A Changed Landscape: Logging and Horticulture in the Adelaide Hills Face, South Australia 1836-1890

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ABSTRACT
The Adelaide Hills Face Cultural Heritage Project was established to research the cultural landscape of an area of the Adelaide Hills. Protected by legislation that has controlled development and agriculture in the area, the Hills Face Zone was found to be a relict colonial landscape where a diversity of archaeological features remained. It was possible through the project to trace a range of activities that had transformed the natural environment and created this new landscape. Some of these will be discussed in this article including: the logging industry, the creation of home and market gardens, experimental horticultural activities, and plant nurseries. Landscape learning was to play an important part in the transformation of the landscape, and it will be shown that the South Australian colonists had to find new sources of knowledge as the experience brought with them from England was to be of little use in South Australia.

Introduction
Within a few years of the foundation of the colony of South Australia in 1836, the landscape of the Adelaide Hills had undergone significant changes. The natural landscape of Eucalypt forest had been felled and the valleys and hillsides transformed to resemble the cultivated rural landscapes of England and Europe. Commercial market gardens, nurseries, vineyards, and orchards, as well as the private gardens of colonists from all stratum of society occupied the fertile valleys and covered the hillside. The
Adelaide Hills were also quarried for stone and there was a prospecting boom as the colonists sought precious minerals (see Smith et. al. 2005a, 2005b). The aim of this paper is to present the archaeological evidence for colonial horticultural and market gardening practices in the British Colony of South Australia following colonization. The establishment of these industries in the colonies was based on knowledge and technologies introduced from England and Europe, several of which were inappropriate for the Australian environment.

The Adelaide Hills Face Zone Cultural Heritage Project was funded by the Australian Research Council, Flinders University and a number of Industry Partners and administered through the Department of Archaeology, Flinders University, South Australia, from 2002 to 2005. Provisions in the 1962 the Metropolitan Draft Development Plan ensured the protection of the natural heritage values of the western face of the Mount Lofty Ranges under the Hills Face Zone regulations. The objective of the legislation was to protect this natural asset and to ensure the natural backdrop to the city of Adelaide remained unspoilt by small-scale domestic development (Smith et al 2004:v) (Figure 1). While the regulations were designed to protect the natural environment, this project assessed the extent to which 19th- and early 20th-century cultural landscapes heritage values had also been protected. The Adelaide Hills Face Zone stretches 90km from the northern limit of the Adelaide metropolitan area at Gawler down to its southern limits at Sellicks Hill. It encompasses one National park, eleven parks managed by National Parks and Wildlife, South Australia, several reserves managed by local government and approximately 2,500 private properties.
Cultural Landscapes and Landscape Archaeology

Landscape archaeology is a recent approach employed in historical and indigenous archaeology that addresses the interaction of cultural and environmental variables associated with human landscape use (Yamin and Bescherer 1996; David and Lourandos 1999). This theoretical paradigm was derived from earlier systems-based approaches to human landscape use developed in relation to settlement pattern and human ecology studies (Clark 1952; Willey 1953, 1956; Steward 1955). Whereas many earlier approaches to human landscape use emphasised the natural environment as determining cultural landscapes, landscape archaeology focuses on the strong interactions between culture (i.e. learned behaviour, norms) and natural environments. A part of this interaction of culture and the natural environment is landscape learning.

Landscape learning is often considered primarily in terms of prehistory or anthropological studies (for example Meltzer 1999 and Rockman 1999), yet landscape learning was to be an essential component in the colonisation of South Australia. As Blanton indicates with respect to the colonisation of New World colonies, the
implementation of an English model of agricultural and horticultural practice on a new environment was doomed to failure, and in this example English colonists took twenty years before they developed a sense of local climatic patterns (Blanton 1999:191, 194, 195, 199). Experimentation and local knowledge were to be the keys to the later success of the New World colony of Virginia (Blanton 1999:199). The colonisers of the Hills Face Zone were to gradually adapt their knowledge to suit the new environment and this adaptation, or in some cases a lack of experience, was to be the key to the successful economic transformation of the natural environment to the largely artificial landscape of the nineteenth century.

The Adelaide Hills Face Zone is composed of a series of cultural landscapes. A cultural landscape can be defined as one that not only includes natural features such as flora and creeks, together with the outcomes of human activity. As Jacques (1995:91) indicates these two elements can not be artificially separated and in this study the landscape is viewed as whole, not as separate parts. The archaeological evidence is interpreted within the context of the cultural landscape in which it is located; allowing us to understand the cultural landscapes created by the South Australian colonists in the nineteenth century.

