

JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the

STATE HERBARIUM OF SOUTH AUSTRALIA

on behalf of the

BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

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PLANT INTRODUCTIONS TO SOUTH AUSTRALIA PRIOR TO 1840

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Abstract

Selected historical data from 1802 to 1840 are presented to illustrate the extent of European plant introductions in both pre-colonial South Australia and the early years of official settlement. Some other effects such as land clearing and the early movement of weeds are briefly discussed.

Introduction

South Australia was proclaimed a colony of the British Crown on 28 December 1836 when the first Governor, Captain John Hindmarsh RN, hoisted the British flag at a ceremony on the shores of Gulf St Vincent. Prior to this date there had been a flurry of activity which had commenced on 27 July the same year when the advance party of settlers and surveyors had arrived on the "Duke of York" to lay the foundations for a Province of free settlers to be developed in accordance with the novel Wakefield Colonization Plan (Price, 1924). Apart from recounting the story of the earliest navigators, Flinders and Baudin, many historians make no mention of European involvement in South Australia prior to 1836 (e.g. Dutton, 1846; Sinnott, 1862; Pascoe, 1901). Passing references are sometimes made to the earlier presence of sealers and others on the off-shore islands but as they are not considered to have any direct bearing on the official settlement of the colony, they are dismissed as being of little importance in South Australian history. This underestimates their role in the wider history of South Australia and ignores the significant modification of the environment of the coast and off-shore islands that they caused over a long period.

Furthermore the first years of official settlement saw a remarkable expansion in agriculture and horticulture in South Australia. I believe that this was a result of the Wakefield Colonization Plan which has not been considered before.

In this paper I will present selected historical data from 1802 to 1840 to illustrate the extent of plant introductions by Europeans and some of their effects on the local vegetation. This span includes a period of 34 years prior to official settlement and the following four years during which agriculture became established.

Modification of the environment

The arrival of Europeans had two basic effects relevant to this topic—habitat disturbance and plant introduction. The former is caused by a) the establishment of camps, huts and in time, settlements with their attendant soil disturbance and rubbish dumps, etc., b) the grazing of ruminants and the deposition of large dung patches for neither of which are the native herbs and grasses adapted, and c) farming, which includes the removal of native vegetation, the cultivation of the soil and the subsequent planting of crops and pastures. Plant introduction may be intentional such as the sowing of crops, pastures, fruit and vegetables or it may be unintentional as with the dispersal of weeds which, in this context are plants adapted to co-exist with the activities of Man. Introduced plants generally require some modification of the environment for their successful establishment. The unsubtle invasion of Europeans into the fragile environment of South Australia was more than sufficient disturbance for the successful establishment of 100 alien plants by 1850 (Mueller, 1853; Kloot, 1983).

Whilst the extent of such effects was limited generally to the coast and off-shore islands in pre-colonial South Australia, I suggest that they were as important where they occurred as were the changes wrought by the 'official' settlers after 1836, who ranged much further inland and who by 1840 had greatly influenced the local vegetation.

The first contacts

European involvement with South Australia appears to have commenced in 1802. This is much later than other parts of the Australian coast. From the west, the Dutch had explored by 1627 the southern Australian coast as far as the Isles of St Francis (Fig. 1), but they and later explorers approaching from the west found the coastline so inhospitable as to discourage closer examination or to invite further eastward exploration. The generally accepted first European contact from the east was by the British in 1770 but that only involved the eastern Australian coast. McIntyre (1977) produced convincing evidence that the Portuguese anticipated Captain Cook by about 250 years but even so, the farthest west he claimed the Portuguese to have explored was the coastline near Warrnambool in Victoria.

Whilst some other casual contact cannot be completely excluded it would appear that what is the coastline of present-day South Australia was explored by Europeans much later than the rest of the Australian coast. Furthermore whilst the indigenous peoples of various Indonesian islands, New Guinea and other islands to the north had visited Australia intermittently for millenia (Dortch and Muir, 1980), because of the distances involved this contact did not affect southern Australia. Even if it had, any plants introduced intentionally or accidentally from these tropical origins would have been unlikely to succeed in the completely different environment of southern Australia.

By chance the first two recorded European contacts coincided when a British ship "The Investigator" under Matthew Flinders sailed in South Australian waters on its circumnavigation of the Australian continent between January and April 1802. A French expedition commanded by Baudin sailing westward reached there in March and remained until late April. In spite of their countries being at war they met cordially in the bay near the entrance to the Murray River later named by Flinders as Encounter Bay. To botanists, these expeditions are extremely valuable. Robert Brown patronized by Sir Joseph Banks was on Flinders' ship and Jean Leschenault and Andre Michaud were on the French ships.

Both the British and French expeditions landed on Kangaroo Island (Figure 1) at various places to camp, to explore and to collect specimens. These expeditions were themselves agents of introduction. Baudin (1974) noted in his journal that on his second visit in January 1803 he left a rooster and some hens, a boar and a sow "for the benefit of future navigators". The wild pig hunting of later years is evidence that the pigs thrived but there is no further mention of the fowls (Cooper, 1954).

Even more pertinently, Peter Good the gardener on Flinders' voyage, listed a number of seeds that were sown in the vicinity of the Spring, near present-day Penneshaw, and various other situations on Kangaroo Island on 2, 4 and 5 April 1802, also as an aid to future sojourners (Edwards, 1981). They were: orange, lemon, cherry, rock melon and cantaloupe, cucumber, gourd, onion, leek, turnip, beet, radish, cress, mustard, lettuce, cabbage, savoy, spinach and sea kale. The three fruit trees were probably seedlings in which case the soil around their roots would have contained weed propagules. It is highly likely that the vegetable seed would have contained impurities and that weeds were thus introduced. Perhaps the weeds were more successful than the intended plantings, but I have not been able to locate any further reference to Good's plants or any weeds.

