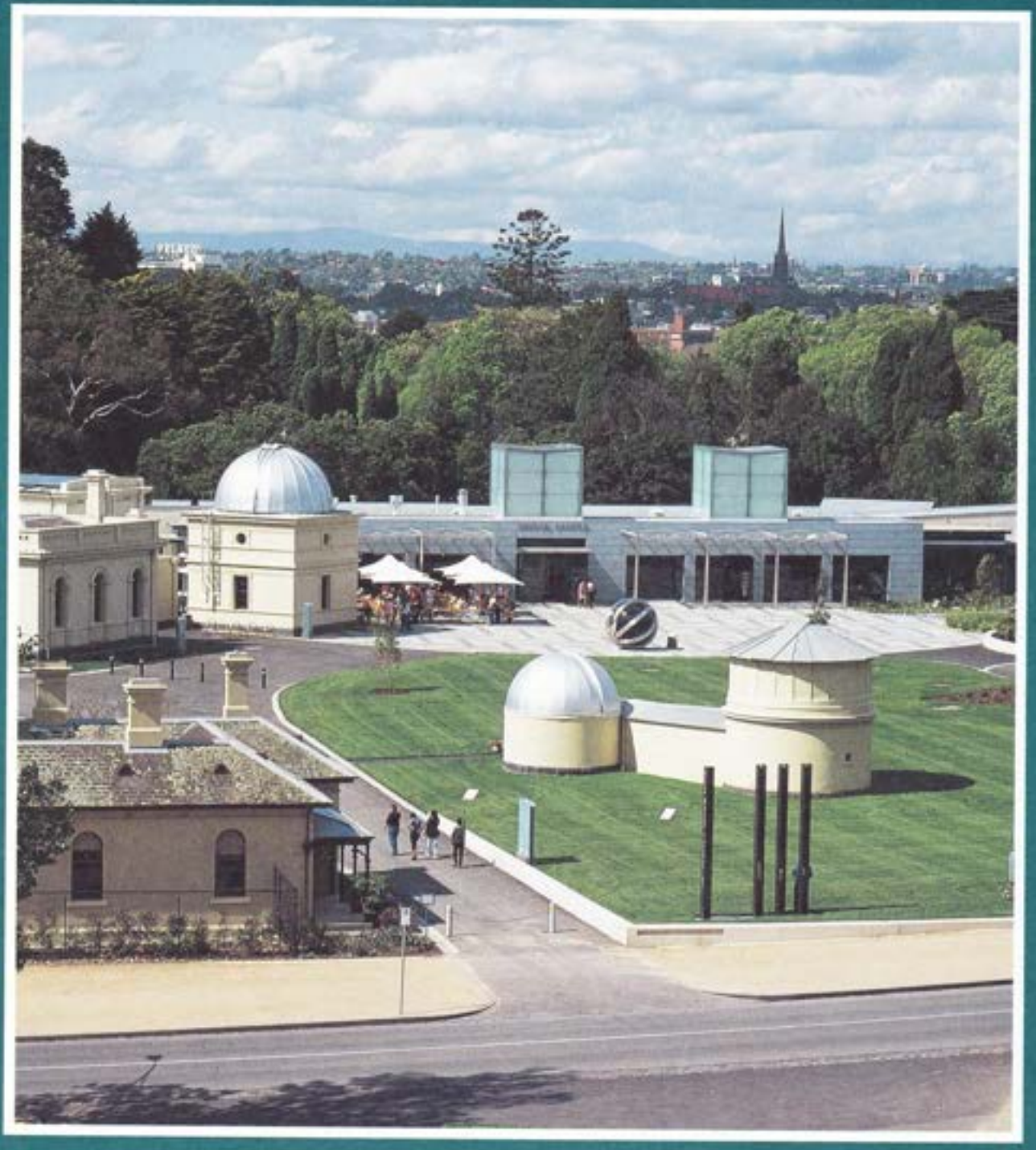
Botanic Magazine

Volume 8

Official publication of the Friends of the Royal Botanic Gardens, Melbourne Inc.



