

The Winston Churchill Memorial Trust of Australia

Report by: Stephen Meredith
Year 2000 Churchill Fellow

Project: To investigate the organisation of displays, events, educational and interpretive programs in botanic gardens - UK, France, Germany.



A home without plants (Eden Project, Cornwall)

Automated puppet show
played to the tune of Elvis
Presley's 'Wooden Heart'.



Introduction

There are many hundreds of botanic gardens around the world receiving over 100 million visitors a year. Botanic gardens have over 80 000 out of the world's 270 000 higher plants displayed in beautifully landscaped settings.

With this high visitation rate, depth of plant biodiversity and pure aesthetic appeal botanic gardens are ideally placed to increase community understanding of the plant world and its importance to a globally sustainable future.



Modern botanic gardens now increasingly look at themselves as types of landscaped living museums with stories and plant displays that relate to biodiversity, science, culture, aesthetic design and horticultural excellence.

'DNA' pathways – Genetics Garden
National Botanic Garden of Wales

The Churchill Fellowship provided me with an exciting opportunity to visit UK and European botanic gardens that are now leading the way in developing educational and interpretive displays as a key part of their core business.

Acknowledgments

I would like to acknowledge the kind support and encouragement I received for my fellowship from the following individuals and organizations:

The Winston Churchill Trust

For the opportunity to take up the fellowship and their ongoing organizational support following the awarding of my fellowship.

Botanic Gardens of Adelaide

The Board of the Botanic Gardens of Adelaide and State Herbarium

Dr Brian Morley – Director

Thekla Reichstein – Senior Technical Officer

Mr John Schutz – Manager, Hills Botanic Gardens

Mrs Chris Steele-Scott – A/Marketing Manager

Open Access College

Marg Beagley – Executive principal

John Dabinett – Manager, Materials Unit

Bronwyn Sugars – Senior Project Officer, Outreach Education Services

Department of Education Training and Employment

SA Department for Environment and Heritage

Executive Summary

Name: Avery Stephen Meredith

Address: 31 Altair Street HOPE VALLEY SA 5090

Tel: 8263 1721

Occupation: Education Officer - Botanic Gardens of Adelaide and State Herbarium

Project Description:

To investigate the organisation of displays, events, educational and interpretive programs in botanic gardens - *UK, France, Germany*

Major Sites Visited:

Numerous sites were visited, major sites included:

Royal Botanic Gardens Kew

Royal Botanic Garden Edinburgh

Chelsea Physic Garden

Paris Nature

Botanic Gardens Conservation International

Green School, Hanover

Cambridge University Botanic Garden

Eden Project, Cornwall

Birmingham Botanic Garden

National Botanic Garden of Wales

Major Lessons

- key interpretive themes for botanic gardens are biodiversity, ecological sustainability and the importance of plants to people;
- over 250 million dollars have recently been invested in two new botanic gardens in Britain; both have strong environmental education and tourism roles thus demonstrating the confidence the UK government has placed in botanic gardens as centres for understanding and enjoyment of the plant world;
- purpose-built interpretive centres are essential to complement, not compete with living plant displays;
- well delivered, face to face teaching and guiding is considered the best way of providing quality education programs;
- education programs that integrated the arts, literature, science and history in an activity-based context provided audiences with more powerful learning opportunities;
- education services are staffed in different ways to deliver programs to schools; trained qualified teachers had the communication and pedagogical experience needed to effectively teach rather than guide visiting schools; and
- well designed, dedicated education centres are springboards for effective delivery of services and coordinated education and interpretive programs.

Dissemination

Talks or reports:

- management and staff of Botanic Gardens of Adelaide;
- Education Officers in leading South Australian scientific and cultural institutions;
- Arbury Park Outdoor Education Centre staff;
- Garden Guides, Friends of the Botanic Gardens of Adelaide;
- article completed for the Friend's Gazette; and
- an Executive Summary provided to the CEO, Department of Education Training and Employment and Principal, Open Access College.