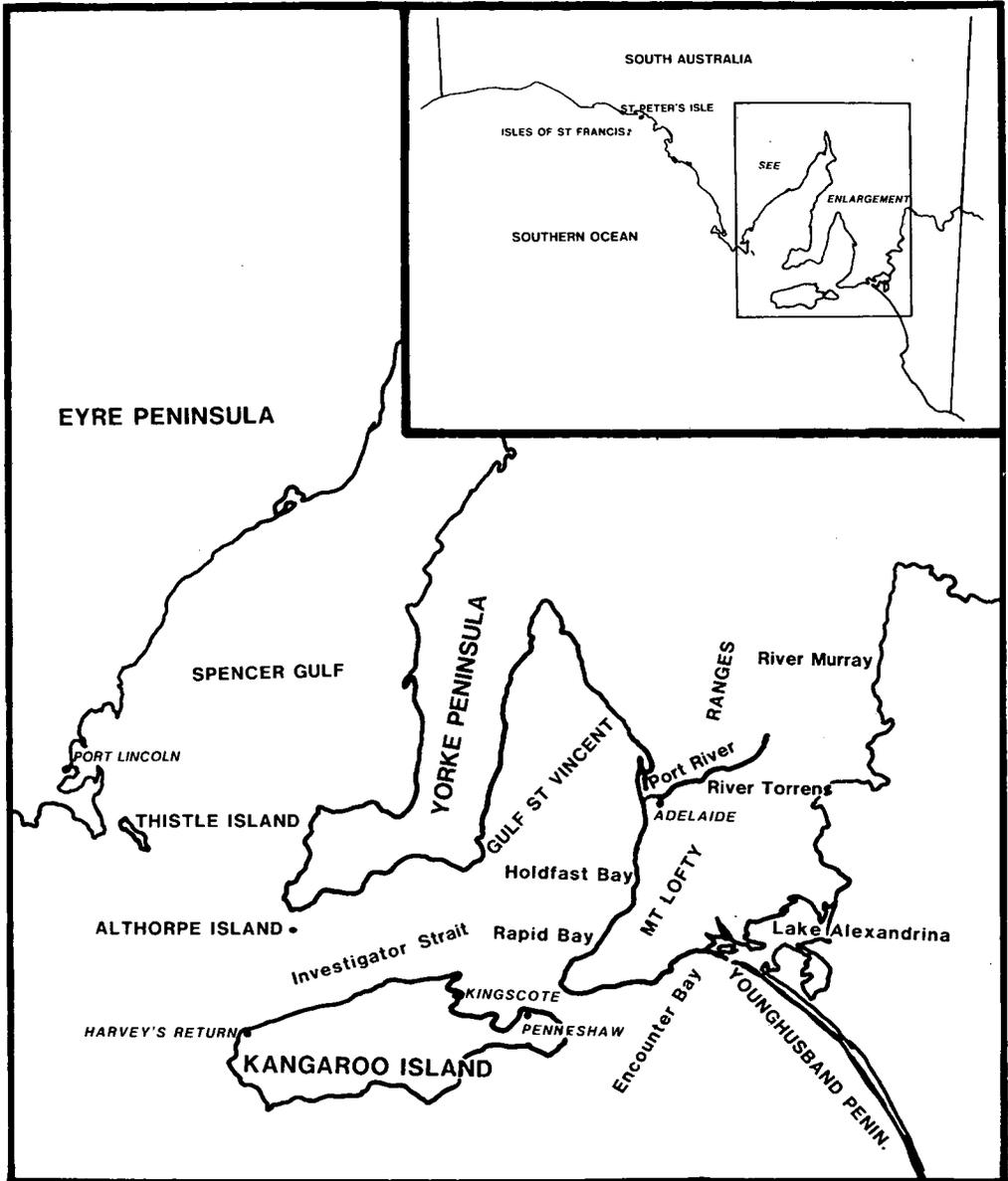


Fig. 1. South Australia, showing localities mentioned in the text.

The earliest settlements

Kangaroo Island

Soon afterwards Kangaroo Island became the focus of European involvement with South Australia. As a large uninhabited island it was an attractive base for parties of sealers who were left there for various terms to amass skins for traders based in Sydney, Hobart and elsewhere (Cumpston, 1974). The rough life of Kangaroo Island gave rise to accounts of runaway convicts and outlaws (e.g. Sutherland, 1834), which Cumpston (1974) considered to be highly exaggerated but which were given credence by earlier historians who ignored the pre-colonial settlers of Kangaroo Island in their attempts to stress the higher social origins of South Australia (e.g. Pascoe, 1901) compared to the other Australian states.

