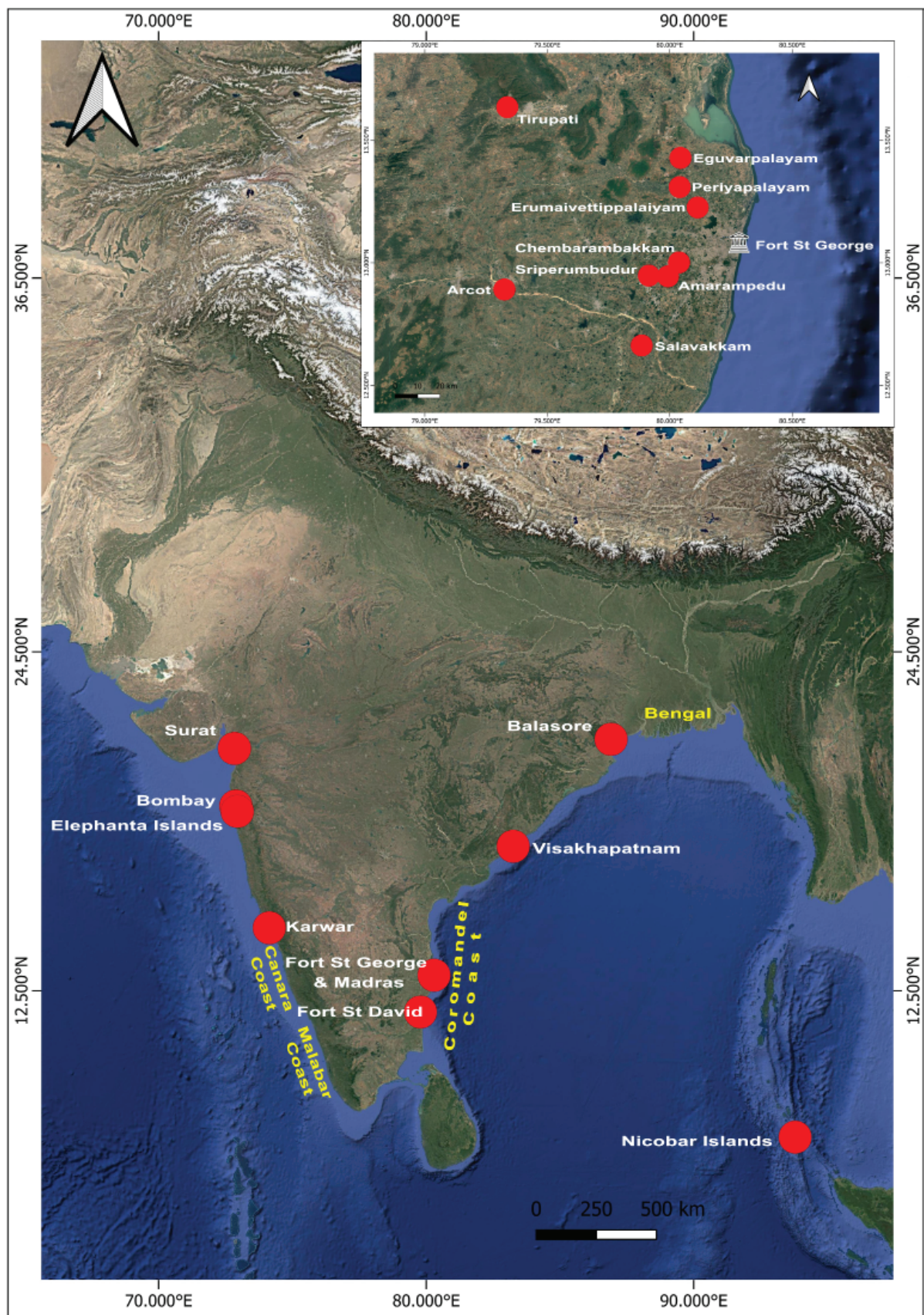


Fig.2. Sites recorded in pre-Linnaean botanical collections from India. Inset: Collecting sites recorded with herbarium specimens collected by Samuel Browne around Chennai [Map prepared by A.P. Patrisha and Anishkar F.J. King, Madras Christian College, Chennai].

A publicly available dataset published by Pickering *et al.* (2023) links images of the original catalogue pages with a transcription and surviving specimens. Places and named individuals in the catalogue are also identified to facilitate searching. As with the herbarium, there are more than 300 different named contributors to the collection, with specimens originally sourced from over 70 different countries and it is a 'collection of collections'. Some catalogue entries indicate the donor, but this has not been done systematically, and we do not attempt to differentiate individual collections within the Vegetable Substances here.

The Samuel Browne Herbarium: A collection of 316 specimens collected by Browne in and around Madras (now Chennai; throughout, we use the place names that were used at the time during which the collections discussed in this paper were collected. Thus, we use 'Madras' to refer to

Chennai; 'Bombay' to refer to Mumbai etc.) in 1696. Browne sent the herbarium to his employers at the EIC who subsequently donated it to the Royal Society where it remained until 1781 when it was transferred to the British Museum (Prakash *et al.*, 2024). The herbarium today is bound in two volumes. Specimens are typically labelled with ethnobotanical information providing a rich resource for understanding plants in 17th century plants in present day Tamil Nadu and Andhra Pradesh. The herbarium was described in detail by Prakash *et al.* (2024), with a publicly available dataset (Prakash, 2023) facilitating searching the collection.

The Samuel Dale Herbarium: A herbarium of 2,827 specimens that was bequeathed to the Society of Apothecaries following Dale's death in 1739 and was kept at Chelsea Physic Garden in London in specially made oak presses until 1869



Fig. 3. Hans Sloane's Collection of Vegetables and Vegetable Substances: **a.** Many of the specimens are housed in decorative boxes, each of which was carefully catalogued by Sloane; **b.** The collection includes specimens from India, including BM000694334 which is described in the catalogue (VS6836) as 'Ustee Couree. From Fort St. George 1714. no. 136. From the same.' In this case, 'the same' refers to Mary Somerset, the first Duchess of Beaufort, who donated specimens to Sloane, including this Indian plant [© The Trustees of the Natural History Museum, London].

when it was transferred to the British Museum. At the NHM, where it is preserved today, the specimens are mounted on individual sheets. Much smaller in scale than the herbarium of Sloane, there are thirty individuals named in the collection. Many of the specimens were collected in England with a significant proportion collected from prominent gardens. There are relatively few specimens from outside the UK, but there are 85 specimens from India (Fig. 4). Carine (2023) provides a publicly available dataset of the Dale Herbarium, facilitating searching the collection.

Oxford University Herbaria: An account of the Oxford University Herbaria was provided by Clokie (1964). Among the herbaria enumerated in that work, three contain pre-Linnaean specimens from India, namely, the Morisonian Herbarium (Fig. 5), Sherardian Herbarium (Fig. 6) and Dubois Herbarium (Fig. 7). These collections

are described briefly below with accounts of individuals mentioned provided in the section on 'Makers of the Herbaria'.

The Morisonian Herbarium: Despite its name, the Morisonian Herbarium was put together by Jacob Bobart the Younger (1640–1719), Keeper of Oxford Physic Garden, to support his work on Morison's *Plantarum Historiae Universalis Oxoniensis* (Morison, 1680). It is arranged according to Robert Morison's (1620–1683) *Sciagraphia* (Anon, 1720), a work that presents Morison's classification system (Harris, 2016). Bobart contributed many specimens and annotations to the Morisonian Herbarium, which were abstracted in the late-nineteenth century by George Claridge Druce (1850–1832) (Vines & Druce, 1914). The herbarium was assembled from the late-seventeenth century until the 1720s and comprises approximately 6,500 specimens.