Implementation

Approaches to implementation include:

- diversifying the teaching and learning delivery opportunities for visiting students;
- supporting and contributing to a new visitor interpretive centre in Adelaide Botanic Garden; and
- providing input into interpretation and thematic display development for the garden.

Program

Originally I planned to visit six major sites during my six-week itinerary covering major botanic gardens and related institutions in the UK, France and Germany. However, as I began to organize my trip, colleagues overseas suggested many other worthwhile contacts and nearby sites to visit. This quickly expanded my itinerary to include a large number of different sites and organizations. It was a tight, busy, but very productive schedule.

Places and People

Institution	Contacts	Position
Singapore		
Bukit Timah Nature Reserve	Sitikhadijah Rambe	Botanical Researcher
Night Safari Park	Public Visitor	
Raffles Museum of Biodiversity	Dr Benito Tan	Senior Researcher / Lecturer
Singapore Botanic Gardens	Abdul Hassan	Visitor Services Officer

United Kingdom

Birmingham Botanical Gardens and Glasshouses	Sue Bird	Education Officer
	Bill Graham	Education Officer
	Philip Aubury	Director
Botanic Gardens Conservation International	Lucy Sutherland	Education Officer
	Julia Willison	Education Officer
Botanic Gardens Glasgow	Louise Bustard	Education Officer
British Museum of Natural History	Dan Wormald	Education Officer
Cambridge University Botanic Garden	Professor John Parker	Director
	Christine Preston	Education Officer
	Peter Kerley	Curator
	Robert Brett	Curator Glasshouses
Centre for Economic Botany Kew	Dr Hew Prendegast	Curator
Chelsea Physic Garden	Dawn Saunders	Education Officer
	Michael Holland	Education Officer
Eden Project	Dr Jo Readman and Staff	Education Officer
National Botanic Garden of Wales	Chris Millican	Education Officer
	Wolfgang Bopp	Curator
RHS Garden Wisley	Public Visitor	
Royal Botanic Garden Edinburgh Royal Botanic Garden Edinburgh	Dr Ian Darwin-Edwards	Education Manager

Royal Botanic Garden Edinburgh	Kathryn O'Loan	Community Education Officer
	Education staff	
Royal Botanic Gardens Kew	Education staff	
	Gail Bromley	Education Manager
	John Ellison	Education Officer
The Lost Gardens of Heligan	David Readman	Guide Officer
Wakehurst Place	Christine Newton	Education Officer

France

Botanique Jardin de la Villa Thuret	Catherine Ducatillion	Manager
Hanbury Botanic Garden	Public Visitor	
Il de la Porquorolle Conservatoire Botanique National	D' Annie Aboucaya	Botanist
Mairie de Paris: Paris Metropolitan Garden	Christine Jossien	Interpretation Officer
	Dr Laurant Bray	Scientific Officer
Natural History Museum Paris	Public Visitor	
Paris Nature	Antoine Cassard	Education Officer
	Georges Lohou	Education Manager

Germany

Bonn University Botanic Garden	Markus Radscheit	Senior Administrator
	Dr Wolfram Lobin	Senior Botanist
	Kirsten Elke	Horticulturalist
Green School, Hanover	Jorg Leddenbogen	Education Officer
	Renate Grothe	Education Officer
Herrenhäuser Gärten, Hanover	Renate Grothe	Education Officer
Natural History Museum Bonn	Walter Bock	Education Officer
Palmengarten Frankfurt	Hilke Steineke	Education Officer
Regenwaldhaus, Hanover	Renate Grothe	Education Officer
World Expo, People & Nature, Hanover	Public Visitor	Education Officer

Highlights

Needless to say enormous pleasure was derived from seeing so many diverse, beautiful garden landscapes maintained by highly skilled horticulturalists. It was also refreshing to meet interpretive and education staff full of innovative ideas and with an obvious passion for their work. Here is a brief summary of some of the key highlights of the main institutions I visited.

SINGAPORE

Raffles Museum of Biodiversity

The museum aims to combine the National University of Singapore botany and zoology collections into a new biodiversity interpretive centre. One particular indoor exhibit currently under development uses a glass wall to frame plant displays growing outside the building. A clever way to bring the outside world into the interpretive space.