The first recorded European contacts as noted above were in 1802, but there was evidence of some unidentified European contact in 1800 (Leigh, 1839) and according to Flinders' diary (cited by Wace, in press) he was expecting to meet European sealers in the vicinity of Kangaroo Island. From 1803 onwards there was intermittent settlement. From 1806 European settlement was continuous, and involved large numbers of people. In 1825, at the peak of the sealing industry, there were two hundred souls present on Kangaroo Island. Cumpston (1974) has identified at least 500 individuals who dwelt on Kangaroo Island for different periods prior to the arrival of the official colonists in 1836. To supply their needs cereal and vegetable crops were sown and domestic animals introduced. Although I cannot locate any specific reference it is reasonable to assume that medicinal plants would have been introduced also. According to Sutherland (1834) the cabbages that he planted in 1819 were the first on the Island, the sealers previously using an unnamed native plant in the same manner as cabbage, which would suggest that the cabbages, at least, planted by Good in 1802 had failed to become established. In 1831 there were a number of small gardens growing vegetables, potatoes and onions and barley for the poultry (Cumpston, 1974). By 1836, when the official Colonists arrived on Kangaroo Island they found wheat, turnips, cabbages, onions, potatoes, barley and water melons. One settler, Wallen, had four acres under wheat and a "large kitchen garden filled with every description of vegetable as in England" (Cumpston, 1974).

The first explorers to reach Kangaroo Island in 1802 spoke of grass plains (Baudin, 1974; Flinders, 1814). Even in 1819 Captain Sutherland trekked across the island without any apparent hardship noting extensive grasslands in his account (Sutherland, 1834). On the basis of his experience a group of six of the first official colonists left their ship, the "Africaine", at Harvey's Return as a relief from the long sea voyage from England to follow Sutherland's path overland and to rejoin the ship at Kingscote. Two of the party perished and the others barely survived because they were blocked by thick impenetrable scrub. In view of Sutherland's general assessment of Kangaroo Island, which was found to be over-optimistic, the feeling was that he had fabricated the whole report (Stephens, 1839; Cumpston, 1974) but I suggest that he did not. As a result of hunting for food and sport, between 1802 and 1836 the kangaroo population was almost exterminated, a visitor in 1837 noting that "there is not a kangaroo within twenty or thirty miles of a settlement and no emu had been seen for ten years" (Leigh, 1839). Combined with the ravages of frequent fires, this may have been the cause of the impenetrable regrowth of mallee and heath-type vegetation which claimed the lives of the early colonists. Observations by this writer of exclosures at the Cleland Wildlife Park near Adelaide revealed that the effect of kangaroos grazing on the regrowth of native vegetation is severe, for where they have been excluded for even two years, the vegetation is a mass of tangled regrowth. In a recent paper on the taxonomy of the Kangaroo Island kangaroo, Poole (1976) entirely overlooked the effects of the pre-colonial settlers. He concluded that the scarcity of the kangaroos during the nineteenth century was only apparent, and occurred because there were very few observers who saw them because of the slow rate of land clearing. I suggest that the populations were depleted to such

an extent that the only surviving populations were confined to the uncleared distant parts of the Island, particularly the western end. In fact, in 1874 the Australian Directory (quoted by Cumpston, 1974) stated that the kangaroo was already extinct and the wallabies would soon be so.

Other islands

Other suitable islands were also inhabited from time to time by sealers (Cumpston, 1974). Althorpe Island in Investigator Strait and Thistle Island in Spencer Gulf were both settled from 1815. Thistle Island was farmed by an escaped convict and his two aboriginal wives for some years. By 1831, they had established "a good garden, small wheat and barley paddocks, with pigs, goats and poultry". They were self-sufficient in everything except for tea and tobacco. There are less definite references to sealers living on Nuyts Archipelago (Moore, 1925) and St Peter's Island (Cumpston, 1974) but as the latter together with the Isles of St Francis are part of the Nuyts Archipelago, the two references may be to the same settlement.

The Adelaide area

From Kangaroo Island marauding parties visited the mainland seeking aboriginal women as well as seals. The cruelty of the islanders to the aboriginals of the mainland resulted in violent reprisals wherever possible. One of the most well-known was the killing of Captain Barker by aboriginals on Youngusband Peninsula in 1831. It is clear that the Kangaroo Islanders had explored parts of the mainland close to Kangaroo Island for they gave much guidance as to the topography of the mainland to the explorer Sturt and afterwards to the first official colonists. Shortlived settlements were established by the River Torrens. Captain Barker, previously mentioned, explored parts of the Mt Lofty Ranges and travelled overland from Rapid Bay to the mouth of the Murray River in 1831. Sturt travelled down the Murray to Lake Alexandrina and returned upstream in 1831 but sealers had discovered the lake at least 18 months earlier (Moore, 1925; Cumpston, 1974). A Captain Jones discovered the Port River and landed at a number of places on the coast near Adelaide in 1834 (Jones, 1933).

The peninsulas

Sturt (1833) quotes the opinions of sealers as to the merits of Eyre and Yorke Peninsulas which implies that they were familiar with these areas. The area around Port Lincoln had been explored by 1810 and from 1829 to 1832 there was a settlement there of 30 people (Moore, 1925). Sutherland (1834) mentioned that he had visited Yorke Peninsula in 1819.

Botanical implications

This European activity in South Australia included the three elements of habitat disturbance—settlement, grazing and farming. The degree of disturbance differed considerably from place to place. Presumably the passage of Sturt's party by boat along the Murray would have had a negligible effect on the environment, but in contrast there were areas on Kangaroo Island and elsewhere that were intensively farmed. Plants would have been introduced both intentionally and accidentally. Crop seeds would surely have contained contaminants for we may assume that the seed imported from Tasmania or elsewhere in pre-colonial times was as adulterated as that imported later. Stock would have brought propagules on their fleece and coats, and implements brought from elsewhere were likely to have carried propagules. Water barrels could have picked up and dropped fragments of aquatic weeds as they were filled in various waterbodies. Clothing and footwear could also contain plant propagules and Charles Dickens in *David Copperfield* graphically describes "ploughmen bodily carrying out soil of England on their boots" on board an emigrant ship about to sail for Australia.

