

History

Australian orchids and the doctors they commemorate

Orchidaceae is the largest family of flowering plants. Orchids grow in habitats ranging from subalpine niches to the tropics, and they produce some of the most beautiful, varied and intriguing flowers. Of the more than 1300 genera and 33 000 species, more than 1300 named taxa of orchids, in 193 genera, grow in Australia.^{1,2}

The word “orchid” is from the Greek word *orchis* (meaning testicle), which reflects the appearance of the root tubers in some species.³ According to the “doctrine of signatures” — a 16th century herbalist philosophy which states that herbs resembling body parts can be used to treat those body parts — orchids were used continuously from preliterate times as aphrodisiacs and as medicaments to restore virility. Theophrastus (c. 372–288 BC) wrote about the medicinal value of orchids, as did Paracelsus (1491–1541) and Carl Linnaeus (1707–1778), the father of modern botanical taxonomy. As a child, Linnaeus recorded details of his personally collected orchid specimens in his notebook, in which he wrote “*Orchis* from *testiculus*, through which its effects should occur”.⁴

Orchid extracts such as vanilla (from *Vanilla planifolia*)⁵ and salep (from *Orchis mascula* and *Orchis militaria*) are used commercially in ice-cream, confectionery and medicinal flavouring agents.⁶ Crawley root preparations (from *Corallorhiza odontorhiza*) are used in folk medicine for their diaphoretic and antipyretic properties.⁵ In Australia, orchid preparations have been and continue to be used by Indigenous healers to treat diarrhoea and skin infections.⁷ Lieutenant (not yet Captain) James Cook used powdered orchid root as part of his method for preserving the health of his crew.⁸

The physical manifestations of orchids, such as their flowers and the medicines and flavourings derived from them, are ephemeral. But the scientific names of orchids endure, and many perpetuate the lives and works of those who have contributed to medicine since the time of Aristotle.⁹ Here, I describe indigenous orchids of Australia whose scientific names commemorate doctors who worked in Australia, encapsulating a library of Australian medical history. These orchids comprise a *monumentum aere perennius* (monument more lasting than bronze) — a phrase coined by Horace in Book III of his *Odes* when referring to his own literary work.

Literature search

I investigated the origins of the scientific names of Australian orchids by reviewing two parallel and independent resources. The first was a collection of reference texts and journals relating to Australian botany

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Summary

- Botanical taxonomy is a repository of medical biographical information. Such botanical memorials include the names of some indigenous orchids of Australia.
- By searching reference texts and journals relating to Australian botany and Australian orchidology, as well as Australian and international medical and botanical biographical texts, I identified 30 orchids indigenous to Australia whose names commemorate doctors and other medical professionals. Of these, 24 have names that commemorate a total of 16 doctors who worked in Australia.
- The doctors and orchids I identified include: doctor–soldiers Richard Sanders Rogers (1862–1942), after whom the Rogers' Greenhood (*Pterostylis rogersii*) is named, and Robert Brown (1773–1858), after whom the Purple Enamel Orchid (*Elythranthera brunonis*) is named; navy surgeon Archibald Menzies (1754–1842), after whom the Hare Orchid (*Leptoceras menziesii*) is named; radiologist Hugo Flecker (1884–1957) after whom the Slender Sphinx Orchid (*Cestichis fleckeri*) is named; and general medical practitioner Hereward Leighton Kesteven (1881–1964), after whom the Kesteven's Orchid (*Dendrobium kestevenii*) is named.
- Biographic references in scientific names of plants comprise a select but important library of Australian medical history. Such botanical taxonomy commemorates, in an enduring manner, clinicians who have contributed to biology outside clinical practice.

and Australian orchidology (particularly from a historical perspective). The second was a collection of Australian and international botanical and medical biographical texts, as well as oral history that records details of the lives of doctors for whom there is no published biographical information.

