

Plant lists from 'olde' Madras (1698–1703)

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Samuel Browne, a surgeon attached to the Military Hospital at Fort St George, Madras (1688–18), collected plants from villages around Madras (c. 30 km radius) and once from Tirupati (120 km). The collected plants were sent to the Royal Society of London, where James Petiver – an apothecary, botanist, entomologist, natural historian – determined and later published them in the Philosophical Transactions (of the Royal Society of London) between 1698 and 1703. Presently, the materials sent by Browne are stored at the Natural History Museum, London, under Sloane's collections, because Hans Sloane acquired Petiver's plant collections, which include Browne's dispatches from Madras sent in 1696. By the present standards, the descriptions of plants provided by Petiver are awkward and complex, because of the then prevalent system of polynomial system of nomenclature using Latin descriptors, mixed with Indian vernacular (Tamil) names as supplied by Browne in his notes. Nonetheless, this set of papers is a valuable source of information for understanding the nature and diversity of the flora in the dry, semi-arid segments of the present Tamil Nadu and adjoining segments of Andhra Pradesh of the 1700s. The purpose of this article is to highlight some of the forgotten and ignored pages of the botanical history of Madras and clarify the basic details available in these papers, so that they could be explored extensively by competent botanists of the Coromandel to bring out the science of plants they include.

Samuel Browne (also spelt as 'Brown') was a surgeon attached to the Military Hospital at Fort St George, Madras in the 17th century (note 1). He collected and documented a little more than 300 plants from different villages around Fort St George (Figure 1), ranging in distance from 30 to 120 km in the Coromandel (Figure 2). He sent them to England, with a request to be seen by James Petiver, an upcoming natural historian of that time, trained by the English naturalist John Ray (also written as Joannes Rajus, John Wray). Therefore, the sent materials were moved to the Royal Society of London, where they were examined, identified and catalogued by Petiver, a Fellow of the Royal Society. Eight articles referring to these plant collections sent from Madras were published in the *Philosophical Transactions of the Royal Society of London* in 1700–01, 1701–02 and 1702–03 (Table 1, Figure 3).

Samuel Browne and James Petiver

Browne was recruited by the Council at Fort St George as a relieving surgeon in 1688. This became necessary because of the sudden death of the then officiating surgeon John Heathfield and the nominated successor Edward Bulkley (also spelt as Buckley, Bulkly) could arrive from England only much later. Further to executing surgeon's duties, Browne was commissioned to collect medicinally

useful plants from within and around Madras area (referred as Fort St George) and send them to England with appropriate notes on their usefulness (referred as *vertues*). Initially housed in the rooms of the Royal Society in London, these materials were later shifted to the British Museum, and to the Natural History Museum (of London) in the 19th century¹.

Browne's biographical details are available in Dandy², pp. 99–102. The following note, published in the 20th volume of the *Philosophical Transactions*², p. 100 is self-explanatory:

'The Honourable the East-India Company, having received from Mr Samuel Browne, a Physician who has liv'd Seventeen Years in their service at Fort St. George, or Madaras (Madras), in the East-Indies, a very considerable collection of dried specimens or Samples of Plants, Fruits, and Drugs; together with an Account (notes) of his observations of the Uses of them, by the Natives and others of those Parts, both in Physick (health), dying (dyeing, colouring, staining), etc. have very generously and for the Publick (public) Good, presented them to the Royal Society of London for improving Natural Knowledge: Who considering the great Use and Improvement may be made of such Collections, have ordered that the Publick shall have the Benefit of this Present (gift), by receiving the whole

Account that came with them, from time to time in these Papers, and by taking care that the things themselves shall be preserved from Corruption in their Repository, where recourse may be had to them by the curious, so soon as they are put into such a Condition, as not to suffer by being handled.'

Browne's medical career was in jeopardy when James Wheeler, Member of the Fort St George Council, died because of a medication dispensed by Browne in 1693. Wheeler's death was later found to be due to inadvertent pounding of the medication in the same mortar, in which arsenic was pounded previously for another patient. Browne went on trial, but was acquitted^{3,4}. He died in Madras in 1698.