Convener Sharon Beaman and other Growing Friends make last-minute checks before admitting the 160-strong queue for the October Plant Sale.

Photo by Geoff Hardy

Leanne Barnes, a Friend who works as a volunteer once a week in the Perennial bed.

Robyn Tymms arranged flowers of Chinese origin for the talk by Dr Peter Valder, shown here signing copies of his book The Garden Plants of China. *His cousin, also Peter Valder, stands behind.*

Photos by Geoff Hardy

Alan Reid has been a bird bander for more than 30 years.

Photo by Duncan Ironmonger

FRONT COVER
A view of Observatory Gate.
Photo by Norman Wodetzki

Photo by Lesley Skinner

In May, Friends spent a wonderful day with naturalist Alan Reid at his Timelines Field Centre, Glenburn. Fungi were the focus of attention here.

BOTANIC MAGAZINE

Volume 8, October 1999

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(winter: 9.30am-4.30pm)

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Administers bequest to finance many Gardens projects, especially at RBG Cranbourne

MELBOURNE'S ASTRONOMICAL HERITAGE

by Ian Sullivan
Demonstrators Section Director
Astronomical Society of Victoria

The Beginning: Williamstown Observatory

Melbourne Observatory really began at Williamstown, Melbourne's first port, where the government had to provide a time service for shipping. In 1853 the new colony of Victoria mounted a 'time ball' on the flagstaff at Williamstown, which was raised to the masthead just before 1 pm daily except Sundays, then dropped on the hour to half mast. After it was sighted at the Melbourne flagstaff (now Flagstaff Gardens), another ball was dropped, visible to the city. Astronomy was the only means of setting standard time; only by comparing local solar time with Greenwich Mean Time could navigators determine longitude. After a voyage from England, ships' chronometers needed to be checked, and it was necessary to provide a time signal visible from Port Phillip Bay.

The regular rotation of the earth was the time standard of the day, and it was estimated by observing and recording the times at which stars of known positions crossed the meridian (North-South line) of an observer waiting at the eyepiece of a special telescope, called a transit instrument. Initially the observer at Williamstown was a young surgeon, Robert Ellery, just arrived from England, who had some astronomical knowledge but no formal qualifications.

With minimum equipment, and only a tent and wooden sheds as shelter, Ellery began working with one or two assistants around the flagstaff at Williamstown. In March 1854 the electric telegraph reached Williamstown, and by 1857 the telegraph's commercial success resulted in the erection of a substantial brick building, with a tower for the time ball. Soon the telegraph carried time signals all over the State, but it was another half century before the first radio signal was heard and many more years before radio could replace the time ball to reach ships in the bay.

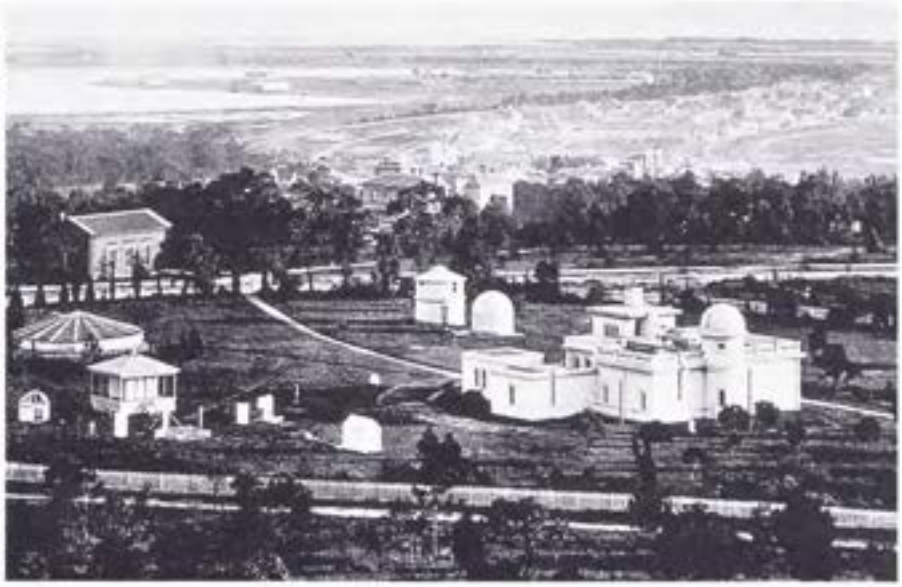


Photo courtesy Royal Historical Society of Victoria

The Observatory buildings photographed about 1874.