Singapore Botanic Gardens

Established: 1859

Area: 47ha

Singapore Botanic Garden has a strong horticulture approach to education that includes a high rise gardening program for local residents.

An adventure storybook program is successful with younger students while regular entertainment events in the garden amphitheatre increased visitation by non-traditional garden users.



The garden science department specializes in culturing orchids. Their work forms a part of a dazzling orchid garden display.

Some very unusual garden sculptures added to the variety and element of surprise for garden visitors.

An interpreted Reflexology Walk provides a tactile introduction into alternative medicinal treatments.

UNITED KINGDOM

Birmingham Botanical Gardens and Glasshouses

Established: 1829

Area: 7ha

A quality purpose built education centre for schools and the wider community is the hub of an education service that delivers diverse programs based around the theme of globally sustainable development.

Storytelling for younger students involved using traditional plant artefacts like gourds, body decorations and musical instruments for students to act out the stories as they progressed. Stories are learnt in a matrix of different activities that helps students to remember the experience long after their visit.



A sustainable future was one of the key messages threaded throughout many of the quality curriculum resource materials developed for schools.

Botanic Gardens Conservation International (BGCI)

Established: 1989

The headquarters for Botanic Gardens Conservation International are located next to Kew Gardens. I had the opportunity to discuss with BGCI Education Officers global networks, future trends and some of the outcomes from the recent international education conference held in India. BGCI also has an extensive set of education resources developed by botanic gardens worldwide. I reviewed some of this material during my visit.



Botanic Gardens Glasgow

Established: 1817

Area: 14ha

The garden is currently re-shaping many of its plant displays to deliver a variety of new messages to the visiting public. The elegant and historic Kibble Palace glasshouse displays plants from the world's major geographical zones. The aging iron and glass masterpiece is soon to undergo a restoration program.

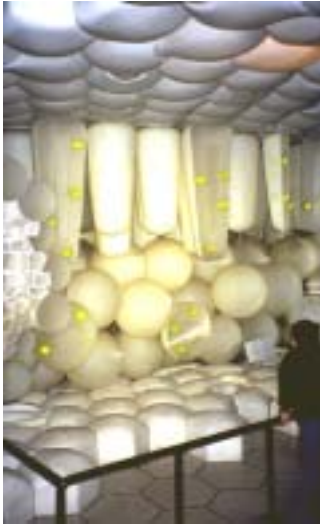
The conservatory's central core of tree ferns provides an intimate educational walk with a dinosaur theme.

British Museum of Natural History

Established: 1881

A premiere site for interactive exhibits about the natural world.

Giant models bring the microscopic world of plants alive and draw visitors into an eerie internal plant universe. The models are visually powerful and help to make fundamental plant biochemistry simple and understandable.



A text rich panelled display titled 'People and Plants' failed to arouse visitor interest highlighting that this story may be best done using the living displays and ethnobotanical artefacts in botanic gardens.

The museum had recently completed building a brightly coloured new series of student learning laboratories that use a variety of multimedia simulations and hand-on equipment to encourage students to find answers to challenging biological and environmental questions. This well resourced centre uses a 'constructed' scientific inquiry approach to engage young visitors in problem solving strategies for constructing their own environmental knowledge.

Cambridge University Botanic Garden

Established: 1762

Area: 15ha

A small compact garden with many well thought out displays relating to local flora. Education programs have recently begun with the appointment of an Education Officer. A special family quiz trail has been successful in attracting family groups into the garden.



Some of the creative living displays for learning include:

- arable weeds display (photo) - a walk through time to look at the decline of local wildflower species in wheat crops and its impact on local biodiversity.
- genetics garden – to explain how genetics underpins the development of wild and cultivated plants;
- Cambridgeshire hedge - a reconstructed hedgerow to increase understanding of the importance of these artificial islands to local ecology;
- chronological beds – nearly 200 plants from overseas arranged according to their date of introduction to Britain;
- hybrids and parents – woody plants in groups of three showing the two parents and resulting hybrid; and
- a mini-maze for young children.