The UNESCO Operational Guidelines for the Implementation of the World Heritage Convention categorises cultural landscapes as: 1) designed landscapes; 2) organically evolved landscape: i. relict or fossil landscapes, ii. continuing landscapes; and 3) associative cultural landscapes (Lennon 2001:13). Much of the Adelaide Hills Face Zone can be considered a colonial relict landscape, and the Adelaide Hills Face Zone Cultural Heritage Project has identified and documented this landscape from 1836
to 1935. The landscape includes the remains of a wide variety of structures and physical modifications to the environment to suit the purposes of market gardening and nursery plant production. Using a cultural landscape methodology all structures, no matter how large or small, are interpreted within the landscape in which they are situated. They were not considered just things of stone and mortar but features invested with economic and social meaning. The landscape is in fact a series of stories where people built homes, farms, market gardens; where experiments were undertaken and the new unfamiliar landscape of South Australia tested to see what crops and plants it would support. These stories form the basis of this article.

A New Colony and ‘The Tiers’

On arriving in the colony of South Australia, those travelling from England and Europe found a new landscape of diverse environments. For those who came on the first ships arriving at the height of summer in 1836 the realities of finding a year round water supply must have quickly become apparent. While there were a series of waterholes near to what was to become the town of Adelaide, the primary sources of water, flowed from the Adelaide Hills which formed the backdrop to the plains on which the colonists had initially settled in 1836. The western face of Adelaide Hills with its creeks and waterfalls provided a fertile soil and the water needed for an economically driven transformation of the landscape.

The modification of the hills landscape came quickly with the arrival of colonists to South Australia. As Francis Dutton wrote in his description of the colony published in 1846: “On the hills, the most hungry looking soils grow trees of the
stateliest dimensions, but a particular kind only – commonly called Stringy bark – a very serviceable timber in the construction of houses, farms, premises and fences. There is a vast abundance of it.” (Dutton 1846:163). A strong timber, Stringybark (Brown Stringybark (*Eucalyptus obliqua*) and Messmate) was also to be used for shingles and in carriage building. Dutton indicates that it would take some 4500 pieces of timber to enclose an eighty acre section with a three railed fence (Dutton 1846:203).

Other dominant tree species valued for their timber included Blue gum (*E. leucoxylon*), Grey Box (*E. microcarpa*) and River red gum (*E. camaldulensis*) growing along the valleys (Kraehenbuehl 1996). Timber cutting and sawyering in what was to become known as ‘The Tiers’ was to provide a ready source of employment for men and their families. The population of ‘The Tiers’ was given as 225 in 1844, of which 106 were children (Dyster 1980:21). ‘The Tiers’ also developed an unsavoury reputation as the area was a: “forest …so extensive and of such intricate description that two or three hundred desperadoes might baffle as many as a thousand regular troops attempting to reduce them to order.” (Dyster 1980:23). Consequently it attracted both workers seeking to earn an income, escaped convicts from the other colonies and sailors who jumped ship. South Australia was not a convict colony but established as under a plan of colonisation that did not require a convict population as its economic base (Main 1986: 97). The latter finding a home amongst the forest. The Government attempted to control the activities of the ‘Tiersmen’ by requiring them to obtain a licence to cut timber but this proved impossible to apply and timber was cut freely from the hills around Mount Lofty (National Parks and Wildlife 1983:20).

The field surveys of the Cleland Conservation Park, which surrounds the area of
the Mount Lofty, have identified some evidence of the logging industry which was to clear large swathes of the Adelaide Hills. Most of the original Stringybarks are gone, although secondary regrowth has begun in the Park. Archaeological evidence of these workers and their lives is hard to find, however the Hills Face Project identified 27 km of logging trails used by bullock carts in the Cleland Conservation Park, stumps of the cut Stringybark trees and logs with bolts still in place that may have been used to clear scrub and were probably drawn behind either bullocks or horses. One such log identified by the survey was 3.65 m in length and had two iron bolts through it. Other logs identified as possible remnants of the logging industry included one that was 2.38 m long and 540cm in diameter, while a second was 2.64 m long and 490.5cm in diameter.