Unfortunately, there is no mention of weeds of that period. But we can be certain that they were present. It is instructive to consider available lists of alien plants recorded early in the history of the other parts of Australasia.

About 15 years after the establishment of Sydney, Robert Brown compiled a list of introduced plants which were growing, mostly spontaneously, in the area in the years 1802 to 1804 (Britten, 1906). Another catalogue is available from Victoria (Hannaford, 1856) and although it is from a slightly later period, it is still a useful comparison of early introductions. A further list was prepared of plants naturalised in New Zealand up to about 1845 from the works of Richard (1832), Cunningham (1836-1839) and Raoul (1846) taking into account the comments of Allan (1937). A final listing of aliens naturalised up to 1875, on Lord Howe Island which was settled about 1830 was drawn up from the extensive records of Pickard (1984). These four lists are presented in Tables 1-4.

Assuming that the weedy species noted by the various authors arrived at the respective locations in crop seeds, or stock, implements or clothing that had been brought from Europe, either directly or via other European settlements in South Africa, India or the Americas, then it is reasonable to assume that the same species could have reached South Australia by the same means. It is noteworthy that, excluding the four noted as doubtful, 19 of the 25 species from Sydney, 45 of the 68 species from Victoria and 16 of the 29 species from New Zealand appeared in the listing of 100 species that were naturalised very early in South Australia (Kloot, 1983). The species common to both Lord Howe Island and South Australia are somewhat fewer than for the other locations, as that island is the most dissimilar ecologically to South Australia. As indicated in the tables additional species were present in South Australia, although not naturalised. Furthermore, excluding the doubtful records, all the listed species except *Fragaria vesca* (probably *Duchesnea indica*), *Malva neglecta*, *Juncus polyanthemos* and *Morus alba* are currently naturalised on Kangaroo Island and/or the adjacent coastal areas of South Australia (Jessop, 1983).

South Australia was not visited by botanists of Brown's calibre until the mid-1840s (Kloot, 1983). By that time it was impossible to differentiate between species introduced before or after 1836. For Kangaroo Island itself, the first systematic collection of alien plants was not undertaken until about 80 years after the first European contact (Tate, 1883).

There is one intriguing observation that is suggestive of a pre-colonial introduction. James Backhouse, who was a tolerably good botanist, visited Adelaide in 1837 and specifically noted *Verbena officinalis* L. growing near the River Torrens (Backhouse, 1843). This plant was a widely used folk medicine which may have been deliberately planted by the early settlers to ensure a supply for their mainland camps. Alternatively, as this plant is dispersed by adhering to the coats of domestic animals and men's clothing (Ridley, 1930), it could have been brought accidentally from Britain where it is found on roadsides and in waste places (Salisbury, 1961). However, this issue is uncertain because *V. officinalis* has never been found on Kangaroo Island (Jessop, 1983).

The official colonists

Thirty-four years after the first European contact, the first official colonists arrived. They first disembarked on Kangaroo Island where, among other things they planted lettuces, radishes and cabbages which were flourishing when seen by Robert Gouger in November 1836 (Gouger, 1838). Following the decision not to proceed with settlement of Kangaroo Island, the settlers moved across to the mainland at Holdfast Bay. There they encamped, planted more gardens, which were continually devastated by the stock that had been disembarked and allowed to graze the grassy plains of what are now Adelaide seaside suburbs (Hope, 1968), and awaited the arrival of Governor Hindmarsh to proclaim the foundation of a colony of free settlers.

Because these pioneers and those who followed them came freely with the intention to settle and make a new life in South Australia, they brought with them all the goods and chattels that they considered would be necessary. From a botanist's point of view some of their paraphernalia are most interesting. There was an immediate importation of propagules of plants of agricultural, horticultural and sentimental value (Charlwood, 1981). As an example, Gouger, the settler mentioned earlier who arrived in 1836 on the "Africaine", noted in his diary (Hope, 1968) that in his cabin "a pot plant of heliotrope had died but he was keeping the stump, hoping it would reshoot". He also had a mignonette plant that had died after it had seeded, and he had gathered the seeds for planting when he arrived. At that time he also had a musk plant that was still alive. An unnamed settler advertised seed of wheat, oats, turnips etc. for sale in August 1838. He had brought them from England but was unable to use them (Anon., 1838). Presumably many settlers did likewise. During 1838 and 1839 many advertisements appeared in the Adelaide Press announcing sales or auctions of garden seeds, including oak, sycamore, ash, beech, clover, trefoil and vegetables (Clay, 1838), many fruit trees and shrubs such as Dutch and Chinese honeysuckles, barberries, Cape alleternis [*Rhamnus alaternus*], nerium splendens, jassamines [sic], laburnum, althea frutex, hibiscus laphantha, bignonia, Keria, moss, guilder and other roses (Anon., 1839) and clover and grass seeds, larch, spruce and Scotch firs, hawthorn, yew and holly berries, various fruit and flower seeds and many and rare bulbous roots (Anon., 1839a).

Apart from the introduction by private settlers, the Colonial Government was involved also. In spite of the pressing financial problems of the newly-founded settlement, funds were provided to purchase plants for a Government Garden which was established in 1837. Some of these purchases are recorded on files from the Colonial Secretary's Office at present in the S.A. State Archives. Thus CSO 1837/276a records a list of fruit trees bought from an unnamed source for the Garden. The list includes "Oranges, (illegible), dahlias, tiger lilies, rosetree, cherries, mulberry, quince, nectarine, Japanese loquats". A letter of 9 August 1837 refers to the purchase of peach and apricot trees, mulberry, Lisbon lemon and flowers. The emphasis of the gardens was more utilitarian than ornamental and the manager, Thomas Allen, was permitted to sell the vegetables he produced. Contemporary newspapers contain a number of advertisements for his produce.