As facilities improved Ellery also made astronomical observations, including the tracking of Donati's Comet in 1858; he was also involved in a geodetic survey of Victoria in the same year. In 1860 Edward White, a goldfields mechanic, joined him as his Chief Assistant, in an observatory which had become a valuable asset to the colony. A record of astronomical observations (1861-63) at Williamstown listed 546 stars - a great achievement for Ellery considering his modest equipment and limited staff.

In 1860 an official decision was made to move the observatory, as it was too close to a road, a railway, rock quarrying and the shore batteries at Williamstown. In mid-1863 all equipment and staff moved into the city to the Botanic Gardens site; only the time ball remained to be dropped daily until 1926.

Flagstaff Observatory

While the official Williamstown Observatory was struggling for recognition, a German visitor to the colony, Professor Georg Neumayer, established another observatory at the signal station of the Melbourne flagstaff in 1858. With instruments provided by the King of Bavaria and the German settlers of the colony, he laboured on the site provided by a

government which initially granted him no funds.

This observatory handled all weather observation for the colony and co-operated scientifically with Williamstown. When a new observatory site next to the Botanic Gardens was chosen and occupied in 1863, the Flagstaff observatory was closed and Neumayer returned to Germany. Nevertheless his work on terrestrial magnetism was continued at the new observatory and was a very important part of its program.

A Home Established!

The main building of the new Melbourne Observatory was opened on 9 June 1863, being less than half the size it has today. It included only an 110 mm brass refracting telescope (Troughton & Simms) in the dome on the roof, called the North Equatorial, and a 130 mm transit instrument for time standardisation for which a North-South opening was built into the roof. Many other roof slits were constructed for later transit instruments.

Ellery, White and only one assistant were the initial staff, which grew as new facilities and equipment were acquired over the next 40 years. The observatory communicated by electric telegraph with a number of meteorological stations along the coast and inland, as well as those of the other colonies. The Government Astronomer was thus enabled to prepare and issue for publication in the Melbourne morning papers a weather forecast for the next 24 hours. The flat roof was used for astronomical and weather observation and, although the observatory was so close to a growing city, much of the horizon was then clear. Electric light came in the 1880s and has been reducing the visibility of stars ever since.

The observatory time service (by telegraphic means) controlled a number of clocks around the city and eventually provided the time signals for radio stations.

While separate buildings were constructed for the large telescopes that were later acquired, rooms were steadily added, preserving the original architecture. The most notable were the Eastern Transit Room (1884) and the Astrophotographic Room (1902).

There were no further additions this century, but the North Equatorial dome was unfortunately removed and discarded in the seventies.

The Great Melbourne Telescope

By coincidence the Melbourne Observatory was established just when the scientific fraternity in Britain was looking for a southern hemisphere

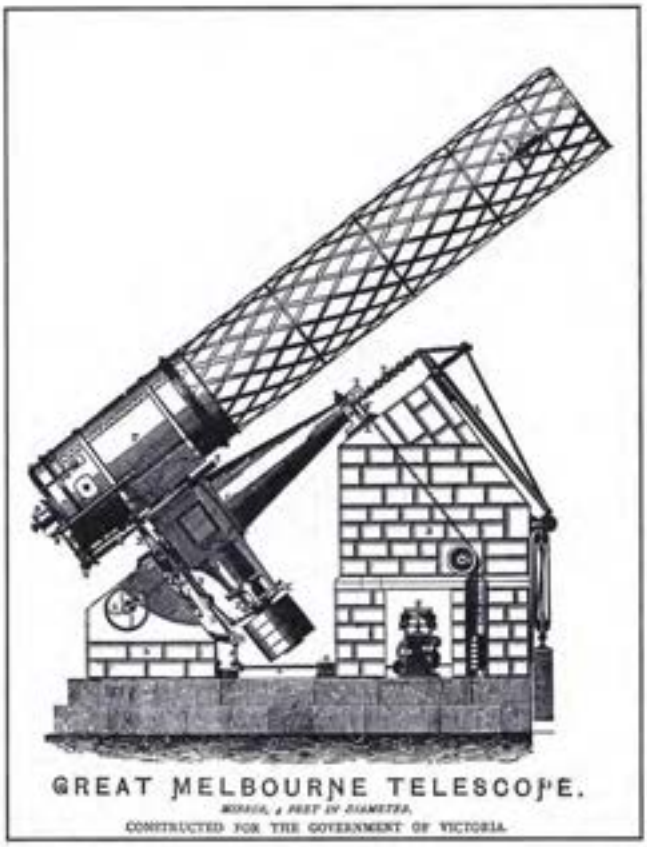
location. A large telescope was needed to examine deep sky objects not visible in the northern hemisphere.