Chelsea Physic Garden

Established: 1673

Area: 1.4ha

A key message from this tiny garden in central London is that small but diverse gardens, with intimate spaces for learning, can be as educationally effective as their larger counterparts.

The Chelsea Physic Garden was originally a medicinal garden. It has now expanded the variety of displays to provide numerous learning opportunities. Displays include a Historical Walk highlighting plants collected by famous plant hunters from the past like Sir Joseph Banks. Another display titled Endangered Peoples reminds us that when natural habitats are destroyed so are the cultures of indigenous people and their intimate knowledge of their environment.



The arts have a strong presence in the education programs. For example, snippets of poems in praise of particular plants were placed on small labels in appropriate beds. Visitors were encouraged to read them and then write some of their own poetry in salutation of their own favourite species.

The Lost Gardens of Heligan

Restoration: from 1990 Area: 32ha

This is a former estate garden in Heligan, Cornwall that has been undergoing a restoration program since 1990. It is a unique botanic treasure that was almost lost due to the events of history. Now, through great attention to historical detail and astute marketing, it appears to be a very popular tourist destination.

Examples of traditional English country crafts are on display in the garden. These include willow work, roof thatching, charcoal production and examples of working farm buildings. The ultimate vision for the garden is to re-create a self-sustaining estate community complete with farm, fruit and vegetable production and a resplendent display garden.



Eden Project - Cornwall

Established: 2000 Area: 50ha



Even though it is still under construction the Eden Project is an impressive site. Set in an old china clay pit, it has as its core a series of massive converging geodesic domes separately displaying rainforest and Mediterranean species. The snaking domes join in a large welcoming combined visitor/education centre.

The project can best be described as a 'living theatre for plants' with a rationale that is based on the premise that delivering an educational message is an integral part of the project's landscape design.

The very modern *café* style design of the visitor facility provides a relaxed, stylish and welcoming environment for visitors. Large colourful panels in the cafeteria and changing chalkboards in the retail nursery make the most of every opportunity to spread the word about our reliance on plants. The interpretive centre has entertaining 'mini-shows' in small individual indoor theatrettes with each dedicated to a particular plant/environmental theme (see front cover for example).

Even though still under construction, the garden had been well marketed and was busy with visitors. Once they have been completed the appealing design and stunning landscape impact of the geodesic domes will attract many more non-traditional botanic garden visitors.

National Botanic Garden of Wales

Established: 2000

Area: 234ha

This is the newest botanic garden to be built in the UK. It is set in an eighteenth-century estate bringing together the old and the new in a garden that embraces sustainability as its central theme.

Learning for young and old is placed at the heart of the organization. Principality House is a restored estate building that houses an impressive 'lifelong centre for learning'. A well-staffed team uses the centre as a base for education programs that include accredited courses in partnership with different tertiary institutions.

The garden contains the spectacular Great Glasshouse. It is the largest single span glasshouse in the world and is destined to become a tourist icon for the region. It has been planted with species from the world's threatened Mediterranean climates for the purpose of education and conservation. A series of well-placed interpretative panels throughout the building explain the plant diversity and ecology of the various bio-geographical displays.



The glasshouse is already attracting many visitors to this very young garden.



Simply Plants is a delightful interactive exhibition designed for children but also relevant to the general public. Visitors can follow the life cycle of a flower, make oxygen in a leaf and look at seed dispersal by using a variety of media and hands on exhibits.

Located over water at the edge of a lake is the Aqualab or Water Discovery Centre. It consists of a series of fully equipped laboratories for aquatic based field studies programs for visiting schools.



RHS Garden Wisley

Established: 1904

Area: 98ha

Wisley has been described as a garden to 'delight, instruct and inspire'. It is a wonderful place for the horticulturalist and home gardener with numerous examples of garden design, cultivation techniques and new plant introductions.

The Model Gardens provide ideas for small spaces or gardening 'rooms'. Examples include the Container Garden, Garden for all seasons, Family Garden, Courtyard Garden and a Garden of the Senses.

For the home gardener the model fruit orchard and vegetable gardens have over 50 different vegetables and 1400 fruit cultivars on display.

