Fern Mania

Between 1840 and 1870 England was gripped by fern mania. Collecting ferns was particularly popular and with the advent of cheaper glass and advances in horticultural building technology, glazed and heated structures became available to a wide cross-section of middle class England. Wardian cases - sealed glazed containers for transporting plants - were particularly popular, with several companies manufacturing small models suitable for window gardens. Books like An Analysis of the British Ferns and their Allies, written by George Francis and published in 1837, were followed by scores of publications and journal articles about the fashion for ferns. Popular author, James 'Shirley' Hibberd published his Fern Culture Made Easy in the 1860s at the height of the craze and it ran to several editions.(1)

In Australia the craze for ferns was strong although it rarely reached the heights of the English passion. By the 1870s and 80s, local travellers could easily reach magnificent fern gullies close to Melbourne and other major cities, and this may have modified enthusiasm for reckless collecting. Nevertheless, ferns gained considerable local popularity. Frederick Bailey in his book The Fern World of Australia, published in 1881, commented:

[Ferns] are eagerly sought by young and old - by some for the gratification of the present moment, by others for cultivation about their homes, or for the purpose of decoration. Indeed, so attractive are these beauties of Flora's Kingdom, that it is almost impossible to find a house where they are not to be met with either living or dead.(2)

Judging from the developments in Australian shade houses(3) in the 1870s, this appears to have been the period of general introduction of ferns as common plants for the city garden. The Weekly Times reprinted an address, given in 1875, by Charles French, propagator at the Melbourne Botanic Gardens, including some sarcastic comments regarding the lagging local interest in ferns.

It is to be hoped that the time is not far distant when many of our wealthy squatters, merchants, and others will vie with each other in the excellence of their ferneries and instead of taking their evening siesta in those formal, orthodox and ugly structures called summer houses, will be able, for the outlay of a few pounds, to enjoy a nap during the summer in a sort of miniature paradise...(4)

Early Colonial Shade Houses

However, French's advice was still many years into the future as early Australian settlers first sought to cope with the harsh local climate. Glazed structures to exclude extremes of cold were a necessity for the cultivation of many plants in England and Europe. However, it was shade that was required in the warmer Australian climate, or for that matter, in any of the other colonial outposts located in temperate zones. Rather than being constructed as buildings for pleasure, the first shade houses were erected as a necessity, for the mere survival of the plant material.

Thomas Firminger, in his Manual of Gardening for Bengal and Upper India, commented in 1864 that few glass conservatories or greenhouses had been constructed in India:

What are usually called conservatories here are nothing more than mere thatched sheds, with the sides open all round. Such places are serviceable for sheltering the more delicate plants, which otherwise would be destroyed by the sun and the heavy rains...(5)
However he complained that '...for want of sufficient light the plants rarely thrive well in them'. Clearly, the empirical design process, by this date so advanced in English conservatories and glass houses, was in its infancy in colonial shade houses.

In Ceylon, a comparable cheap plant house could be constructed of bamboo covered with palm leaves although the writer conceded that this could not be expected to last for more than a couple of years.(6) Henry Ginn, architect and secretary of the Melbourne Botanic Gardens committee, reported that during 1850-51:

- a Rustic Pit formed with tea tree, two hundred feet in length and four feet wide [at the botanic gardens]... has been found very advantageous for shading young and tender plants from the sun during the summer months, and for gradually inuring those which have been raised in the hot-house, to the open air, previous to planting them out in borders.(7)

A second 'rustic pit' about twenty feet square was constructed at Melbourne Botanic Gardens late in 1851.(8)

E A Cole writing as 'Bouquet' in Half-hours in the Bush-house recalled the period, prior to the era of sophisticated lathed shade houses, when 'a little crib of wire-netting and ti-tree branches was the only Australian equivalent for the European greenhouse'.(9) From this the bush-house developed, using branches of trees or brush over a timber frame. This type of building was described in the 1870s as a 'useful and thoroughly Australian structure'. (10)