Melbourne found the necessary £5000 and placed an order with Thomas Grubb of Dublin to cast a speculum (copper and tin alloy) mirror of 1.22 m diameter. The silvering of glass was a promising new development at the time, but authorities played safe and specified speculum. The telescope's moving parts weighed over eight tonnes and its open lattice tube was 8.5 m long. It was housed not under a dome but a 'roll off' gabled roof in the weatherboard building which still stands today on the north side of the observatory.

After a voyage lasting from July to November, the telescope was assembled in Melbourne in 1869 and during the next 20 years an astronomer would sit below at the eyepiece, sketching galaxies and nebulae hitherto unseen in such detail. Indeed it was the world's largest fully steerable telescope until 1908.

Unfortunately the speculum tarnished and repolishing meant the delicate curvature had to be continually refigured. There were endless problems with polishing the mirrors. Moreover, sketching was becoming outdated, and the telescope was not stable enough for photography at the eyepiece. Ellery said he never achieved good definition. The observatory was dusty. The weather was unsatisfactory for observing for six out of seven nights. On a rare good night for observing, the tax-paying citizens, as was their right, wanted to do the same, hindering the astronomers' work.

An article in *The Australian Journal* complained that, although the public was led to believe that immense



The 1868 Great Melbourne Telescope was for many years the largest of its kind in the world. Re-erected at Mt Stromlo in the 1950s, it was largely abandoned after a mechanical failure in 1978. Now, automated and computer controlled – in effect it had an electronic transfusion – it is part of the MACHO program searching for, and finding, 'missing matter' in the Universe.

astronomical discoveries would be made, the telescope could be looked upon as 'a gigantic philosophical blunder'. George W Ritchey declared 'I consider the failure of the Melbourne reflector to be one of the greatest calamities in the history of instrumental astronomy; for by destroying confidence in the usefulness of great reflecting telescopes, it has hindered the development of this type of instrument, so wonderfully efficient in photographic and spectroscopic work, for nearly a third of a century'.

The Great Melbourne Telescope **did** achieve a very high standard for photographic work. (Photography was only possible at the prime focus position near the end of the tube.) Results of photographing the moon were extremely good, and negatives for publication were requested from all over the world.

When the economic depression of the 1890s cut expenditure, the leviathan of the south became a museum piece, and was only rarely used in the new century. It gained a new lease of life at Mt Stromlo Observatory near Canberra in the 1950s; now with a new mirror, its polar axis is employed in a new instrument designed to detect large 'dark objects'. Parts of the GMT are stored by the Museum of Victoria.

The Photoheliograph and South Equatorial Telescope

About every hundred years the planet Venus passes between the earth and the sun twice in an eight-year period, and its tiny silhouetted black disc can be seen crossing the solar disc. For the 1874 event Melbourne Observatory acquired a 200 mm brass refracting telescope and a solar camera called a photoheliograph, each under its own dome, and the two connected by a small room.

As in the previous century, when James Cook observed the 1769 Venus transit from Tahiti, it was an international effort by many observatories and expeditions to use the timing to estimate the distance between the earth and the sun.