Wisley is also famous for the very high quality of its horticulture education programs.

Royal Botanic Garden Edinburgh

Established: 1670

Area: 24ha

Edinburgh has an extensive education team with numerous popular, quality programs for whole day visits. There is a strong integration of story telling, drama and the arts for younger students. For example, the Teddy Bear's Picnic program for children (and teddy bears) combined fantasy and fun into an ongoing story that roams through special places in the garden. Along the way there were thoughtfully constructed activities to help students to understand and respect the natural environment.

Biology lessons for senior students are relevant and popular with local schools. Teachers value the fact that the content relates directly to the national curriculum and can be included in their teaching programs.



The gardens have a key role in organizing the annual Scottish Science Week festival for Edinburgh. Acting as the hub for this significant event reinforces the role of the garden as a major scientific institution.

Royal Botanic Gardens Kew

Established: 1670

Area: 24ha

Kew is a large, world famous garden renowned for its work on all facets of plant biodiversity.

The well resourced education department is housed in a modern suite of classrooms, offices and lecture theatres including an interpretive centre for visitors.

Over ten full time staff provide lifelong learning opportunities for young children through to adults of all ages. A small team of contracted qualified teachers delivered face to face lessons in the garden to students while adult programs were serviced by a mixture of in-house staff and contracted specialist experts. Numerous quality curriculum materials were available to schools.



The Evolution House is a building dedicated to explaining the history of plant life on the earth. The story unfolds along a winding path starting with a primeval and lifeless planet and ending with the most complex of species, the flowering plants. The display sensitively blends living plants with non-living models of extinct species to recreate a realistic view of the plant world's ancient evolutionary past.

Kew's message to the world – 'All life depends on plants' popped up everywhere as a type of badge on signs, publications and at meeting points. It was a subtle but effective way of getting across the message that botanic gardens are more than just beautiful places to visit.

I had the opportunity to present workshops in the Princess of Wales Conservatory to over seventy newly graduated science teachers. The experience verified for me the power of sequential bio-geographical displays that mimic natural environments when using a comparative approach to teaching about deserts and rainforests of the world.



Centre for Economic Botany - Kew

While at Kew I had the opportunity to meet with Dr Hew Prendegast, Curator of the Centre for Economic Botany. Sir William Hooker established the original collection in 1847. His rationale was "to render great service, not only to the scientific botanist, but to the merchant, the manufacturer, the physician, the chemist, the druggist, the dyer, the carpenter and the cabinet-maker and artisans of every description, who might here find the raw materials employed in their several professions correctly named".

Today there are over 76,000 items in a collection that records the diverse and fast disappearing uses of plants by indigenous peoples from all around the world.

Complementing this vast ethnobotanical collection is the *Plants and People* exhibition, housed in the ground floor of the education centre. The exhibition uses a wide range of very effective visual and interactive media to highlight our dependence on plants in all facets of life. The project was the combined work of education staff and specialist exhibition design consultants.



Wakehurst Place

Established: 1965

Area: 120ha

Wakehurst Place is an estate situated in the countryside south of London and is a part of the Kew organization. The southern part of the estate is a conservation reserve. Nestled in the estate is a natural woodland and associated wetland with a fully equipped field studies centre for schools. Trained teachers take extended day programs tailored to senior school students and their curriculum. Conservation of local biodiversity is a theme that threads through all the programs.

Also housed at Wakehurst is the Millennium Seed Bank Project. It is a part of a global project that aims to conserve up to 10% of the world's higher order plants perhaps for centuries ahead as an insurance against loss from the wild. An exhibition about the seed vaults is currently nearing completion and will explain the importance of the project to visitors.

FRANCE

Botanique Jardin de la Villa Thuret

Established: 1856

Area: 4ha

Botanique Jardin de la Villa Thuret is a small intimate garden with a Mediterranean climate sympathetic to many Australian species. There is a touch of our far distant shores when walking through what seems in places to be the Australian bush. The naturalistic management of the garden adds to the wild feel of this landscape.