Fig. 4. The Samuel Dale Herbarium. This specimen of *Nerium oleander* L. (Apocynaceae) was collected by Alexander Browne in 1692 from Surat. It is the earliest dated specimen in the Dale Herbarium [CC-BY 1.0. © The Trustees of the Natural History Museum, London].



Fig. 5. The Morisonian Herbarium: *Melia azedarach* L. (Meliaceae), with characteristic decorated border and labels by Jacob Bobart the Younger [© Oxford University Herbaria, Department of Biology, Oxford].

As well as the garden at Oxford, the herbarium includes plants from many other English and European gardens. In total, almost 50 different named collectors and more than 20 countries are represented (Clokier, 1964). There are over 380 specimens from India. The entire collection has been digitised but a publicly available database of the collection is not yet available.

The Sherardian Herbarium: The Sherardian Herbarium has its foundation with the personal herbarium of William Sherard (1658–1728). However, after it was bequeathed to Oxford on Sherard's death, it became the university general herbarium until the end of the eighteenth century



Fig. 6. The Sherardian Herbarium: *Cynanchum pauciflorum* R.Br. (Apocynaceae), dated December 1702, and labelled with the name 'Collada paalee, a name still used for this plant (கொல்லாடா பாலை), in William Sherard's hand. The label on the bottom left, in Johann Dillenius' hand, lists polynomial synonyms and reflects Sherard's unpublished efforts to compile a Pinax to catalogue all botanical names [© Oxford University Herbaria, Department of Biology, Oxford].

(Harris, 2021). In the late-nineteenth century, many specimens were removed by Druce to form the Morisonian Herbarium and the herbaria associated with Johann Jakob Dillenius, the first Sherardian Professor of Botany in Oxford (Druce & Vines, 1907; Vines & Druce, 1914). Today the collection comprises approximately 20,000 specimens mounted on individual sheets with the earliest collections dating from around 1640. Thousands of specimens are the result of Sherard's own collecting activities, with other specimens acquired through sponsorship of fieldwork, gift and exchange of individual specimens or the acquisition of entire herbaria. Like the Sloane Herbarium, the Sherardian Herbarium may be viewed as a 'collection of collections'. At least one hundred different collectors can be identified, with specimens sourced from nearly 50 different



Fig. 7. The Dubois Herbarium: *Michelia champaca* (L.) Baill. ex Pierre (Magnoliaceae) is described as 'Gather'd in Bengall in ye East Indies in October 1704, sent by Dr Edward Bulkley. Specimens often have black borders with detailed provenance information added by Charles Dubois. [© Oxford University Herbaria, Department of Biology, Oxford].

countries worldwide. An online database is available, facilitating searching: <https://herbaria.plants.ox.ac.uk/bol/sherard>. There are over 950 specimens from India.

The Dubois Herbarium: The Dubois herbarium was assembled by Charles Dubois (1665–1740), cashier-general of the English East India Company. It comprises nearly 14,000 specimens, acquired by the University of Oxford in the mid-eighteenth century. Most specimens are undated but where dates are provided, they range between 1698 and 1724. The collection was originally bound in eighty large volumes, but they were disbound and the sheets arranged by taxonomy and inferred location (Druce, 1927). It is rich in cultivated specimen, reflecting Dubois's keen horticultural interests but there are more than 30 countries and 70 named collectors represented (White, 2024). A draft website for images and data from specimens facilitates searching: <https://herbaria.plants.ox.ac.uk/bol/dubois>. There are over 2700 specimens from India.

The Contributors and Makers of Early Indian Herbaria

We used the online resources described above, together with Dandy (1958) and Clokie (1964) and results from our own research on the collections to identify: (i) The Contributors – named individuals who contributed specimens from India to extant pre-Linnaean collections and (ii) The Makers – individuals who incorporated Indian specimens into their herbaria. We provide brief biographical details for each of the Contributors and Makers identified, drawing on Dandy (1958) and Clokie (1964) but also recent investigations where appropriate, not all named contributors have been assigned to known individuals. Where this is the case, we use archival sources to offer suggestions as to their identity.

For the 'Contributors', we identified any named localities associated with them. We also indicate the 'Makers' herbaria within which their specimens were incorporated. In recording herbaria, we

used the herbaria described above but for the Sloane Herbarium we recorded each constituent collection in which specimen was found. Indian specimens are found within the collections of the following individuals in the Sloane Herbarium: Adam Buddle; Franz Kiggelaer; Hans Sloane; James Petiver; Leonard Plukenet; Richard Richardson; Robert Uvedale; and William Courten (for life dates, see section 'The Makers' below). There is also a specimen assigned by Scott *et al.* (2024) to the John Hawkins's collection and some specimens that were not assigned to a named collection. Hawkins was not independently assembling an herbarium but was rather employed by Sloane to organise specimen from Sloane's own collection and from that of Petiver. We therefore treat specimen recognised by Scott *et al.* (2025) as part of Hawkins's collection together with unassigned volumes and those explicitly assigned to Sloane to be part of Hans Sloane's Collection. The codes used to refer to collections are shown in Table 1.

The Contributors

Adair, Patrick (fl. 1674–1697): Naval surgeon and a friend of Plukenet. In an undated letter, Adair wrote to Plukenet '*Honoured Sir Be pleased to accept of the inclosed Seeds of Bangue, (the freshest I could pick out) together with some of the Plant; until I can Spare So much time, as to examine whither there may be any other worth your try all amongst those samples I brought from India: which I shall doo sometime this week, or in the beginning of the next, And you shall then, be attended by Sir Your true friend & humble Servant Pa: Adair London Thursday Att. 10 in the morning*' (British Library Sloane MS 4066). The letter would appear to have been written soon after Adair's return to London. The sample referred to in the letter could be BM-VS 1126 in the Vegetable Substances, described in the catalogue as 'Bangue | Bangue of Marlow | Bang bichal from Indian druggist by Dr. Adair'. Two other Vegetable Substances from Adair (BM-VS 3189 and BM-VS 3280) are also tentatively referred to Bangue (*Cannabis sativa* L.) but none survive. There are 190 specimens from

Table 1. Codes used to refer to collections at the Natural History Museum and Oxford University Herbaria.

Collection code	Institution	Collection
BM-VS	Natural History Museum	Sloane's Collection of Vegetables and Vegetable Substances
BM-SB	Natural History Museum	Samuel Browne Herbarium
BM-SD	Natural History Museum	Samule Dale Herbarium
BM-SL-AB	Natural History Museum	Adam Buddle's Collection in the Herbarium of Hans Sloane
BM-SL-FK	Natural History Museum	Franz Kiggelaer's Collection in the Herbarium of Hans Sloane
BM-SL-JP	Natural History Museum	James Petiver's Collection in the Herbarium of Hans Sloane
BM-SL-LP	Natural History Museum	Leonard Plukenet's Collection in the Herbarium of Hans Sloane
BM-SL-RR	Natural History Museum	Richard Richardson's Collection in the Herbarium of Hans Sloane
BM-SL-RU	Natural History Museum	Robert Uvedale's Collection in the Herbarium of Hans Sloane
BM-SL-WC	Natural History Museum	William Courten's Collection in the Herbarium of Hans Sloane
BM-SL	Natural History Museum	Specimens in the Sloane Herbarium assigned to Sloane or Hawkins or that is not assigned to one of the named collections above
OXF-DB	Oxford University Herbaria	Dubois Herbarium
OXF-Mor	Oxford University Herbaria	Morisonian Herbarium
OXF-Sher	Oxford University Herbaria	Sherardian Herbarium

Adair preserved among the Vegetable Substances, of which nearly 70 survive. Several are marked 'P' which indicates that they were originally from the collection of either Petiver or Plukenet; the letter from Adair to Plukenet suggests the latter was the source. Most of Adair's specimens are described as from the 'East Indies' and only one is unequivocally localised to India and to Fort St George specifically (BM-VS 1213; BM000693675). We know from the Vegetable Substances catalogue that Adair sourced the specimen from 'an Indian Druggist'. An 'Indian Druggist' or 'East Indian Druggist' is mentioned in the descriptions of many other specimens he

contributed, and it is plausible that they may all have been sourced from Fort St George and that they are the specimens referred to in his letter to Plukenet. Specimens in the Sloane Herbarium from Adair are from South Africa and the United Kingdom, with the majority today found in the Plukenet collection.