Petiver (1663–1718) trained as an apothecary at St Bartholomew's Hospital, London. By 1692, he was running his own apothecary shop in London. He was a passionate natural historian with a keen interest in insects and plants. By 1697, his plant collection numbered to 6000. He was a close associate of John Ray, remembered for his three-volume *Historia Plantarum*. Petiver assisted Ray when Ray was writing *Historia Plantarum*⁵. From 1709, Petiver taught botany at the Society of Apothecaries. He has published several papers in the *Philosophical Transactions*. His *Musei Petiveriani: Centuria Prima Rariora Naturæ Continens* (1695–1703)⁶ deals with the descriptions

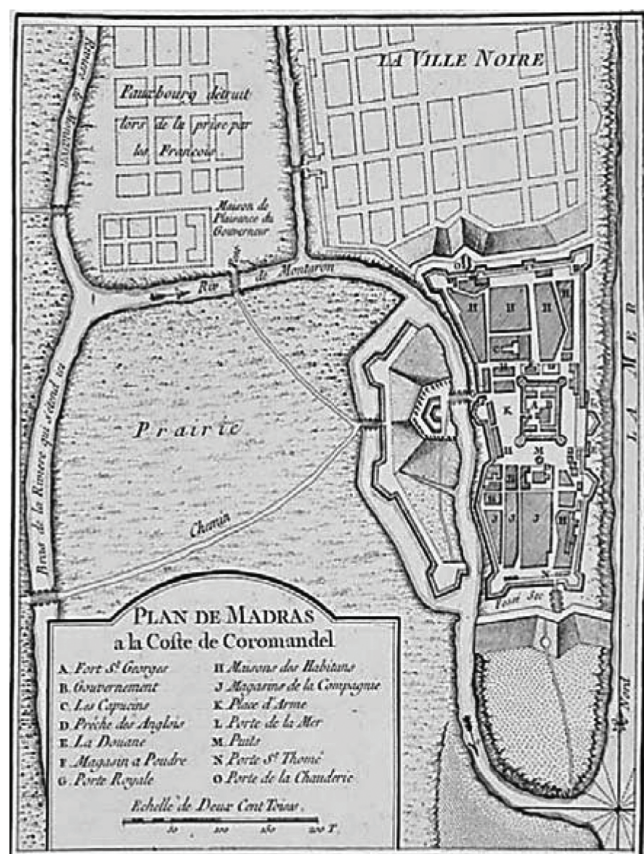


Figure 1. Map of the Fort St George and Madras by Jacques-Nicholas Bellin in *Le Petit Atlas Maritime Recueilli de Cartes et Plans des Quatre Parties du Monde* (1764, vol. III). Fort St George (A) – Fort St George. Gouvernement (B) – Principal offices of the government. Les Capucins (C) – Residence of Friars Minor Capuchin priests. *Prêche des Anglois* (D) – English (Protestant) chapel. La Douane (E) – Customs office. Magasin à Poudre (F) – Gun-powder warehouse. Porte Royale (G) – Grand gate. Maisons des habitants (H) – Residences. Magasins de la compagnie (J) – EEIC Company offices. Place d'Arme (K) – Army station. Porte de la Mer (L) – Sea-facing gate. Puits (M) – An ornate fountain. Porte St Thomé (N) – St Thomas Gate. Porte de la Chauderie (O) – Chauderie Gate (Chauderie could not be deciphered; possibly it refers to 'Chattiram' (choultry). There was a Chairman gate to Fort St George in the 18th century). Riv. (Rivière) de Montaron – River Cooum. La ville noire – White town. La Mer – Bay of Bengal. Prairie – Grassland. Chemin – Road. Fauxbourg détruit lors de la prise par les Français – Dilapidated residential suburb, because of the French army attack of Madras, led by Bertrand-François Mahé de la Bourdonnais in 1746. Maison de plaisance du Gouverneur – Governor's summer house.

of several plants, animals, and fossils⁷. Britain sees Petiver as a 'promoter of natural science'⁵.

Browne's commission to collect plants in Madras

Browne was commissioned by the English East-India Company (EEIC) to collect seeds and plants from Madras for introduction into Britain, mostly as elements of curiosity and, where possible, for medicinal use. In 1696, he shipped several seeds and plant cuttings, and well-preserved herbarium sheets to England. The seeds were planted in the

most 'curious' gardens of England (note 2), one of them being the Apothecaries' Garden at Chelsea, London, established in 1673, which later came to be known as the Chelsea Physic Garden. No details are available whether the introduced seeds survived and grew.