As Australian orchid taxonomy is currently in a state of flux, I report the scientific names given in the Australian Plant Census.² For those not included in this census, I report the names in general use in current orchidology literature.^{1,10–13}

Orchids named after medical professionals

Sixteen doctors who practised medicine and/or botany in Australia have their names recorded in the scientific names of 24 indigenous orchids of Australia (Box). In addition, one separate species (*Thelymitra flexuosa*, also known as *Thelymitra smithiana*) and five genera of indigenous Australian orchids record the names of European doctors, pharmacologist–pharmacists or

Australian orchids with names that commemorate doctors who worked in Australia

Doctors	Orchid species	Notes
Thomas Lane Bancroft (1860–1933), son; and Joseph Bancroft (1836–1894), father	<i>Sarcochilus dilatatus</i> (= <i>Sarcochilus bancroftii</i>)	Thomas Lane Bancroft is one of Australia's greatest doctor–naturalists; he elucidated the life cycle of the lungfish, <i>Neoceratodus forsteri</i>
Hermann Beckler (1828–1914)	<i>Dockrillia schoenina</i> (= <i>Dendrobium beckeri</i>); <i>Papillilabium beckeri</i> ; <i>Prasophyllum beckeri</i>	A general medical practitioner in Ipswich and Warwick (Queensland) and, after 1862, in Germany; in 1860, he travelled with the Burke and Wills expedition as a doctor–botanist and expeditioner in Victoria and New South Wales
Hans Herman Behr (1818–1904)	<i>Arachnorchis behrii</i> ; <i>Diuris behrii</i> (also known as Golden Cowslips)	A physician, botanist, entomologist, lepidopterist, poet, writer, humorist and linguist
Robert Brown (1773–1858)	<i>Elythranthera brunonis</i> (= <i>Glossodia brunonis</i>); <i>Microtis brownii</i> ; <i>Prasophyllum brownii</i>	A Scottish-born and Edinburgh-trained surgeon, doctor–soldier, and the father of Australian botany; he was awarded the Copley Medal in 1839, then the world's highest accolade in science ¹⁴
Edwin Daintrey (1814–1887)	<i>Pterostylis daintreana</i>	A medical student who abandoned his medical career just before graduation; he emigrated to Sydney, where he practised as a solicitor, cofounded the Linnean Society of New South Wales, and was appointed honorary secretary of the Australian Library in Bent Street
Hugo Flecker (1884–1957)	<i>Cestichis fleckeri</i> (= <i>Liparis fleckeri</i>); <i>Thelychiton fleckeri</i> (= <i>Dendrobium fleckeri</i>)	A pioneer Australian radiotherapist, radiologist, general medical practitioner and toxicologist of Cairns (Queensland) who dug his own radioactive ore at Radium Hill (South Australia), a medical graduate from the University of Sydney, and a natural historian; his life and works are commemorated by the Flecker Botanic Gardens in Cairns
Arthur George Harrold (1918–2012)	<i>Habenaria harroldii</i>	A navy surgeon who later worked as general medical practitioner, ecologist and conservationist in Noosa (Queensland), and graduate of the University of Cambridge; he formed the Noosa Parks Association in 1962 and helped establish the Cooloolo National Park
Hereward Leighton Kesteven (1881–1964)	<i>Dendrobium kestevenii</i>	A general medical practitioner, medical scientist, zoologist, pioneer of industrial medicine in Australia, and national medical director of the Allied Works Council during World War II
Colin Ledward (1903–1963)	<i>Acianthus fornicatus</i> (= <i>Acianthus ledwardii</i>)	A general medical practitioner of Cloncurry and Canungra (Queensland); the orchid that bears his name was collected from a single colony discovered in 1934 and is now almost certainly extinct
Archibald Menzies (1754–1842)	<i>Leptoceras menziesii</i> (= <i>Caladenia menziesii</i>)	A British navy surgeon who circumnavigated the globe from west to east with Captain George Vancouver, in the tumultuous voyage of 1791 to 1794, explored extensively in south-west Western Australia, and was later president of the Linnean Society of London; his name is recorded in the names of banksias (including the Firewood Banksia [<i>Banksia menziesii</i>]), orchids and mosses of the King George Sound hinterland, which record his service to Australian botany ¹⁵
Ferdinand von Mueller (1825–1896)	<i>Habenaria ferdinandi</i> ; <i>Taeniophyllum muelleri</i>	A qualified pharmacist in Rostock (Germany) who emigrated to Australia in 1847 and wrote extensively on the medicinal properties of plants; he was a founder of Australian botany and published over 800 articles on botany
Charles Brightly Prentice (1820–1894)	<i>Bulbophyllum prenticei</i>	A Brisbane surgeon, naturalist and botanical collector; a member of the Medical Board of Queensland; and an expert on Australian ferns
Richard Sanders Rogers (1862–1942)	<i>Diplodium rogersii</i> (= <i>Pterostylis rogersii</i>); <i>Prasophyllum rogersii</i>	An Adelaide physician, doctor–soldier and forensic pathologist who described 82 new orchid species (66 from Australia)
Daniel Solander (1733–1782)	<i>Orthoceras strictum</i> (= <i>Orthoceras solandri</i>)	A medical student in Sweden and London, and botanist–librarian on the <i>Endeavour</i> voyage to Australia (1769–1771); his name is commemorated in the names of Australian species of <i>Acacia</i> , <i>Banksia</i> and <i>Geranium</i> ¹⁶
Charles Stanford Sutton (1865–1950)	<i>Pterostylis suttonii</i> ; <i>Prasophyllum suttonii</i>	A Melbourne general medical practitioner and expert on subalpine flora ¹⁷

