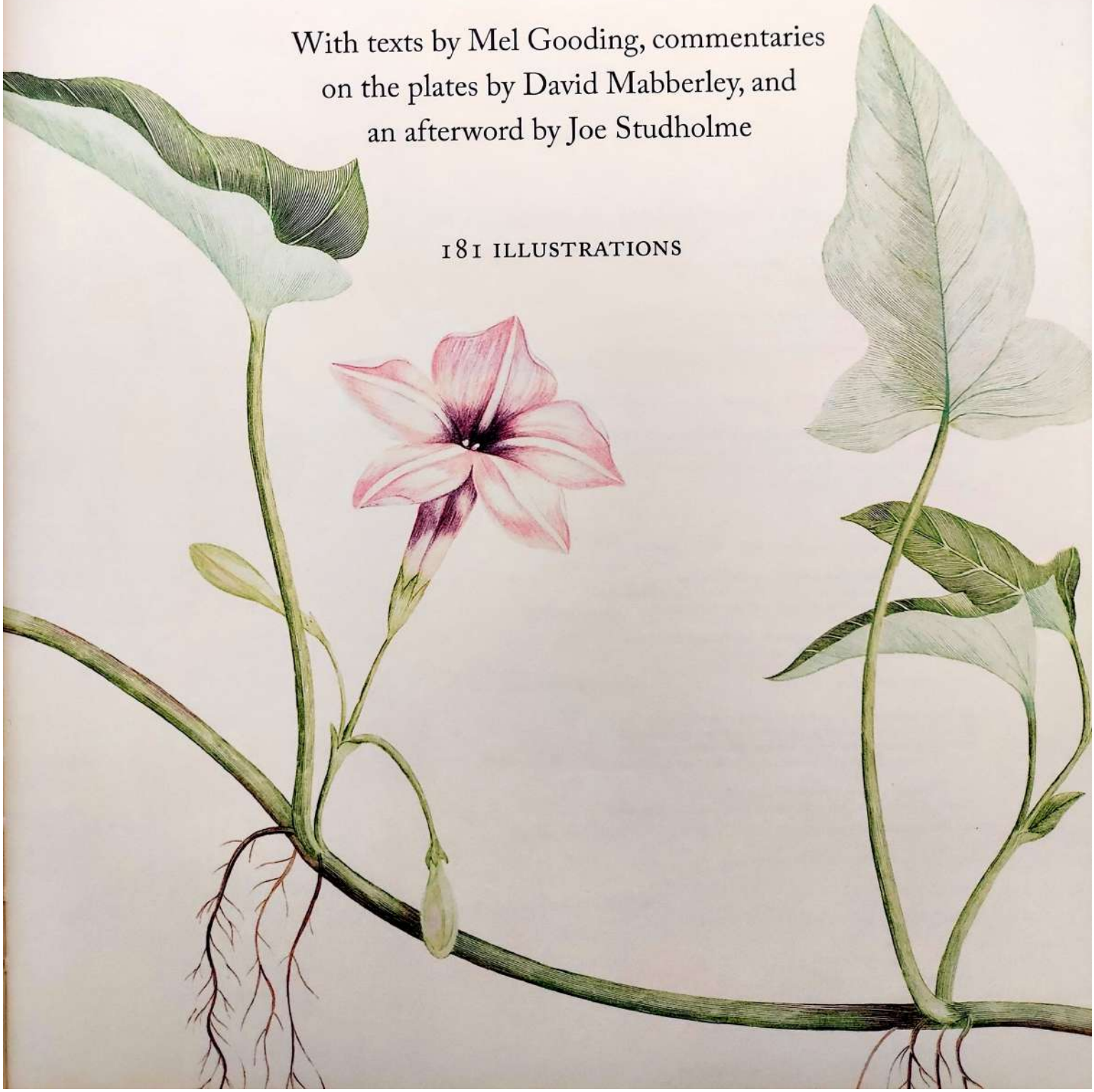
Joseph Banks' FLORILEGIUM

Botanical Treasures from Cook's First Voyage

With texts by Mel Gooding, commentaries
on the plates by David Mabberley, and
an afterword by Joe Studholme

181 ILLUSTRATIONS



20.

SPONDIAS DULCIS

ambarella, Anacardiaceae

Banks and Solander collected material of this fruit tree in the Society Islands, in what is now French Polynesia, where *Endeavour* arrived in April 1769. Solander named it 'Spondias dulcis' (*dulcis* meaning sweet), but this name was appropriated by Stanfield Parkinson, without acknowledgment, in his unauthorized 1773 book based on his brother Sydney's manuscripts. It was therefore one of the first botanical discoveries of the voyage to be published.

Parkinson wrote of the 'E avee', as he called it:

> This is a large stately tree, and often grows to the height of forty or fifty feet: the fruit, which, I believe, is peculiar to these isles, is of an oval shape, yellow when ripe, and grows in bunches of three or four, and is about the size of a middling apple, with a large stringy core: it is a very wholsome [sic] and palatable fruit, improving on the taste, which is nearest that of a mangoe [sic]; it is strongly impregnated with turpentine, and makes excellent pies when green. The wood serves for building canoes, and for several other purposes.[1]

Though its origin is unknown, the tree is apparently native in New Guinea rain forests. In the same family as the mango, the genus *Spondias* (from the Greek word Theophrastus used for a wild plum)[2] comprises about ten tree species from tropical Asia to tropical America. They produce resins that are collected by euglossine, or orchid, bees for constructing their nests. The fruits (drupes) of several species are valued, especially those of *Spondias mombin*, yellow mombin, from America, which are eaten fresh and used in ice-cream and liqueurs.