One of the scientific roles of the garden is to test the horticultural and acclimatization potential of selected introduced species to this region of France. The similar climate to Adelaide's garden and acclimatization role of the garden may afford an opportunity for a cooperative project between the two gardens in the future.

Villa Thuret is looking to expand and diversify its current education programs. In order to overcome limited staff resources special events were used as a vehicle for maximizing public exposure to the currently limited education role.

During my visit I was fortunate enough to be invited to present a talk to staff from the garden and from the parent scientific organization on education in the Adelaide Botanic Garden.

Hanbury BotanicGarden

Established: 1867

Area: 18ha

Overlooking the azure blue of the Mediterranean Sea this garden is simply a stunning example of a Mediterranean style landscape. This type of landscape will have an increasingly important profile in South Australia as we look for low water



consumption gardens with mixtures of indigenous and exotic species. The Adelaide Botanic Garden is uniquely placed to play a leading role in developing a horticultural appreciation of Mediterranean style gardens as well as developing an understanding of the original bio-geographic zones from where these plants are derived.

Il de la Porquorolle Conservatoire Botanique National

Established: 1979

Area:180ha

This centre is a part of a network of national conservation centres set up in 1988 to facilitate the protection of threatened wild French plants. They also have strong local education campaigns designed to develop a public awareness of the issues surrounding the decline of local indigenous flora. An education exhibit and structured tours help get the message across to visiting tourists and schools.

Ecological restoration programs include;

- reintroduction of threatened species back in to the wild;
- testing wild genotypes of locally endangered species; and
- seed preservation techniques for locally threatened species.

At the agricultural centre located on the island of Porquolles hundreds of domesticated fruit and nut trees are grown to act as an accurate library of the variation to be found within different horticultural species.

Mairie de Paris: Paris Metropolitan Garden

I was able to meet and discuss with the scientific and interpretation staff some of their experiences in developing interpretive signage for the gardens and parks of Paris.

Most people come to the gardens to enjoy the plants; they are mainly casual visitors. Such audiences provided a challenge for developing interpretation that is relevant and able to capture their attention. In developing an extensive array of interpretive signage some key guidelines for success with interpretive signage included:

- striking a balance between the scientific requirement to provide technical information and the need to interest and communicate at an appropriate level for most members of the general public;
- capturing people through their 'heart' first then introducing the cognitive message;
- relating to peoples own experiences so they can identify with their daily lives; and
- aesthetically balancing graphical illustrations with minimal, concise text.

One particular piece of effective glasshouse signage used photographs of the plants in their natural setting to help visitors understand the wild origins of the plants on display.

Paris Nature

Established: 1986

Based in the parks of Paris, the city funded Paris Nature organization is responsible for



delivering environmental education and horticultural programs to the people of Paris. In the Parc Floral de Paris a series of informal pavilions, rich in illustrated panels and low technology interactives helps *animators* engage students in a free flowing story of the ecology of the Paris region.



Included in the centre is a children's environmental library and a butterfly house. Eco-buses fitted out with laboratories and video screens take the message about the environment directly into local schools.

For the home gardener the House of Gardening in Parc du Bercy is an artistically designed drop-in centre for those with green thumbs. Historic gardening displays, demonstration gardens, decorated potting benches, library, kitchen classroom all help to create a pleasant and green learning environment.

The *House and Garden of the Five Senses* is a substantial complex devoted to raising children's awareness of their senses through contact with plants.

In terms of facilities and staffing the Paris Nature organization was impressive. The mix of purpose built learning centres and well informed well-trained teaching teams enabled quality, activity-based learning opportunities for local residents of all ages.

GERMANY

Bonn University Botanic Garden

Established: 1818

Area: 6ha

The occasional flowering of the giant aurum lily *Amorphophallus titanum* is a big drawcard in the Bonn University Botanic Garden. Locals read daily reports of the progress of the flower in the press. When the flower finally opens, thousands queue just to get a glimpse of this botanic marvel. The whole exercise was a good example of making the most of a limited marketing opportunity.