Place: Fort St George.

Collection: BM-VS.

Brown, Alexander (fl. 1692–1698): EIC surgeon. The earliest dated Indian specimens we are aware of were collected by him at 'Carwar and Surat' and on the Coromandel Coast in 1692 and they are found in the

Sloane, Dubois and Dale herbaria. They were likely made while Brown was serving as surgeon on the *Dorothy* that departed England for the East Indies in Spring 1691. Brown acted as an intermediary between James Petiver and Samuel Browne, carrying a letter to Browne from Petiver on that voyage, encouraging the former in his botanical pursuits (Coulton, 2020). It appears he died during an EIC voyage as surgeon on the *Bedford* (R. Coulton, pers. com).

Places: Surat; Coromandel Coast; Malabar Coast; Isle of Elephante; Fort St David; Karwar (Carwar) and Bombay.

Collections: BM-SD; BM-SL; BM-SL-JP; BM-SL-RU; BM-VS; OXF-DB; OXF-Mor; and OXF-Sher.

Browne, Samuel (d. 1698): EIC ship surgeon and later surgeon at Fort St George from 1688 until his death. Browne was encouraged in his botanical pursuits by Petiver who suggested that Browne could do for the east of the subcontinent what van Rheede, in his *Hortus Malabaricus*, had accomplished for its western regions (Coulton, 2020). The palm labels giving plant names in Tamil script and the descriptions of uses that accompany his specimens



Fig. 8. The Samuel Browne Herbarium. This spread shows a specimen of *Buchanania axillaris* (Desr.) Ramamoorthy (Anacardiaceae) with the extensive associated labelling typical of Browne's herbarium specimens. On the recto, along with the specimen is a palm label with the Tamil name *Moruttanchedde* (முருட்டான்செட்டி) together with the printed description of this plant that was published by Browne and James Petiver (1700) in *Philosophical Transactions*. The verso labels include a further extract from the *Philosophical Transactions*, Browne's original description of the plant and, at the bottom, an account of where the plant (and those that follow) were collected [© The Trustees of the Natural History Museum, London].

reflect that goal (Fig. 8). The collections made by Browne in 1696 are unusual in that precise localities are provided (see above for details of this collection). Browne spent time travelling engaged in diplomacy with the Moghul rulers and accompanying their military forces as a surgeon (Winterbottom & Prakash, 2020). Some of his collections are likely the result of those activities. Duplicates of Browne's specimens have been distributed more widely and can also be found at K (Royal Botanic Gardens, Kew), E (Royal Botanic Garden, Edinburgh), MEL (Royal Botanic Gardens, Victoria) and CAL (Central National Herbarium, Kolkata). See Prakash *et al.* (2024), Jarvis (2016) and Winterbottom (2016) for further details on Browne and his collecting activities.

Places: Arcaut (= Arcot); Aumerampead (= Amarampedu); Chamberamback (= Chembarambakkam); Eremita Pollum (= Erumaivettippalaiyam); Fort St George; Hinguer Pollum (= Eguvarpalayam); Keraputta Kaudoo (= Keezh patta kaadu?); Pearmeedoor (= Sriperumbudur); Perre-Pollum (= Periyapalayam); Salawacka (= Salavakkam); and Trippettee (= Tirupati) (Fig.2).

Collections: BM-SB; BM-SL; BM-SL-AB; BM-SL-JP; BM-SL-RR; BM-SL-WC; OXF-DB; and OXF-Sher.

Bulkley (Buckly), Edward (1651–1714): English surgeon at Fort St George. Bulkley arrived at Fort St George in late 1692. Following the death of Samuel Browne in 1698, he was enlisted by James Petiver and Charles Dubois to send plant specimens, many of which were accompanied by Tamil names and details of plant uses following the approach used by Browne. Bulkley also sent ethnographic objects from India to Sloane (Delbourgo, 2009).

Places: Fort St George; Madras; Bengal; and Bombay.

Collections: BM-VS; BM-SB; BM-SL; BM-SL-AB; BM-SL-JP; BM-SL-RR; BM-SL-RU; OXF-DB; OXF-Mor; and OXF-Sher.

Cunninghame, James (d. 1709): Scottish surgeon employed by the EIC in Chusan (China) who was the first European to bring extensive botanical collections from China to Europe. He collected at many other ports of call during his voyages, apparently including in India. There is a specimen in the Sloane herbarium from Balasore. A sample in the Vegetable Substances from 'Bengale' may also be from this EIC station. One other specimen in the Vegetable Substances (BM-VS 581) refers to the Nicobar Islands: 'Differing gums resins or substances brought from the Nicubar Island instead of Ambergrease? an amber? Sent me by Mr Cunningham'. It is not clear if this was gathered by Cunningham on the Nicobar Islands or sourced



Fig. 9. Specimens collected by Mary Dubois in the Charles Dubois herbarium: A specimen of *Lagenaria siceraria* (Molina) Standl. (Cucurbitaceae). This specimen is labelled 'Sent from Fort St George in ye East Indies by my Sister[Sister-in-law] M. du Bois 1703'. The specimen is also labelled with a palm label bearing the Tamil name of this plant "Sorakkai Chedi" சுரைக்காய் செடி (Bottle gourd), described as 'The Malabar name' [© Oxford University Herbaria, Department of Biology, Oxford].

on the Indian mainland although we do know that Cuninghame collected plants in Malacca in 1699 and that he also collected a specimen ‘found among the many Islands in the Straits of Malacca’ (Jarvis & Oswald, 2015), suggesting that his ship, the *Tuscan*, took a route that would at least have passed the Nicobar Islands en route from China to England.

Places: Balasore; Bengal; and Nicobar Islands.

Collections: BM-VS; BM-SL; and BM-SL-JP.

Dubois, Daniel (d. 1702): Gathered plants from India, South Africa and St Helena that he sent to his stepbrother, Charles Dubois in whose herbarium many of his specimens are found. The Dubois family were closely linked to the EIC. According to Richard Coulton (pers. com.), he was employed at Fort St George by August 1690, when he was appointed an EIC “Merchant” at the factory there. He was later part of the Council at Vizagapatam before returning to Fort St George, initially at least as a Free Merchant, having been dismissed by the EIC.

Places: Fort St George; Bombay; Bengal; Malabar Coast; and Surat.

Collections: BM-SD; BM-SL; BM-SL-AB; OXF-DB; OXF-Mor; and OXF-Sher.

Dubois, Mary (dates unknown): Wife of Daniel Dubois and one of the earliest documented women plant collectors in India (Fig. 9). In September 1696, Daniel Dubois is recorded at Fort St George married to an ‘Englishwoman’. After his death in 1703 was still there and is recorded as paying off her late husband’s debts to the East India Company.

Place: Fort St George.

Collections: BM-SL; OXF-DB; and OXF-Mor.

Farmer (dates unknown): Contributed a single specimen from Fort St George to the Dubois Herbarium. A Richard Farmer sent a letter from Fort St David to the EIC court on 12 January 1710/11 reporting on problems encountered in trade as well as disputes with local rulers and the French (British Library, IOR/E/1/3 ff. 24-27v).