Spondias dulcis Parkinson, *Journal of a Voyage to the South Seas*: 39 (1773)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 595; Diment et al., 1987: SI1/18

1. Parkinson, 1784, p. 39
2. Mabberley, 2014, p. 814

21.

TACCA LEONTOPETALOIDES

Tahiti arrowroot, Taccaceae

Solander's name for this crop plant collected in French Polynesia was 'Chaitea tacca', *taka* being a vernacular name. Banks wrote of it in August 1769:

> a root of the Salop [salep] kind Calld by the inhabitants *Pea* [*pia*]...a certain quantity of a Paste [used in the manufacture of clothing] made of the root... which serves them also for food.[1]

Tahiti arrowroot is a beach-plant found throughout the Pacific region and is cultivated there for the starch obtained from its rhizomes, which resembles that of the unrelated arrowroot of commerce, once the bitter principle taccalin is removed. It was formerly used like cornflour and as a laundry starch. The leaves are still used in hat-making.

The genus *Tacca* comprises at least 13 species found in the Old World tropics.[2] Their fly-pollinated flowers heat up to 40°C (104°F), volatilizing an attractive scent from slender 'whiskers' (bracts) that are most familiar in the house plant *T. integrifolia*, the bat flower or bat lily, grown in Europe and North America.

Tacca leontopetaloides (L.) Kuntze, *Revisio Generum Plantarum* 2: 704 (1891)

Copper plate by William Tringham, based on Parkinson's 1769 watercolour; BF 669; Diment et al., 1987: SI2/48

1. Beaglehole, 1963, 1, pp. 343, 356

2. Mabberley, 2014, p. 837

22.

CRATEVA RELIGIOSA

barna, Capparaceae

Barna is a deciduous shrub or tree, native in the Indopacific region and growing to 15 m (50 ft) tall. In Tahiti, Parkinson noted: 'The fruit of this shrub they lay upon their corpses, and hang it upon their burial whattas.'[1] The bark is used in the treatment of urinary disorders, as it contains an active principle called lupeol, while the fruit is rich in vitamin C.

Although Solander gave it the manuscript name 'Crateva frondosa', Georg Forster (1754–1794), who was on Cook's second voyage, gave it today's scientific name, no doubt referring to the ritual Parkinson wrote of.

Crateva, commemorating Crateuas (or Cratevas; 111–64 BCE), botanist and physician to Mithridates VI ('the Great') in what is now northern Turkey,[2] is a genus of ten tropical species (five restricted to Madagascar) known as garlic pears, some of them potherbs and cultivated ornamentals.[3]

Crateva religiosa G. Forst., *De Plantis Esculentis*: 45 (1786)

Copper plate by Gerard Sibelius, based on Parkinson's 1769 watercolour; BF 586; Diment et al., 1987: SI1/3

1. Parkinson, 1784, pp. 39–40

2. N. G. L. Hammond and H. H. Scullard, *The Oxford Classical Dictionary* (Oxford, Clarendon, 1970), p. 297

3. Mabberley, 2014, p. 226

23.

THESPESIA POPULNEA

mahoe, Malvaceae

A pantropical tree of the shoreline, mahoe is now planted widely as a street tree, though it is invasive in the southeastern United States.[1] In 1770 it was introduced in England, where it is a greenhouse plant. Its flowers, which turn from yellow to purple in 24 hours, are pollinated by sunbirds and insects.

Parkinson noted in his journal that:

> This beautiful tree is planted in all Morais, being held Sacred to the Tané: they also make use of it as an emblem of peace; and always bring it in their hands when they meet with strange people.[2]

Solander's manuscript name, 'Thespesia populnea', was not published until 1807. The use of the Greek word *thespesios,* divine, no doubt refers to the practice Parkinson described; *populneus,* like a poplar (*Populus*, Salicaceae), alludes to the appearance of the leaves. Parkinson's finished drawing of this plant can be seen on p. 299.

Thespesia is in the same tribe as cotton, and it was therefore eradicated from cotton-growing areas because it acts as a host to the cotton-stainer, an insect that discolours young cotton fibres. Its hard wood, which takes a fine polish, is used to make bowls (notably for serving hoppers, a type of crepe, in Sri Lanka), gunstocks and wheel-frames.

There are some 17 species of *Thespesia* in the tropics.[3] Several are cultivated as ornamentals, notably the African *T. garckeana*, which has edible fruit, while others produce useful fibre resembling sunn hemp (*Crotalaria juncea*, Leguminosae), especially *T. lampas* of the Old World tropics.

Thespesia populnea (L.) Correa in *Annales du Muséum National d'Histoire Naturelle Paris* 9: 290 + t. 8, fig. 1 (1807)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 591; Diment et al., 1987: SI1/12

1. Mabberley, 1998, p. 40
2. Parkinson, 1784, p. 42
3. Mabberley, 2014, p. 854

24.
SESBANIA GRANDIFLORA
bakphul, Leguminosae

Bakphul is a small tree up to some 12 m (40 ft) tall, bearing red, pink or white flowers up to 10 cm (4 in.) long, which are followed by pods to over 50 cm (20 in.) in length. Found throughout tropical Asia to the Pacific, it is naturalized in the Caribbean and was introduced into European horticulture in 1768.