Use of Bamboo

South Australian nurseryman, Edwin Smith, provided the first known reference 'in Australia to the use of bamboo for a shade house. Around 1869-70, Smith began operations, at the Clifton Nursery, at Walkerville, South Australia, and 'commenced growing pot plants in a bamboo shade-house'.(11) Writing in 1875, his rival, Henry Sewell of Paynham Nursery (also in Adelaide), also advocated the use of bamboo, 'or if it is not readily available split pailing [sic] will answer, placed sufficiently close together to break the direct rays of the sun without more than partially excluding the light'.(12) A later shade house in Smith's nursery measured 170 feet in length and this practical horticultural use of such buildings was matched in nurseries across Australia.(13)

Leisure and the use of Shade Houses

With developments in shade houses for practical horticultural purposes came progress in the leisure function of such buildings. The earliest local shade house erected with purely pleasurable motives appears to have been Ferdinand von Mueller's 'Thuja Bower' or 'Frond House' (c. 1864) at the Melbourne Botanic Gardens. Based on an example at the Imperial Gardens in Rio de Janeiro, Mueller used the tall American conifer Thuja (Arbor vitae) planted in close rows and clipped to form a living shade house. Describing the South American model as possessing 'exquisite beauty and refreshing coolness', Mueller suggested that other conifers with a tendency for lateral growth might be used for similar structure.(14) Another later structure consisting of closely spaced tree ferns was erected near Hobart, exemplifying Mueller's term 'frond house'.(15)

By 1875, when Charles French spoke of the need for improved ferneries, many substantial local examples had already been erected, the majority in private gardens.

The first stage of Frederick Sargood's massive shade house at Rippon Lea, Melbourne, was erected c.1874 (Figures 1 and 2). Using arched metal frames linked by metal purlins, presumably rolled wrought iron, the structure was arranged with a curved plan giving a double cusped configuration. Externally a series of timber props shored the arched principals and these were bottled to the frame at a tangent to the external curve. Thin timber laths covered the entire shade house including an unusual projecting vaulted entrance with a snout-like appearance. This structure, recently restored by the National
Figure 1 Interior of Rippon Lea fernery, 1880, showing the metal frame of the first stage. The central pathway, relatively new planting and the misting sprays suspended from the top of the frame are all clearly visible. [La Trobe collection, State Library of Victoria]

Figure 2 Internal view of the second stage of Rippon Lea fernery, erected 1884. By the date of the photograph, 1902-03, the fernery was lit internally. The metal frame shown in this view is extant. [La Trobe collection, State Library of Victoria]
Trust of Australia (Victoria), is the largest known extant shade house in Australia and possibly in the world.\(^{16}\)

Sargood's passion for geometric plans and forms was matched in Adelaide by F Tolley's domical shade house at his property, Lowden (Figure 3). Rising from the centre of a double gabled structure was a lathed dome reminiscent of the other glazed European examples.\(^{17}\) Both Tolley and Sargood demonstrate the sophistication reached by Australian horticultural experimenters in their quest for a structure which suited local climatic conditions, while recalling the horticultural and aesthetic model of the glazed hot house in England and Europe (Figure 4).

Figure 3 Domical shade house at Lowden, Park Terrace, Gilberton, Adelaide, 1901. Owned by F Tolley of the firm Messrs A E & F Tolley, spirit merchants, the building was referred to as the 'balloon fernery'. (Australasian, 28 June 1901, p 1435)

Figure 4 Glazed fernery, St. John's House, Isle of Wight, 1877. This view, published in a local magazine, bears a striking resemblance to contemporary views of Rippon Lea fernery and demonstrates an aesthetic ideal which Australian gardeners sought to achieve. Climatic differences meant that instead of glass, thin timber laths were an appropriate covering for Australian ferneries. (Castner's Rural Australian, Vol. 2, No. 23, 1 September 1877, p 1)
Structural Requirements

In August 1881, the Garden and the Field printed a long article entitled 'Making Shadehouses and Frames' (Figure 5). Use of redgum or jarrah for posts was recommended with three inch by two inch deal for rafters and thin deal 'battens' one and one half inches or less in width used in six feet lengths nailed with one inch spaces.