herbalists. The five genera are *Burnettia* Lindl. (described by John Lindley in 1840), a monospecific genus; *Cadetia* Gaud. (described by Charles Gaudichaud-Beaupré in 1829); *Goodyera* R.Br. (described by Robert Brown in 1813); *Robiquetia* Gaud. (described by Charles Gaudichaud-Beaupré in 1829); and *Vrydagzynea* Blume (described by Carl Ludwig Blume in 1858).

The Lizard Orchid, *Burnettia cuneata*, blooms in eastern Australia and Tasmania; it commemorates Gilbert Thomas Burnett (1800–1835), surgeon and foundation professor of botany at King's College London.¹⁸

In the genus *Cadetia* (delicate white orchids), four species are named after the apothecary of the French imperial court, Charles-Louis Cadet de Gassicourt (1769–

1821)¹⁹ — *C. collinsii*, *C. maideniana*, *C. taylori* and *C. waryana*. They commemorate his life and works as an apothecary, soldier, scholar, writer, scientist and researcher.

The genus *Goodyera* is named after the 17th century herbalist John Goodyer (1592–1664).

Robiquetia commemorates Pierre Jean Robiquet (1780–1840), a French pharmacist, organic chemist, professor and foundation member of the Académie royale de Médecine (1820). He was the first to describe an amino acid (asparagine) (1806), and he characterised caffeine (1821) and discovered codeine (1832).²⁰

One species out of the 40 species of the Tonsil Orchids, *Vrydagzynea grayi*, grows in Australia. A rare orchid of the



Thomas Lane Bancroft (image courtesy of the Australian Medical Association of Queensland). ◆



A: Hugo Flecker (image courtesy of Patrick Flecker). B: Flecker's *Dendrobium* (or Apricot Cane Orchid), *Thelychiton fleckeri* (image courtesy of Ted Gregory). ◆



Daintree rainforest in north Queensland, it commemorates Theodore Daniel Vrydag Zynen (*fl.* 1850), a Dutch pharmacologist and contemporary of one of the most famous doctor–orchidologists, Karl Ludwig Blume (1796–1862).²¹

The Twisted Sun Orchid, *Thelymitra flexuosa*, commemorates the Norwich physician and friend of Joseph Banks, Sir James Edward Smith (1759–1828). When he was 25 years old, Smith took the decisive action to buy the great Linnean collection of plants, which were in danger of being lost to science following the death of Linnaeus's son in 1783. Smith bought them when they were offered for sale in 1784.²² In conjunction with the bishop of Carlisle, he founded the Linnean Society of London and was its first president. In 1798, he raised the new genus, *Diuris*, which is one of the first taxa of Pacific orchids to be described. The Lilly Pilly, *Syzygium smithii*, is another of his six botanical memorials.

Early orchidology in the Asia–Pacific region

The fleshy pseudobulbs (thickened stems that serve as storage organs) of orchids have been eaten and used medicinally by Indigenous Australians for thousands of years.⁷ The first Australian orchids brought to the attention of Western science were three species of *Dendrobium* (*D. discolor* Lindley [described by John Lindley]; *D. canaliculatum* R.Br. [described by Robert Brown]; and *D. rigidum* R.Br. [described by Robert Brown]) that were collected by Joseph Banks and Daniel Solander at the Endeavour River between 17 June and 3 August 1770.¹⁶ Solander had trained in medicine and botany under Linnaeus in Uppsala (Sweden) and, after 1759, in London (England). One of the plant species named after him is the Australian orchid *Orthoceras solandri* (also known as *Orthoceras strictum*).