During their stay in French Polynesia, Parkinson noted that:

> This shrub grows wild, in great abundance, on the island of Toopbai [Tupai]; and is planted on the other islands to shade their houses; and the flower of it, which is very beautiful, they often stick in their ears.[1]

The leaves are eaten as a vegetable, as are the pods when young; both the leaves and bark figure in local medicine.[2]

Sesbania, the Latinized form of the Arabic word *sesban*, used for *S. sesban*, is a genus of some 60 species of warm and usually wet countries. Some make good firewood, notably *S. sesban* (formerly used for gunpowder charcoal) and *S. aculeata* of the Old World tropics. The latter is also a possible source of guar gum, while others, including *S. grandiflora*, are widely cultivated as ornamentals.

Sesbania grandiflora (L.) Poir., *Encyclopédie Méthodique. Botanique* 7: 127 (1806)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 598; Diment et al., 1987: SI1/22

1. Parkinson, 1784, p. 43

2. Mabberley, 2014, p. 791

26.

BENINCASA HISPIDA

wax gourd, Cucurbitaceae

The wax or white gourd, or petha, is not known outside cultivation, that is, it is a cultigen, though it is thought to have an Asian origin.[1] A fast-growing annual climber – in three hours the shoots can increase by as much as 2.3 cm (almost 1 in.) in length – its large, fleshy fruits, which are spherical to oblong and hispid (hairy), become waxy on maturation.

The fruit is boiled as a vegetable in curries and soups, and can be pickled or candied; the shoots, tendrils and leaves are used as a potherb. The plant also features in local medicine, while the hollowed-out waxy gourds were used as containers for scented coconut oil in Polynesia before European contact, as Parkinson described:

> The fruit of this tree is about the size of a small orange, very hard, and quite round, serving them, instead of bottles, to put their monoe or oil in.[2]

Solander gave it the manuscript name 'Cucurbita pruriens' because of the irritant hairs on the young fruit, which no doubt act as a deterrent to grazing animals. The name was used by Parkinson, but without enough descriptive matter to make it validly published.

The generic name commemorates the Flemish Joseph Goedenhuitze (1535–1596), later known as Giuseppe (Casabona) Benincasa, a director of the Pisa Botanic Garden.

Benincasa hispida (Thunb.) Cogn. in DC., *Monographie Phanerogamarum* 3: 513 (1881)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 606; Diment et al., 1987: SI1/34

1. Mabberley, 2014, p. 99
2. Parkinson, 1784, p. 44

27.

LUFFA CYLINDRICA

loofah, Cucurbitaceae

The loofah, or vegetable sponge, is a scrambler from the tropics of the Old World. Its young fruits are eaten as a vegetable, as are those of the Asian *Luffa acutangula*, the sing-kwa, or sinqua (melon),[1] while the bleached vascular system of the mature fruit is the loofah of bathrooms. This vascular system is also used in engine filters, linings for steel helmets, insulation and bath mats, besides as a matrix in bioreactors for ethanol production.[2]

Luffa, from the Arabic name for the plant, is a genus of eight species in the tropics, with five in the Old World and three in the Americas; *cylindricus* refers to the shape of the fruits.

Luffa cylindrica (L.) M. Roem., *Familiarum Naturalium Regni Vegetabilis Synopses Monographicae* 2: 63 (1846)

Copper plate by Gabriel Smith, based on Parkinson's 1769 watercolour; BF 608; Diment et al., 1987: SI1/36

1. Mabberley, 2014, p. 504

2. N. Filipowicz et al., 'Revisiting *Luffa* (Cucurbitaceae) 25 years after C. Heiser: species boundaries and applications of names tested with plastid and nuclear DNA sequences', *Systematic Botany* 39, 2014, pp. 205–15

28.

CANAVALIA ROSEA

beach bean, Leguminosae

A trailing vine, beach bean is a common pantropical beach-plant. It is pollinated by carpenter bees and its seeds are spread by sea. Through these 'drift seeds' it was one of first pioneers on Krakatau after the catastrophic 1883 eruption. Seeds even reach Britain, though by the time of their arrival they are no longer viable.

Solander's manuscript name for the Polynesian plant was 'Glycine rosea', the specific epithet referring to the flower colour; this name was also used by Swedish botanist Olof Swartz (1760–1818) in his first published description of the Jamaican type specimen as *Dolichos roseus* (1788).

Canavalia, the Latinized form of the Konkani name *kanavali* of southern India, is a genus of some 60 tropical species, found especially in the Americas, with Hawaii having six endemic species.[1] They provide green manure and stock feed as well as some edible beans and a tobacco substitute.

Canavalia rosea (Sw.) DC., *Prodromus Systematis Naturalis Regni Vegetabilis* 2: 404 (1825)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 597; Diment et al., 1987: SI1/21

1. Mabberley, 2014, p. 146

29.

CYRTANDRA GLABRA

Gesneriaceae

Cyrtandra glabra is an endangered species native in French Polynesia. The material Banks and Solander collected was used by the Gaertners (father and son, Josef and Karl Friedrich; see also Pls 2 and 56) in their work, and was the basis for the new species the younger Gaertner described in 1807.

The name *Cyrtandra*, from the Greek *kurtos*, curbed, and *andros*, male, refers to the two stamens. The genus contains around 600 species, some of which are tree-like, found mainly in Borneo and New Guinea (each with 150), as well as in China, south Japan, and the Nicobars to the Pacific islands. Many hybrids occur in Hawaii. The family Gesneriaceae includes familiar house plants such as African violets and other species of *Streptocarpus*, originally from Africa, as well as gloxinias (*Sinningia speciosa*) from Brazil.

Cyrtandra glabra C. F. Gaertn., *Supplementum Carpologiae*: 234 + t. 224 fig. 4 (1807)

Copper plate by John Roberts, based on Parkinson's 1769 watercolour; BF 634; Diment et al., 1987: SI2/10

30.