Colonisation was followed by a rush to determine the potential of the new colony which was expressed by extremely fast exploration of what later became the settled areas and, more relevantly to our subject, by an incredibly intense testing of agricultural and horticultural species to examine the success or otherwise of their trans-oceanic relocation. For example, Stephens (1839) lists the following as being grown in an unnamed settler's garden in 1837:

Radishes, mustard, cress, cabbages, peas, potatoes

Lettuces, leeks, spinach, red cabbage, cauliflower, turnips, broadbeans, parsley, onions, love apples [i.e. tomatoes] etc.

Indian corn [i.e. maize]

Apple trees, cherries, almonds, gooseberries, currants, almonds, vegetable marrows, gourds, cucumbers, melons and water melons.

Pink, blue and yellow lupins, hyacinths, narcissi, anemones, mignonette, chrysanthemums, sweet peas, laburnums, Virginian stocks, convolvulus, candy tuft, mallows and nasturtiums.

In a series of lectures delivered in late 1839, less than three years after the foundation of the colony, George Stevenson was able to give detailed instructions based on his own experience as to the husbandry of an incredibly wide range of fruits and vegetables (Stevenson, 1839). That some of his advice, for example the growing of bananas, was over-optimistic does not detract from the effort that went into these enquiries. Settlers were encouraged to bring plants. John Bailey, the Colonial Botanist, in a letter to the editor of the *S.A. Register* published on 11 April 1840, *inter alia* appealed to future emigrants that

when their ships stopped at ports en route, they should endeavour to obtain plants and seeds. Even prior to this, Leigh (1839, p. 42) wrote of collecting seeds from a garden at the Cape of Good Hope en route to South Australia.

Apart from the intentional introduction of plants for horticultural purposes, weeds introduced before or after 1836 would also have moved around. The outward spread of weeds from the Adelaide area associated with stock movements was exacerbated for two reasons. Firstly all stock was landed at Holdfast Bay and secondly, because of delays in surveying and subdividing land the stock was run in common herds and flocks on the adjacent plains for over a year until landowners could take possession of their holdings and transfer their animals (Hope, 1968). It is not difficult to imagine that fodder and grain remaining from the long sea voyages from England or the much shorter ones from Tasmania would have been tossed out for the animals with the result that seeds would have become established, and moved outwards into the country. Also according to Capper (1838) "several varieties of rib grass [*Plantago* spp.], also chicory [*Cichorium intybus*], trefoil [probably *Trifolium repens*], burnet [*Poterium sanguisorba*] and other herbs" were growing. These were all pasture species used by English farmers, and it is highly likely that they were sown in a hopeless attempt to recreate English meadows in the driest state in the driest continent.

Conclusion

Reading South Australian history from a botanical point of view, one can sense the frenzied plant introduction, both intentional and accidental that went on in the first years of settlement. Furthermore, stock grazing and land clearing followed by cereal cropping were ecological traumas of the first order and the rapidity with which changes occurred must have been dramatic. Mueller (1853) writing fifteen years after the foundation of the colony probably had good reason to lament the disappearance of the native vegetation.

When the first botanists arrived in South Australia, and I think that this applies to Australia generally, they were overwhelmed by the richness and novelty of the strange flora. Consequently, they gave scant attention to the species that they knew from home. However, it is clear that the early botanists did not realise how fast plants could become naturalised, nor did they realise the extent of pre-colonial settlement or its impact on the flora.

Acknowledgements

I am grateful to Mr D.E. Symon and Dr N.M. Wace for their constructive criticism of the manuscript.

References

- Allan, H.H. (1937). The origin and distribution of the naturalised plants of New Zealand. *Proc. Linn. Soc. Lond. Sess.* 150: 25-46.
- Anon. (1838). Advertisement. *S.A. Gazette & Colonial Register*, 4 Aug. 1838, p 2.
- Anon. (1839). Advertisement. *S.A. Register*, 16 Aug. 1839, p 2.
- Anon. (1839a). Advertisement. *S.A. Register*, 7 Sept. 1839, Supplement.
- Aston, H.I. (1973). "Aquatic Plants of Australia" (Melbourne: MUP).
- Backhouse, J. (1843). "A Narrative of a Visit to the Australian Colonies" (London: Hamilton)
- Baudin, N. (1974). "The Journal of Post-Captain Nicolas Baudin", transl. by C. Cornell. (Adelaide: Public Library).
- Beadle, N.C.W., Evans O.D. and Carolin, R.C. (1972). "Flora of the Sydney Region." (Sydney: Reed.)
- Bentham, G. (1867). *Flora Australiensis*, vol. 3. (Ashford: Reeve).
- Britten, J. (1906). Introduced plants at Sydney, 1802-4. *J. Bot.* 44: 234-235
- Capper, H. (1838). "South Australia". 2nd Ed. (Cheapside: Tyas).
- Charlwood, D. (1981). "The Long Farewell". (Ringwood: Allen Lane).
- Clay, J.F. (1838). Advertisement. *S.A. Gazette & Colonial Register*, 8 Sept. 1838, p. 1.
- Cooper, H.M. (1954). Kangaroo Island's wild pigs. *S. Austral. Natural.* 28: 57-61.