One fascinating scientific story from the garden comes from the work on the leaf surface of the Sacred Lotus. The leaves repel water and dirt very strongly. Electron microscope studies revealed the surface to be composed of tiny pinhead shaped structures that reduce the surface area for dirt to grip on. This natural phenomenon has been developed into an exterior paint that is cleaned every time it rains.



The paint is now marketed under the brand name 'Lotusan' proving that nature can often provide the most simple and elegant solutions to life's little problems!



Palmengarten Frankfurt

Established: 1869

Area: 20ha

A richly decorated Arabic tent acts as an exotic entrance to an exhibition simply titled 'Spices'. The setting is a well-lit partly glassed pavilion that allows exhibitions to be integrated with living plants. Changing exhibition themes each year keep the public coming back.

Complementing the extensive school programs are night tours with intriguing themes like *Devils and Witches*. Visitors come dressed for the theme and plants feature as an essential part of magical spells and potions! The tours are popular during the summer season with community groups of all ages.

Green School - Hanover

Green School is a centre dedicated to teaching about the natural world and sustainable living. School groups visit for a wide variety of programs and are taught by specialist teachers.

The ecology beds that surround the main buildings are designed for students to compare different environmental, ecological and horticultural management themes. This includes rates of composting from different starter materials, use of different mulches, woodland succession, impact of soil depth and niches for plant growth. The beds were a very effective visual way of communicating different concepts.



Other garden areas were designed to tell stories about the people and the environment. They included displays with themes like food, colour, pharmaceuticals, fragrance, poisons and genetics. The wild woodlands that surround the school had numerous ecology trails and sensory stations located along their routes.

Extensive literature and activity sheets are provided for student.

Herrenhäuser Gärten - Hanover

Established: 1666

Founded in 1666 by Duke Johann Friedrich of Calenburg this spectacular formal garden is laid out in a Baroque style. The 'ensemble' of trees, hedges, statues, model gardens, water features, open air theatre and great fountain all combine to make this one of the great formal gardens of Europe. It is a pleasure garden that reiterates through geometric and controlled displays, the dominance of 'man' over the natural form and arrangement of plants.

Regenwaldhaus - Hanover

Established: 2000

Regenwaldhaus is a new state of the art rainforest conservatory that uses some of the latest computer technology to turn a visit into an adventure story in search of a lost rainforest naturalist. Touch screens, automatic audio information stations and self-serve information discs all combine to make the experience an 'expedition of discovery'.

Although it was a very information rich environment, at times it was hard to reconcile the soft organic forms of the rainforest with the shiny, metallic components of new technology. However, the approach certainly was very effective in capturing the interest and imagination of visitors.



Conclusions

Amongst the many good ideas and organizational approaches to education, there were a number that stood out for their innovation and/or relevance. Some of the things I saw either reinforced previously held views or helped to clarify new directions for my own work setting.

- *Key interpretive themes for botanic gardens are biodiversity, ecological sustainability and the importance of plants to people.*

In the UK in particular, garden educators were making the broader issues of sustainable development a part of the underlying message for programs. This is seen as empowering students with knowledge, values and skills to participate in decisions regarding the quality of the environment both locally and globally. Gardens were also implementing sustainable management practises as outlined in the Agenda 21 World Environment Summit in Rio de Janeiro.

- *Over 250 million dollars has recently been invested in two new botanic gardens in Britain. Both have strong environmental education and tourism roles demonstrating the confidence the UK government has placed in botanic gardens as centres for the understanding and enjoyment of the plant world.*

Two new gardens developed under millennium funding use stunning architectural icons to attract non-traditional garden visitors and tourists to their region. Both are strongly focussed on interpretation that is informal and relevant to a modern audience with an interest, but not necessarily a passion for plants. The aim is to raise awareness and stimulate curiosity but not overwhelm visitors with minute factual detail.

- *Plant displays that are arranged to tell a story can increase visitor understanding of the role of plants in the environment, our daily lives and science.*

It was a particular delight to see the very different ways plant displays were arranged to tell a story or help visitors more clearly understand an environmental concept. This was well developed in UK and German gardens. Displays often included a message about the importance of local biodiversity and its preservation. Edinburgh, for example, had recreated a small Scottish peat lake with a traditional stone dwelling that is surrounded by local wild flora. In Bonn, a series of display areas highlighted some of the ecological niches of this region of Germany. Current issues like genetic engineering were being addressed through genetics gardens in Cambridge, Hanover and Wales.