SOLANUM VIRIDE

uporo, Solanaceae

In his journal Parkinson wrote: 'The leaves of this plant, baked, are eaten as greens.'[1] Uporo is native from Fiji to Tonga and Samoa, but has been carried as far east as Hawaii. The large-leaved cultivar in villages in Fiji known as 'Anthropophagorum'[2] (meaning man-eating) has tomato-like edible fruits, which are used in ceremonies and are the basis of so-called 'Cannibal Chutney', a Fijian novelty.[3]

Solanum, the Latin name for a plant, possibly the weedy *S. nigrum*, is an enormous, economically important genus of perhaps 1,400 species, found from coasts to upland forest and semi-desert throughout almost all the world. They range from trees, such as the tree tomato (*S. betaceum* from South America), to shrubs and herbs, sometimes climbing and often prickly, the prickliness being associated with marsupial grazing in Australia, for example. They contain alkaloids and so are often toxic, though the fruits of many cultivated species, such as the tomato (*S. lycopersicum*) and aubergine (*S. melongena*), are edible. *Solanum tuberosum* is the potato, derived from wild species in the Andes.

Solanum viride Sol. ex G. Forst., *De Plantis Esculentis*: 72 (1786)

Copper plate by Gabriel Smith, based on Parkinson's 1769 watercolour; BF 633; Diment et al., 1987: SI2/9

1. Parkinson, 1784, p. 38
2. A. C. Smith, *Flora Vitiensis nova: A New Flora of Fiji*, vol. 5 (Lawai, Hawaii, National Tropical Botanical Garden, 1991), pp. 18–21
3. Mabberley, 2014, pp. 804–06 and 4th ed., 2017

31.
GARDENIA TAITENSIS
tiare, Rubiaceae

It is surprising that such a conspicuous plant as tiare was not named until 1830. Solander, using the name *Gardenia florida* in his manuscripts, confused it with the well-known gardenia or Cape jasmine, *Gardenia augusta* (*G. florida*, *G. jasminoides*), an Asian species cultivated for over a thousand years in China, but long thought to have come from South Africa.

In his journal, Banks recorded that tiare was planted around houses in Polynesia and that women put the sweetly scented flowers in their hair or through holes in their ears.[1] In Vanuatu, *Gardenia tannaensis* is also grown for its flowers.[2] Tiare is now the national flower of both French Polynesia and the Cook Islands, though it was probably introduced there from further west, despite the specific name *taitensis*, 'from Tahiti'. Today the flowers are used in some commercial scents.

Gardenia, named after Dr Alexander Garden (1730–1791), a correspondent of Linnaeus and the first grower of the gardenia in the United States, is a genus of about 140 species of the warmer parts of the Old World. A number of them are of medicinal significance, and some have apparently insecticidal qualities.

Gardenia taitensis DC., *Prodromus Systematis Naturalis Regni Vegetabilis* 4: 380 (1830)

Copper plate by Daniel Mackenzie, based on Parkinson's 1769 watercolour; BF 615; Diment et al., 1987: SI1/46

1. Beaglehole, 1963, 1, pp. 325, 338

2. Mabberley, 2014, p. 350 and 4th ed., 2017

32.

CERBERA MANGHAS

sea mango, Apocynaceae

Sea mango is an evergreen tree that can grow to 25 m (80 ft) tall, though it is usually much smaller. Native from the Seychelles eastwards to French Polynesia, it is found growing in coastal, especially mangrove, forests. In his journal Parkinson noted that, 'This plant has a pretty large white flower like that of an oleander. Of the wood of this tree they make their pahaoos, or drums.'[1]

Elsewhere, the soft wood is also used for charcoal, as well as for carving some of the brightly coloured masks typical of Sri Lanka.[2] Sea mango has been widely cultivated for its attractive, fragrant flowers, but the leaves and fruits contain the toxic cardiac glycoside cerberin, which has been used in poisoning and suicides. The specific name *manghas* refers to the mango-like fruit.

Cerbera, after Cerberus, the three-headed dog guarding the gateway to the Underworld in classical mythology, perhaps referring either to the scales over the stamens at the red corolla throat in *C. manghas* or to the toxic principles, is a genus of just two species, the second being *C. floribunda* of New Guinea and northeastern Australia. The fruit of the latter is blue and is eaten by cassowaries, which then disperse the seeds in their droppings.

Cerbera manghas L. *Species Plantarum* 1: 208 (1753)

Copper plate by Gerard Sibelius, based on Parkinson's 1769 watercolour; BF 622; Diment et al., 1987: SI1/53

1. Parkinson, 1784, p. 38

2. Mabberley, 2014, p. 169; D. J. Middleton, 'Cerbera', in E. Soepadmo et al. (eds), *Tree Flora of Sabah and Sarawak*, 5 (Kuala Lumpur, Forest Research Institute Malaysia, 2004), pp. 23–27

34.
IPOMOEA BATATAS
sweet potato, Convolvulaceae

Originally a New World crop ('kumar' in Peru), sweet potato was brought to Polynesia ('kumara') before Europeans arrived there and was then taken to New Zealand by Māori. The swollen tubers are the source of edible starch; the Māori grew no cereals and sweet potato became their staple crop.[1] There are many cultivars, the early Hawaiians, for instance, having 230, all except 24 of which are now lost.

Sweet potato has a hybrid origin, being hexaploid (having six sets of chromosomes); its closest relations are *I. tabascana* (tetraploid, with four sets of chromosomes) and *I. trifida* from tropical America. A major food source, notably in Asia (especially Japan, but also as dang myun noodles in Korea) and the United States, where it is called yam, it is the fifth most important root crop, with an annual world production amounting to more than 100 million tonnes.