Place: Fort St George.

Collection: OXF-DB.

Fox, John (fl. 1699): Sailed to Bengal as surgeon’s mate on the *Tavistock* in 1697 when Petiver asked him to act as an intermediary with South Asian contacts. He provided Petiver with plants from both the Cape of Good Hope and Bengal.

Place: Bengal.

Collection: BM-SL-JP.

Gore, William (c. 1675–1739): London merchant and Lord Mayor with links to the EIC as an investor. Two specimens from Surat in the Vegetable Substances collection are referred to Gore who likely received them from India before giving them to Sloane.

Place: Surat.

Collection: BM-VS.

Green, Mr. (dates unknown): There are 21 entries attributed to Green in the Catalogue to the Vegetable Substances. Most (14) are from Germany, three are from Italy and one each from the United Kingdom and India. The Indian specimen (BM-VS10524) is described as ‘An Almond from Fort St George. They are large eatable & sweet from Mr. Green’. Unfortunately, it has not survived. Conceivably, and given that his other collections were confined to Europe, Green may not have been the original gatherer and may have received this seed from India and donated it to Sloane. Sloane corresponded with Thomas Green (1658–1738) and Robert Greene (d. 1730) but there is no evidence to link either of these two men unequivocally to the ‘Mr Green’ in the Vegetable Substances catalogue.

Place: Fort St George.

Collection: BM-VS.

Gyfford (Gifford), Mr., possibly William Gyfford (fl. 1680): EIC factor and administrator at Fort St George. Two Indian specimens from Gyfford are in the Morisonian Herbarium. They

are not further localised. Gyfford also provided Bobart with plants from South Africa.

Place: Fort St George.

Collection: OXF-Mor.

Heathcote, Mr., possibly Gilbert Heathcote (1652–1733): an English merchant, politician, and Fellow of the Royal Society of London whose daughter married Sloane's nephew William. He contributed 24 samples, mainly seeds, to Sloane's Collection of Vegetables and Vegetable Substances (BM-VS 8532–8665). Eight were from Bengal with the remainder from Fort St George. Heathcote was involved in the trade with India. He was a Commissioner for the New East India Company, becoming a Director of the Company in 1704. He would likely have received the samples through that trade.

Places: Bengal; and Fort St George.

Collection: BM-VS.

Hymers, Mr. (fl. 1706): Herbarium specimens from Fort St George are preserved in the Dubois and Morisonian herbaria in OXF and in the Samuel Dale herbarium at NHM. They are dated 1706. The 'Mr Hymers' represented in these collections may be related to Joseph Hymers (1622–1680) who was Deputy Governor of Fort St George where he died in 1680 (Baliga, 1945). Two of his children (Joseph and Elford) would later return to the 'East Indies' with Joseph employed as an EIC Supercargo that left England for Batavia and Amoy in 1704 (British Library, IOR/E/3/95 ff. 146–48).

Place: Fort St George.

Collections: BM-SD; OXF-DB; and OXF-Mor.

Lewis, George (1663–1729): Clergyman in Madras from 1692–1714 (Ansorge, 2020). There are 21 samples in the Vegetable Substances. BM-VS 8158 was described in the catalogue as 'Brought from India by Dr. Lewis'. The remainder, catalogued as a separate lot (BM-VS 8204–8223), are described as from the 'East Indies'. Lewis sent

plants to Petiver and a number of his specimens from South Africa are in the Sloane Herbarium. In 1727, he also donated a wooden cabinet containing a diverse collection of items, including many manuscripts, to Cambridge University Library (Ansorge, 2020).

Place: Fort St George.

Collection: BM-VS.

Maidstone, Nathanael (fl. 1698–1723): Supercargo on the *Trumbull*, a ship of the "English Company" which was established as a rival to the original EIC. Maidstone travelled to Amoy, China where he was a contemporary of James Cuninghame and he collected a wide range of natural history samples (Jarvis & Cooper, 2014). His herbarium specimens are in the collections of William Courten (see below) but none are explicitly referred to India and so they are not included here. In the catalogue of the Vegetable Substances collection, a number of specimens are from India with four specifically recorded as from Bengal.

Place: Bengal.

Collection: BM-VS.

Mewse, Benjamin (fl. 1695): Member of Council at Surat in 1699 (British Library, IOR/E/3/94 f. 41) who provided Petiver with specimens from the region. Specimens are in Petiver's collection and in HS 80, considered here to be a part of Sloane's collection.

Place: Surat.

Collections: BM-SL; and BM-SL-JP.

Randal (fl. c. 1700): Gardener at Fort St George. According to Richard Coulton (pers. com.), presumably either Nathaniel Randall, a gardener appointed to Fort St George by the EIC in 1683; or Nicholas Randall, noted in the Fort St George records in relation to the Company's garden in 1693. Petiver writes of a species he described in *Museum Petiveriana*: 'This elegant plant was first collected by Mr Randall a gardener at Fort St

George and sent to my worthy friend Mr Charles Dubois' (Dandy, 1958). We have not located specimens from Randal in the Dubois herbarium but there is a specimen in Petiver's collection.

Place: Fort St George.

Collection: BM-SL-JP.

Rugeley, Luke (d. 1696): Eminent London physician with a house in Bloomsbury Square, close to that of Sloane. When Rugeley died in 1696, Sloane acquired his library (Walker, 2014). Two vegetable substances (BM-VS 1167 and BM-VS 2228) are attributed to Rugley. Both indicate that they were 'From Fort St George from Dr. Rugley'. Rugley likely acquired the specimens from someone else before giving them to Sloane.

Place: Fort St George.

Collection: BM-VS.

Sambach, Richard (fl. 1698–1727): Surgeon and colleague of Samuel Browne in India. He was in London in 1691 when he consulted James Petiver on Indian specimens that he had received from Browne. This led Petiver to establish correspondence with Browne himself (Coulton, 2020). The specimens in the Sloane Herbarium from Sambach, are in Plukenet's collection and lack precise localities.

Place: Localities unknown.

Collection: BM-SL-LP.

Somerset, Mary, The Duchess of Beaufort (c. 1630–1714): Highly regarded and well-connected plants woman with gardens in Chelsea and Badminton where she cultivated plants from across the world. One Vegetable Substance donated to Sloane by Somerset originally came from India: BM-VS 6836 'Ustee Couree. From Fort St George 1714' [BM000694334], (Fig. 3b). Somerset did not visit India and would have acquired this sample from another individual before giving it to Sloane.

Place: Fort St George.

Collection: BM-VS.

Stonestreet, George (fl. 1698): Ship's purser who collected and sent plants to his brother, the clergyman, antiquary and naturalist William Stonestreet (d. 1716), whose herbarium was subsequently acquired by Charles Dubois and incorporated into his herbarium. George also collected in South Africa and Saint Helena and made the earliest documented collections from Ascension Island.

Place: Fort St George.

Collection: OXF-DB.

Stuart, Alexander (fl. 1700s–1740s): Scottish surgeon who served on two trading voyages to Asia between 1701 and 1707. Stuart corresponded with Sloane from the outset of his career and sent him specimens and observations from his travels (Guerrini, 2000). In a letter to Sloane dated 10 January 1706/7, Stuart reports that he 'had a safe and prosperous Voyage, to Persia, Surat, Bombay and Carnar' (British Library Sloane MS 4040). There are two Indian specimens from Stuart in the Vegetable Substances catalogue, and the localities correspond to the Indian localities mentioned in his letter suggesting that his later voyage was the source of the specimens.

Places: The shores of Malabar & Canara; in the marsh fields near Bombay; and Surat.