If one considers the Cleland Conservation Park as a cultural landscape, the landscape not only includes the impact of the timber industry in the clearing of land but includes the development of roads and taverns to supply refreshments to those hauling the timber out of the hills. The northern boundary of the Cleland Conservation Park is formed by Green Hill Road. In the early years of the colony while land was being surveyed and purchased, those working in ‘The Tiers’ could take shortcuts to access existing roads, but with the land being enclosed it became more difficult to access the roads. In 1855, a local newspaper, the *Adelaide Observer* (quoted in Probert 1988) argued for the completion of Green Hill Road which would cut the travelling time of those working in the ‘New Tiers’ by half as presently those living seven to ten miles from Adelaide had to travel twelve to eighteen miles to reach there (for a discussion of ‘The Tiers’ see Martin 1987:23-25). The completion of the road would further allow timber
that was currently being cleared by fire to be cut and transported to Adelaide (Probert 1988).

On the section of Green Hill Road opposite the Cleland Conservation Park is the ‘Wine Shanty’. The ‘Wine Shanty’ was licensed from 1875 - although it may have operated before this – till the end of the 19th-century. Originally comprised of two rooms with a cellar beneath the main bar-room and a lean-to at the rear, by 1889 it had expanded to six rooms. The ‘Wine Shanty’ provided liquid refreshments to the teamsters carting timber down Green Hill Road to Adelaide and like the road can be considered an archaeological artefact and as evidence of the transformation of the landscape to meet economic needs of the colony.

The next force in the transformation of the landscape of the Hills Face Zone was the development of horticulture within the colony. This was to see the development of home gardens, experimental vineyards and orchards, and market gardens throughout the Adelaide Hills and on parts of the plains. Nurseries to supply the plants also appeared and played their part in the transformation of the hills landscape.

The Home Garden

The new colonists came to an unfamiliar land where the seasons were reversed and rain unpredictable, and it became a learning process as to what would grow and what would not. The Mediterranean climate of the Adelaide region (Laut et al. 1977) provided a significant challenge to the farmers accustomed to the conditions in England. Books such as George McEwin’s *The South Australian Vigneron and Gardener’s Manual* published in 1843 provided detailed descriptions of land preparation; plants and garden
arrangements to help those newly arrived in the fledgling colony. McEwin’s book went on to a second edition in 1871, when E. H. Heyne’s *The Fruit, Flower and Vegetable Garden* appeared. This too was republished in 1877 and 1886 with revisions, highlighting the importance of such books to the South Australian public.

Given South Australia’s remoteness, a home garden was essential and also a way of providing an income. In his book McEwin outlines the plants he believes were necessary for a good kitchen garden, including: artichoke, beans, beet, cabbage, capsicum, carrot, cauliflower, onion, parsnip, pea, spinach, tomato, vegetable marrow, almonds, apple, banana, cherry, date, gooseberry, peach, pear, quince, raspberry, strawberry and various herbs.

From this list it can be inferred that the diversity of plants that could be grown in the new colony was extensive, but McEwin warned that books like his produced in England were totally inapplicable to South Australia and would mislead the gardener. Unfortunately the nature of kitchen gardens and the more recent transformation of the hills landscape make the identification of kitchen gardens difficult from the archaeological perspective.

One of the few villages in the Hills Face Zone where there is evidence of home gardens is the quarry village of Delabole. The Delabole quarry was opened in 1840 and in 1865 six semi-detached cottages were built in the valley adjoining the quarry for the workers to live in. Today four buildings remain, three of which are formed by two semi-detached cottages. These are located on the north-east side of the valley. The fourth building, which was the Foreman’s home and office, is located on the opposite side of the valley near to the track leading into the quarry. There is partial evidence of
probably another set of semi-detached cottages below the Foreman’s house closer to the valley floor. The cottages were constructed with slate foundations and walls of rammed earth containing pieces of rock and slate (Figure 2). The *pire de terre* technique using a wooden formwork was probably used as the cottages are relatively uniform in size. Each cottage has two rooms with one only accessible from inside the house. The Foreman’s house has a large L-shaped room and a smaller room and is built in the same manner (Piddock et. al. 2005). Because of the relative isolation of the valley, the area has not been re-used but was left to decay from around the 1890s. While the buildings are

![Cottage Wall](Source Hills Face Zone Cultural Heritage Project 2004)
FIGURE 3. Slate wall with recess (Source Hills Face Zone Cultural Heritage Project 2004)

rapidly disappearing it is possible to find some evidence of home gardens and decorative plantings.