Hans Sloane, Secretary of the Royal Society and editor of the *Philosophical Transactions*, in Petiver's Article 2 (Table 1) announces that only the 'first book' (first part) of Petiver would be published in the *Transactions* and the subsequent 'books' would be made available at the Gresham College (note 3). In fact, all of them were published in the *Philosophical Transactions*

(Table 1). These papers, written by Petiver, are based on the observations of and notes made by Browne in and around Madras in 1696, with plant determinations and supplementary interpretations made by Petiver. When received in London in 1697 (note 4), the specimens were well preserved and included detailed hand-written notes by Browne. Petiver's notes and descriptions were attached to the folios, and, with Browne's labels, were published in the *Philosophical Transactions*². The following remark by Sloane, inserted within the Browne and Petiver article⁸, p. 580, in his capacity as the editor of *Philosophical Transactions*, illustrates the level of interest shown by the British on seeing foreign (here, Indian) natural materials (note 5):

'That they may be of great use to the public, is manifest from this one particular. Some years ago, I think ever since the year 1672, a root was made great use of with some success in epileptic, convulsive or head diseases; it was called by Dr Peachy, a Physician since dead, *Cassumuniar* (note 6), and a sheet of paper was then printed of its virtues. It seemed to be a kind of *zedoary* (note 6) better than ordinary, but whence it came, or how to come by it (the name being feigned to hide it) and the person dead, none could tell. When I saw this collection at the East-India-house, I found among other things this root by the name of Bengalle (Bengal, Calcutta) and an account that it was much used by the Natives in the Indies.'

Interest in plants, especially in medicinal plants in India

That ancient Indians knew of plants as valuable materials of food, fibre and shelter is well known. Equally well known is that Indians knew plants as useful materials in managing human health. Ayurveda evolved into a sophisticated system by the 1st and 2nd century AD several volumes of Indian heritage articulate this point, including the *Śrangadara Samhitā* (32 cantos, 2600 verses) in which the canto *Bhaiśajyakyānā* refers to collecting medicinally useful plants⁹. It alludes to the 'time' for collecting the best-quality material, methods of collection, and how seasons influence and alter plant metabolism, and thus, the

compounds useful in treating diverse illnesses. So much so, Indians have catalogued plants of other uses in agriculture and horticulture, and documented them: notable among them is Vrikṣa Ayurvēdā, which technically speaks of plant-health management¹⁰.

The earliest acclaimed book – based on Western scientific thinking – from India that lists plants and their medicinal values is the 12-volume *Hortus Malabaricus* (HM) compiled by the Dutch Governor of Cochin, Hendrik Adriaan van Rheede tot Drakenstein (1636–91), co-operating with a team of Indian intellectuals such as Itty Aṭṭan, published between 1678 and 1693 (refs 11, 12).

Several Western science-based materia medicas, exploring Indian plants and their potentials, appeared in India in the 18th and 19th century¹³. Technically, plant exploration and medical practice went hand in hand¹⁴. For example, Samuel Benjamin Cnoll, a Halle-trained surgeon and a Moravian evangelist, established Laboratorium Chymicum (= pharmacy) in Tarangampadi (11°1'N, 79°50'E) near Tanjavur in 1732, from where he compounded and dispensed medications using locally available raw materials, most of them of plant origin, but following the then popular Danish Pharmacopeia: Thomas Bartholin's *Dispensatorium Hafniense*¹⁵. A majority of the British and Continental surgeons working in India evinced a deep interest in knowing about Indian plants and their therapeutic potential. Contributions of William Roxburgh (1751–1815)¹⁶, Robert Wight (1796–1872)¹⁷, and Joseph Hooker (1817–1911)¹⁸ – trained medical doctors – to Indian botany need to be reckoned here.

The Petiver articles

Article 1 (Table 1) is a verbatim reproduction of the letter Petiver wrote to Samuel Browne in Madras on 24 September 1698, after receiving the (first?) consignment of dry plant materials (note 7). The following passage from article 1 (pp. 313; 335) demonstrates the reciprocal nature of relationship between the London-based Petiver and Madras-based Browne:

'My opinion of the plants you collected at *Unanercoonda*, about twelve miles (19.3 km) from Fort St. George.



Figure 2. Map of the Coromandel Coast by Jacques-Nicholas Bellin in *Le Petit Atlas Maritime Recueilli de Cartes et Plans des Quatre Parties du Monde*, 1764, vol. III. Bellin refers to the western and southern districts of Fort St George as Tondai Mandalam and Tanjaor (Tanjavur Kingdom). *Tondai Mandalam* was commonly used at least until the later decades of the 19th century. Tondai is *Capparis zeylanica* (Capparaceae) and mandalam means a vast area: a vast area occupied by dense *C. zeylanica* populations.