Collection: BM-VS.

Theobald, James: possibly James Theobald (1688–1759): London-based merchant and natural historian who was a correspondent of Sloane and who sent Sloane items for his collection. In the Vegetable Substances, Theobald is credited with a collection of the seeds of seventeen species from Fort St George. They are catalogued with transliterated Tamil names (BM-VS 8312–8328) and all except one survive. If the Theobald mentioned in the catalogue is the London merchant of the same name, he likely acquired these samples from another individual who brought them back from India before giving them to Sloane.

Place: Fort St George.

Collection: BM-VS.

Waldo, Daniel (1681–c. 1712/13): EIC surgeon in Surat who also practised as a physician in Bombay. He died on the voyage back to England. Specimens in the Sherardian and Dubois herbaria collected by Waldo are dated 1708. In addition to plant specimens, Waldo sent Sloane cultural artefacts from India.

Places: Surat; and Fort St George.

Collections: BM-VS; BM-SD; OXF-DB; and OXF-Sher.

Wyn/Wynne (dates unknown): Contributed plant specimens from Vizagapatam and Madras, some with native names, to Petiver's collection. In the Dubois herbarium there are specimens from Snowdonia in Wales, collected by a Robert Wynne or Wyne who was probably a relative of John Wynne (c. 1665–1743) who became Bishop of St Asaph and Bath and Wells. A Robert Wynn was Chief Mate of the *Heathcote*, an East Indiaman in the early 18th century and of the *Halifax* in Bengal in 1710.

Places: Vizagapatam; and Madras.

Collections: BM-SL; and BM-SL-JP.

The Makers

Bobart the Younger, Jacob (1640–1719): The younger son of the first Keeper of the Oxford Physic Garden who was trained as a botanist by Robert Morison and his father (Harris, 2021). Bobart was appointed Keeper of the garden in 1679, succeeding his father. Following the death of Morison in 1683, he completed the third volume of *Plantarum Historiae Universalis Oxoniensis* (1699; see Harris, 2025 for a detailed study of the *Historia* project) and assembled the so-called 'Morisonian Herbarium' (see above). Most of the Indian specimens it contains came from Daniel and Mary Dubois and from Edward Bulkley with Gyfford, Hynmers and Alexander Brown also all represented. Dates on labels range from 1697 to 1708, with the majority collected between 1700 and 1703. Most specimen is recorded as coming from Fort St George or Madras but there is a single specimen, collected by Alexander Brown,

from Fort St David and some specimens from Bombay and the Malabar and Coromandel Coasts.

Buddle, Adam (c. 1660–1715): English clergyman and botanist. Buddle compiled an English flora, completed in 1708, that was never published. His herbarium was bequeathed to Sloane. It comprises 17 *Horti Sicci* bound in six volumes and contains nearly 3,000 botanical specimens (and some pressed insects) that are taxonomically arranged and carefully named. While most specimens are from the UK, the collection does include specimens from other countries. In HS 127 are many Indian specimens for which Dubois is often listed as the collector and the collections are from Fort St George, Bengal and Bombay.

Courten, William (1642–1702): Grandson of Sir William Courten, who operated a fleet of more than twenty ships and who funded the first English settlement in Barbados in the Caribbean. Courten was also referred to as 'Mr Charleton', possibly to escape debtors since, despite his grandfather's immense wealth, his father became bankrupt when Courten was young. From 1670, Courten spent 14 years in continental Europe (likely avoiding his debtors) and he met Sloane in Montpellier in France. In 1685, he opened a museum in Middle Temple in London. It was praised by his contemporaries and considered an important resource for naturalists (Kusukawa, 2020). Courten bequeathed his collections to Sloane. His herbarium now comprises eight *Horti Sicci* of the Sloane Herbarium, bound in seven volumes, and containing over four and a half thousand specimens. Not all specimens in the collection are well labelled and some of the labels and annotations are written in cipher. Specimens in HS 59 (ff 35–37) are from Samuel Browne. Other collections from the 'East Indies' are also likely to include plants from India, particularly those from Maidstone and Dubois.

Dale, Samuel (1659–1739): An apothecary who practiced in Essex, England where he befriended John Ray (b. 29 Nov 1627 d. 17 Jan 1705, an English naturalist) and pursued an interest in

botany. Dale assisted Ray in the preparation of several publications and became a correspondent of Sloane and Petiver. Later, he published his *Pharmacologia*, a pharmacological textbook (Dale, 1693). In later life, Dale was licensed as a physician. His herbarium of 2,827 specimens (see also details above) includes 85 specimens from India. Many of those specimens were from Edward Bulkley from Fort St George collected between 1700 and 1712. The herbarium also included specimen from Alexander Brown collected in Surat and on the Coromandel Coast between 1692 and 1697; from Daniel Dubois at Fort St George and from Daniel Waldo at Surat.

Dubois, Charles (1658–1740): Merchant with strong family links to the EIC who became cashier-general of the Company from 1702–1737. He was a leading patron of botany. At his estate in Mitcham, Surrey, which he inherited from his father, he cultivated many exotic plants, including Indian plants, facilitated by his connections to the EIC. Edward Bulkley was the largest contributor of Indian specimens to the Dubois Herbarium. There are also many specimens from his brother Daniel Dubois and sister-in-law Mary Dubois, with Brown, Browne, Hynmers and Waldo also among the collectors represented. The majority of specimens are from Fort St George but his collection includes specimen sourced from several parts of India. Unusually for this period, approximately two-thirds of the Indian specimens are dated. They were collected over more than 30 years, between 1692 and 1724, although the majority were collected between 1700 and 1705 (White, 2024).

Kiggaeler, Franz (1648–1722): Botanist, apothecary and garden curator in the Netherlands. He collaborated with Frederic Ruysch to publish, in 1697, *Horti medici amstelodamensis rariorum tam Orientalis: quam Occidentalis Indiae*, describing plants from the East and West Indies (Commelin *et al.*, 1697). Hans Sloane purchased Kiggaeler's collection in 1722. It comprises 14 *Horti Sicci* of the Sloane Herbarium, each bound separately and

collectively containing around 1,300 specimens. Dandy (1958) records a single folio in the Kiggaeler herbarium with a specimen from India (HS 220 f. 68) and on that folio, one specimen is labelled as an 'Alcaea from Bengale'. No collector is given. Trade between Bengal and the Netherlands was established from the early 1600s with the first Dutch factory in Bengal established at Hugli-Chuchura in 1635.

Petiver, James (c. 1663–1718): An apothecary of modest origins who became a prominent natural historian. From his shop in the city of London, Petiver developed an extensive network of collectors and correspondents, many of them medical practitioners, who were travelling across the globe. Petiver shared directions and resources for collecting plants to support those collectors and issued his 'Brief Directions for the Easie Making and Preserving Collections of all Natural Curiosities' in 1713. Through his network, Petiver amassed a vast natural history collection, global in scope. Sloane acquired the collections after Petiver's death in 1718, and an estimated 21,815 specimens are in 99 *Horti Sicci* that are largely arranged in a geographic then taxonomic system (Jarvis, 2020). Petiver played an important role in encouraging Samuel Browne's botanical interests (Coulton, 2020) and his herbarium includes many specimens from Browne and from Bulkley at Fort St George. Some collections appear to be unique to Petiver, including specimens collected by Browne from Arcaut in 1697 that we have not seen elsewhere. For some specimens, Petiver explicitly acknowledges his source of the specimen. For example, he received from Charles Dubois the specimen in his collection made by Alexander Brown at Fort St David in 1698. Petiver was a prolific author, publishing 158 articles (Jarvis, 2020) as well as his *Musei Petiveriani* (Petiver, 1695–1703) and his *Gazophylacium* (Petiver, 1702) in which he described many species for the first time – including plants from India. His descriptions were based largely on his own collections. His publications also included the

series of papers with Browne on the plants that Browne had collected around Fort St George in 1696.