The surveys of Delabole located Arum lilies along the creek, and almond trees, blackberry bushes, dog-rose bushes and Osage orange trees around the village and daffodils next to the chapel. The Osage orange trees were planted by James Jacobs, who had travelled from Cornwall to the Pennsylvania slate quarries and came to Delabole in South Australia to escape the American Civil War (Piddock 2005 et. al.). These plants and trees represent both a need to beautify the bleak denuded hillsides around the village and are the last remnants of garden planting. Martin Dunstan (pers. comm. 2004) whose father owned the nearby Bangor Quarry in the early-20th-century, remembers visiting the site as a young man and seeing enclosures behind the cottages. The walls were constructed of upright slate pieces to protect the gardens from rabbits but these walls are now gone. There are, however, level areas visible behind the cottages where gardens could have been. Stone retaining walls with alcoves which may have been used as ovens form the end points of these levelled areas (Figure 3). While the trees and lilies only have survived it seems likely that the gardens would have been dominated by vegetables and possible fruit plants like those suggested by McEwin.

Most cottage gardens included the vegetable crops recommended by McEwin (1843) and evidence of cottage gardens was also documented at several other sites. A number of houses and gardens were built by the middle class or wealthy colonists in the
study area. In 1862 Ebenezer Ward undertook a tour of the gardens of Adelaide with a focus on this class of colonists. His *Vineyards and Orchards of South Australia* details his visits: the home of each individual is briefly mentioned but the focus is on the gardens, orchards and vineyards. Plants are identified, numbers acres planted recorded and techniques of cultivation are described as well as problems encountered with the soil, plants, etc. One garden visited by Ward was that of Arthur Hardy’s summer residence at Mount Lofty. Reflecting a re-occurring theme the land around the mansion built in 1857 was devoted to both a pleasure garden and to vineyards and walnut plantations which were intended to produce a product for sale. The pleasure garden covered less than three acres with a plantation of English oaks, walnuts and chestnut trees to the south-east of the house, and a fruit garden with currants, gooseberries and other similar fruits along with a shrubbery (National Parks and Wildlife SA 1983:12; Ward 1862:58). Hardy had several areas planted with vines and was trying out Red Madeira, Riesling, Carbonet and Shiraz varieties to see which were best suited to the area (Ward 1862:58). Over sixteen acres of walnuts were planted out and it was Hardy’s intention to retain either the vines or the walnuts depending on which thrived better (Ward 1862:58). Today some of the vines planted are still found on the slopes of Mount Lofty and the summer residence, now Mount Lofty House is an international hotel.

Another garden surveyed as part of this project was that of John Horsnell, who started off as the Vice Regal coachman before buying fertile land in what was to become known as Horsnell Gully. Horsnell worked as gardener for Dr. Penfold helping to plant the grape vines which formed the nucleus of the Penfold Winery now famous for its Port. Horsnell became well known as a horticulturist. He began with a 10 acre dairy and
added to his holdings, eventually owning 1,420 acres (State Heritage Branch, South Australia 1989). Today a number of the buildings have been preserved including his home Wood Vale, stables, a milking shed, pigsty, and coach house.

Unlike many of the sites visited, a plan was available that provided a guide to the arrangement and plants in John Horsnell’s garden. To the left of the house was a border of fruit trees including quince, apples and pear. To the south of the house an arch connected the entrance and the road. Roses and wisteria covered the arch, while agapanthus lined the path. To the right of the arch were a bed of petunias and poppies and a border of lavender. The next bed had roses and shrub violets. The third bed contained forget-me-nots, and the fourth bed contained apple trees, roses and wallflowers. Continuing to the east there was a loquat tree, bulbs including Easter lilies, daffodils and jonquils, roses, rosemary, fuchsias, a banana tree, cumquats and tea roses next to the wine cellar in the south east corner. Along the spring gully stream that runs along the north-east section of the garden were more bulbs, roses, cacti, lavender, rosemary and peony plants. A Myrtle tree, holly and yellow roses and violets grew near the water closet in the north-west corner of the property near the stream. Here the garden retained some food plants but most of the plants are decorative and provided a pleasant landscape in which to stroll reminiscent of the distant English gardens which had been left behind. Located in a National Park, John Horsnell’s home and outbuildings have survived but few of the garden plants remain. There is however an extensive orchard still in place and wild elms have self propagated from the ones planted by Horsnell or his gardener Charles Bower. Plants identifiable include walnut, plum and other deciduous fruit trees, and an Osage orange tree. Gardens, then in the Adelaide Hills, served a range
of purposes from the pleasure garden of John Horsnell which bought reminders of home to the practical food garden of the quarry workers of Delabole.