- Cumpston, J.S. (1974). "Kangaroo Island 1800-1836". 2nd Ed. (Canberra: Roebuck Society).
- Cunningham, A. (1836-1839). *Florae insularum Novae Zelandiae precursor. Comp. Bot. Magazine 2 & Ann. Nat. Hist. I Ser.* 1-4.
- Dortch, C.E. and Muir, B.E. (1980). Long range sightings of bushfires as a possible incentive for pleistocene voyages to greater Australia. *W. Austral. Natural.* 14: 194-198.
- Dutton, F. (1846). "South Australia and its Mines". (London: Boone).
- Edwards, P.I. (ed) (1981). The Journal of Peter Good. *Bull. Brit. Mus. (Nat. Hist.) Hist. Ser.* 9.
- Flinders, M. (1814). "A Voyage to Terra Australis". 2 vols. (London: Nicol).
- Gouger, R. (1838). "South Australia in 1837". (London: Harvey and Darton).
- Hannaford, S. (1856). "Jottings in Australia or Notes on the Flora and Fauna of Victoria". (Melbourne: Blundell).
- Hope, P. (1968). "The Voyage of the Africaine". (South Yarra: H.E.A.).
- Jessop, J.P. (1983). "A List of the Vascular Plants of South Australia". (Adelaide: Botanic Gardens).
- Jones, J. (1923). Port Adelaide River—its first reported discovery. *Proc. Roy. Geograph. Soc. Austral. S.A. Branch.* 22: 73-75.
- Kloot, P.M. (1983). Early records of alien plants naturalised in South Australia. *J. Adelaide Bot. Gard.* 6: 93-131.
- Leigh, W.H. (1839). "Voyages and Travels with Adventures in South Australia". (London: Smith, Elder & Co.).
- McIntyre, K.G. (1977). "The Secret Discovery of Australia" (Medindie: Souvenir Press).
- Moore, H.P. (1925). Notes on the early settlers of South Australia prior to 1835. *Roy. Geograph. Soc. Austral. S.A. Branch Proc.* 25: 81-155.
- Mueller, F. (1853). The Flora of South Australia. *Hooker's J. Bot. Kew Gard. Misc.* 5: 67-72.
- Pascoe, J.J. (1901). "History of Adelaide and Vicinity" (Adelaide: Hussey and Gillingham).
- Pickard, J. (1984). Exotic plants on Lord Howe Island: distribution in space and time, 1853- 1981. *J. Biogeog.* 11: 181-208.
- Poole, W.E. (1976). Breeding biology and current status of the grey kangaroo. *Aust. J. Zool.* 24: 169-187.
- Price, A.G. (1924). "Foundation and Settlement of South Australia". (Adelaide: Preece).
- Raoul, M.E. (1846). "Choix de Plantes de Nouvelle Zelande". (Paris: Fortin, Masson & Cie).
- Richard, M.A. (1832). Essai d'une flore de la Nouvelle Zelande, in A. Lesson and A. Richard "Voyage de Decourvertes L'Astrolabe—Botanique" (Paris: DuPuy).
- Ridley, H.N. (1930). "The Dispersal of Plants throughout the World." (Ashford: Reeve).
- Salisbury, E.J. (1961). "Weeds and Aliens". (London: Collins).
- Sinnett, F. (1862). "An Account of the Colony of South Australia". (Adelaide: Government Printer).
- Stephens, J. (1839). "The Land of Promise." (London: Smith, Elder & Co.)
- Stevenson, G. (1839). Gardening in South Australia in "Royal South Australian Almanack and General Directory for 1840" pp. 21-56 (Adelaide: Thomas).
- Sturt, C. (1833). "Two Expeditions into the Interior of Southern Australia". 2 vols. (London: Smith, Elder & Co.).
- Sutherland, G. (1834). Report of a voyage from Sydney to Kangaroo Island in "Outline of the Plan of a Proposed Colony to be founded on the South Coast of Australia". (London: Ridgway & Sons).
- Tate, R. (1883). The botany of Kangaroo Island. *Trans. & Proc. Royal Soc. S. Aust.* 6: 116-171.
- Wace, N.M. (in press). Discovery, exploitation, settlement and scientific investigation of the St Francis Islands, Nuyts Archipelago.
- Webb, C.J. (1978). Checklist of dicotyledons naturalised in New Zealand I. Umbelliferae. *N.Z. J. Bot.* 16: 387-390.

Table 1—Introduced plants at Sydney, N.S.W., 1802-4, listed by Robert Brown (after Britten, 1906).
 x = naturalised in South Australia before 1855 (Kloot, 1983);
 o = present in South Australia by 1850—see text and unpublished data of the author.