Plukenet, Leonard (1641–1706): A wealthy individual and, apparently, a medical doctor (although no record of his qualification survives), Plukenet was appointed Royal Professor of Botany and Queen's Botanist by Queen Mary of England. Initially on good terms with Sloane, Petiver and Ray, those relations later soured. Plukenet assembled a vast herbarium, broad in its geographical and taxonomic scope that comprises an estimated 21,768 specimens and is thus almost identical in scale to that of Petiver, his great rival. While now part of the Sloane Herbarium, where it is arranged in 22 *Horti Sicci*, the collection was originally purchased by the Bishop of Norwich after Plukenet's death and only later acquired by Sloane. Much of Plukenet's herbarium is arranged alphabetically

and there is often little provenance information provided with specimens. Consequently, the range and extent of Plukenet's Indian a specimen is likely to be far greater than is currently understood. Some of Plukenet's specimens from India are labelled with Tamil/Malayalam names (referred to as 'Malabar') and Hindi names (referred to as 'Bramanice'), along with transliterations of those names (Fig. 10). The labels are in Plukenet's hand and he appears to have obtained the Malayalam and Hindi names from *Hortus Malabaricus* (Van Rheede tot Draakenstein, 1678–1693). Some of the letters are rendered incorrectly Plukenet published a number of significant works, notably his *Phytographia* (Plukenet, 1691–1696), *Almagasteum* (Plukenet, 1696) and *Mantissa* (Plukenet, 1700) that described and illustrated several thousands of plant species. The illustrations typically show a close correspondence with specimens in his herbarium



Fig. 10. A specimen of *Oroxylum indicum* (L.) Kurz (Bignoniaceae) from the herbarium of Leonard Plukenet (HS91. f. 33) with Malayalam and Hindi names in Plukenet's hand. Both names for this plant are rendered correctly and would have been copied by Plukenet from *Hortus Malabaricus* (1678 – 1693). The Malayalam name [പലകപ്പായ്ക്കിലി] (*Palega-pajaneli* [*Palakappayanjili*]) is still used for this species as is the Hindi name [दवदिक] (*Davandicu*). No collector or site details are provided. The species is widespread across India [CC-BY 1.0. © The Trustees of the Natural History Museum, London].



Fig. 11. The specimen of *Dolichos trilobus* L. in HS 97:f.87 (BM-SL) and illustrated by Plukenet in *Phytographia* Tab. 214 f.3, 1692. and used by Linnaeus in *Species Plantarum*. This species is also found in HS 270- : f.3. [CC-BY 1.0. © The Trustees of the Natural History Museum, London].

on which they were based. A substantial number of Indian plants were among those described. Linnaeus held Plukenet's works in high regard and the types of some species described by Linnaeus in his *Species Plantarum* of 1753 are Plukenet illustrations (Fig. 11), including Indian plants such as *Vigna trilobata* (L.) Verdc. (= *Dolichos trilobatus* L.) (see <https://data.nhm.ac.uk/dataset/the-linnaean-plant-name-typification-project/resource/ec9ffe8-f7f4-4dcd-9471-641c4922d956/record/21854>).

Richardson, Richard (1663–1741): Physician, botanist and antiquarian who studied at Oxford University and then at Leiden where he lodged with Paul Hermann, the Professor of Botany. Richardson travelled widely throughout Britain collecting plants, and he was a correspondent of Sloane, Petiver and other prominent natural historians. Sloane acquired his herbarium that comprises two *Horti Sicci* and around 360 specimens. Dandy (1958) records one folio with a specimen localised to India and the specimen is from Bulkley at Fort St George. Other specimens in adjacent folios are also likely from India although details of collector and places are not given. Richardson probably received Indian specimens from his botanical network in England

with whom he exchanged plants.

Sherard, William (1659–1728): After reading law at Oxford University, where he began a friendship with Jacob Bobart the Younger (see above), Sherard became the travelling companion or tutor to wealthy individuals before he was appointed consul at Smyrna (modern İzmir, Turkey) for the Levant Company. There he continued his botanical interests. He returned to England a wealthy man and resided in London. Sherard amassed an herbarium of around 20,000 sheets renowned for its breadth and scope. When he died in 1728, he bequeathed his herbarium and library to Oxford and endowed a Chair of Botany at the University. Sherard's specimens were acquired from many different sources but typically have limited information about collectors and localities. There are, however, more than 900 specimens from India among his collection. Sherard's herbarium contains specimen from Alexander Brown, Samuel Browne, Edward Bulkley and Daniel Dubois. Where localised, most specimen is from Fort St George/Madras but there are also collections from Bombay, Bengal and Surat.

Sloane, Hans (1660–1753): Born in the north of Ireland, Sloane trained as an apothecary in

London and as a physician in France before travelling to Jamaica as physician to the Governor of the English colony in 1687. In Jamaica, Sloane collected extensively and would later in life publish a lavishly illustrated two-volume account focusing largely on the island's flora. He returned to London in 1689 where he established a lucrative medical practice and married Elizabeth Langley Rose, the widow of a Jamaican plantation and slave owner who Sloane had met during his time on the island. With his wealth, Sloane amassed a vast collection comprising not only natural history specimens but also books, coins, medals, miscellanea and art works and his collection formed one of the foundation collections of the British Museum following his death. Transferred to South Kensington in 1881, Sloane's herbarium can be considered part of the *de facto* foundation collection of the Natural History Museum. As Secretary and later President of the Royal Society, and of the Royal Society of Physicians, Sloane maintained an extensive network of correspondents. As noted previously, much of Sloane's herbarium was acquired from other collectors. Within the 13 *Horti Sicci* and over 4,000 specimens that were considered part of Sloane's own collection by Scott *et al.* (2025), there are very few specimens from India and most are likely from Bulkley. Among the eight *Horti Sicci*, comprising more than 1700 specimens that Hawkins assembled from the collections of Sloane and Petiver while employed by Sloane, there are more Indian specimens and both Bulkley and Browne are represented. The 33 *Horti Sicci* comprising over 18,000 specimens that were not assigned to a collection by Scott *et al.* (2025) but that are considered here to be part of Sloane's collection, are a richer source of Indian specimens. Alexander Brown, Samuel Browne, Daniel and Mary Dubois and Edward Bulkley are all represented with specimens from Fort St George and a few from Bengal among them. It is thus evident that, for the Sloane Herbarium in its entirety, the richness of Indian specimen comes from collections that Sloane acquired from others.

Uvedale, Robert (1642–1722): Cambridge-educated school master in North London who taught sons of noblemen and gentlemen including two of Sloane's nephews. Uvedale was well known for his horticultural skills and his impressive and well-stocked garden that is thought to have had the first example of a *Cedrus libani* A.Rich in England. Considered a 'gentleman gardener', Uvedale was a prominent individual in early-eighteenth century botanical networks and received seeds from Sloane for his garden. Uvedale assembled an herbarium of 16 *Horti Sicci* and nearly four thousand specimens that was acquired by Sloane in 1740 after the death of Uvedale's widow. It is considered one of the best preserved in the Sloane Herbarium and is ordered according to John Ray's classification. While rich in plants cultivated by Uvedale in his garden, there are also plants from other parts of the world, including some Indian specimens from Alexander Brown and Edward Bulkley. Uvedale also donated to Sloane a collection of 100 Vegetable Substances from Fort St George, of which 33 survive. The source of those samples is unknown, but Uvedale's brother, Henry, is a possible source. He was an East India Company captain on board the *Herbert* that sailed to Bengal in 1682 and to Benkulen in Sumatra in 1685.

