

HISTORY OF BOTANY IN SOUTH AUSTRALIA (1800–1955)

by D. N. Kraehenbuehl

MARITIME EXPLORATION

One of the intriguing and unresolved mysteries of Australian maritime history is whether Peter Nuyts or any of his Dutch colleagues on board the "Gulden Zeepaard" ever collected natural history specimens at their landfalls along the southern Australian continent. We know from the map of Australia's southern coast, after Hessel Gerritsz (1628), and reproduced in Sharp (1963), that a landfall was made on St Francis Island in the Nuyts Archipelago, probably in the early summer of 1627. Regrettably no log or manuscripts of this great voyage of discovery has ever been discovered, so the honour of the first European collector of plants along the South Australian coast must be accredited to Robert Brown on board the "Investigator", commanded by Captain Matthew Flinders. (See Halls 1971.)

Robert Brown (1773–1858) is widely acknowledged as the doyen of British botanists to collect in Australia during the first half of the 19th Century. He was one of an august band of scientists and naturalists including Ferdinand Bauer (see Britten 1909 & Stearn 1960), William Westall (see Perry & Simpson 1962) and Peter Good who accompanied Flinders on his historic visit to South Australian waters from January to April, 1802. Robert Brown's first South Australian collections were made at Fowler Bay on January 29, 1802. Throughout the month of February he botanised on the islands of Nuyts Archipelago (Feb. 3), on Flinders Island (Feb. 13) and the Sir Joseph Banks Group (March 7). Some time was spent around the southern shores of Eyre Peninsula at the famous collecting sites of Port Lincoln (Feb. 26–March 6), Memory Cove (Feb. 22) and Thistle Island (Feb. 21). Both Port Wakefield (March 30) near the tip of St Vincent Gulf and areas along northern Spencer Gulf were visited in March. An exhausting excursion was made by Brown and Good to the summit of Mt Brown in the southern Flinders Ranges on March 10 and 11, 1802. A number of plants was collected here and Peter Good relates (Edwards 1981) that "—here we found a species of Tobacco and several new plants—we reached the shore about five in the evening and soon got on board, having suffered considerably for want of water the heat being so great as to cause much want of that article—In this excursion we found much less variety in the Vegetable Kingdom than was expected. This country produces little Timber—on the mountains many Trees of Casuarina (sic) of a moderate size and in the Gullies and on banks of rivulets from the mountains which were now dried up grew some fine Trees of Eucalyptus. These mountains are chiefly composed of a kind of Schistus or slatestone which are generally loose on surface few pieces of solid rock being seen. There is also Quartz and a mixture of Quartz with other substances—On arrival on board further collecting forays" were made along the eastern end of Kangaroo Island March (22–24) and April (2–6). No part of the south-eastern coastline from Encounter Bay to the Glenelg River was ever visited by Brown, however.

Robert Brown published the results of his collecting endeavour from southern and eastern Australia in his famous and legendary work "Prodomus florae Novae Hollandiae" in 1810. After over half a century of unremitting labour, he died in London. The Goodeniaceae genus *Brunonia* commemorates him.

Peter Good (?–1803) gardener and naturalist to the expedition was responsible for introducing many scores of Australian plants to British nurseries. He kept a well documented diary recently published in 1984, which complements Matthew Flinders account of the expedition. But the privations then suffered at sea from scurvy and other diseases were ever present and he died in Timor on the homeward voyage in 1803. The yellow legume *Goodia lotifolia* recalls him. (See Edwards 1981b.)

The French expedition to Australian shores under the leadership of Post Captain Nicolas Baudin sailed from the port of Le Havre, on October 18, 1800. From the beginning, ill-feeling

between a number of the officers and scientists aboard the ships "Géographe" and "Naturaliste", towards Baudin plagued the voyage. The famous zoologist Francois Peron detested Baudin and one of the leading botanists, **Jean Baptiste Louis Leschenault de la Tour** (1773–1826) was reportedly unco-operative. A number of scientists disembarked at Mauritius and it is known that "only five of the sixteen scientists who set out with Baudin completed the voyage" (Carr & Carr 1976). Leschenault was left ill in Timor on the return voyage and the young gardener, Antoine Guichenot, was the only one of the botanical fraternity to arrive back in France.

Nevertheless, despite these setbacks, the expedition was a memorable one in French history and it is only now that the natural history work accomplished on the voyage (1802–1803) is receiving better recognition.

Some modern historians have expressed the view that it might even have equalled the British expedition in content and importance. According to Cornell (1965) "Leschenault had gathered, described and drawn more than six hundred species of plants, all of which he believed to be unknown." All botanical collections, upon which apparently very little was done last century, have been incorporated in the Paris Herbarium.

Leschenault collected extensively at locations along the south and west coasts of Kangaroo Island (27 December, 1802–1 February, 1803), Port Lincoln, Murat Bay (6–9 February) and Nuys Archipelago. Regrettably, his sketchy account of the Australian vegetation (1816) is rather disappointing, but the following excerpts regarding plants that were discovered give a tantalising early glimpse of the vegetation. Of Kangaroo Island he says, "Amongst the vegetation which I have seen on Decres Island,* I will mention a species of tobacco which I have already referred to; it grows on the sand by the sea shore; a *Melaleuca* with long filiform leaves; another *Melaleuca* with yellow flowers; several new species of *Eucalyptus*; a very fine species of *Anthericum*; a plant of the family of Irdees; a new species *Solanum*; a very fine and singular bindweed without stem, on which the purplish and solitary flowers issue straight from the ground and are only surrounded by 4 or 5 very small linear leaves which are concealed under their corolla." Islands near Murat Bay are described as "sandy and destitute of fresh water; their plants, parched and stunted, seem to grow with reluctance on this arid soil; no large trees were seen there. Several new species of *Salsola* bordered along the coast and in the interior I found interesting a *Pittosporum* which has the structure and appearance of the olive, a new species of *Dianella*, and a *Westringia* whose foliage is of a darkish green."

Some of the plants brought home were described by **Adrien de Jussieu** (1797–1853) and **Aimée Jacques Alexandre Bonpland** (1773–1858) and others figured by **Étienne Pierre Ventenat** (1757–1808) in "Jardin de la Malmaison." It has also been suggested (Carr & Carr 1976) that the eminent botanist **Jacques Julien Houttou de Labillardière** (1755–1834) almost certainly used some of Leschenault's plants sent back to France on the "Naturaliste" in 1803.

Leschenault travelled widely to Java, Cape Verde Islands, Cape of Good Hope, India, Ceylon, Brazil and British Guiana from 1804–1824 but published little of his finds. The handsome genus *Lechenaultia* and shrub *Beyeria lechenaultii* recall him.

No further botanical exploration was resumed until the visit to Kangaroo Island by **William Baxter**, a gardener sent out by Clapton Nursery at York, to collect seeds and roots. Baxter was a passenger on the schooner "Newcastle" which reached Kangaroo Island sometime between late October, 1822 and April, 1823. The illustration of *Correa pulchella* by Sweet (1827/8) is from a plant raised from seed collected by Baxter on Kangaroo Island. After spending five months at King George Sound (Western Australia), from December, 1828 until May, 1829, Baxter left on the vessel "Prince of Denmark" which touched at several places along the south coast of South Australia. There is even evidence that Baxter may have accompanied a boat party which went overland across the Mount Lofty Range to examine Lake Alexandrina. The "Prince of Denmark" returned to Sydney in September, 1829. He is believed to have died prior to 1836.