Experimental Horticulture

Not all gardening in the Hills Face Zone was restricted to smaller scale gardens. Horticulture and gardening was also the domain of gentlemen of private means. South Australia offered many opportunities, with the wide availability of land meaning that a person could buy sufficient land to experiment with vineyards, orchards and gardens. Men, such as George Anstey and Samuel Davenport were not reliant on the products of the gardens, vines and orchards for their income but the income from these activities formed part of a diverse portfolio of interests in South Australia. George Anstey had come to South Australia to sell the sheep from his father’s property in Van Diemen’s Land (Tasmania), he went on to purchase a sheep run in the mid-North of the colony and land for his house Highercombe in the Adelaide Hills (Auhl 1993:17, 52). This estate was to be dedicated to horticulture and viticulture and he was to employ George McEwin to tend the vineyards, pleasure gardens and a tree nursery in the botanical section of the gardens being developed around his house.

Edward Giles in his History of Horticulture said that Anstey was an indefatigable collector of every known variety of grape, which he tested for its suitability for the South Australian climate: “some idea of his labours may be formed when it is stated that he had on his estate three hundred varieties of the vine, properly named which had been obtained from every country where the vine was cultivated” (Giles (1870s):2). The vineyard covered about 70 acres. Anstey also imported what he considered the best varieties of
apple, pear, plum, cherry, fig, walnuts, chestnuts, orange, lemon, loquat, guava and other orchard fruits. The apple orchard which had been planted around 1843, by Giles’s time in the 1870s was producing 2000 bushels of apples a year (Giles (1870s):2). Bushfires have changed the landscape since Anstey’s time making it difficult to detect this landscape use. However other landscapes created by Arthur Hardy, discussed earlier and Samuel Davenport still retain evidence of these experimental activities.

Samuel Davenport, like Anstey, experimented with many imported species to test their suitability as economic crops and managed his family’s investments in the new colony (Cleland 1949:15). He and his wife Margaret were both keen gardeners, and Margaret is credited with preventing scurvy by introducing watercress to the Mount Barker area (South Australia Homes and Gardens 1936:38). Davenport was particularly interested in the development of viticulture, fruit and olive oil production as economic ventures suitable for the new colonies and published on each of these topics (Davenport 1875a and 1875b). His personal experiences outside of England contributed to the establishment of a oil industry and for his writings not only indicate that he was drawing on published accounts of crop production and processing by travellers to Europe and Asia, but on his own visits to the Mediterranean and observations of the techniques used (Cleland 1949:15). George McEwin in his publications on fruit processing and drying drew on similar sources (McEwin 1875). These men saw experimentation as a topic of intellectual and economic interest. Davenport bought a large section of Waterfall Gully, which is in the Hills Face Zone, and established orchards, an experimental garden and built his gardener Samuel Finn a cottage on the land.

Today some of Davenport’s olive trees have survived and commercial olive oil is
sold from these olives. Initially it appeared that the ground around the olives had been
terraced in long level areas but further investigation suggested that stones have been used
around the trees to create flat areas specific to each tree. This method continues to be
used in Mediterranean countries today. Cunningham in his *Hints for Australian
Emigrants: with engravings and explanatory descriptions of the water-raising wheels,
and modes of irrigation* describes this technique when discussing the cultivation of olive
trees:

> When planted upon declivities, rounded walls of loose stones are raised
> beneath them, into whose inclosures the earth from above is thrown, until a level
> platform is formed around their roots, for preventing the washing away of the soil,
> and enabling the rain to sink in more readily around. (Cunningham 1841:35)

Samuel Finn’s cottage is still standing and is a private residence at the present time
having been a tea room in the past. Other archaeological evidence found includes a
waterwheel that was used to draw water to Davenport’s garden.