Melbourne Observatory results and photographs were taken by Ellery to Greenwich Observatory in 1875. The end of the 1882 transit was also viewed at Melbourne.

The 200 mm telescope became known as the South Equatorial, and was used for the lunar and planetary work. During this century its use was confined mostly to special astronomical events, and from 1918 a program of observing long period variable stars, although the Shrine of Remembrance, completed in 1934, impaired the viewing because of its size, proximity and floodlighting.

The Astrograph and the Carte du Ciel

At the Paris Astronomical Conference of 1887 the European powers and their colonies decided to launch a project to photograph the entire sky and measure by means of the photographic plates the positions of all stars to a limited brightness and produce the 'Carte du Ciel' (great star map).

Eighteen observatories including Melbourne and Sydney took part, each acquiring a 330 mm refracting telescope with camera and a 250 mm finderscope. Melbourne's instrument (astrograph) was made by Grubb, the maker of the Great Melbourne Telescope, and its separate building was commenced in 1889. Fortunately it was completed and photography commenced before the economic depression of the nineties cut staffing and expenditure for the next decade.

Ellery also gained a new home, the 'Astronomer's Residence', moving in 1890 from his smaller house in the area now occupied by the Shrine. Although he retired in 1896 (and Pietro Baracchi became Director), Ellery remained in his new residence until his death in 1908.

It was decided early on that the plate-measuring of both Melbourne and Sydney should be done in Melbourne. In 1902 a room was added to the south end of the main building for the purpose. For the next 40 years a team of young women worked on the plates while the astrograph photographed the sky from Declination (latitude in the sky) 65° S to the South Celestial Pole.

This international project was too ambitious but it gave smaller observatories like Melbourne, Sydney and Perth another reason for continued existence in a time of increasing light pollution and government cutbacks. When Melbourne Observatory was transferred to the Commonwealth in 1944, all the remaining work and the astrograph went to Sydney, leaving an empty dome.

Decline, Closure and After

In 1907 the meteorological work was handed over to the Commonwealth and the staff of 14 was cut by half. Dr Joseph Baldwin, the first fully-qualified astronomer, succeeded Baracchi in 1915 as Director of an observatory doing mainly astrophotographic cataloguing and time standardisation.

To encourage amateurs, in 1922 C J Merfield, Assistant Director, became the first President of the newly-formed Astronomical Society of Victoria. In 1936, the Society had a small building erected in the grounds, housing an 80 mm Zeiss refractor, donated by Mr Charles Ruwolt.

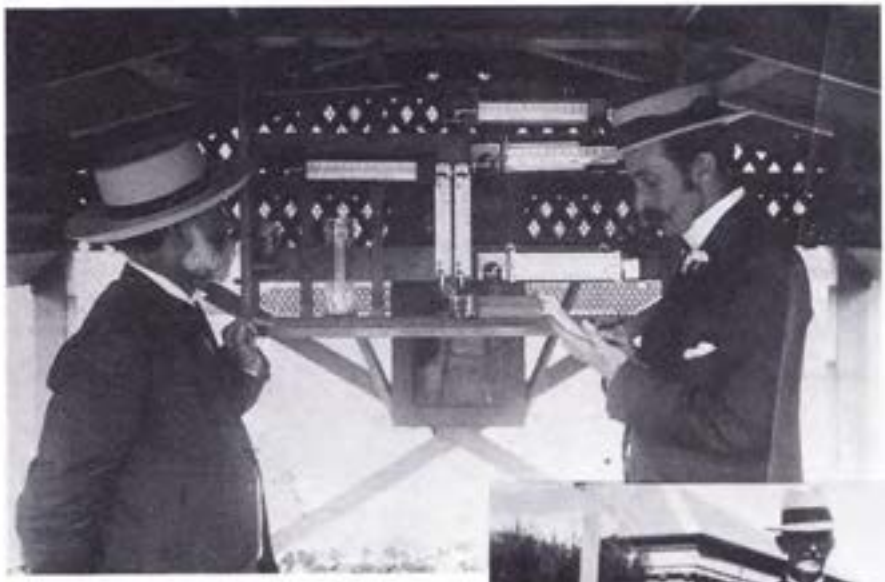
During World War Two activities were severely curtailed and in 1945 the observatory closed as a professional astronomical institution. Dr Baldwin retired and died in the same year. After the closure of Sydney Observatory in 1982 only Perth Observatory remained, leaving astronomy almost entirely to the Commonwealth Government.