*Baudin's name for Kangaroo Island

EARLY COLONIAL (1836-1859)

The settlers of 1836 quickly cleared the Adelaide plains of vegetation and drained the coastal swamps. Early colonists too, complained bitterly that because of the activities of woodcutters in the nearby Mt Lofty Ranges, flash flooding along the River Torrens was destroying the pristine charm of that stream. And regrettably there were very few botanical chroniclers to tell us in detail what the flora comprised.

One exception was **James Backhouse** (1794-1869) nurseryman and Quaker who landed at Port Adelaide in November, 1837. He paid short excursions to the River Torrens, to Enfield, to Mt Lofty and around the coast near Port Adelaide describing the plants he saw. This is really the only tantalizing report of any substance which has been documented from those earliest days of the colony. Even Baron von Mueller, despite a five year sojourn in the colony, wrote no account of the plains flora (See Baker 1869; Backhouse 1843 & S. Backhouse 1870.) **Theodor Siemmsen** merchant from Batavia, Java, secured a few plants near Port Adelaide in 1839. It is known that he sent these to Steetz in Germany, but I have no further details of his activities.

Joseph Whittaker (1815-1894), a noted gardener from Breadsall in Derbyshire, secured a significant collection of 300 different plants in 1839 and 1840 from Mount Barker, Mt Lofty Ranges, Port Adelaide, Holdfast Bay and Encounter Bay. He must be acknowledged as the first serious collector of plants in the southern Mt Lofty Ranges and Encounter Bay region. It was fortunate that this collection was purchased by Sir William Hooker, as the rest of his herbarium at Derby was later destroyed by floods. (See Anon. 1894.)

John Bailey (1800-1864), father of the Queensland botanist F. M. Bailey, arrived in South Australia in 1839. He was Colonial Botanist for the colony and is said to have made collections of plants about Adelaide and district. Bailey sent seed material and live plants to the English firm of Loddiges, but he does not appear to have published any articles or to have left any record of his collections.

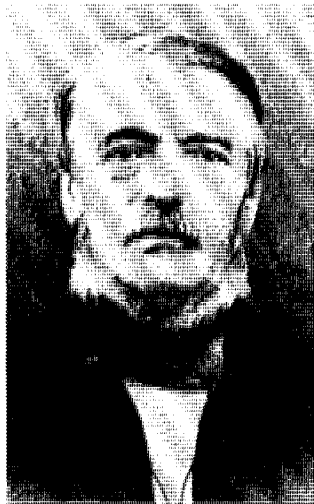
Hans Herman Behr (1818-1904), a German medico-botanist paid two visits to South Australia in the 19th Century; the first from September, 1844, to October, 1845, was his most fruitful period, involving exploration of the Barossa Range (Tanunda, Bethany, Lyndoch), scrubs near Gawler, Light River, River Murray and River Onkaparinga. Behr also described



R. Brown



N. Baudin



J. Bailey

some of his new finds in the same paper. Most of the collections were treated in 1847 by his close friend **Dietrich von Schlechtendal** (1794–1866) in Germany but after returning to his native town at Koethen in June 1846, Behr spent two years there writing up his botanical and entomological papers. But he fell foul of the local authorities in 1848 because of his socialist sympathies, and his father arranged for him to sail again for South Australia, where he arrived in November 1848.

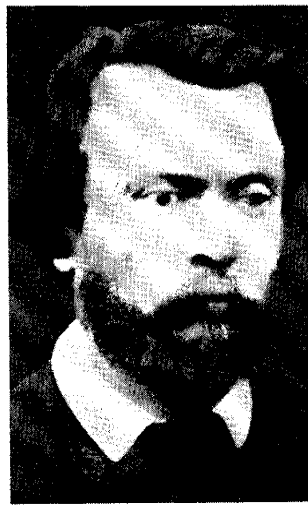
Dr Behr's second visit was shorter than the first, although he found time to pay another visit to the River Murray in March, 1849, and his old collecting sites in the Barossa Range and along the eastern side of the Mt Lofty Range. The plants from his second visit were sent to Schlechtendal, **Professor Gustav Kunze** (1793–1851) and **Joachim Steetz** (1804–1862). Behr left South Australia probably about October, 1849, for he was residing in the Philippine Islands from December, 1849, to about August, 1850. For the remainder of his life, Behr lived in San Francisco (California), and became a Professor of Botany at the California College of Pharmacy in San Francisco. He died there in 1904. Behr paved the way for the later famous exploits of Dr Ferdinand von Mueller: indeed they first met each other in Adelaide during 1849, and were life-time correspondents. The Behr plant collections are located at Halle in East Germany, but a considerable number of Behr plants (presumably from the 1848–1849 trip) were incorporated in the Wilhelm Sonder collection purchased by the National Herbarium in Melbourne. (See Kraehenbuehl 1981b.)

In the South East district of South Australia, **John George Robertson** (1803–1862), a pastoralist who went to Portland Bay (Victoria) in February, 1840, collected plants near Penola and at Rivoli Bay. His collection of 4,000 odd specimens, principally from western Victoria, Tasmania and South Australia was presented to the Kew Botanical Gardens. The eminent South Australian Governor **Sir George Grey** (1812–1898) is known to have collected plant specimens along the River Murray near Moorundie, and possibly also secured material on his expedition to the South East in the late Autumn of 1844.

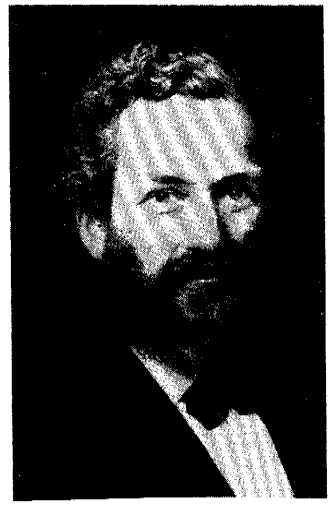
Dr Ferdinand Jakob Heinrich Mueller (later Baron von Mueller) (1825–1896) was born at Rostock, Germany. A pharmacist by training, he took his Doctor of Philosophy at the University of Kiel in 1847. However, he migrated to South Australia to escape tuberculosis, arriving at Port Adelaide in December, 1847. Today it is indeed thought-provoking to inspect in the Melbourne Herbarium the specimen of *Helichrysum leucopsidium*, the first plant Mueller collected on Australian shores. Dr Mueller made innumerable trips throughout the



H. H. Behr



F. J. H. Mueller



J. F. C. Wilhelmi

Colony, collecting extensively in the Mount Lofty Ranges, Barossa Range, Adelaide Plains, Murray Scrub, River Murray, Guichen and Rivoli Bays in the South East, and an important lone expedition to the central Flinders Ranges, then virtually unexplored in 1851. His departure from Adelaide in August 1852 to take up the post of Government Botanist of Victoria was South Australia's loss and Victoria's gain. Plants from the Mueller collections in South Australia were described by **John Lindley** (1799–1865) in England and the eminent German botanists **Wilhelm Sonder** (1812–1881), **Carl Friedrich Meisner** (1800–1874), **Ernst Meyer** (1791–1858), **Friedrich Wilhelm Klatt** (1825–1897) and **Siegfried Reisseck** (1819–1871). Mueller's collecting exploits in Australia were renowned in Australian exploration. Further, his encouragement for others to collect for him, and his financial help towards the costs of inland exploration must be admired. Possibly the most celebrated of all of von Mueller's extensive literary works was "Fragmenta phytographiae Australiae", (1858 to 1882). Several works (1852–53) especially pertain to South Australia. Dr Mueller received honours from many of the ruling Royal Houses of Europe for his accomplishments in Australian Botany. He was made a Baron by the King of Wurtemberg in 1871 and knighted by Queen Victoria. After nearly a half century of outstanding achievements in botany, Mueller died in Melbourne. His publications are listed in Churchill, Muir & Sinkora (1984); a valuable biography has been prepared by M. Willis (1949).