Species as listed by Brown	Current name if different	Recorded early in S. Aust.	Comments
MONOCOTYLEDONS			
Poaceae			
<i>Briza virens</i>	<i>B. minor</i>	x	
<i>Lolium perenne</i>		x	
<i>L. temulentum</i>		x	
<i>Panicum dactylon</i>	<i>Cynodon dactylon</i>	x	
<i>Phalaris canariense</i>	? <i>P. minor</i>	x,o	<i>P. minor</i> was an early S.A. naturalisation (Kloot, 1983) and <i>P. canariense</i> an early introduction which has never become naturalised.
<i>Poa annua</i>		x	
DICOTYLEDONS			
Apiaceae			
<i>Apium graveolens</i>			Doubtful record, prob. in error for the native <i>A. prostratum</i> .
<i>Daucus carota</i>		x	Doubtful record, not recorded from the Sydney area now (Beadle <i>et al.</i> , 1972).
Asclepiadaceae			
<i>Asclepias fruticosa</i>			
Asteraceae			
<i>Cotula coronopifolia</i>		x	
Brassicaceae			
<i>Lepidium didymus</i>	<i>Coronopus didymus</i>	x	
Caryophyllaceae			
<i>Cerastium vulgatum</i>	<i>C. glomeratum</i>	x	
<i>Scleranthus annuus</i>			Doubtful record, this European species has never been recorded from Australia. Possibly confused with a native species of the Caryophyllaceae.
<i>Silene anglica</i>	<i>S. gallica</i>	x	
Euphorbiaceae			
<i>Euphorbia pepus</i>			
Fabaceae			
<i>Vicia sativa</i>		x	
Geraniaceae			
<i>Erodium moschatum</i>		x	
Lamiaceae			
<i>Stachys arvensis</i>			
Lythraceae			
<i>Lythrum hyssopifolium</i>		x	
Malvaceae			
<i>Malva capensis</i>	<i>Malvastrum capense</i>		Doubtful record, no specimen or other records (Britten, 1906).
Plantaginaceae			
<i>Plantago major</i>		o	
Primulaceae			
<i>Anagallis arvensis</i>		x	
<i>A. coerulea</i>		x	The blue forma of the preceding.

Table 1 (Continued)

Species as listed by Brown	Current name if different	Recorded early in S. Aust.	Comments
Rosaceae			
<i>Fragaria vesca</i>	? <i>Duchesnea indica</i>		
Solanaceae			
<i>Datura</i>	Prob. <i>D. stramonium</i>	x	Doubtful record, never having been recorded as naturalised in N.S.W. otherwise.
<i>Nicotiana tabacum</i>			
<i>Physalis pubescens</i>	<i>P. peruviana</i>	x	
<i>Solanum sodomaeum</i>	<i>S. hermanii</i>		
Urticaceae			
<i>Urtica urens</i>		x	

Table 2—Introduced plants in Victoria. 1856, adapted from "A catalogue of Plants common in the Colony of Victoria" compiled by Hannaford (1856).

x = naturalised in South Australia before 1855 (Kloot, 1983);

o = present in South Australia by 1850—see text and unpublished data of the author.

Species as listed by Hannaford	Current name if different	Recorded early in S. Aust.	Comments
MONOCOYLEDONS			
Alismataceae			
<i>Alisma plantago</i>	<i>A. plantago-aquatica</i>	x	
Juncaceae			
<i>Juncus bufonius</i>			
Poaceae			
<i>Alopecurus geniculatus</i>		x	
<i>Avena fatua</i>		x	
<i>Briza minor</i>		x	
<i>Cynodon dactylon</i>		x	
<i>Dactylis glomerata</i>			
<i>Holcus lanatus</i>			
<i>Hordeum murinum</i>	<i>H. leporinum</i> & <i>H. glaucum</i>	x	
<i>Lolium perenne</i>		x	
<i>L. temulentum</i>		x	
<i>Phalaris minor</i>		x	
<i>Poa annua</i>		x	
<i>Sporobolus indicus</i>	<i>S. capensis</i>		
<i>Vulpia</i>			<i>V. bromoides</i> was an early naturalisation in S.A. (Kloot, 1983).
Potamogetonaceae			
<i>Potamogeton natans</i>			
<i>P. obtusifolius</i>			Doubtful record as this species has never been recorded from Australia (Aston, 1973).
Ruppiaceae			
<i>Ruppia maritima</i>			

Table 2 (continued)

Species as listed by Hannaford	Current name if different	Recorded early in S. Aust.	Comments
DICOTYLEDONS			
Asteraceae			
<i>Centaurea solstitialis</i>			
<i>Cotula coronopifolia</i>		x	
<i>Erigeron canadensis</i>	<i>Conyza canadensis</i>		Possibly a misidentification of <i>C. bonariensis</i> which was recorded early in S.A. (Kloot, 1983) and Victoria (Bentham, 1867).
<i>Hypochoeris glabra</i>		x	
<i>Onopordon acanthium</i>		o	
<i>Silybum marianum</i>		x	
<i>Sonchus oleraceus</i>		x	
<i>Taraxacum officinale</i>			
Brassicaceae			
<i>Capsella bursa-pastoris</i>		x	
<i>Lepidium ruderae</i>			Name misapplied to native spp. and the introduced <i>L. africanum</i> (Kloot, 1983).
<i>Nasturtium terrestre</i>	<i>Rorippa palustris</i>	x	
<i>Senebiera didyma</i>	<i>Coronopus didymus</i>	x	
<i>Sisymbrium officinale</i>		x	
Caryophyllaceae			
<i>Cerastium glomeratum</i>		x	
<i>Polycarpon alsinifolium</i>	? <i>P. tetraphyllum</i>	x	
<i>Sagina apetala</i>			
<i>Silene gallica</i>		x	
<i>Spergula arvensis</i>		x	
<i>Stellaria media</i>		x	
Chenopodiaceae			
<i>Chenopodium murale</i>		x	
Convolvulaceae			
<i>Calystegia sepium</i>		x	
Fabaceae			
<i>Ervum hirsutum</i>	<i>Vicia hirsuta</i>	x	
<i>Lotus corniculatus</i>		x	
<i>L. tenuifolius</i>	<i>L. tenuis</i>		Identity uncertain, as this species has never been collected from Victoria.
<i>Medicago sativa</i>		x	
<i>Melilotus officinalis</i>	? <i>M. indica</i>	x	These two species were often confused last century.
<i>Trifolium filiforme</i>			
<i>T. procumbens</i>	<i>T. campestre</i>		
<i>T. repens</i>		x	
<i>Vicia angustifolia</i>			
Gentianaceae			
<i>Erythraea australis</i>	<i>Centaureum minus</i> & <i>C. spicatum</i>	x	
Geraniaceae			
<i>Erodium moschatum</i>		x	
Lamiaceae			
<i>Marrubium vulgare</i>		x	
<i>Prunella vulgaris</i>		x	