Subsequently, a State Government body, 'Weights and Measures', filled the main building with clerical staff, and a measurement laboratory and workshop were set up in the Great Melbourne Telescope Building. The Mental Hygiene Department and the Teachers Tribunal were also housed there at a later stage.

Meanwhile, in 1947, by an initiative of the Science Museum in Melbourne, free public telescope demonstrations were introduced by volunteer members of the Astronomical Society of Victoria. They used the South Equatorial telescope, and an amateur-built 12 inch Newtonian reflector owned by the Society, which was eventually installed in the astrograph dome in 1953. The demonstrations, on five or six nights each month around First Quarter Moon, ran for 50 years until 1997.

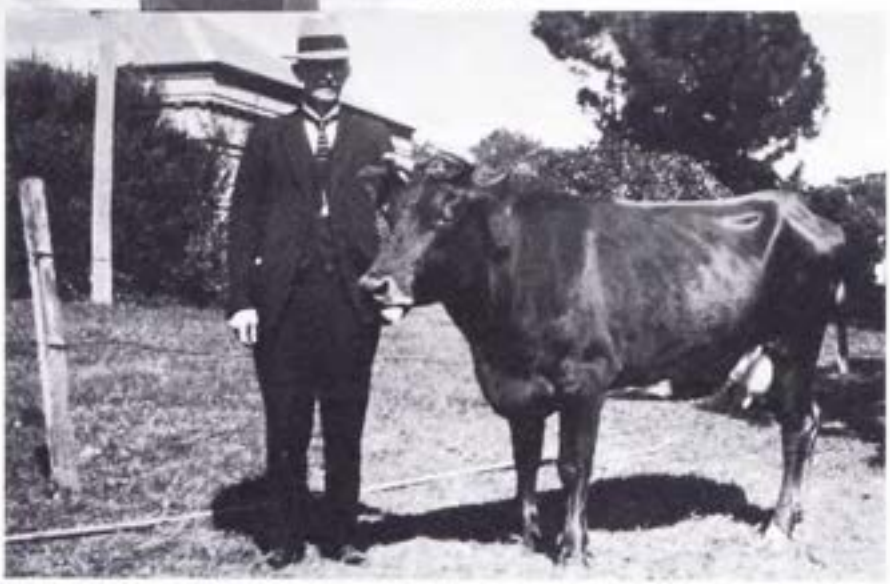
The State Government gave control of the site to the Royal Botanic Gardens Board in 1992.

GATE LODGE



James Joseph Mannix with Mr Kemp, taking instrument readings at the Observatory about 1905.

James Joseph Mannix with the family cow in the Observatory grounds in the late 1920s. There were also bees, hens, fruit trees and vegetable beds in the grounds of his cottage, now Gate Lodge.



Photos courtesy Mr Jim Mannix

Try to imagine Gate Lodge, the Friends' office on the Observatory site, echoing with the laughter of the eight children who lived there. Their father, James Joseph Mannix, was an assistant at the Melbourne Observatory for 48 years; with his wife Emmie he moved to the Observatory site just months after their first child Queenie was born in June 1896.

Their second daughter, Ada Venus Transit (Veenie), was reputedly so-named because the planet Venus was in transit across the face of the sun on the day of her birth, 26 January 1898. One must wonder whether, later in life, she regretted her father's fascination with his workplace!

In 1901, James (the fourth child) was born in the telescope room of the main Observatory building. As Queenie and Veenie grew older and wanted privacy, James and his brother Francis slept in a tent attached to the side of the house. James Joseph was a keen apiarist and kept many hives in the grounds of the Observatory and at his home in Ferntree Gully to which he retired.