With its natural fibres, sweet potato starch is used in biodegradable plastic for Toyota cars, and is also an alcohol source. It was the first 'potato' in Europe: Linnaeus even adopted the Caribbean name 'batatas' when giving it a scientific name. No doubt because of its shape, Henry VIII considered it an aphrodisiac, and Shakespeare has the bawdy Falstaff say 'Let the sky rain potatoes'. The word potato was later transferred to the unrelated *Solanum tuberosum*, the potato of Europe – it was an over-reliance on this that led to the Great Famine in Ireland when the crop was destroyed by blight. Some ornamental cultivars of *Ipomoea batatas* are used in hanging baskets, notably the dark-leaved 'Blackie' and lurid, pale ones.

Ipomoea, apparently derived from the Greek *ips*, worm, used by Linnaeus for *Convolvulus*, and *homois*, similar to or like, is a genus of perhaps 650 species found in all warmer parts of the world. Many are grown as ornamental climbers, particularly *I. tricolor* from Central America, which is also a source of hallucinogenic ergoline alkaloids popularized in the 1960s as 'morning glory', a name referring to the short-lived flowers. This name is also used for many other species, especially *I. nil*, which featured widely in the decorative arts of the Japanese Edo period.

Ipomoea batatas (L.) Lam., *Tableau Encyclopédique et Methodique. Botanique* 1: 465 (1793)

Copper plate by Gabriel Smith, based on Parkinson's 1769 watercolour; BF 627; Diment et al., 1987: SI2/3

1. Mabberley, 2014, pp. 432–33 and 4th ed., 2017

35·
PIPER METHYSTICUM
kava, Piperaceae

Solander's manuscript name for this plant was 'Piper inebrians', and Parkinson noted in his journal, 'The expressed juice of this plant they drink to intoxicate themselves.'[1] Similarly, the current epithet, *methysticum*, is from the Greek word for intoxicating. The cultivated kava, one of the most celebrated plants of the Pacific, is now known to comprise a series of sterile cultivars derived from wild plants in Papua New Guinea, the Solomon Islands and Vanuatu. They are usually male, the rare female plants apparently never setting seed.[2]

The roots of kava are the source of a narcotic sedative drink that is served in special bowls to welcome guests and has been used in ceremonies for over 3,000 years. To prepare it, the roots are first chewed, formerly by women and children, then ground or pounded, before being mixed with water or coconut milk and strained. Missionaries tried to eradicate kava, but now special bars serve it and it is a cash crop in Vanuatu and Fiji.

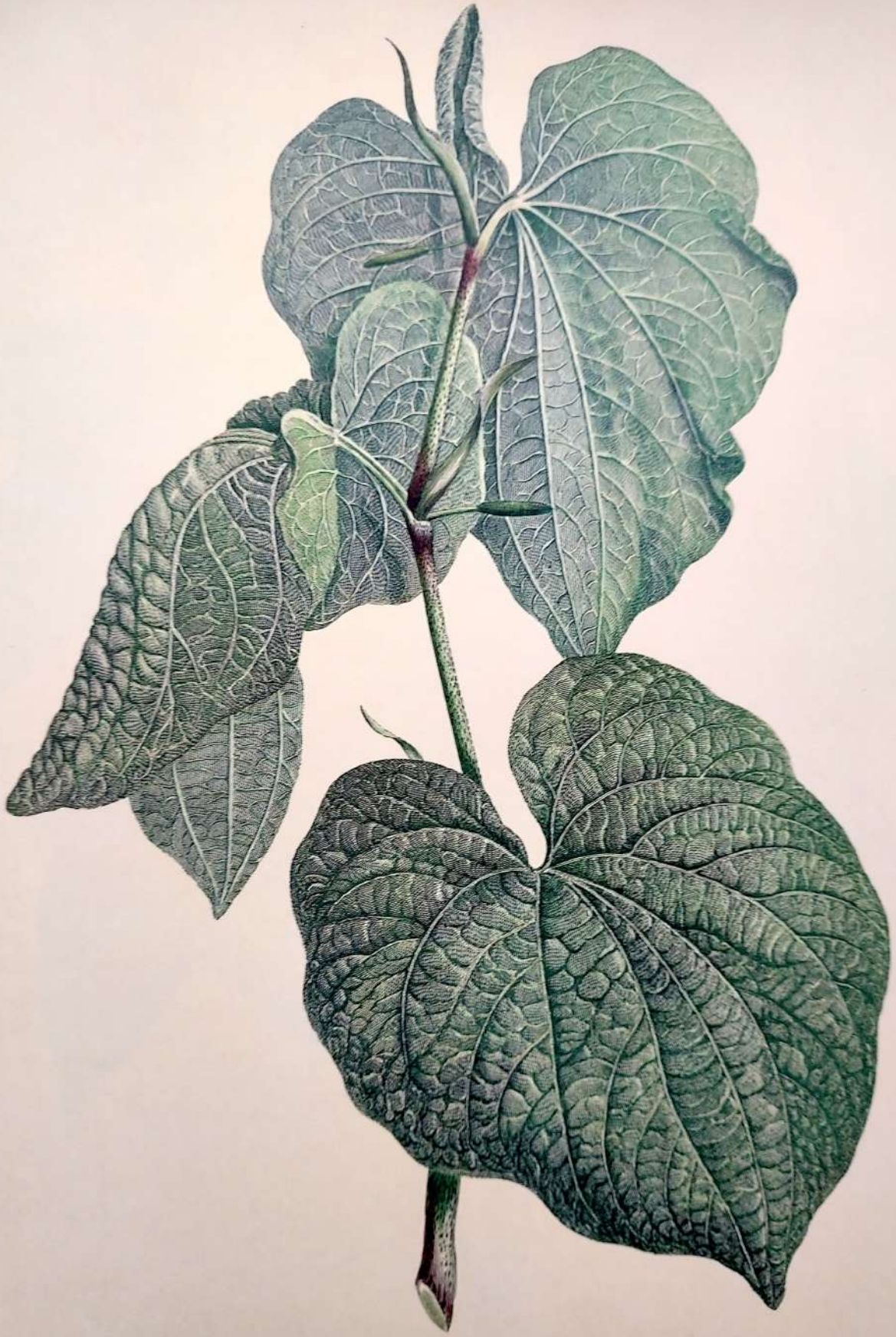
The effective principle is a lactone, one of a group of compounds binding to receptors associated with euphoria and wellbeing.[3] It is not addictive and is used in the treatment of generalized anxiety disorder,[4] insomnia and in tablets taken on long flights.