As you desired, are as follows; in the same order (= sequence) and under those Malabar names and numbers you sent them to me (p. 313) ... Thus, Sir, I have given you my Sentiments of this your *Unanercoonda Collection*, and if herein I can be further Serviceable to you, be pleased freely to Command (p. 335).'

This relationship seems to have changed subsequently. In article 2 (Table 1) Petiver includes Browne as the first author, but in the later published articles (3–8), Browne's name figures only in the title, and not as an author, suggesting a subordinate role of a collector. Browne's death in 1698 could have been a reason. Table 2 provides a summary of dates and names of localities travelled to by

Browne for collection of plants in and around Fort St George.

Remarks

Most likely, Browne was interested in plants to the extent that they were useful in managing human health. Also because the EEIC commissioned to him to obtain plants of Fort St George (i.e. Madras), he must have explored the villages listed in Table 2. From Petiver's articles, it is clear that Browne supplied comprehensive notes to him. Browne provides details of the landscapes he travelled. For example, in article 2 (Table 1) he indicates that plants were collected from a village, which he identifies as Hinguer Pollum (not identifiable by me, although

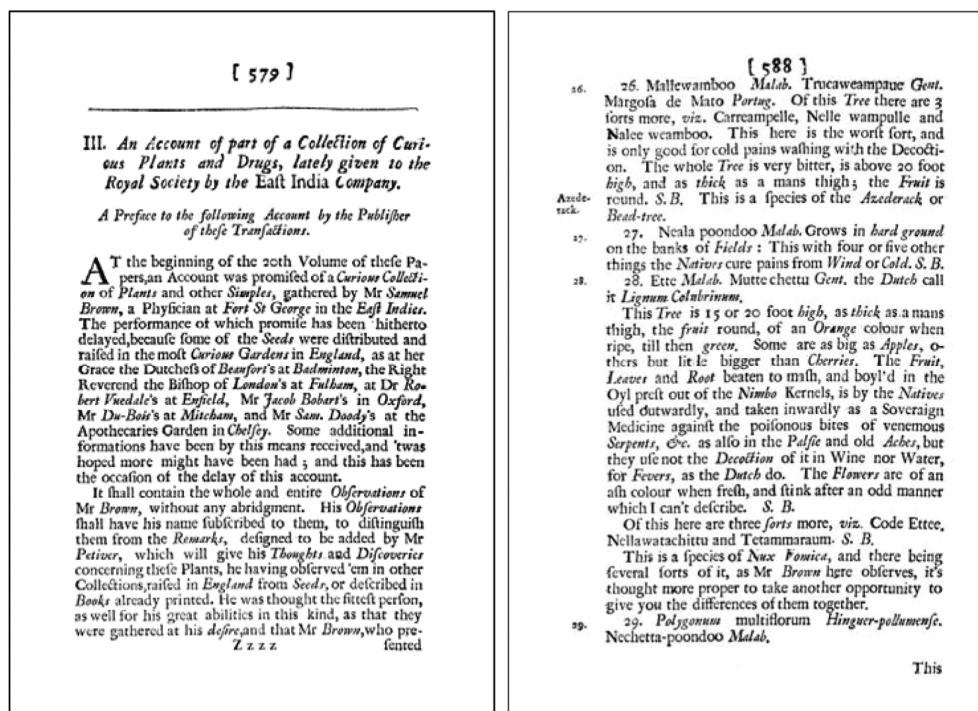


Figure 3. Samples of p. 579 and p. 588 from Browne and Petiver (1700–01).