- *Most gardens have purpose-built interpretive centres to complement and not compete with living displays.*

Interpretive centres are essential for filling in the whole picture of plants and our reliance upon them. The delicate, ephemeral nature of outdoor living displays limits their use for more robust, interactive learning. Interpretive centres with a combination of multimedia, plant based artefacts and interactive low technology exhibits provide an engaging form of edu-tainment for visitors that is not always readily achievable in the more fragile, living garden.

- *Well delivered, face to face teaching and guiding is considered the most effective way of providing quality extended education programs.*

There is a constant high demand for face to face teaching services from schools especially for those programs that link directly to the school curriculum. Teachers felt the expertise and knowledge provided by specialist garden educators was important for maintaining student interest and in getting the message across during visits with their classes.

- *Education programs that integrated the arts, literature, science and history in an activity-based context provided children with more powerful learning opportunities.*

Storytelling, drama, games and creative writing were just a few of the different approaches being used to develop more holistic and interesting activities for students.

- *Education programs should integrate an understanding of the broader social, political and economic forces that drive much of the world's environmental degradation.*

Sustainability is an important thread that should run through botanic garden programs. The views of all stakeholders need to be considered to enable students to clarify their own attitudes and values to issues surrounding the natural environment.

- *Education services were staffed in different ways to deliver programs to schools. Trained qualified teachers had the communication and pedagogical experience needed to effectively teach rather than guide visiting schools.*

Education services were staffed in different ways to deliver programs to schools. This ranged from contracted positions managed through the gardens to seconded education personnel managing schools and further education programs. For schools, the latter appeared to be more effective because of its closer links to curriculum, teacher networks, education system requirements and familiarity with current teaching methodology

- *Well designed, dedicated education centres are springboards for effective the delivery of services and coordinated education and interpretive programs for the whole community.*

Education centres with combined facilities for both school and community programs reinforces the key role of education in gardens and provides a facility for the effective delivery of integrated services.

Recommendations

In the light of my experiences overseas numerous opportunities exist to further the development the Botanic Gardens of Adelaide with education as one of the key outcomes of the organization.

Strategies for increasing the education and interpretive profile include:

- I. The development of a visitor interpretive centre in the Adelaide Botanic Garden with interactive exhibits and displays that relate to overarching themes like biodiversity and ecological sustainability.
- II. Diversifying teaching and learning delivery opportunities for visiting students by the development of extended programs through contracted staff.
- III. Integrating social, economic, political perspectives into the delivery of environmental education programs.
- IV. Development of an education/interpretive unit working in a coordinated way with scientific and marketing services to deliver a wide range of visitor interpretive services.
- V. Contributing to plant display and collections development policy to ensure displays have relevant and interesting themes for education, interpretation and horticulture.
Some specific themes include:
 - redesigning Victoria House as an economic rainforest display;
 - development of a Mediterranean climate bio-geographical display;
 - a specially designed space for young children and families; and
 - display gardens for small spaces.
- VI. Ensure the education role of a botanic garden is a well-developed part of the organization's strategic planning process.
- VII. Promote the idea of corporately badging the organization in a way that subtly but consistently markets the importance of plants as our core business.

Concluding Remarks

Just as zoos in recent years have concentrated on their conservation role, botanic gardens are awakening to their relevance as key institutions for environmental, cultural and scientific education. Many botanic gardens are now clearly remaking themselves for the times we live in. They are looking to develop as dynamic centres for learning about plants and their global importance. Education and interpretation are seen as integral components for further developing botanic gardens as living museums for learning.

The fellowship brought these ideas sharply into focus for me. It has also helped to develop a network of international colleagues with whom I can continue to share and develop ideas relating to the educational use of botanic gardens. I would like to conclude by again thanking the trust for the wonderful opportunities, both professional and personal, that this trip has provided.

Steve Meredith

October 2000