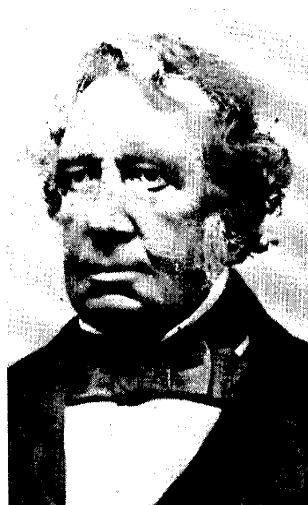
Dr Mueller had the rare ability to encourage others to collect for him, and in consequence scores of plants were sent to the Melbourne Herbarium, where they are safely stored today. **Charles Stuart** (1802–1877) well known for his botanical exploits in Tasmania and New South Wales was an important Mueller collector. He spent a short time in South Australia from July, 1847, to March, 1848, visiting sites around Adelaide township, Sturt River, Lower River Murray, and Encounter Bay. (See Daley 1935). Others who collected for Mueller included **Heinrich Heuzenroeder** (1820–1898), **Edmund Grey Sealey** (1823–1864) and **Bannier** who gathered 43 new plants for Kangaroo Island between 1849 and 1851.

Dr Ludwig Wilhelm Schulzen M.D. (Leipzig), was already residing at Guichen Bay in 1848 when Mueller paid his visit there. Schulzen who remained in the district at least until 1851 made collections from Concorara scrub. He resided in Victoria from 1852 to 1857. The shrub *Lasiopetalum schulzenii* commemorates his name.

Johann Friedrich Carl Wilhelmi (1829–1884), a seedsman from Dresden in Germany, came to South Australia in 1849. He was Assistant Protector of the Poonindie Mission on Eyre



W. Hillebrand



G. W. Francis



Capt. C. Sturt

Peninsula, and discovered a large number of undescribed plants from the Marble Ranges, Port Lincoln, Boston Point and Venus Bay. He also visited the River Murray, areas near Adelaide and Kangaroo Island. Carl Wilhelmi moved to Melbourne in 1855 and was Acting Government Botanist at the Melbourne Botanic Gardens from July, 1855 to January, 1857. The plants *Acacia wilhelmiana* and *Verticordia wilhelmii* are named after him. Wilhelmi died in Dresden.

Dr William Hillebrand (1821–1886), a German medical doctor, and later famous for his work on the flora of Hawaii, made a few collections from Adelaide, near Lake Alexandrina and Reedy Creek in 1849. He was an acquaintance of both Ferdinand von Mueller and Dr Behr. Two attractive shrubs *Phebalium hillebrandii* and *Veronica hillebrandii* named after him are now quite rare in South Australia (see Pope 1919).

Ferdinand Osswald, a German chemist who lived in North Adelaide around the early 1850s, returned to Germany about 1856. He may have collected plants with Mueller as there are numerous plants at the Melbourne Herbarium with identical collection dates from Gawler, Barossa Range, Bethany and Guichen Bay for the period 1848–1850. The wattle *Acacia oswaldii*, almost certainly misspelt, recalls him.

Johann Wilhelm Theodor Ludwig Blandowski (1822–?), born of a noble Polish family at Gliwice, arrived in Adelaide in 1849. He collected plants near Port Adelaide, Hahndorf, Coromandel Valley, at Macclesfield, and a few mosses at Mt Gambier in 1849 and 1850. A few plants were handed to him by Mr W. T. Malpas from Rapid Bay in 1850. He later accomplished valuable botanical and zoological work along the River Murray in Victoria, but fell foul of fellow scientists in Melbourne because of his difficult and brusque personality. The white everlasting *Helichrysum blandowskianum* recalls him. (See Iredale & Whitley 1932.)

George William Francis (1799–1865), Director of the Adelaide Botanic Gardens from 1855 to 1865, contributed several articles to the "Farm and Garden" in respect to poison plants. (See Best 1965.)

EXPLORATION OF THE INTERIOR (1830–1929)

Interior exploration in South Australia must be ranked as one of the most dramatic and exciting periods in the State's history. And the part played by the leaders of these expeditions and accompanying naturalists and botanists in remote and inhospitable terrain must be applauded.

The epic whaleboat journey of **Captain Charles Sturt** (1795–1869) and party down the River Murray to Encounter Bay in 1830 marks the real beginning of extended interior exploration in South Australia. It is hard to believe that plants were not collected along the way, but Hooker asserted that he had not seen any plant material from the expedition. Another eight years were to lapse before exploring parties commenced their sorties north of Adelaide. **John Horrocks Ainsworth** (1818–1846), ill-fated explorer, accompanied by the talented artist **Samuel Thomas Gill** (1818–1880), penetrated about as far as Lake Dutton (August, 1846), but we hear of no plant collections being made. Nor did **Edward John Eyre** (1815–1901) secure any material on his journeys to Eyre Peninsula and Gawler Ranges in 1838. Following the success of this effort Eyre embarked on his most famous expedition, seeking to open up communication between the newly formed colonies of South and Western Australia. He reached Mt Serle in the Flinders Ranges in early July, 1840, and continued on to Mt Hopeless, where he viewed the desolate wastes of Lake Torrens. Out of this expedition arose the myth that Lake Torrens was a horseshoe lake barring all access to the north, bedevilling explorers for years to come; from Port Augusta he travelled to Port Lincoln and Streaky Bay, reaching the head of the Bight in early January, 1841. But he was forced to retreat to Fowler Bay for lack of water. Eyre's party, supplemented by fresh supplies from a South Australian Government vessel sent to Fowler Bay, and by a French whaler anchored near King Georges Sound, eventually reached Albany in July, 1841. Plants from his epic journeys are in Melbourne. (See Eyre 1845.)

Captain Sturt began his legendary central Australian expedition from Adelaide on 15 August, 1844. He travelled via the River Murray to the Darling, and northward to the beautiful rockhole at Depot Glen near Milparinka in New South Wales. From here Sturt's party conducted sorties into the Cooper Creek (and Barcoo) country of South Australia, and into Queensland and northern border regions of New South Wales. Plants collected on this expedition by Sturt and surgeon-naturalist of the party Dr J. H. Browne (further alluded to in this paper) are in London at the British Museum of Natural History. A report on these is to be found in Sturt (1849). (See Daley 1935.)

Following **Benjamin Herschel Babbage's** (1815–1878) successful 1856 expedition to areas north of Mt Serle and to Blanchewater, he was appointed leader by the Colonial Government in 1858 to explore areas towards Lake Torrens. But an impatient Government, eager for quick results and piqued at his slow progress, relieved him of his command and appointed Peter Egerton Warburton in his place. This seems to have been unkind to Babbage, for despite his reputed dawdling, he examined the eastern shores of Lake Gairdner and Lake Macfarlane in the Gawler Ranges, and Lake Hart and Island Lagoon. **Joseph Franz Albert David Hergott** (1823–1861) was botanist to the Babbage expedition, and plants from the earlier Babbage expedition of 1856 and that of 1858, are at Kew and Melbourne. Mueller (1859) reported on the plants collected in 1858.

Peter Egerton Warburton (1813–1899), who superseded Babbage, was responsible for discovering a number of mound springs including Strangways, Coward and Finnis Springs. He also explored the Lake Gairdner region in October, 1858. Willis notes that plants from his expedition held at Melbourne, are practically all from Mt Serle in the Flinders Ranges. Other plant collections by Warburton are from Venus Bay and the head of Spencer Gulf. (See Anon. 1889.)