The first orchids scientifically named in the Pacific were species in the genus *Thelymitra* J.R.Forst. & G.Forst., a taxon raised and coined by the Forsters — the irascible



Brown also described the movement of microscopic grains from pollen cells on the surface of water, a phenomenon now called Brownian motion



Johann Reinhold Forster (1729–1798), and his son Georg Forster (1754–1794), who was 18 years old when they left on Cook's second voyage of 1772 to 1775.²³ The Forsters collected *Thelymitra longifolia* in the South Island of New Zealand in 1772 and published the name of the species in 1776. The Forsters described and named nine new species in what they termed the “Class of Orches” in the South Pacific.²⁴ Georg Forster graduated in medicine in Vilna (now Vilnius, Lithuania) in 1784. Species of *Thelymitra*, which are known as the Sun Orchids, are found mainly in the south-west of Western Australia.²³

Notable doctor–botanists of Australia

Robert Brown

Robert Brown, the father of Australian botany, named more species of Australian orchids than any other botanist.¹⁴ His reputation as a botanist has tended to overshadow the details of his medical life. Until he was 28 years old, he served as an English military surgeon. While serving as a doctor–soldier in the Fifehire Fencibles, he used his medical training to study plants. He circumnavigated Australia with Matthew Flinders on the *HMS Investigator* (1801–1803) during his 3.5 years in Australian waters. In WA, Brown collected 500 new species. He eventually documented 2000 new Australian botanical species, on top of some 33 000 species known from the entire world at the time.²⁵ Among these, he described 120 new Australian species of orchids. In 1810, he published the first volume of his *Prodromus florae Novae Hollandiae et insulae van-Diemen*, described by another former naval surgeon–botanist, Sir William Hooker, as the greatest botanical work ever.²⁶ It listed 464 genera, a third of them for the first time, and three-quarters of the named species were new to science. Brown also described the movement of microscopic grains from pollen cells on the surface of water, a phenomenon now called Brownian motion.²⁷ Although his death was unnoticed and unrecorded in Australia, three native orchids (Box) endure

as his living memorials.¹⁵ One of these is the Purple Enamel Orchid (*Elythranthera brunonis*).

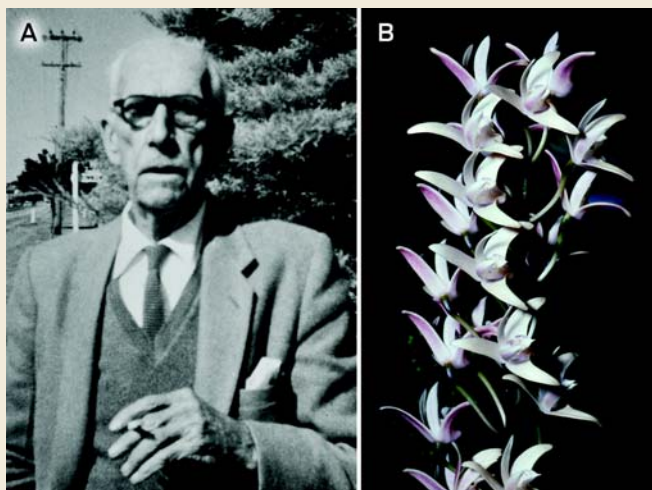
Richard Sanders Rogers

Richard Sanders Rogers was a senior physician and forensic pathologist and an acknowledged international authority on orchids of Australasia. He served as honorary physician at the Adelaide Hospital (1897–1909) and as a member of the Medical Board of South Australia (1910–1940). He also served with distinction as the commanding officer of the 7th Australian General Hospital during World War I.²⁸ He published 29 scientific articles on orchids of Australia and named 82 new species. His many publications include his book *An introduction to the study of South Australian orchids*, published in 1909, and the section on Orchidaceae in John McConnell Black's book *Flora of South Australia*, published in 1922. Two orchids bear his name (Box) —

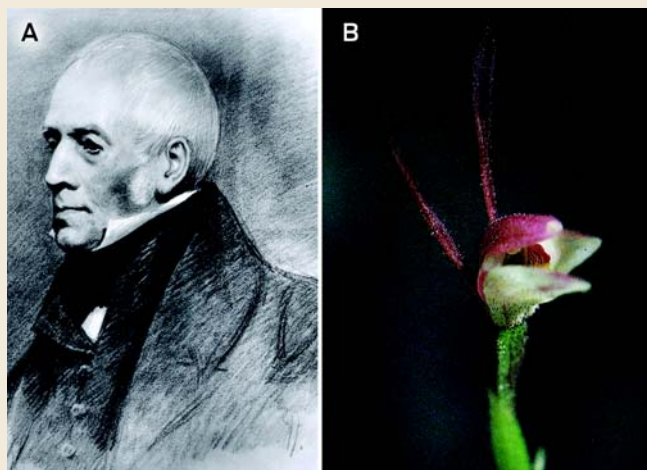
one is Rogers' Greenhood (*Pterostylis rogersii*), also known as the Curled-tongue Shell Orchid.