Piper, pepper, from an Indian word via Greek, is a genus of perhaps 2,000 species from the tropics, by far the most significant being *P. nigrum*, pepper, originally from southern India and Sri Lanka, the most used of all spices.

Piper methysticum G. Forst., *De Plantis Esculentis*: 76 (1786)

Copper plate by Jean-Baptiste Michell, based on Parkinson's 1769 watercolour; BF 642; Diment et al., 1987: SI2/18

1. Parkinson, 1784, p. 37
2. Staples and Herbst, 2005, p. 456
3. Mabberley, 2014, pp. 670–71
4. J. Sarris et al., 'Kava in the treatment of generalized anxiety disorder: a double-blind, randomized, placebo-controlled study', *Journal of Clinical Psychopharmacology* 33, 2013, pp. 643–48



36.
ALEURITES MOLUCCANUS
candlenut, Euphorbiaceae

Describing the candlenut, Parkinson wrote in his journal:

> Of the bark of this tree, soaked in water, they make that gummy substance which they put upon their dark-coloured cloth to make it glossy, and keep out the rain. The fruit of this tree is a sort of nut, which yields a very fat kernel, of which they make their black dye, used in Tataowing [tattooing], by burning them, and receiving the smoke. Strung upon a reed or stick they serve instead of candles, and give a very good light.[1]

Solander gave the tree the manuscript name 'Telopea perspicua', with *telopos* in Greek meaning seen far away, as the pale foliage is visible from a distance. However, that generic name was eventually to be used for a similarly striking plant from Australia, the red-flowered waratah, *Telopea speciosissima*, the state flower of New South Wales.

Although native to tropical Southeast Asia, the candlenut was introduced across the Pacific by the Polynesians, as it will thrive on otherwise useless land.[2] Somewhat perversely, then, it is the official tree of the State of Hawaii. The seeds are used in *lei* (garlands) there, and oil from the seeds (lumbang oil) was once produced commercially for use on both skin and hair, as well as in polish for wood. In Asia it is still used in curry and commercial shampoos. The tree was introduced into cultivation in England in 1793.[3]

Aleurites comes from the Greek *aleuron*, meaning flour, as the tree appears as if dusted with it. The genus comprises just two species from the Indopacific.

Aleurites moluccanus (L.) Willd., *Species Plantarum* 4: 590 (1805)

Copper plate by Gerard Sibelius, based on Parkinson's 1769 watercolour; BF 654; Diment et al., 1987: SI2/31

1. Parkinson, 1784, p. 44
2. Mabberley, 1998, p. 42
3. Chittenden, 1951, 1, p. 72

37.
CASUARINA EQUISETIFOLIA
beefwood, Casuarinaceae

A pioneer seashore tree of the coasts of the Indopacific region, beefwood is a common evergreen growing up to 35 m (115 ft) tall. It is now widely planted and is invasive in the Caribbean and South Africa. Trees bear both male and female flowers, unlike most *Casuarina* species, which produce them on different trees.[1] It is planted as a windbreak or as trimmed hedges, though its woody female cones are painful to foot-traffic on beaches, and is even grown as bonsai.[2]

Banks recorded that the tree was a source of a red dye and that its hard wood was used for tools for beating bark-cloth (tapa),[3] while Parkinson elaborated:

> This is one of the best woods they have; it is very hard and heavy, and coloured like mahogany. They make their clubs, lances, cloth-beaters, and several other knick-knacks and utensils of it.[4]

Today the wood is used for roof shingles and is the 'best firewood in the world', burning with great heat.[5]

Casuarina, like *Casuarinus*, cassowary, allegedly because the tree's drooping branchlets resemble cassowary feathers, is a genus of 17 species from the Indopacific region. They are notable for their bacterial root-symbionts, species of *Frankia*, which fix atmospheric nitrogen, thereby allowing the plants to colonize poor, sandy soils. *Casuarina* species are possibly allelopathic, meaning they produce chemicals that inhibit the growth of other plants. The epithet *equisetifolius* indicates that the shoots resemble horsetails, species of *Equisetum*, that name being derived from *equus*, horse, and *seta*, bristle.