Not all experimentation with plants and trees in the Adelaide Hills Face Zone
occurred in the 19th-century; in the 1930s attempts were made to establish a tobacco farm
below the Mount Lofty Summit. Giuseppe Nussio was employed by the Directors of the
Obelisk Estate Ltd, which intended to develop the area around the summit as a
prestigious housing estate as well as dedicating two hundred and forty acres to the
growing of various fruits, berries, vegetables and flowers (in particular violets), and a
tobacco crop. Nussio initially cleared an acre on which to erect a house for his family.
The house was constructed of stone and timber from nearby. Using two horses to help break up the land, Nussio planted the first crop in the spring of 1931 with the harvest in the autumn. The adjoining land was also worked by four unnamed north Italian men who lived in a shed made from bitumen drums. These men and Nussio built a stone and concrete mortared tank to store water brought by a pipe from a swampy area in a gully above the house. A concrete channel brought water to the crops. The water supply was later extended to Nussio’s house. The tobacco was initially germinated in small beds 6ft. by 2ft. then planted out in rows 3ft. apart when the plants had reached a height of 3ft. Two kilns were built using empty bitumen drums to dry the tobacco. Five to six bales were produced per season but the tobacco was of poorer quality than expected and coupled with blue mould and strong winds the area proved unsuccessful as a tobacco plantation. The Nussio’s left Cleland in 1938 (Recollections of Mr Nussio). Nussio’s house, the water tank and irrigation channel are still present on the landscape of the Cleland Conservation Park.

Market Gardeners

The development of market gardens was transform the Adelaide Hills landscape. Dutton (1846:199) rhapsodised over the rich black soils found along the banks of the rivers and creeks, the areas favoured by the market gardeners. For example the value of land along Brownhill Creek and the adjoining Tilley’s Gully increased dramatically during the 1850s when the suitability of the valley for market gardening was recognised. In 1865 there were five permanent market gardeners in the Brownhill Creek valley, but this number had greatly increased by the early twentieth century. The market
gardeners supplied vegetables such as potatoes, beans, celery, parsnips, carrots, turnips, beetroot, onions, peas and cabbages to the Adelaide markets into the second half of the 20th-century. The gardeners also grew almonds, grapes, olives, citrus fruits and stone fruits. Like many others, farms in the area combined vegetable production with dairying and pastoral activities.

To prepare the land the colonist first had to clear their selection and as Francis Dutton noted in 1846 the timber could be readily turned to make fences and shingles. W. J. Bishop and Frederick Cobbledick give some insight to the process of preparing the land. The flat land along the creek was the premium growing area with the steep sides of valley also being used. The hillsides were trenched to about 2 feet in depth and the topside was removed so the subsoil could be loosened. Tree stumps had to be removed before the land could be planted. In the summer heat, Adelaide soil takes on the consistency of rock and the initial preparation of the land had to follow the seasons or the rains. The winter rains made the soil workable. Before planting the soil had to be hoed and broken down with any remaining plant material burnt off. While the outer section of the gardens may have been prepared using a horse and plough, much of the preparation was by hand using a spade. Open cut drains were also used to divide the gardens into sections and horses would have damaged these (W. J. Bishop and Frederick Cobbledick quoted in Bishop 1984:237).

Today the visible reminders of these activities are the signs of terracing and the construction of stone channels for irrigation. These channels could be stone-lined or they could be constructed of timber water races or simple earth channels/drains (for a discussion of an earth channel see Smith et. al. 2004 The Eagle Quarry and the Eagle
Terraces). From the 1860s irrigation pipes became more affordable and were probably used in place of timber or earth drains. Water management was of particular importance in South Australia’s dry climate and controlling water from permanent springs was a necessary activity. Books such as Cunningham’s (1841) *Hints for Australian emigrants: with engravings and explanatory descriptions of the water-raising wheels, and modes of irrigation* provided details of setting up irrigation systems. The Eagle Terraces identified by the Project’s surveys are one such system. Here the terraces followed the contours on the north-east facing slope and each terrace was approximately 50–60 m long, although they varied. The width of the terraces ranged from less than 55 cm at terrace 1, to 120 cm wide at terrace 6.

A further significant change that is still highly visible is the diversion of the natural flow of creeks in the Hills Face Zone valleys to serve the needs of market gardens and orchards. The Hills Face Zone Project surveys identified several creeks where colonists have straightened all the major creek lines in the catchment area where arable flats or swamps existed. This removed the ‘meander’ and controlled water flow. The creeks were then channelled by dry stone retaining walls. This controlled the flow of water making its flow faster.

Plant Nurseries

To supply the needs of the colonists and market gardeners a number of nurseries were established and some of these are located in the Hills Face Zone. These included Giles and Pascoes’ *Reedbeds Nursery* and Newman’s Nursery. Charles Giles, a trained horticulturist had opened an Exotics nursery close to Adelaide in 1857 before going into
partnership with his son-in-law John Pascoe in 1861. Earlier in 1846 Giles had purchased the land which was to become Grove Hill, his home in the Adelaide Hills.