Charles Stanford Sutton

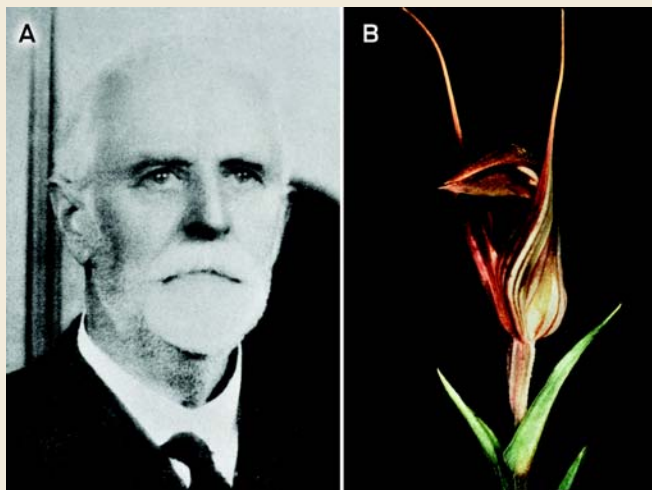
Charles Stanford Sutton was a general medical practitioner. He was an active member of the Field Naturalists' Club of Victoria from 1900 to 1950, its president from 1915 to 1916, and its librarian from 1924 to 1943. His major publications include three articles in *The Victorian Naturalist* — "Among the alpine flowers" (1903), "A botanical collector in the Mallee" (1906) and "A botanist at Mount Buller" (1907) — and his books *A sketch of the Keilor Plains flora* (1916) and *Cradle Mountain (Tasmania) and its flora* (1923). Sutton was a subalpine specialist and accordingly his name is commemorated in the Alpine Leek-orchid, *Prasophyllum suttonii*, collected on an expedition he led to Mount Buffalo in December 1902.¹⁷



A: Hereward Leighton Kesteven. B: Kesteven's Orchid, *Dendrobium kestevenii* (image courtesy of Ted Gregory).



A: Archibald Menzies (image courtesy of the Hunt Institute for Botanical Documentation). B: The Hare Orchid (or Rabbit Orchid), *Caladenia menziesii* (image courtesy of Murray Fagg).



A: Richard Sanders Rogers. B: Rogers' Greenhood (or Curled-tongue Shell Orchid), *Pterostylis rogersii* (image courtesy of Murray Fagg).



Charles Stanford Sutton (far right) as a leader of a botanical excursion of the Field Naturalists Club of Victoria at Myers Creek, in the Healesville district of Victoria, on 25 November 1911.

Hans Herman Behr

The German-born doctor–expeditioner Hans Herman Behr was appointed professor of botany at the California College of Pharmacy in San Francisco in 1850. He explored the Barossa Valley and Mount Lofty Ranges and, in 1851, published an article titled “On the character of the South Australian flora in general”. Two Australian orchids bear his name (Box) — one is called the Lofty Ranges Spider Orchid (*Arachmorchis behrii*).

Hugo Flecker

Hugo Flecker, a pioneering Australian radiologist radiotherapist and active member of the Field Naturalists’ Club of Victoria from 1921,²⁹ is commemorated in the names of eight botanical species and the name of the Australian box jellyfish (*Chironex fleckeri*). This memorial is balanced by the names of two beautiful epiphytic orchids — the rare Apricot Cane Orchid, *Thelychiton fleckeri*, which grows in the cloud and mist forests on Mount Finnigan and Mount Fisher in Cape York, and the Slender Sphinx Orchid, *Cestichis fleckeri*.

Enduring memorials

Scientific names of living things will be used as long as scientists find it useful to do so. Names change as taxonomists revise plant groupings and there is a proposal to dispense with scientific names, in favour of an alternative system called the PhyloCode. In the past, the doctrine of signatures linked the forms of plants with their supposed therapeutic uses. But the world of binomial nomenclature (which Linnaeus introduced in 1753), allows for the most fitting memorials in medicine and botany. In the scientific names of Australian orchids, the lives of many doctors and botanists endure.

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