Casuarina equisetifolia L., *Amoenitates Academici seu dissertationes variae physicae, medicae…* 4: 143 (1759)

Copper plate by Gabriel Smith, based on Parkinson's 1769 watercolour; BF 663; Diment et al., 1987: SI2/42

1. Mabberley, 2014, p. 159
2. Staples and Herbst, 2005, p. 229
3. Beaglehole, 1963, 1, pp. 355, 357
4. Parkinson, 1784, p. 44
5. Mabberley, 2014, p. 159

38.
CORDYLINE FRUTICOSA
ti, Asparagaceae

Ti is a sparsely branched pachycaul (thick-stemmed) tree up to 4 m (13 ft) tall, native to the western Pacific but introduced to Hawaii and New Zealand by Polynesians. It has scented flowers and is widely planted for ornament; the coloured leaves are sold as foliage in the international cut-flower market.[1] Many cultivars, including reddish and variegated ones, were introduced into the horticultural trade in Europe in the nineteenth century and grown as 'dracaenas' – with scores of scientific names. In the Pacific they are planted as hedges and windbreaks. Ti is often associated with 'good luck', and in Hawaii is traditionally planted at the four corners of a house or other building.[2]

The swollen root-tubers are sweet-tasting and can be fermented. In his journal, Parkinson noted: 'Of this plant there are five different sorts, yielding a large root, which is eaten, and counted very good food, by the islanders of the South-seas.'[3] The strap-like leaves are used to thatch houses and also for making skirts such as the Hawaiian *hula* and traditional dress in New Guinea.[4]

Cordyline, from Greek *kordyle*, a club, referring to the shape of the fleshy roots, is a genus of about 20 species from Australasia and the Pacific, with one in tropical America, some of which are cultivated as 'cabbage trees'; *fruticosus* means shrubby.

Cordyline fruticosa (L.) A. Chev., *Catalogue des Plantes du Jardin Botanique de Saigon*: 66 (1919)

Copper plate by Gerard Sibelius, based on Parkinson's 1769 watercolour; BF 671; Diment et al., 1987: SI2/49a

1. Staples and Herbst, 2005, p. 581
2. Staples and Herbst, 2005, p. 581
3. Parkinson, 1784, p. 38
4. Mabberley, 2014, p. 216

39.
SOPHORA TETRAPTERA
kōwhai, Leguminosae

By early October 1769 *Endeavour* had reached North Island, New Zealand, and Banks and Solander began collecting as soon as possible. Kōwhai and its close allies are found in Chile and North Island, New Zealand, along streams and in lowland forest edges. In New Zealand, *Sophora tetraptera* is a tree up to 12 m (40 ft) tall, with useful timber. Following the yellow flowers, the unusual four-winged pods are up to 18 cm (7 in.) long, and narrow tightly between each seed.

Parkinson sketched a specimen at Teoneroa (Te Oneroa), which Cook named Poverty Bay, in October 1769, adding the following colour instructions on his drawing:

> The flowers yellow the capsules of a greenish downy Orange the buds greenish yellow, the carina [keel] + alae [wings] of a paler yellow than the vexillum [standard]

Solander named it 'Sophora tetraptera' (four-winged, referring to the fruits), but that name was to be published by Johann Sebastian Mueller (1715–1790; two of whose sons, John and James, worked on Parkinson's drawings for Banks). He drew a plant that flowered at the Chelsea Physic Garden in 1779 from material Banks had brought home (see illustration below).

Sophora derives from *sophera*, an Arabic name for a tree with pea-flowers.[1] The genus comprises some 50 species of largely north temperate trees.[2] *Sophora toromiro* was formerly found on Easter Island, where it was the only species suitable for building and carving, but was reduced to one tree by 1917 and exterminated by grazing by 1962. However, plants were raised from seeds from herbarium specimens collected by Thor Heyerdahl, so that it now survives in at least 18 botanic gardens and is being re-introduced to the island.

Sophora tetraptera J. S. Muell., [*Icones Novae*]: t. 1 (1780)

Copper plate by Gerard Sibelius, based on an undated Frederick Nodder watercolour, derived from Parkinson's drawing; BF 430; Diment et al., 1987: NZ1/38

1. Chittenden, 1951, 4, p. 1984
2. Mabberley, 2014, p. 807

40.
SCANDIA ROSIFOLIA
koheriki, Umbelliferae

Restricted to the North Island of New Zealand, koheriki is a perennial herb or subshrub up 1 m (3 ft) tall.[1] It is found growing from the coast up to a height of around 1,400 m (4,600 ft; subalpine), commonly on cliffs, banks or among rocks, for instance, in river gorges.

Because of its strong scent when bruised, Solander gave it the manuscript name 'Ligusticum aromaticum', and *Scandia* today is still considered to be in the same tribe as *Ligusticum* (lovage). It is notable for its stipules (small leaf-like growths at the base of a leaf stalk), which are otherwise unknown in native New Zealand umbellifers.

Scandia, alluding to its scandent or climbing habit, is a genus in need of revision; *rosifolius* refers to having leaves like those of a rose.

Scandia rosifolia (Hook.f.) J. W. Dawson in *New Zealand Journal of Botany* 5: 410 (1967)

N.B. *Scandia* has been included in *Gingidia* but it is the older name

Copper plate by Gabriel Smith, based on John Miller's 1774 watercolour, derived from Parkinson's surviving pencil drawing made at 'Taoneroa'; BF 461; Diment et al., 1987: NZ2/74

1. Allan, 1982, p. 505

41.

CLEMATIS FORSTERI

pōānanga, Ranunculaceae

A common climber in New Zealand, *Clematis forsteri* was collected by Banks and Solander at several landfalls; Parkinson drew it at Teoneroa in October 1769. It is a liane up to about 5 m (16 ft), growing in lowland forest edges and other open areas, and is recognizable by its bright green leaves with slightly lobed leaflets and its 5–8 creamy white sepals (it has no petals).[1] That Solander's manuscript name was 'Clematis odorata' suggests the flowers are scented. The specific name, *forsteri*, commemorates Georg Forster (see Pl. 22, p. 62), who accompanied his father as naturalist on Cook's second voyage.