While Babbage was undertaking his painstaking exploration near Lake Gairdner, the New South Wales government equipped an expedition in September, 1857, under the leadership of **Augustus Charles Gregory** (1819–1905), to attempt to ascertain the fate of Dr F. W. L. Leichhardt. Gregory followed the Barcoo until its junction with Cooper Creek, and pushed down this stream and the Strzelecki. He arrived in Adelaide on 31 July, 1858. Some of the plants collected from the north-east of South Australia are cited by Bentham. (See Cumpston 1972.)

Alfred Howitt (1830–1908) was leader of a Victorian relief expedition despatched to search



S. T. Gill



E. J. Eyre



B. H. Babbage

for traces of the ill-fated Burke and Wills expedition. He explored areas in the vicinity of Cooper Creek between September, 1861, and February, 1862. **Dr Wheeler** and **Dr James Patrick Murray** were the plant collectors for this expedition and Mueller (1863) listed these plants.

John McKinlay (1819–1861) and party set out from Adelaide on August 16, 1861, in search of the remains of the Burke and Wills expedition. They traversed country near Blanchewater, Lake Torrens, and reached Lake Massacre on October 20. Regions near Lake Goyder and the Warburton River were inspected in January and February, 1862. I am uncertain whether any plants ever found their way to the Melbourne Herbarium. I am also unable to determine whether Samuel Parry in 1857, Government Surveyor of South Australia, collected any plants on his journey to Mt Serle, Angepena and Lake Torrens region. **Dr John Harris Browne** (1817–1904) equipped the expedition of Josiah and P. F. Bonnin to the Gawler Ranges in 1862. Dried specimens of grasses, herbs and bushes were collected, and it is highly likely that Browne sent many of these to Dr Mueller in Melbourne. (See Finnis 1966.)

The exact number of plants that **John McDouall Stuart** (1815–1866) collected in South Australia during his five epic journeys from Adelaide to northern regions from 1858 to 1862 has never been determined. Areas visited by him in South Australia included Lake Eyre, Neales River, Strzelecki Creek and Chambers Creek. Some of the plants obtained by Stuart were catalogued in 1864.

Captain Edmund Alfred Delisser made two journeys across the Nullarbor to the Western Australian border, the first in 1861, the second from Colona near Fowler Bay in 1865. Plants from the 1865 expedition are listed by Dr Mueller (1866).

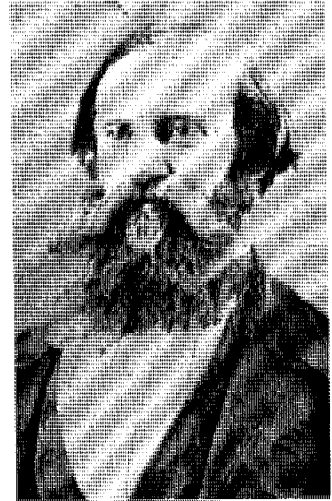
Delisser was closely followed by the expedition led by **John Forrest** (1847–1918) across the Nullarbor from Perth to Adelaide in 1869–70. There is scant evidence that any plants were collected. On his third great expedition in 1874, Forrest crossed the Great Victoria Desert inspecting areas around the Murchison River, Barrow and Cavenagh Ranges in Western Australia. In September he explored the Tomkinson, Mann and Musgrave Ranges, and followed the Alberga River to Peake Telegraph Station reaching there on September 30. Plants from this expedition were listed by Dr Mueller (1875). However only one species *Casuarina decaisneana* (now *Allocasuarina decaisneana*) seems to have been collected within the boundaries of South Australia, and it is hard to believe that others were not secured in the northwest.



P. E. Warburton



J. H. Browne



J. M. Stuart

The years 1872–1876 were notable for the exploratory endeavour of the South Australian Surveyor General **William Christie Gosse** (1842–1881), **William Ernest Powell Giles**, (1847–1897) and **J. W. Lewis** anxious to fill in some of the last known gaps of the geography of South and Central Australia. W. C. Gosse explored areas of the north-west of South Australia at the Tomkinson, Mann, Musgrave and Everard Ranges between September and December, 1873, reaching Charlotte Waters on December 19. As reported by Willis, “Gosse’s monocotyledons and ferns were worked up and cited in the seventh volume of Bentham’s “*Flora Australiensis*” (1878) and four others in Mueller’s “*Fragmenta Phytographia Australiae*” (vols 9–11).” Gosse’s brother Henry was collector to the expedition.

W. E. P. Giles is fondly admired as one of the greatest of the Australian inland explorers. He collected plants on all four of his expeditions conducted in 1872 and 1873 to northern South Australia and Central Australia, and in 1875 from Beltana via the Gawler Ranges to Ooldea and west across the Great Victoria Desert to Perth, returning in 1876 through the Gibson Desert, Rawlinson Range and north-west South Australia. He was ably assisted in botanical work by his brother Christopher Giles in the 1872 and 1873 expeditions, and Jesse Young and W. H. Tietkens on the Great Victoria Desert venture. The numerous specimens secured by Giles and his assistants were treated by Mueller (1875 & 77). (See Giles 1889 & Ericksen 1978.)

J. W. Lewis was leader of the 1874 expedition around Macumba River, Lake Eyre and Goyder Lagoon from November, 1874 to March, 1875. **F. W. Andrews** an assiduous collector and naturalist on this expedition was well known for his fine knowledge of Australian birds. Botanical specimens were taken by Andrews in the Gawler Ranges in December 1883. (See Gosse 1874.)

Charles George Alexander Winnecke (1856–1902), who had previously led an expedition in the Tennant Creek area in 1879, extended the work of Giles and Gosse in northern South Australia. Dr Mueller treated plants from his 1885 expedition to the Stuart Range (Mueller 1886).

Two other expeditions of note were those of **William Harry Tietkens** (1844–1933) in 1889 to central Australia and **David Lindsay** (1856–1922) 1891–1892, to north-west South Australia, and Queen Victoria Spring and Fraser Range in Western Australia. **Richard Helms** (1842–1914) was botanist to the later Elder Expedition and the voluminous results were jointly published



John Forrest



W. C. Gosse



W. E. P. Giles

by Dr Mueller and Ralph Tate (1896). Many of the valuable plants from the Elder expedition were included in the Tate Herbarium that was transferred to the State Herbarium in 1954.

The much esteemed Horn expedition was the last of the great inland expeditions of the 19th Century. The majority of the botanical endeavour was undertaken in central Australia, principally at Ayers Rock, Mt Olga, George Gill and MacDonnell Ranges and around the Finke River. Professor Ralph Tate was botanist and nearly 500 species of plants were noted in his report (1896). The State Herbarium of South Australia is most fortunate in holding the principal set of specimens from this expedition.

Herbert Basedow (1881–1933) was leader of the South Australian Government north-west expedition from March 30 to November 5, 1903. Not only was he an enthusiastic collector of plants but a world-renowned anthropologist with a special interest in the rock art of the Australian aboriginals. He explored areas around Granite Downs, Alberga River, Indulkana Range, Everard Ranges, Musgrave Range, Mann Range and Ayers Rock and Mt Olga in Central Australia. His journal published in 1914 is sprinkled with comments on the plants he saw. According to Basedow, he handed his herbarium to Professor Diels of Marburg, but Willis reports that Basedow collected at least four hundred and twenty five numbers, and that these were located chiefly at the Herbarium of New South Wales. (See Basedow 1914.)