Table 1. List of papers on the 'flora' of Madras, 1698–1703*

1. Petiver, J., An account of some Indian plants, &c. with their names, descriptions and vertues; communicated in a letter from Mr James Petiver, Apothecary and Fellow of the Royal Society to Mr Samuel Brown, Surgeon at Fort St George. *Philosophical Transactions*, 1698, **20**, 313–335.
2. Browne, S. and Petiver, J., An account of part of a collection of curious plants and drugs, lately given to the Royal Society by the East India Company. *Philosophical Transactions*, 1700–1701, **22**, 579–595.
3. Petiver, J., An account of Mr Sam Brown. His second book of East India Plants, with their names, vertues, description, &c. By James Petiver, Apothecary, and Fellow of the Royal Society. *Philosophical Transactions*, 1700–1701, **22**, 699–721.
4. Petiver, J., An account of Mr Sam Brown, his third book of East India Plants, with their names, vertues, description, &c. By James Petiver, Apothecary, and Fellow of the Royal Society to which are added some animals sent to him from those parts. *Philosophical Transactions*, 1700–1701, **22**, 843–862.
5. Petiver, J., A description of some shells found on the Molucca Islands as also an account of Mr Sam Brown, his fourth book of East India Plants, names, vertues, description, &c. By James Petiver, Apothecary, and Fellow of the Royal Society. *Philosophical Transactions*, 1700–1701, **22**, 927–946.
6. Petiver, J., An account of Mr Sam Brown, his fifth book of East India Plants with their names, vertues, description, &c. By James Petiver, Apothecary, and Fellow of the Royal Society. *Philosophical Transactions*, 1700–1701, **22**, 1007–1029.
7. Petiver, J., An account of Mr Sam Brown, his sixth book of East India Plants with their names, vertues, description, &c. By James Petiver, Apothecary, and Fellow of the Royal Society. To these are added some animals, &c. which the reverend Father George Joseph Camel, very lately sent him from the Philippine Isles. *Philosophical Transactions*, 1702–1703, **23**, 1055–1068.
8. Petiver, J., Mr Sam Brown his seventh book of East India plants, with an account of their names, vertues, description, &c. by James Petiver, Apothecary, and Fellow of the Royal Society. These plants were gathered between the 15th and 20th of June AD 1696. In the ways between Fort St George and Trippetee, which is about 70 miles off. *Philosophical Transactions*, 1702–1703, **23**, 1251–1566.

*Full papers are freely downloadable at: <http://rsfl.royalsocietypublishing.org/>

the second word Pollum may be read as Palayam), 20 miles (c. 32 km) off Fort St George. Browne describes the landscape of this locality as 'plain', 'clay' soil, somewhat 'stony', unsuitable for agriculture, and a 'mere (spelt as 'meer') wilderness'.

Article 2 (Table 1) includes details and descriptions of 47 plants. As a sample, Box 1 reproduces the description supplied for 'cherry-mango'.

What is described as *moruttan-chidde* above is possibly *Lawsonia inermis* (Lythraceae), because *moruttan-chidde*

can be read as maruthāni-chédi (Tamil), viz. henna. The reference to pleasant-smelling flowers additionally suggests this determination. Today we know that the petals of *L. inermis* smell sweet, because of α - and β -ionones. Some old literature on India, loosely refers to the

Table 2. Villages travelled to by Samuel Browne and dates of collection

Locality	Distance from Fort St George	Date
1. Unanercoonda (?) (Nerkundram?)	12 miles	Not available
2. Hinguer Pollum (?)	20 miles	26–28 February 1696
3. Pearmeedoor (Sri Perumbudur)	16–17 miles (36 km)	26–27 April 1696
4. Chamberamback (Chempampakkam) Aumerampead (Amarampedu)	14–17 miles (30 km)	22–27 March 1696
5. Perre-pollum (Periyapalayam) Eremita-pollum (Erumai-vetti-palayam)	12–14 miles (40 km)	1–4 April 1696
6. Salawacka (Salawakkam) Keraputta Kaudoo (???? Kādu)	30 miles (77 km)	23 July–5 August 1696
7. —*	—	—
8. Trippetee (Tirupati)	70 miles (133 km)	15–20 June 1696

Current names of those localities, wherever traceable, have been shown in brackets.

*Petiver explains the contents of this article as being that of the plants less known, and more enquired for by curious persons, and he took them out of several books supplied by Samuel Browne to him at different seasons. So the plants listed in this paper should be from various localities identified in papers 1–6, and 8.

Box 1. Description of cherry-mango (p. 581)

1 Cherry-Mango

Mango *Sylvestris* Madraspat. *fructu*, *Cerasi*. *Musæi Petiveriana* No. 659. *Moruttan-chidde* Malab.

Of this there is another sort little differing, only that the *Leaves* are longer and sharper, which the Malabars call *Coutman-chidde*.

This is a small tree about 6 or 8 foot high. I have not seen the Fruit, the Flowers have a very pleasant smell, the leaves taste almost like Tea. I can learn nothing of its Vertue as yet. – Mr Sam Brown.

whole of peninsular India as ‘Malabar’. That the term ‘Malabar’ meant Tamil country and the Tamil people occurs in Jensen¹⁴, p. 495.