Regarding materials, Henry Sewell reiterated in 1884 that 'substantial jarrah or redgum posts' were the best materials for a structure. In 1877, the Garden and the Field had featured Mr. Justice Way's new shade house '...built of Singapore cedar, and ...very durable, especially as it has been thoroughly painted all through'.(18) In Ceylon, H F Macmillan recommended that a substantial plant-house should 'have its frame composed of teak or other hardwood, or better still of iron'.(19) He then cited an example of a shade house using old iron rails set vertically in concrete footings. Local examples at Rippon Lea, Melbourne and Ar-d Chille, Mount Macedon, are known to have employed metal frames. This last example, erected in 1888, is extremely elegant with a curved profile roof, open sides and a stepped configuration.(20)

Henry Sewell in his garden column for June 1881 had already prescribed boiled oil or paint as a finish for laths. He also recommended that the laths be removable, letting more light to the plants in winter and presumably facilitating maintenance and painting. The question of lath sizes was raised again in 1901. 'Boxthorn' of Hindmarsh wrote to the editor of the Garden and the Field: 'I am intending erecting a shadehouse. Are plasterer's laths strong enough for the trellis work?' In reply, the editor commented:

Plasterer's laths will do to make a shadehouse, but for the roof it is better to have 1 1/2 x 1/2 inch battens running the full width of the intended house, from the wall to the trellis. The laths on the shadehouse roof should run with the slope, and it is best to do without a cross support if possible on account of the drip. Put the battens or laths so that they will give

Figure 5 'Making Shadehouses and Frames', 1881.
half shade, and cover with hessian in summer if necessary, but with vines there it will probably not be necessary. (21)

The 'drip' problem.

In 1877 Mr Justice Way had a new shade house erected in his Adelaide garden by Pulsford & Co. under supervision of Mr Saxby. The design was noticed in the Garden and the Field because an improvement in the construction entirely prevents the 'drip' which has hitherto been so objectionable in most plant houses...The laths are fluted on the upper surface, and there is a groove on each side of the under edge. The purlins are also grooved, thus so that only the centre of the laths will rest upon them, and any moisture which may find its way through will run down to the eaves without interruption. (22)

Apparently the 'drip' problem was still prevalent in 1901 and a correspondent advised designing shade houses so that the rafters ran in line with the paths, thus directing the water away from plants such as cordylines and draecanas which 'fall a victim to the drip'. (23)

Disposition of laths

In 1877 the Garden and the Field commented on Mr. Justice Way's new shade house that 'the side walls are nicely set off with laths arranged in diamond shapes in each bay'. (24) At this date Frederick Sargood's fernery had vertical laths on an arched structure and by about 1884 he had added a diagonal pattern on the squat side walls of his new fernery. James Watkin's large shade house at Belmont also had diagonal laths around this date. (25) In general, use of two-way lattice seems to have been confined to smaller structures, probably due to the doubling of the number of laths and the consequent unnecessarily increased shading.

Henry Sewell experimented with different spacings and found that considerably more space between the bamboos than was usually allowed suited Ericas and Heaths, as they required more light and air. (26) With bush houses variation could also be achieved seasonally by removal of brush covering as required. (27) A E Cole demonstrated a surprising degree of sophistication regarding light and air in his published designs for shade houses (Figures 6 and 7).

Figure 6 Hypothetical design for a shade house by A E Cole. The upper wall panels demonstrate the means of varying light by altering the spacing of laths.

(A E Cole, Half-hours in the Bush-house, 1922)
Design 1—Front view of a larger bush-house intended for tender plants. This can be made with a full gable roof having ornamental joints on the facade; or it can have a central aisle and an area of flat roof along each side according to the height of plants in it to conserve. Note the close battens at bench level.

Design 2—This bush-house front is for a bush-house of the larger type. The half-cylinder roof provides accommodation for tender creepers, or for tall self-watered plants. The end line... should be fixed lengthwise and fixed on to the cross laths. The battens should be shaded at bench level throughout.