Captain Samuel Albert White (1870–1954) an august naturalist famous for his ornithological exploits in South Australia was an intrepid botanical collector who explored areas on Eyre Peninsula and in the Mt Lofty Ranges, Gawler Ranges, Flinders Ranges and the Far North. Valuable botanical collections were made by him in interior regions of Australia; the first from Oodnadatta to the River Finke and the MacDonnell Ranges in 1913, principally in what is now the Northern Territory; the second from Oodnadatta to the Everard and Musgrave Ranges in 1914; the third to Strzelecki and Cooper Creeks in 1916. The 200 plants collected on the 1914 expedition were discussed by J. M. Black (1914). White (1915) published a short paper on the flora of the country between Oodnadatta and the Musgrave and Everard Ranges. He died at Fulham, in South Australia.

William Austin Cannon, (1870–1926) an American plant ecologist of world repute, came to South Australia in 1920 to study the vegetation of arid regions. The results of his work conducted at Ooldea, Tarcoola, Blanchetown, and the Flinders Ranges (Quorn, Port Augusta and near Copley) is embodied in a special publication (Cannon 1921).



C. G. A. Winnecke



W. H. Tietkens



D. Lindsay

LATE COLONIAL (1860–1899)

The Sevenhill Jesuit Seminary in the northern Mount Lofty Range spawned two important collectors, **Reverend Father Julian Edmund Tenison-Woods** (1832–1889) and **Reverend Father Johann Nepomucenus Hinteröcker** (?–1872). In the course of his clerical work in the South East of South Australia, Father Woods explored much of the country near Penola, Tatiara district (Bordertown), Mount Gambier and across into the south-western parts of Victoria. Unfortunately labels on some of his plants are confusing and a few plant species attributed to our South East should be deleted from the South Australian flora. Although a large number of his collections was destroyed in a house fire at Penola, many of his plants from the period 1860 to 1867 are at the National Herbarium in Melbourne. The epacrid heath *Leucopogon woodsii* was named after him. (See Anon. 1889/90.) Father Hinteröcker, an Austrian who sent plants to Mueller from Burra and Clare districts in the 1860's, was interested in the Australian aborigines. He died in Launceston, Tasmania. (See Anon. 1872.)

Dr Richard Moritz Schomburgk (1811–1890) was born at Fribault in Saxony. From 1865 to the time of his death he was Director of the Adelaide Botanic Gardens. Schomburgk was a brother of the intrepid South American explorer Robert Schomburgk. He was primarily concerned with economic botany and his published works relate to such topics as tobacco culture, the economic value of South Australian eucalypts, and the grasses and fodder plants of South Australia. In 1876 he wrote a "Flora of South Australia". It consists of an introductory essay followed by a list of species without descriptions, and compiled from the "Flora Australiensis". In 1879 he published on the naturalised flora (See Kloot 1980 & Anon. 1891a & b.)

Daniel Bunce (1813–1872) botanised principally in Victoria, Tasmania and New South Wales. He journeyed to the lower part of the River Murray and Coorong in 1849?, and probably secured plant material in South Australia. **Frederick George Waterhouse** (1815–1898) was sent to Kangaroo Island in 1861 by the South Australian Government to collect insects and plants. He gathered most of his plants at Cygnet River and added a further 83 plants to the census of the Kangaroo Island flora (see Anon. 1898 & Kraehenbuehl 1976). **Francis Staker Dutton** (1816–1877) a Premier of South Australia was a diligent collector during the middle of last century. Mueller named *Eremophila duttonii* after him in recognition of his support for the Babbage expedition. **Friedrich Edward Heinrich Wulf Krichauff** (1824–1904),



H. Basedow



S. A. White



J. E. Tenison-Woods

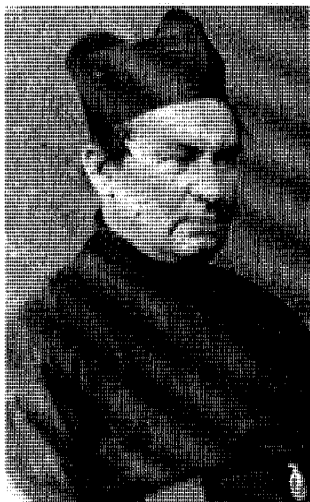
a life long friend of Mueller, was primarily interested in forestry matters. A number of his papers appears in forestry journals. **Samuel Dixon** (1841–1927) early colonial pastoralist devoted special attention to our fodder plants. Important papers (1886 & 1892) on indigenous shrubs suitable for cultivation as fodder and the effects of settlement and pastoral occupation in Australia upon the indigenous vegetation, were published. Dixon was an early collector in the once extensive mallee scrubs of the Balaklava and Halbury districts. He is best remembered for the part he played in securing Flinders Chase National Park on Kangaroo Island. Samuel Dixon died at Glenelg. The shrub *Grammosolen dixonii* recalls him. (See Kraehenbuehl 1983a.)

In the last quarter of the 19th Century the names of Tepper and Tate stand far above their contemporaries in work and achievement.

Johann Gottlieb Otto Tepper (1841–1923) was born at Neutomischel in Posen, Prussia. He came to South Australia in 1847 with his parents, when he was six years old. Tepper was an indefatigable collector of plants from Yorke Peninsula (Ardrossan, Maitland), Barossa Valley (Nuriootpa, Lyndoch), Mount Lofty Ranges (Clarendon), Murray Mallee (Monarto) and Kangaroo Island. He published many of his findings in the "Transactions of the Royal Society of South Australia" (e.g. Tepper 1880–88), "Botanisches Centralblatt", and "The Garden and Field Magazine". Tepper was "Museum Entomologist" at the Adelaide Museum from 1888 until his retirement in 1911. He died in Norwood. (See Kraehenbuehl 1969.)

Ralph Tate (1840–1901) was born at Alnwick, Northumberland in 1840. In 1875 he was appointed first Professor of Natural History at the University of Adelaide. He made important early collections from the last vestiges of the Reed Beds near Adelaide, Hallett Cove and the western foothills of the Mt Lofty Range. But he also extended his travels to South Australian interior regions and in 1894 was botanist for the Horn scientific expedition to north-west South Australia and Macdonnell Ranges near Alice Springs. The extent of his work can be gleaned from the titles of some of his articles (see Tate 1879–96) for example. In 1890 he published a handbook of the flora of an area including South Australia and the southern part of the Northern Territory. In retrospect Professor Tate was probably the greatest botanist to come to South Australia since the Mueller period. He died in Adelaide. (See Anon. 1893.) **Malcolm Murray** was an assiduous collector for Tate from the Lake Eyre region in the early 1880s.

Max Koch (1854–1925) was born in Berlin and came to Port Augusta in 1878. He forwarded sets of dried plants to J. H. Maiden from Mt Lyndhurst. Max Koch left South Australia in



J. N. Hinteröcker



R. M. Schomburgk



F. G. Waterhouse

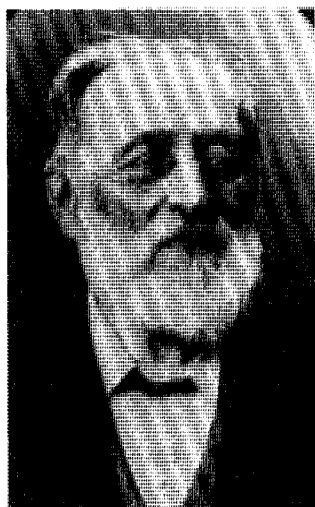
1904 and resided for the remainder of his life in Western Australia, where he also made copious collections. Other Koch collecting localities were at Port Pirie, Mt Lofty Ranges, Brighton and Cookes Plains. (See Audas 1929.)

William Lennox Cleland (1847–1918), born in Hong Kong, came to South Australia as a small boy with his parents. Surgeon and father of Prof. J. B. Cleland, he published a list of plants from Corunna Hill and the Gawler Ranges. Another English medico **Dr Robert Brummit** (1851–1927) came to South Australia in 1875 and was in practice at Burra from 1877 to 1901. He obtained significant collections of plants from Burra, Clare, Worlds End Creek, Black Springs and Apoinga in the last two decades of the century.