Description of item 2 (article 2, Table 1, p. 581) refers to a plant with membranous pods as Madras’ flower fence. Petiver supplies supplementary notes as follows: *Crista pavonis auriculata*, *non spinosa*, *siliquis Membranaceis é Madraspatan*. In support of his determination, he draws from his own work *Musei Petiveriani*⁶ (p. 57). Linnaeus in *Flora Zeylanica*¹⁹ (pp. 64–65) places this taxon under *Cassia*, quoting Petiver’s above words as such. The Tamil name cited is *avaree*, which should be read as *āvārai* or *āvāram* (note 8). In this paper Browne and Petiver refer to the works of Leonard Plukenett^{20,21} and Ray²². Based on the Tamil name *āvārai*, other macromorphological details supplied by Petiver, and Linnaeus’ placement of this taxon under *Cassia*, in high probability, this is *Senna auriculata* (Linnaeus) Roxburgh 1832 (= *Cassia auriculata sensu* Linnaeus, 1753; *C. densistipulata sensu* Taubert, 1895).

Many notations in Petiver’s papers refer to the usefulness of the collected

plants in medicine. For example, in p. 584, the note that a decoction from the root barks of the item listed under 11 (article 2, Table 1, p. 584), identified as ‘sweet-flowered Angola’ (article 8, Table 1), Odingee or Odinee (Tamil name) is indicated for treating common cold and stiffness of limbs; from the fruits an oil is extracted, which is indicated as useful in lighting lamps and pain-relieving massage oil.

Overall, these articles offer a list of plants, collected randomly and referred in vernacular names (mostly in Tamil) and naming them using a system delineated by either Plukenett or Ray, since Linnaeus’ *Systema Naturae*²³ appeared much later in time. The polynomial system used by Petiver in these articles renders the text difficult to follow. Nevertheless, these papers offer fascinating insights into the Western science promoted by Madras in the 1700s.

Conclusion

In this article, I have endeavoured to bring to light some unknown (or forgotten, ignored?) elements in the history of

botany in India and to clarify some of the associated details as evident in these Petiver papers (1698–1703). On purpose, I have refrained from making any critical remarks on them, because I am strongly hopeful that this article will provoke competent botanists of the Coromandel to explore the Petiver papers more incisively and meaningfully. In the last few days, I got to know that Ms Rane Prakash of the Natural History Museum, London, has worked out the correct botanical identities of the Browne collections made in Madras and shortly she will be publishing those details in a professional botanical journal.

Notes

1. The Military Hospital located in Fort St George, later became the Madras General Hospital.
2. ‘Curious’ in early 18th century Britain did not mean ‘eager’ as we imply today. It meant ‘care’, ‘careful’ deriving from the term *curiosus* (Latin), which later evolved into *cura* implying ‘care’ (<https://en.oxforddictionaries.com/definition/curious>, accessed on 24 May 2018).
3. Gresham College exists from 1597; see <https://www.gresham.ac.uk/>.
4. Browne sent two volumes of seven books (parts) of plants and notes to the EEIC Office, which were received in London in 1697. Browne requests in the cover letter included within that dispatch that James Petiver should ‘have a sight thereof’ of the materials sent. The received materials were consequently transferred to the Royal Society of London, where they remained until 1781 (ref. 2).
5. The text is exactly reproduced from the original. Minor changes have been made

to offer easy readability in modern context. For example, wherever necessary, 'f' has been replaced by 's' and certain nouns starting with upper-case letters have been changed to lower-case letters.

6. *Cassumuniar* is *Zingiber cassumunar* (= *Z. montanum*, Zingiberaceae). This is variously referred in older literature: e.g. *Bengale radix*, *Bengalle indorum* (ref. 24, p. 146). *Z. cassumunar* is a native of India, specifically restricted to Bengal and the North East. Many 19th century European materia-medica refer to this medically useful plant²⁴. Zedoary is *Curcuma zedoaria* (Zingiberaceae). Modern studies on the chemistry and pharmacokinetics of *Z. cassumunar* suggest only a weak link of this material in managing epilepsy and convulsions: for instance, β -eudesmol, an essential oil of *Z. cassumunar* is possibly helpful in treating epilepsy and convulsions²⁶.
7. By the time this article was published in the *Philosophical Transactions*, Samuel Browne had died in Madras.
8. It is important to read the Tamil names, *āṁṁarai* or *āṁṁaram*, with the 'ā' read as *aah*, since *avarai* (Tamil) is the vegetable *Dolichos lablab* (Fabaceae).

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