Grove Hill house was to be a substantial two storey residence and natural springs allowed the garden to be well watered. Giles used slate lined and roofed drains throughout the gardens to convey the water to the plants (Hines 1996:7). The house was surrounded by a garden with forest and fruit trees, ornamental shrubs, flowers, and many other kinds of plants and a diversity of English trees including oaks, poplars, witch elms, sycamores and horse chestnuts. A hawthorn hedge surrounded the garden (Hines 1996:7; East Torrens Heritage Survey 1994:57). Grove Hill was to become Giles’s base of operations with an extensive orchard planted entirely with imported fruit trees including apples, plums, pears, cherries, and oranges. Giles used Grove Hill to experiment with plants looking for those suitable for South Australia. He ordered plants through catalogues from England, France, Belgium and Germany which arrived weekly, and in one year was recorded as spending £1000 on plants from England (The Register 25/8/1926).

Giles established an extensive garden with familiar plants from England: oaks, poplars, witch elms, sycamores, horse chestnuts and hawthorns as well as a diversity of plants from Europe effectively creating his own private botanical garden. The estate has remained in the ownership of the Giles family and is heritage listed as much of the landscape has been retained along with the three hot houses, fernery, potting and packing sheds built by Giles. The Reedbed’s Nursery is now included in the Horsnell Gully Conservation Park which was surveyed. While the nursery has gone, several cottages which Giles built for his worker’s remain. One building is believed to have been divided
into two cottages: one of two rooms and the second of a single room. This building was constructed of uneven coursed stone and slate with bricks used to construct the fireplace. A short distance away is another cottage of three rooms - two small square ones and one large rectangular room. A further cottage was identified by the survey but it was so badly overgrown by blackberries it was not possible to establish its dimensions or room divisions if they existed. Associated with this cottage were an outbuilding and a possible tank stand built into the hillside. These were constructed of drystone walling and there were several retaining walls on the steep valley sides. Following the pattern of water channelling mentioned above, Giles had constructed a stone channel to control the creek that flowed through the Reedbeds. Three hundred metres of this channel remain, and the channel itself was constructed using the drystone wall technique and was 50cm high with a base of smaller stones approximately 75cm wide (Reynolds 1989).

From the same period of the mid-to-late-19th-century Newman’s Nursery provides a good example of the transformation of the landscape in the Hills Face Zone. Carl Vincent Newman was to come to South Australia with his parents, brother and sisters in 1844 from Hamburg, Germany. In 1850 he was to purchase 24 acres near Anstey’s Hill, and by 1856 he had built a house and begun to clear the heavily timbered land for a garden and an orchard. Newman and his wife were to go on to develop a nursery. Alongside the nursery business Newman sold dairy products, grew vegetables and provided cut flowers, bouquets, seedlings and wreaths. Newman was to extend his holding to over 500 acres and the nursery became a substantial collection of buildings (Figure 4) which included two fern houses, a soil house, a shade house, cyclamen house and palm house.
In 1875 Newman renamed his nursery the *Model Nursery* and focussed on the provision of delicate and rare exotic plants as a speciality with six hothouses fed by hot pipes providing a home to 300 varieties of orchid (Figure 5). A description from the late 19th-century indicates that there were ferneries which held a diverse collection of plants and the grounds included a rosary of nearly 400 varieties of roses, bulb beds, 90 acres of fruit trees, the scions of which were used for grafting and budding the nursery stock. The nursery stock included 500,000 apple, plum, cherry and other fruit trees; 100,000 orange trees, and 100,000 mostly muscated vines (Swinbourne 1982:16). There was also a walled garden which may have been used to exhibit plants grown at the nursery. At the beginning of the 20th-century with the death of Charles Newman the business went into a decline and flash floods proved devastating and the nursery closed in 1932.
Today the nursery is in ruins but there is still evidence of the past use of the site and of landscape changes to the environment near the nursery. The ruined complex includes a house where the Newman’s lived, a separate kitchen, parts of the barn and harness room, and a couple of walls of the potting shed. There are several parts of the hot houses still visible although the walls themselves are gone; these include stone platforms that would have provided bed space for the plants or would have supported shelves for the plants. Brick lines are also evident at ground level within the former hothouses and may have formed the basis of channels as seen in Figure 5. The wells and channels in Figure 5 in the left hand side of the photograph are still evident amongst the buildings, as are several wells, cold frames, and one of the plant houses. While bushfires have destroyed most of the evidence of plants, the landscape of Water Gully clearly shows evidence of the modification of the landscape to serve the needs of the nursery. The need to grow substantial numbers of plants and trees has led to the bed of the gully
being artificially flattened to accommodate planting beds. The sides of the gully both on the north-east and southern sides of the nursery buildings have been terraced to allow for the cultivation of trees and other plants. Drystone walls often associated with tracks allowed access to the terraces. The water from the natural springs was channelled along one side of the floor and drains are still visible along the valley floor. Wells to access the springs were also placed close to the buildings. This then is one of the clearest examples of landscape change in the Hills Face Zone.