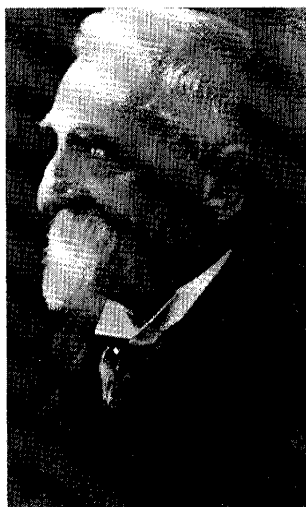
Baron von Mueller encouraged many Station owners and pastoralists and other interested persons to convey plant specimens to the Melbourne Herbarium. Some of these worthies included **J. Burkitt**, collector of plants from Lake Gilles and near Iron Knob in the early 1860s, **Dr John Harris Browne** who accompanied Charles Sturt on his expedition to the interior, and **J. Felstead** from Spencer Gulf in 1878 and 1879. **Dr Richard F. Sullivan** had some very important collections from the Gawler Ranges and Coralbignie in the last quarter of the 19th Century, and **J. Stuart Browne** secured much plant material near Port Lincoln from 1875 to 1877.

Ernest Beythien, chemist of Moonta and member of the Pharmaceutical Society of South Australia, has numerous series of plants from Moonta and Paskeville from the period 1888–1891. Other contributors to the Melbourne Herbarium from Yorke Peninsula include **Miss Salmon** (1869) and **William Fowler** (1820–1901) at Moorowie. **Otto Tepper**, mentioned earlier also considerably advanced knowledge of the flora about Ardrossan. **Walter Gill** (1851–1929), one-time Conservator of Forests, was an indefatigable collector of plants from around Wirrabara Forest in the Flinders Ranges from 1889 to 1892, and is well represented in the Melbourne Herbarium with plants from Kadina and southern Yorke Peninsula collected in 1891.

Mrs Annie F. Richards, wife of the resident constable **Trooper Thomas Paul Richards** (England 1842–1915) at Streaky Bay (Eyre Peninsula), conveyed plants, including lichens, to Baron von Mueller for a remarkable period of twenty years from 1873 to 1894. Her voluminous collections in the Melbourne Herbarium are the most important and extensive after Mueller and Tepper. Mrs Richards' collecting localities were Fowler Bay, Venus Bay, Pedinga (1880), Elliston, Euria Rockhole, Port Lincoln (all from Eyre Peninsula), Beltana (1890), between the Flinders Ranges and Lake Torrens, Port Augusta (1886) and from the Upper Broughton River



F. E. H. W. Krichauff



S. Dixon



J. G. O. Tepper

and Georgetown in the Northern Mount Lofty Ranges (1893–1894). Others who collected for Baron von Mueller included the **Rev. J. Flierl**, Lutheran Missionary at Kopperamana, and **Simpson Newland** (1835–1925) who are known to have sent plants to Mueller from Cooper Creek and Lake Eyre (1887) respectively. Baron von Mueller's sister, **Mrs Clara Wehl** (1833–1901), sent many plants to her brother from Lake Bonney and Mount Gambier in south-east of South Australia from 1881 to 1887, and her daughter, **Louisa Wehl**, collected from the apex of St Vincent Gulf, Appila–Yarrowie and Clare in the early 1880s.

Jessie L. Hussey (1862–1899) was a fine botanist who in a short span of six years from 1893 to 1899 sent over 2,000 different species of plants from the Port Elliot district to Baron von Mueller. She also greatly advanced our knowledge of the marine algae along the south coast. Miss Hussey died at Port Elliot. (See Anon. 1899 & Krachenbuehl 1981a.) Some time later, **Dr August Engelhardt**, a resident of Robe and later Kingston, also gathered many curious and undescribed species of marine algae. These collections were sent to Mr A. H. S. Lucas, author of the seaweed handbook. Dr Engelhardt accomplished his work at Lacedpede and Guichen Bays.

Maurice William Holtze (1840–1923) had a profound knowledge of native tropical vegetation in the Northern Territory. He was Director of the Adelaide Botanic Gardens from 1891 to 1917, (see Krachenbuehl 1983d); his plants are at Adelaide and Pittsburgh (U.S.A.). In 1892 **Mr John McEwin** contributed a paper "The South Australian Year", on the flora of the Adelaide Plains and Mount Lofty Ranges. **O. E. Menzel** a resident of Aldgate in the Adelaide Hills was a prolific collector of plants from Aldgate and Bridgewater, Mt Lofty, near Monarto and at Mannum on the River Murray, in the period 1890–1910. A rare and endangered wattle *Acacia menzelii* is named after him. (See Anon. 1923.)

Botanical artists of the 19th century made a profound and significant contribution to science in South Australia. **Ferdinand Bauer** (1760–1826) an Austrian by birth joined Matthew Flinders on his historic and epic journey to Australia. Many people have expressed the opinion that he was one of the best botanical draughtsmen the world has ever known. His companion on this voyage, **William Westall** (1781–1850), was responsible for the execution of drawings and watercolours of views and scenes. Some of his Port Lincoln watercolours are especially fine and have been reproduced in special publications.

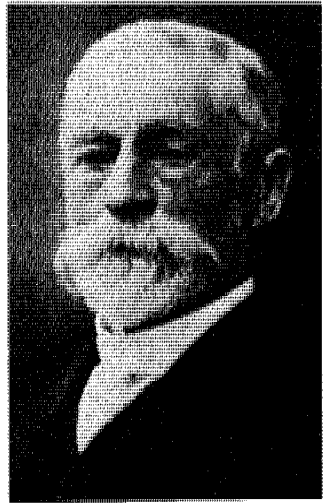
George French Angas (1822–1886) was one of the most outstanding colonial artists to paint



R. Tate



M. Koch



S. Newland

the South Australian scene. His views of native vegetation and scenes near Lake Albert and areas near Mt Gambier are especially valuable in comparing the pristine landscape of 1845 with that of today.

Samuel Thomas Gill (1818–1880) was another important colonial artist who early in his career painted the South Australian landscape. Many of his exquisite watercolours display vegetation and forest scenes of the Adelaide Plains, Mt Lofty Ranges and northern terrain around Burra, Kapunda and near Lake Torrens for the period 1845–1850.

Mary Hindmarsh (1817–1880?) daughter of Governor John Hindmarsh is reputed to have painted the first flowers including orchids near Adelaide. Three orchids shown in plate 50 of Angas's (1847) work are attributed to her. **Matilda Wilson** (1837–1909) also painted flowers around Adelaide. A few of her works have survived but they are extremely scarce. A book of 600 dried specimens of native flowers collected by her was exhibited at the Paris Exhibition in 1881. **Fanny Elizabeth de Mole** (1835–1866) painted wildflowers from the foothills near Burnside, during the period 1850–1865. Her book published in 1861 is extremely rare. **Marian Ellis Rowan** (1847–1922) was an eminent interstate artist who produced illustrations of the South Australian flora. Some of her original paintings are in the Art Gallery of South Australia.

John Ednie Brown (1848–1899), born in Scotland, was Conservator of Forests in South Australia from 1879–1890. Author of several papers on tree culture and forestry, his most esteemed work was "The forest flora of South Australia" (1882–90) in nine parts. Forty five species of trees and shrubs are magnificently illustrated and accompanied by descriptive notes.