Design 3—The front of a close bush-house intended for plants of the Monstera, Calceolaria and Gloxinia types, tender ferns and tropical orchids. It is built upon rock-work and could be improved by a veranda containing an aquarium, etc. The shaded ornamentation is of the type needed to support plants erected by rock-work. Where picked out in dark green against a lighter shade the external effect is very pleasing. Lift the side-walls above the bench or change them throughout.

Design 4—This bush-house front is for a close bush-house of the larger type. The half-cylinder roof provides accommodation for tender creepers, or for tall self-watered plants. The end line... should be fixed lengthwise and fixed on to the cross laths. The battens should be shaded at bench level throughout.

Figure 7 Four designs for bush or shade houses showing quite elaborate lath patterns. A surprising degree of sophistication is demonstrated in the handling of light and air. The applied decoration of design 5 is reminiscent of the decoration of the Ballarat Botanic Garden shade house.

[A E Cole, Half-hours in the Bush-house, 1922]
Environmental considerations

Regarding orientation of shade houses, and in particular their laths, E B Hayne in his The Amateur Gardener (3rd edition, 1881) reiterated the advice given in the Garden and the Field at the same date.

Attention should always be paid to the fact, that bamboos (or other materials) must lay from north to south, so that when the sun rises its rays will not always fall during the day on the same spot, whilst others would remain nearly always shaded, which would be the case were the covering fixed on so as to run east or west.(28)

As a logical extension of experimentation with laths spacing, Henry Sewell experimented with removable roofs and in August 1882 he commented

...there is at this time of the year rather too much shade in the shadehouse. More light would be beneficial, but to obtain it is difficult unless it be a moveable roof. We have had a very large share of success in growing plants in shade houses covered in scrim or Hessian cloth during the summer months, only removing it as soon as winter came.(29)

Calico houses

Thomas Evans, of Adelaide, contributed an article about 'A Cheap Plant House' to the Garden and the Field in 1876. He cited the need for light and air, and for exclusion of dust and rain. Dismissing 'the much lauded bamboo-houses' as misunderstood and comparatively useless, he regarded them simply as 'auxiliary to the glass house' and proposed a cheaper substitute - the calico house.

To build the calico house all that is required is a substantial framework of quartering, with palings up to the level of the first shelf from the ground; the roof may be made in sashes, as with glass, and provided with a blind on rollers for very hot sunny days...To make the houses waterproof...take a pound of sugar of lead and a pound of alum; dissolve in a large tin with 2 or 3 buckets of water, well soak the calico and hang it out to dry...(30)

This concept of a calico roof was advocated in Sydney by Castner's Rural Australian. In 1877, notes for the bush house commenced:

This is the month to make alterations, rearrange, and set in order for the forthcoming spring and summer, if warmer quarters cannot be had, remove some of the bush to admit the sun, and provide an awning of oiled calico to place over them at night and in cold wet weather...(31)

Dual Environments

In Melbourne, Frederick Sargood's first arched fernery at Rippon Lea was superseded by a much larger structure of 1884, with both buildings being joined to a separate closed conservatory or 'close-house' (Figure 8). Far from being novel, this dual environment was strongly advocated at the meeting of the South Australian Gardeners Mutual Improvement Society on 4 March 1876. P Somerville read a paper entitled 'The Culture of Ferns and Lycopods' and commented

...where a collection of ferns is grown, two houses will be required, one for those requiring a cool temperature, and the other for those requiring a warm one. For the former I would advise a house facing south or south-east, and for the latter, north-east... The houses I have mentioned should be well protected from prevailing winds and flat in the roof, and I would recommend a 'lean-to', as a much evener temperature can be maintained: so also with regard to humidity. Of course ventilation must be provided and air judiciously applied. Cutting winds are injurious, and so are hot ones. Shade is absolutely necessary, and ferns will stand a heavier shading than most plants...(32)
The need for a dual environment was later espoused by W. Elliott in Cole's Australasian Gardening and Domestic Floriculture. Writing in 1896 he commented:

"...bush houses may be devoted to two purposes, one as nurseries for the rearing of trees, shrubs and other plants for planting out as well as house decoration, the other as a substitute for a greenhouse or other glazed planthouse..." (33)

Thus the concept of a European 'conservatory', with its plants growing directly in the ground rather than pots, was combined with the antipodean 'rustic pit' idea of the 1850s.
Public Shade Houses

Whilst the earliest decorative shade houses appear to have been in private gardens, the 1880s saw a dramatic rise in large new shade houses and ferneries erected for both horticultural and leisure purposes in public botanic gardens. Ballarat began its large shade house in 1881 with additions in 1885, 1907 and 1925 until the building was arguably the largest and most ornate example in Australia. (34) (Figure 9)

Geelong Botanic Gardens possessed a massive structure 300 feet long. Erected in 1885–6, this shade house also boasted an octagonal dome in the centre rising to a height of 60 feet. (35) (Figure 10) By contrast, Bendigo had a large open fernery in Rosalind Park. Today no evidence of any structure survives there and it is likely that lathed timber walls and entrances were provided to house complex network of paths, creeks, ponds, bridges and rockeries.

Contrasting with these large shade houses and ferneries, many smaller residences incorporated humble shade houses or bush houses in their backyard. Indeed, a quick check on detail plans produced around the turn of the century by water and sewerage authorities discloses a vast number of small-scale lathed shade houses. Often they were merely a lean-to appendage of the main residence but they were equally prized with far grander structures for the manner in which they broadened the range of plant material able to be cultivated in the hot Australian climate. As well, their ease of construction compared to glazed structures contributed to the local popularity of ferns and fern allies in the nineteenth and early twentieth century, a popularity revived only recently.

Figure 9    Shade house, Ballarat Botanic Gardens, 1885.  
(Niven's Guidebook and Souvenir of Ballarat)
REFERENCES


3. The terms 'fernery' and 'shade house' are often interchangeable although shade house allows consideration of non-glazed structures which may have housed a considerable range of plants in addition to ferns. Throughout this article the word fernery has been used where it has some historical basis. Where no term is known, shade house has been the preferred usage. The term 'bush house' was also popular in Australia although this often meant a light shed used for potted plants rather than plants in the ground. The term was especially popular in South Australia where brush was freely available as a wailing material. Accurate nomenclature is particularly important when reading early books and journals, especially those published in England and Europe where a fernery is a glazed and heated structure.


5. T A C Firminger, A Manual of Gardening for Bengal and Upper India, 1894, p.36.


8. ibid., addendum to report, 26 July 1852.


12. ibid., Vol. 1, No. 7, 1 November 1875, p.106.

13. ibid., Vol. 7, No. 84, May 1882, p.179.


15. Postcard in the author's possession.


17. Australasian, 29 June 1901, p.1435.


20. Woodend Star, 24 September 1898, information from Mrs Hutton, Mount Macedon. An illustration is included as the endpaper in Howard Tanner, Converting the Wilderness: The Art of Gardening in Colonial Australia, Australian Gallery Directors Council, Sydney, 1979.


23. ibid., Vol. 27, No. 2, July 1901.


26. Garden and the Field, Vol. 4, No. 39, 1 August 1878, p.34.

27. Castner's Rural Australian, Vol. 1, No. 6, 1 April 1876, p.3.


29. Garden and the Field, Vol. 8, No. 87, August 1882, p.43.

30. ibid., Vol. 2, No. 19, 1 November 1876, p.88.

31. ibid., Vol. 2, No. 21, 2 July 1877, p.4.

32. ibid., Vol. 1, No. 12, 1 April 1876, pp.179-180.

33. W Elliott, Cole's Australian Gardening and Domestic Floriculture, 1886, pp.74-75.


35. Drawings dated 17 March 1885 held by Geelong City Council; Geelong Advertiser, 1 May 1885; [Geelong Guide Book], 1889, p.14.