There are perhaps nine species of *Clematis* in New Zealand, all of which are found nowhere else; they are generally dioecious (having male and female flowers on different plants). Of these, *Clematis afoliata* is remarkable for leaves that are reduced to petioles (leaf-stalks) and petiolules (the stalk of a leaflet), with full leaves developing only in young plants or in the shade.

Clematis, from the Greek word *klema*, used for various climbers, is a genus of over 300 species in the north temperate regions and extending to South America, Madagascar and Oceania, as well as the mountains of tropical Africa.[2] Most familiar in cultivation are climbers derived from the Asian species *C. florida*, which flowers on old wood in summer, *C. patens*, which flowers on old wood in spring, and especially the hybrid *C.* × *jackmanii* (*C. lanuginosa*, not known in the wild, × *C. viticella*, from the Mediterranean and southwest Asia), which arose in 1858 at Jackman's nursery in Woking, England, and which flowers on new wood in summer and autumn.

Clematis forsteri J. F. Gmel., *Systema Naturae* 2: 873 (1791)

Copper plate by Gerard Sibelius, based on Frederick Nodder's 1778 watercolour, derived from Parkinson's surviving pencil drawing made at 'Taoneroa'; BF 402; Diment et al., 1987: NZ1/1

1. Allan, 1982, p. 167; P. B. Heenan and J. Cartman, 'Reinstatement of *Clematis petriei* (Ranunculaceae), and typification and variation of *C. forsteri*', *New Zealand Journal of Botany* 38, 2000, pp. 575–85

2. Mabberley, 2014, p. 194

42.
BRACHYGLOTTIS REPANDA
rangiora, Compositae

Banks and Solander collected rangiora at Teoneroa and subsequent landfalls. Parkinson annotated his pencil outline drawing with the description, 'the upper side of the leaves grass green the veins a little ting'd w^t purple the under side white with a glaucus [sic] cast the upper side of the young leaves more yellow & a little downy'.

A common, fast-growing shrub or tree up to 6 m (20 ft) or more tall, rangiora[1] has large leaves that are white on the lower surface, as Parkinson noted; the specific epithet *repandus* refers to their wavy edges. Often a pioneer species in ecological succession, rangiora is found in coastal to lower montane shrubland and open forest.

Because of their soft undersides, its leaves have been used as lavatory paper; one such leaf has even successfully served as a postcard.[2] The plant figures in Māori medicine, and was introduced into cultivation in Britain in 1890.[3]

Brachyglottis, from the Greek *brachy*, short, and *glottis*, tongue, is a genus of controversial limits and geographical distribution. Most familar in cultivation outside New Zealand is the shrubby *Brachyglottis* × *jubar* Dunedin Group ('Dunedin Hybrids'), especially 'Sunshine' (*B. compacta* × *B. laxifolia*, both from New Zealand), a widely planted evergreen in towns grown as '*Senecio greyi*'.

Brachyglottis repanda Forst. & G. Forst., *Characteres Generum Plantarum*: 92 + t. 46 (1776)

Copper plate by Gerard Sibelius, based on Frederick Nodder's undated watercolour, derived from Parkinson's surviving pencil drawing; BF 487; Diment et al., 1987: NZ2/103

1. Allan, 1982, p. 757

2. http://pukeariki.com/Heritage-Collections/Spotlight-on-the-Heritage-Collection/id/210/title/leaf-postcard – accessed 15 May 2017

3. Chittenden, 1951, 1, p. 305

43.
PELARGONIUM INODORUM
kopata, Geraniaceae

This plant is another that Banks and Solander collected at a number of localities, beginning at Teoneroa in October 1769. Parkinson annotated his pencil sketch with the colour instructions: 'The flowers a pale crimson the marks on the petala very deep [?] the leaves grass green rather pale, the capsulae and calyx pale green the stalk and petiole deeply ting'd w^{t} red'.

Kopata is common in lowland to montane grassland throughout New Zealand and is also found in Australia, where there are five other species.[1] It is a sprawling annual to biennial herb, more or less scented, hence '*inodorus*', with the characteristic musky smell of 'geraniums'. When described as a new species in cultivation in Berlin, it was thought possibly to have come from the Cape, where there are 148 *Pelargonium* species, 79 of which are only found there.

Pelargonium, from *pelargos*, stork, since the fruit resembles a stork's bill, is a genus of perhaps 280 species from tropical and especially southern Africa, with two species in the eastern Mediterranean to Iraq, and one each from Socotra, St Helena and Tristan da Cunha.[2] These include the 'geraniums' of greenhouses, but differ from true *Geranium* in their irregular flowers and the fact that only five to seven of the ten stamens are fertile. Most important worldwide are *P.* × *hortorum* (zonal pelargoniums), *P.* × *domesticum* (regals), of complicated hybrid origin, and *P. peltatum* (ivy-leaved), the familiar hanging basket 'geranium'. Also popular are species with highly aromatic leaves due to their essential oils, reminiscent of lemon, peppermint, pennyroyal, nutmeg, strawberry, mint, camphor, apple, ginger, rue and so on. The oils are thought to be a deterrent to animal-grazers, though some are used as the basis for scent and soap.

Pelargonium inodorum Willd., *Hortus Berolinensis* 1: t. 34 (1804)

Copper plate by Gerard Sibelius, based on Frederick Nodder's undated watercolour, derived from Parkinson's surviving pencil drawing; BF 423; Diment et al., 1987: NZ1/24

1. Allan, 1982, p. 237
2. Mabberley, 2014, p. 641