Rosa Catherine Fiveash (1854–1938) was a fine botanical artist who illustrated works for J. E. Brown (1882–90) and R. S. Rogers (1911) near the close of the 19th Century. A book illustrating her Australian orchid paintings was published recently (Lothian 1974). **Annie Watson Laughton** (1853–1903) studied art at Adelaide and Sydney, and is represented in the Art Gallery of Adelaide. Her water colours and oils of Mt Lofty Range wildflowers and orchids are especially pleasing.

EARLY TO MID 20TH CENTURY (1900–1955)

Advent of the 20th Century denoted little change in the style or character of botanical exploration in South Australia. Probably the best endeavour prior to the First World War was



G. F. Angas



M. Hindmarsh

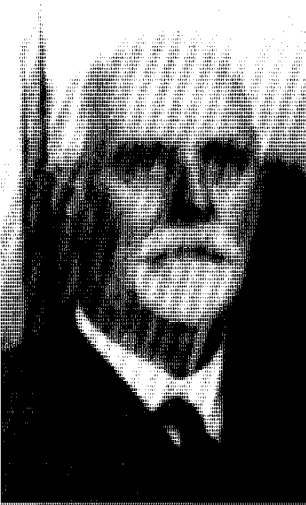


J. E. Brown

accomplished by Dr Basedow and Captain S. A. White in northern regions, but their work is treated in the section relating to exploration of the interior. The centenary of Matthew Flinders' voyage to South Australian shores sparked a revival of interest in the flora of Kangaroo Island, southern Eyre Peninsula and Encounter Bay, and this is reflected in the activities of J. M. Black, H. H. D. Griffith, J. E. O. Tepper and S. A. White in these regions.

About 1906 **Dr Richard Sanders Rogers** (1862–1942) developed a keen interest in Australian Orchidaceae which was later to make him a renowned expert on this family in Australia. Dr Rogers, who was born in Adelaide, was lecturer in forensic medicine at the University of Adelaide. In 1909, accompanied by his wife, also an astute collector, Dr Rogers completed an extended trip to the South East from Bordertown to Mt Gambier and across into western Victoria. Rogers described 66 new species of orchids for Australia, and many of his articles appear in the "Transactions of the Royal Society of South Australia" (1906–40). His 1911 publication "An introduction to the study of South Australian orchids" is now quite rare. (See Anon. 1942).

John McConnell Black (1855–1951) was born at Wigtown in Scotland on 28 April, 1855. In 1877 he migrated to South Australia and farmed for a short span of five years at Baroota in the northern Mt Lofty Ranges. At the age of 47 he received a legacy from his sister Helen D'Oyley Carte world famous Gilbert and Sullivan artiste. Retiring early he was now able to throw his energies into writing numerous botanical papers for the "Transactions of the Royal Society of South Australia" (for a list of Black's papers see Eardley 1953, xi–xii), and in 1909 published his first major work "The naturalised flora of South Australia". Such was his august reputation in the botanical sciences, that in 1920 the South Australian branch of the British Science Guild requested him to write a flora of South Australia. Indeed this was to be the first major scientific work on the South Australian flora since the days of Richard Schomburgk (1875) and Ralph Tate (1890). He commenced work on the flora at the age of 65, when most men would be astounded that anyone could possibly contemplate such an absorbing project. The four parts were published in 1922–1929. Black completed three parts of a second edition (1943–52) with the fourth part completed by Enid L. Robertson in 1957. The Black Herbarium, now the property of the University of Adelaide, contains numerous specimens secured by a group of important and dedicated collectors including H. H. D. Griffith, E. Black, J. B. Cleland, H. W. Andrew, E. H. Ising, S. A. White and a bevy of South Australian country correspondents. This herbarium together with the Ralph Tate, J. B. Cleland, Richard Schom-



R. S. Rogers



E. Ashby



T. G. B. Osborn

burgk and J. G. O. Tepper material, formed the basis of the collections which were transferred to the State Herbarium in 1954. Miss Eardley (1953) reported that Black was responsible for describing "seven genera and approximately 180 species and forty varieties". His influence on the progress of botany in South Australia was profound and formed a sound basis for the work. (See E.C. Black 1971 and Eardley 1953.)

Joseph Henry Maiden (1859–1925) was born in London. A Government botanist of New South Wales, Maiden visited this State in 1907 and in 1908, published a paper treating chiefly collections made on Kangaroo Island and the west coast. Maiden dealt especially with our acacias and eucalypts in the paper mentioned, and also in others published in Sydney, notably (as regards the eucalypts) in his "Critical Revision of the genus *Eucalyptus*", a monumental work began in 1909, which ran to seven volumes by the time of his death.

Two papers on essential oils in Australian plants were published in the "Transactions of the Royal Society of South Australia" in the early 1920s: the first by **Hedley Herbert Finlayson** (1920); the second by **P. A. Berry** (1922).

Hubert Hussey D'Alton Griffith (1877–1958), discoverer of several new plant species, was a very important collector for J. M. Black, and did much work on southern Eyre Peninsula, River Murray, Adelaide Plains and Mt Lofty Ranges. I regret I have no further details of him. **A. E. Errey** a collector from the Adelaide Plains and the foothills near Magill added many plants to the J. M. Black Herbarium before the First World War. **H. W. Andrew** son-in-law to J. M. Black, was another diligent collector who botanised areas in the Mt Lofty Range, South East and Upper River Murray region during the first quarter of this Century. Two small communications were furnished by **Charles F. Johncock**, a resident of Orroroo, in 1902 on the botany of the Willochra Valley. **B. S. Roach** a teacher in the South Australian Education Department, wrote three botanical essays in the "South Australian Naturalist" on the botanists Robert Brown, George Bentham and Ferdinand von Mueller, and **Edwin Ashby** (1861–1941) naturalist and horticulturalist of Blackwood communicated two articles in the "Transactions" in 1917 on *Styphelia depressa* and on two ferns previously unrecorded for South Australia. In 1939 he published an important paper on *Correa*. His daughter, **Alison M. Ashby**, is a well-known botanical water-colourist.

The two decades between the First and Second World Wars were remarkable for the amount of ecological research accomplished by South Australian and visiting overseas botanists. This resurgence of botanical activity assumed great importance later because of the widespread destruction of bushland that occurred after the end of World War II, in many of the areas investigated by these previous botanists.

From the time of his arrival in Adelaide, **Professor Theodore George Bentley Osborn** (1887–1973) made an indelible mark on South Australian ecology. He held the post of Professor of Botany at Adelaide University, and later at Sydney and Oxford Universities. Osborn published a series of praiseworthy ecological papers on South Australian ecology of the Port Wakefield District (Osborn & Wood 1923) and the Koonamore Vegetation Reserve (Osborn 1925 & 1928, Osborn, Wood & Paltridge 1935). He wrote the botanical chapters for "Flora and Fauna of Nuyts Archipelago" (Osborn 1922–1925), and was almost certainly the first botanist to study the flora of the remote Pearson Islands. Osborn was also co-author with **Robert Stephen Adamson** (1885–1965) of the two esteemed papers on the ecology of the Ooldea District and the ecology of the *Eucalyptus* forests of the Mount Lofty Ranges (Adamson & Osborn 1922 & 1924). (See Robertson & Eardley 1973.)

Ernest Horace Ising (1884–1973) was an indefatigable collector of plants from areas including the Flinders Ranges, near Oodnadatta, Monarto South, Eyre Peninsula and Lucindale in the South East. His work spanned a period of 50 years from the early 1920's until his death. Ising, a leading exponent on the family Chenopodiaceae, published the results of his studies into the genera *Kochia*, *Bassia* and *Atriplex* in the "Transactions of the Royal Society of South Australia" between 1933 and 1969. Altogether, Ising described 53 species or varieties of plants. (See Kraehenbuehl & Campbell 1975, where there is a full list of Ising's publications.)