Table 2 (continued)

Species as listed by Hannaford	Current name if different	Recorded early in S. Aust.	Comments
Lythraceae			
<i>Lythrum salicaria</i>			
Malvaceae			
<i>Malva vulgaris</i>	<i>M. neglecta</i>		
Plantaginaceae			
<i>Plantago coronopus</i>		x	
<i>P. lanceolatum</i>		o	
Polygonaceae			
<i>Polygonum aviculare</i>		x	
<i>Rumex acetosella</i>	? <i>R. angiocarpus</i>	x	
<i>R. crispus</i>		x	
Primulaceae			
<i>Anagallis coerulea</i>		x	Generally included as a forma of the following.
<i>A. phoenicea</i>	<i>A. arvensis</i>	x	
Rosaceae			
<i>Alchemilla arvensis</i>	<i>Aphanes arvensis</i>	x	
<i>Rosa rubiginosa</i>		x	
Scrophulariaceae			
<i>Verbascum blattaria</i>	<i>V. thapsus</i>	x	
<i>V. virgatum</i>			
Solanaceae			
<i>Solanum nigrum</i>		x	
Urticaceae			
<i>Urtica dioica</i>			Probably the native <i>U. incisa</i> to which it is very similar.
<i>U. urens</i>		x	

Table 3—Introduced plants in New Zealand before 1845, based on the lists of Richard (1832), Cunningham (1836-39) and Raoul (1846) and modified by comments of Allan (1937).
 x = naturalised in South Australia before 1855 (Kloot, 1983);
 o = present in South Australia by 1850—see text and unpublished data of the author.

Species as listed	Current name if different	Recorded early in S. Aust.	Comments
MONOCOTYLEDONS			
Poaceae			
<i>Avena sativa</i>		o	
<i>Cynodon dactylon</i>		x	
<i>Phalaris canariensis</i>		o	
<i>Triticum repens</i>	<i>Agropyron repens</i>		
DICOTYLEDONS			
Apiaceae			
<i>Apium graveolens</i>		o	Possibly in error for the native <i>A. prostratum</i> but this record accepted as correct by Webb (1978).

Table 3 (continued)

Species as listed	Current name if different	Recorded early in S. Aust.	Comments
Asteraceae			
<i>Bidens pilosa</i>			
<i>Cotula coronopifolia</i>		x	
<i>Picris hieracioides</i>		x	
<i>Sonchus oleraceus</i>		x	
Brassicaceae			
<i>Alyssum maritimum</i>	<i>Lobularia maritima</i>		
<i>Brassica oleracea</i>		o	
<i>Nasturtium sylvestri</i>	<i>Rorippa islandica</i>	x	The name <i>N. sylvestri</i> was misapplied by Richard (Allan, 1961).
<i>Raphanus sativus</i>		o	
<i>Senecio coronopus</i>	<i>Coronopus squamatus</i>		
<i>S. pinnatifida</i>	<i>Coronopus didymus</i>	x	
Caryophyllaceae			
<i>Arenaria media</i>	<i>Spergularia marginata</i>	x	The name <i>A. media</i> was misapplied by earlier NZ authors (Allan, 1961).
<i>Cerastium viscosum</i>	<i>C. glomeratum</i>	x	
<i>Stellaria media</i>		x	
Convolvulaceae			
<i>Calystegia sepium</i>		x	
Fabaceae			
<i>Medicago denticulata</i>	<i>M. polymorpha</i>	x	
<i>Ulex europaeus</i>		o	
Geraniaceae			
<i>Erodium cicutarium</i>		x	
Plantaginaceae			
<i>Plantago major</i>		o	
Polygonaceae			
<i>Rumex crispus</i>		x	
<i>R. obtusifolius</i>			
Primulaceae			
<i>Anagallis arvensis</i>		x	
Rosaceae			
<i>Fragaria vesca</i>	? <i>Duchesnea indica</i>		
Solanaceae			
<i>Solanum nigrum</i>		x	
Urticaceae			
<i>Urtica urens</i>		x	

Table 4—Introduced plants first recorded on Lord Howe Island up to 1875 (after Pickard, 1984).

Species	Naturalised in S. Aust. before 1855 (Kloot, 1983)
MONOCOTYLEDONS	
Juncaceae	
<i>Juncus polyanthemos</i>	
Poaceae	
<i>Digitaria sanguinalis</i>	
<i>Polypogon monspeliensis</i>	Yes
<i>Sporobolus africanus</i>	
DICOTYLEDONS	
Asteraceae	
<i>Bidens pilosa</i>	
<i>Conyza albida</i>	Uncertain
Brassicaceae	
<i>Capsella bursa-pastoris</i>	Yes
<i>Coronopus didymus</i>	Yes
Caryophyllaceae	
<i>Cerastium fontanum</i>	
<i>Stellaria media</i>	Yes
Moraceae	
<i>Morus alba</i>	
Solanaceae	
<i>Physalis peruviana</i>	Yes
Verbenaceae	
<i>Verbena bonariensis</i>	