Discussion

During the course of our research, we have identified more than 8,000 pre-Linnaean specimens from India in the herbaria at the NHM and the University of Oxford. At least 26 different individuals were responsible for contributing these Indian specimens to the fourteen different collections we have identified in these institutions. Among the contributors, individuals such as Bulkley and Browne contributed many hundreds of specimens that are widely distributed across many different collections. Others contributed many fewer specimens, and in some cases, just a single collection. Many of the contributors we have identified were medical practitioners, with Adair, Brown, Browne, Bulkley, Cuninghame, Fox, Sambach, Stuart and Waldo all employed

as surgeons, typically aboard ships or at the factories of the East India Company. Plants were an essential resource for medical practitioners at this time, and an interest and knowledge of plants was integral to their professional role. Other contributors, notably Daniel Dubois, Maidstone and Mewse, and likely Gyfford, were merchants or officials of the EIC either in India or in the East Indies more generally, in which case they would likely have passed through India en route. Randall was a gardener at Fort St George and Lewis a clergyman there. Clearly, the EIC and trade with India played a pivotal role in the development of pre-Linnaean knowledge of the Indian flora in Britain and Europe.

Not all names that appear on specimens can be linked unequivocally to an individual and further research may help to clarify these individuals and their Indian connections. For example, little is known of George Stonestreet, brother of the clergyman and antiquarian William Stonestreet. However, archival records suggest George Stonestreet was on a ship dispatched to India in around 1696 (e.g. St. Helena; Cronk, 2000). Collections from Mr Hynmers from Fort St George are dated 1706, consistent with a voyage made by Joseph Hynmers, an EIC Supercargo, whose father had been deputy Governor of Madras and died in Madras in 1680. While there are plausible links to India for several of the lesser-known contributors, for other contributors of Indian specimens, it is almost certain that they never visited India. This is the case for several contributors of small numbers of specimens to Sloane's Vegetable Substances collection, e.g., Gilbert Heathcote (24 samples), Mary Somerset (1 sample), William Gore (2 samples), Luke Rugeley (2 samples) and James Thoebold (17 samples). These individuals are perhaps better considered 'intermediaries' in the circulation of Indian botanical specimens rather than as 'collectors'. These 'intermediaries' who contributed to Sloane's Vegetable Substances were of high social standing, several with links to the EIC and several were known correspondents

of Sloane (Scott, 1904). It is likely that the items they contributed were 'curiosities' given to Sloane, the intermediary having acquired them through the trade with India, and aware of their friend's eclectic collecting interests. Scott *et al.* (2025) noted that the groups of individuals who supplied specimens for Sloane's herbarium and Vegetable Substances were very different with only 12% of 500 collectors represented in the two collections represented in both. This is likely a reflection of the very different practical requirements of making plant specimens compared with gathering and transmitting seeds or other plant products, a much easier task.

Only two of the contributors identified - Mary Somerset and Mary Dubois - were female. Moreover, all named collectors were Europeans, despite European collectors having to negotiate with Indians to find out about, and obtain, specimens and knowledge that were often accessible only through the mediation of local peoples (Raj, 2007). The labour and knowledge of an 'Indian (or sometimes 'East Indian') druggist' is recognised in Adair's samples of remedies in the Vegetable Substances, although the individual (or individuals) remain unnamed. The Tamil names and plant uses recorded with the specimens of Browne and Bulkley provide clear evidence of the co-creation of knowledge between Europeans and Indians and the significance of Brown's interaction with the Moghul forces in making his collection is well established (e.g. Winterbottom & Prakash, 2020). However, the roles played by Indians in the collections made by other named contributors and their identities remain unknown.

The significance of the EIC in shaping collecting during this period is evident not only in the links of individuals to the EIC but also from the geography of the collections. Madras and Fort St George are the most common place names recorded. The trading factory at Fort St George was established in 1639 and had become the main trading factory of the EIC in India by the

early-seventeenth century (GHCC, 2025). The Coromandel Coast is also recorded as a locality as are other EIC factories on this coastline: Fort St David to the south of Madras, purchased by the EIC in 1690; and Vizagpatnam to the north, where an EIC factory was also established in the 1690s (Subba Rao, 1989). Further north, in Odisha, specimens from James Cuninghame are recorded from Balasore, which was established as an EIC trading factory in the middle of the 17th century but which, by the time of Cuninghame's collecting, served as a station for ship's supplies and provisioning a pilot for the voyage into the Hooghly estuary. Many specimens were collected in Bengal, where there was a long history of trade through EIC factories at Burhanpore (established 1616), Dacca (1666), Hooghly (1676) and Calcutta (1690).

On India's west coast, specimens came from Surat, a rich and prosperous Moghul port, where an EIC factory was established in 1612. Bombay became an EIC possession in 1669, with the Isle of Elephante, from where Alexander Brown obtained specimens, located in its large natural harbour. Further south, Brown also collected at Karwar, site of an English factory from 1638, and on the Malabar Coast, where an EIC factory was established at Calicut in 1620. Alexander Stuart's two specimens in the Vegetable Substances, collected 'from the shores of Malabar & Canara' and 'in the marsh fields near Bombay and Surrat' hint at collecting outside of the confines of those English factories along India's west coast.

As already noted, the collections made by Samuel Browne, from sites in the interior of modern-day Tamil Nadu and Andhra Pradesh – in some cases up to 70 miles from the EIC factory at Fort St George – reflect his connections with the Moghul rulers of the territory (Winterbottom & Prakash, 2020).

The provenance of the Vegetable Substance collected by Cuninghame that Sloane recorded in his catalogue as 'Brought from the Nicobar

Island' is less easily explained. The Nicobar Islands were not colonised by Europeans before Danish occupation in the middle of the eighteenth century. However, routes through the archipelago were known to EIC ships at this time (e.g. British Library IOR/L/MAR/B/605A). Furthermore, we know from Cuninghame's notes that his ship, the *Tuscan*, passed north through the Malacca Strait in 1699 where, he notes 'our Ship called *Tuscan* ran aground on rocks' (Jarvis & Oswald, 2015). Might the *Tuscan* could have stopped briefly in the Nicobar Islands for repair? The description of this object's origin might equally suggest that Cuninghame encountered it after it had already been traded from the archipelago, plausibly in Balasore or from an EIC factory in Bengal, where Cuninghame also collected. The catalogue description of the sample indicates that it may have been used 'instead of Ambergrease?' and speculates that it may be 'an amber?' The source of ambergris, an expensive commodity with many uses, was a matter of debate in the late-seventeenth century, including at the Royal Society (Dannenfeldt, 1982). As a Fellow of the Royal Society and a medical practitioner, Cuninghame's interest in such a curiosity encountered during his travels, and his desire to communicate any new findings to his curious friends in England, would have been understandable.

In this article, we have identified and described fourteen distinct collections that include specimens from India. They were originally owned by thirteen different people, although nine would ultimately form part of Hans Sloane's collections. Some of those collections contained extensive Indian collections, for example, those of Dubois, Sherard, Plukenet and Petiver, with each comprising many hundreds of Indian specimens. Holdings among other collections are more modest; for example, Samuel Dale's herbarium contains fewer than a hundred Indian specimens. This patterns of distribution across collections reflect both the routes through which Indian material arrived in England, with some

individuals acting as the conduit for the arrival of specimens, together with the subsequent exchange of specimens between collectors within England.