Discussion

The Adelaide Hills Face Zone Cultural Heritage Project has revealed a wealth of archaeological evidence of past activities within the areas surveyed. This evidence primarily consists of built structures including cottages and houses, drystone walls, and hot houses and wells, which have survived because of the durability of the building material. There is also clear evidence of terracing, creek diversion, and introduced plant species as well a shift in vegetation from that prior to colonisation to a highly altered natural environment. This evidence is associated with a range of activities including timber clearance, market gardens, orchards, experimental plantings and nursery development. These activities were not limited to one group within society but ranged across all classes from those making a marginal living to the wealthy colonists who saw horticulture as one of a range of diverse business interests.

Landscape archaeology focuses on the interactions between culture and the natural environment. In 19th-century South Australia this culture was most familiar with the Northern European seasons and methods of cultivation. Faced with an entirely
different environment with unpredictable rainfall, hot summers that baked the soil and seasons turned around, the early colonists had to find a new means of pursuing horticulture. This resulted in the publication of manuals and newspaper columns dedicated to new gardening methods and which plants would work, but interestingly these manuals are full of the familiar English fruits and vegetables. The possibilities of native Australian plants are not considered. For the wealthy members of the colony, such as Samuel Davenport, whose experiences were different as a result of their being able to travel, there were the possibilities for experimentation based on what they had seen in other countries. Observations of practices in the Mediterranean and books written about these practices offered a new source of knowledge different to that of the market gardener or home gardener. Experimenters such as Davenport and George McEwin, who was interested in the preparing and processing of fruit, went on to publish and make available to other South Australians their knowledge (Davenport 1875, McEwin 1875).

For those needing to make a living as market gardeners or as agriculturist practical experience had to play a large part in the development of strategies to deal with the climate, soil and the seasons. As Dutton noted: “those who have had least experience in England, and who have consequently least to unlearn [italic in original], generally get on much quicker than their cleverer and more theoretical neighbours.” (Dutton 1846:219).

Books such as Francis Dutton’s *South Australia and its Mines* published in 1846 offered glimpses into the possibilities of life in the new colony for those thinking of coming to Australia. Dutton’s chapters included one entitled ‘Agriculture’ and another ‘Horticulture’ in which can be found soil chemical analyses next to lists of vegetables
which will grow and some notes on soil cultivation. The value of Dutton’s book and others like *Hints for Australian Emigrants* by Peter Cunningham, which covers irrigation techniques based on the author’s sojourn in the Mediterranean (Cunningham 1841:vii), are difficult to judge but their existence suggests that there was believed to be a need to share knowledge gained from various experiences and observations as a means of helping other colonists. As George McEwin highlighted, books designed for England and Northern Europe and possibly bought out by the new colonists were of little use, and this new knowledge was to grow from experience of the South Australian landscape, the seasons and experimentation with different varieties of plants and trees and methods of planting. The colonists had to adapt their knowledge of the natural environment but they still seem to have been strongly linked to the familiar in terms of crops, vegetables and flowers.

Conclusion

What is seen is the transformation of the Adelaide Hills Face Zone from natural vegetation to a patchwork of market gardens, cottage gardens and homes with extensive gardens, experimental orchards and crops, and nurseries is the transformation of a natural environment to one of economic usefulness. The impact of this transformation of the hills landscape, initially by logging and then by horticulture, has led to greatly increased sedimentation, loss of top soil, degradation of the environment, diminished water supplies.

The Hills Face Zone Cultural Heritage Project has highlighted the existence of colonial relict landscapes along the Western face of the Adelaide Hills. It has identified
considerable archaeological evidence associated with the transformation of the area and it is hoped that future management strategies for the Hills Face Zone will recognise the value of this unique cultural landscape.

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