Professor Joseph Garnett Wood (1900–1959) joined the staff of the University of Adelaide Department of Botany in 1923. He had a keen interest in the arid vegetation of South

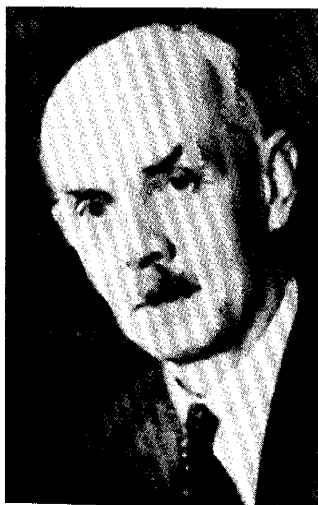
Australia, in particular the Koonamore Vegetation Reserve established by the Botany Department of the University of Adelaide in 1925. The scope of his ecological endeavour may be judged by a small selection of papers published in the "Transactions of the Royal Society of South Australia" (Wood 1929-39). He was author of the handbook "Vegetation of South Australia" (1937), a pioneer ecology work held in high esteem for many years. A second edition, by R.L. Specht, was published in 1972. (See Eardley 1961.)

In 1931, **B. Jean Murray**, in a continuation of the splendid ecological work of Osborn and Wood, wrote a paper on the vegetation of the Lake Torrens Plateau, based on observations and collections made in that area from 1927 to 1930.

John Burton Cleland (1878-1971), Professor of Pathology at the University of Adelaide from 1920 until his retirement in 1948, was a man of many parts. Not only does he deserve to rank with the best botanical collectors of his time, but he was equally adept in ornithology and was a respected authority on Australian Aboriginal anthropology. The Cleland plant collections embrace practically the whole of the State; from the West Coast, Eyre Peninsula, Flinders Ranges, Far North West Ranges, Murray Mallee, River Murray, Mount Lofty Ranges, Kangaroo Island (where he discovered a number of new taxa) and the South East. Cleland contributed writings to a score of magazines and periodicals although his chief offerings are located in the "Transactions of the Royal Society of South Australia", and the "South Australian Naturalist". His separate publications include the two volumes on the larger fungi of South Australia, published in 1934 and 1935, and "The Geography and Botany of the Adelaide Coast" of which he was co-author with Dr C. Fenner. (See Eardley 1959.)

The need for a reference work on the marine algae of South Australia was fulfilled in 1936 with the publication by **Arthur Henry Shakespeare Lucas** (1853-1936), "The Seaweeds of South Australia" (Pt 1). Part 2 was published posthumously in 1947, with the assistance of **Mrs Florence Perrin**. These useful volumes have recently been partly superseded by Part 1 of a new work by Professor Bryan Womersley (1984).

Plants occurring in the granite outcrops of the Wudinna district was the topic of an important paper by **C. W. Johns** (1938). Much of this district has now been cleared for farmland and a number of the outcrops severely invaded by weeds. The only other collector I have been able to locate who did any important collecting before the war, was the **Reverend H. A. Gunter** who worked areas in the South East at Lucindale, Kongorong and Port MacDonnell in 1932 and 1933.



R. S. Adamson



E. H. Ising



J. G. Wood

Other plant taxonomists and ecologists have made substantial contributions to botanical research from the middle war years up until 1955. One of the first ecological works in the station country to the north west of Port Augusta was the **R. L. Crocker** and **H. R. Skewes** (1941) paper on Yudnapinna Station. **Dr Robert Langdon Crocker** (1914–1963) followed this in 1944 with a paper on the lower South East and in 1946 on Eyre Peninsula. His promising career was cut short by his early death. One of the few botanical papers published during the war was a soil survey of parts of Kangaroo Island by **K. H. Northcote** (1943).

Nancy Tyson Burbidge (1912–77), well known for her work on Australian taxonomy and phytogeography, did research on the germination of Chenopodiaceae (1945 & 1946) and in 1947 provided an invaluable key to the South Australian species of *Eucalyptus*. Other important taxonomic papers were on *Enneapogon* (1941) and *Triodia* (1953).

During this period two important events of a more public nature occurred. The first in the early 1930's was the establishment of a Herbarium at the **Waite Agricultural Research Institute** under the auspices of the University of Adelaide. Until the end of 1985 it provided a taxonomic service to the Institute and contained about 50,000 sheets of flowering plants; no bryophytes or algae and few ferns were included. The accent was on agricultural and weedy plants and is mainly Australian, with some exchange from Europe, America and Africa. **Albert Morris** (1886–1936) donated his herbarium of 8,000 specimens, collected about Broken Hill and western New South Wales to this Herbarium. The large collection of Solanaceae reflected recent activity. The Curators of the Herbarium have been: C. M. Eardley (1933–49); E. L. Robertson (1948–53); F. M. Hilton (1953–55); and D. E. Symon (1957–85). This very valuable collection has now been transferred to the State Herbarium.

As well as her duties to the Waite Herbarium, **Constance Margaret Eardley** (1910–78) was for a long time Lecturer in Taxonomy in the University of Adelaide Botany Department. Her early work was concerned with the study of vegetation of swamps in the South East, and in 1939 she was co-author with R. L. Crocker of a paper on South Australian sphagnum bogs. As a result of the threat of draining to the extensive swamps east of Port MacDonnell during the early part of the war, Miss Eardley completed the fine survey in 1943. In 1946 she contributed the catalogue of plants for the Simpson Desert Expedition of 1939, and furnished botanical tributes to the botanists J. G. Wood (1961), J. M. Black (1953), and J. B. Cleland (1959). Miss Eardley was co-author with Veda Cruickshank of the pocket handbook "Wild-flowers of the Adelaide Hills" (1972).



C. M. Eardley



J. B. Cleland



N. T. Burbidge

Frank M. Hilton industriously botanised areas in the upper Murray District (Renmark, Berri and Glossop) and from the Frome River in the middle 1950s. He was particularly interested in native grasses and made substantial contributions to the Waite Herbarium.

The years 1953–1955 saw the establishment of the **State Herbarium**. At the instigation of the Director of the Adelaide Botanic Garden **Mr Thomas Robert Noel Lothian** (1915–) a State Herbarium was established in the Adelaide Botanic Garden. In 1953 the South Australian Government advertised the position of Keeper and in 1955 **Dr Hansjoerg Eichler** (1916–) took office. During 1954 and 1955 **Edward S. Booth** had acted as Keeper. Dr Eichler had the task of reorganising and incorporating the Schomburgk Collection, the J. M. Black Herbarium and the Tate and Tepper Herbaria, all placed by the University of Adelaide on permanent loan to the Herbarium. In 1957, 900 boxes containing the South Australian Museum collections, were also transferred to the Herbarium, which by 1975 was to house about 300,000 specimens.

CONCLUSION

Beginning with the epic voyages of Flinders and Baudin, it cannot be denied that a fine amount of botanical work was accomplished in the 19th Century. The influence of German and British (especially Scottish) botanists was profound and long standing. On the other hand the botanical output of the early interior expeditions was, by comparison, desultory and somewhat lacking in content; however the Elder and Horn Expeditions towards the end of the century, greatly enriched collections of emmaean flora from far northern areas of South Australia.

The 20th Century ushered in the era of the professional ecologist and taxonomist who would for years ahead change the progress and temper of botany in this State. The establishment of the State Herbarium was a milestone that ensured for the first time that the valuable and precious Tate, Tepper, Black and modern plant collections would at last be safely housed in one institution. Since World War II a vast amount of valuable research has been accomplished, but a great deal remains to be done by present and future botanists.

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