In the case of Samuel Browne, James Petiver took great care to ensure that he would become the primary recipient of Browne's Indian specimens. As Coulton (2020) notes, Petiver discouraged Browne from pursuing correspondence with others, notably John Watts at the Chelsea Physic Garden and he also sent Browne gifts of specimens that would serve as models for the collections that Browne compiled. Charles Dubois was the primary recipient of specimens from his brother Daniel and sister-in-law Mary. No other collection has the same quantity of specimens from Daniel and Mary. That the collections of Petiver and Dubois have large collections from India reflects their role as key nodes in the network.

However, it is also clear that the exchange of Indian specimens was important in developing the collections we describe. Petiver's herbarium includes a specimen from Fort St David, collected by Alexander Brown. He writes on the label that 'Mr. Charles Dubois was pleased to favour me with a specimen of this AD 1698 gathered at Fort St David, by Mr. Alex. Brown, Surgeon. Similarly, we can find in the Sloane Herbarium today, specimens from Samuel Browne in the collections of Buddle, Petiver, Richardson, Courten, and Sloane himself. The exchange of specimens between collectors was an important mechanism for maintaining relationships and for increasing the scale and taxonomic and geographic breadth of a collection (e.g. Jarvis, 2020; Carine, 2020). Interesting specimens would have been highly valued. Courten even made available for sale any duplicates of specimens from unusual places (Kasukawa, 2020). We have yet to establish the extent to which the specimens across herbaria are duplicates of one another.

While the scope of this article covers the pre-Linnaean period in its entirety, it is evident most Indian specimens represented in English collections

were gathered in a much narrower time window. The twenty-year period between 1690 and 1710 could be considered the first age of discovery of Indian botany by English natural historians. Thousands of specimens were gathered and exchanged during this time and those specimens were used to describe species in works such as John Ray's *Historia Plantarum* (Ray, 1686–1704), Leonard Plukenet's *Phytographia* (1691–1705) and James Petiver's *Musei Petiveriani* (1695) and *Gazophylacii* (1702–1706). A wildcard search on 'Madras' in Sloane's annotated copy of John Ray's *Historia Plantarum* (1686–1704; Pickering *et al.*, 2024) reveals over 600 polynomial names used to catalogue specimens in Sloane's herbarium that are likely from southern India demonstrating the scale and significance of the work undertaken using these collections.

The group of people involved in gathering those specimens, transmitting them to England, incorporating them into collections and using them to document diversity was extremely small and intimately connected. Many of the individuals knew each other and the relatively short-lived nature of pre-Linnaean botanical collecting in India perhaps reflects its dependence on this small, interconnected network. For example, Plukenet's herbarium contains the specimens made by Sambach. Sambach knew Browne from India, and, in 1691, he discussed with Petiver the specimens he had received from Browne. This prompted Petiver to take up correspondence with Browne; with the letters he sent conveyed by Alexander Brown who also collected specimens. The flow of specimens from Fort St George initiated by Browne was later continued by Bulkley, who adopted a similar approach to recording names and uses that Browne has developed, at the suggestion of Petiver.

Among Europeans in India, collecting herbarium specimens appears to have been largely an English approach to engaging with the flora of the subcontinent. The Portuguese had traded with India since the early 1400s; the Dutch East India Company

was established in 1605, with the Danish East India Company in 1620 and the French Compagnie des Indes orientales established in 1664. To our knowledge, however, there are no comparable Indian collections from this period in the Netherlands, Denmark or France. The single specimen in the collection of the Dutch botanist Franz Kiggaeler (now in the Sloane Herbarium) and described as an 'Alcaea from Bengale' could have been sourced from a Dutch factory in Bengal - of which there several by this time - or through exchange with English collectors. Collecting was certainly taking place in other Dutch colonial settings since Kiggaeler's collections are rich in specimens from colonial possessions in the Americas and South Africa (Dandy, 1958) and Paul Hermann, collected extensively in Sri Lanka while employed there as the Dutch East India Company Chief Medical Officer (van Andel & Barth, 2018). At the same time, both the Dutch and the French were engaged in other approaches to document the Indian flora. *Hortus Malabaricus*, describing the flora of western India, contains descriptions and illustrations of more than 740 species, with special emphasis on their medical applications. It was issued in twelve volumes under the patronage of the Dutch Governor at Cochin, Hendrik van Rheede between 1678 and 1693. At the same time as Browne was sending specimens to England, the French surgeon Nicolas L'Empereur embarked on his *Jardin de Lorixa* ('Flora of Orixá', i.e. Odisha), that similarly documented vernacular names and recorded medical and economic uses (Raj, 2007). Differences in the approach to engaging and documenting the flora of India by those engaged by the different European trading companies active in India at this time would certainly merit further work.

Linnaeus recognised the value of works by Plukenet and Petiver and based the binomial names of some Indian plants on the illustrations included in their publications (Jarvis, 2007). However, for the most part, the collections assembled during this period and the knowledge of plant diversity generated using those collections were largely forgotten. They made use of a polynomial system

of nomenclature that would become out of date following the publication of *Species Plantarum* by Linnaeus in 1753, and, for the most part, they were bound in large, unwieldy volumes, that did not conform to the approach for managing herbaria using loose sheets that was advocated by Linnaeus. Later British colonial botanists such as William Roxburgh (1751–1815) and Robert Wight (1796–1872) in publications such as three volumes of *Plants of the Coast of Coromandel* (Roxburgh, 1795–1819), *Flora Indica* (Roxburgh & Carey, 1832), *Prodromus Florae Peninsulae Indiae Orientalis* (Wight & Arnott, 1834), *Icones Plantarum Indiae Orientalis* (Wight & Arnott, 1840–1853), and *Illustrations of Indian Botany* (Wight 1840–1850) would, largely independently, 'rediscover' the botanical riches of India a century or more after the efforts of those first English contributors and makers that we describe in this paper.

Many of the specimens included in the collections described here lack the provenance data we would expect of specimens made today. The site of collection may be missing or vague, there may be no date, and the collector may or may not be recorded. Nevertheless, these collections provide a unique resource for investigating environmental changes over the past three centuries as well as changes in the ways in which people have perceived, understood and engaged with plants. A project "Reconstructing the Flora of Madras in the late 17th and early 18th centuries", funded by the Royal Society of London, is currently underway to digitise and make accessible images and data from pre-Linnaean specimens from India at the NHM and University of Oxford. Building on this, an annotated checklist of Flora of Madras in the late 17th and early 18th centuries is being prepared to investigate floristic changes during this period in which Madras expanded from a modest settlement of 30,000 into the megacity of Chennai today with around 12 million people. Tamil names and plant use recorded with those specimens will also be investigated to understand changes in the naming and uses of plants over the last 300 years.

The collections that resulted from the efforts of the individuals we describe in this paper over 300 years ago remain an invaluable research tool today. In recognising the contributions of early collectors and their local collaborators, we acknowledge both the scientific and colonial dimensions of these enterprises. Herbaria are not only archives of biodiversity but also repositories of the entangled histories of empire, commerce, and knowledge exchange. As such, they continue to inform contemporary debates about ecological change while illuminating the hidden histories of natural history's development in colonial South Asia.

Acknowledgements

This research was supported by the Royal Society International Exchange Programme (2023, Round 2: IES\R2\232211) and we are grateful to the Royal Society of London for their support. We are grateful to Richard Coulton (Queen Mary University of London) and Mark Watson (Royal Botanic Garden Edinburgh) for their comments on the manuscript that greatly improved it. Richard also generously shared additional information, much of it unpublished that enriched several of the accounts of collectors. We are grateful to the senior management of the Natural History Museum, the University of Oxford Herbaria, and the Principal and Head of the Department of Botany, Madras Christian College, Chennai for facilitating this collaboration. We also extend our thanks to the diverse collectors, contributors and makers of herbaria, whose contributions have provided invaluable resources for understanding the historical floristic diversity of India.

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