When James Joseph Mannix retired in 1937, the *Age* reported that he had established a record by having served under all the Government Astronomers – Ellery, Baracchi and Baldwin. The article noted that he had given 'the right time' to many thousands of telephone callers (from industry, institutions and members of the public) as one of his daily duties – this was in the period before the development of accurate timepieces, when the Observatory was responsible for setting accurate time.

The *Herald* calculated that his service covered 'a trans-meridian phase equivalent to 47 years, 11 months, 28 days, 7 hours, 5 minutes and 8.39 seconds (not including lunch hours)'. Predictably, his retirement present from staff was a wrist watch!

His son, the second James Mannix, served for more than 50 years in the Botany School at the University of Melbourne under Prof. Ewart and Prof. John Turner, and had a close involvement with the Botanic Gardens, and the Herbarium in particular.

The third generation James Mannix inspected the cottage in 1997, before it was renovated, and had strong recollections of visiting his grandparents there as a five-year-old. This James has commented on the co-incidence that the life-long work of his father and

Jim and Dorothy Mannix outside his grandfather's home (now Gate Lodge) in 1997.

grandfather should now be reflected in the union of these former separate entities, the Observatory and the Botanic Gardens.

The Friends were faced with an intriguing discrepancy concerning the date of Gate Lodge. There was no doubt about the birth dates, 1896 and 1898, of the first two Mannix daughters, and family records seemed to indicate they were born in the cottage now known as Gate Lodge. However, the report on the Observatory site compiled by heritage architects, and Public Works contract documents for a NEW caretaker's house, clearly stated that Gate Lodge was built in 1902 for 621 pounds.

A plan of the Government House Reserve, Botanic Gardens and Domain dated 1865 notes 'Quarters of Assistant Astronomer and Government Astronomer near St Kilda Rd' and there's a photograph of this weatherboard dwelling taken about 1880.

The conclusion must be drawn that this was the original Observatory site home of the Mannix family, who subsequently moved into the new cottage (now called Gate Lodge) in 1902.

Heather Ironmonger

STAR ATTRACTIONS

Photo by Helen Fahey

The Magnet House was built in 1877 and housed the instruments for measuring hourly changes in the Earth's magnetism. It had to be constructed entirely without metal – no nails and no roofing iron. When the new electric trams in St Kilda Road caused interference, the Magnet House closed in 1910 and the operation moved to Toolangi.

Photo by Duncan Ironmonger

Observatory House, formerly the Astronomer's Residence completed in 1889, was occupied by Robert Ellery until his death in 1908, and then by Joseph Baldwin, who became the third Government Astronomer. It now serves as offices for education, marketing and development staff.

Photo by Duncan Ironmonger

The Astrograph House was built in 1889 as part of an international effort – the biggest scientific project last century – to photograph and map the stars.

The South Equatorial and Photoheliograph Houses were built in 1873 and 1874 with funds provided by the Government for observation of the Transit of Venus in 1874. The photoheliograph was used to make a daily photograph of the sun to study changes in the sun's behaviour and surface. The eight-inch Equatorial telescope is still in the building. After the transit, it was used to observe the moon and the planets.

Photo by Helen Fahey

Astronomer Robert Ellery had this **Collimating Marker** erected on the south boundary in 1886 to keep track of some slight movements in the East Transit telescope. If the telescope was out of alignment, Victorian Standard Time would have changed and the published results of star positions would have been wrong.

Photo by Lesley Skinner

Photo by Helen Fahey

The Italianate **Observatory** Building was erected between 1861 and 1863. It initially comprised 12 rooms, with a further 10 added at different times before 1902. It includes the Astronomer's Office and Library, lined with splendid cedar shelves and panelling. The Observatory has four transit rooms, built from 1863 to 1883 to cope with progressively larger telescopes. Each had a long thin aperture in the ceiling which opened to the sky by a series of levers and pulleys. Unfortunately the dome, which fell into disrepair and was removed in 1974, has not been rebuilt. There is also a fireproof strongroom where the original observation, astronomical, magnetic and meteorological records were kept.

Now the Observatory houses the Voluntary Guides, the library of the Astronomical Society of Victoria and the Ornamental Plant Conservation Association of Australia. Two areas are available for hire, and another room is used for meetings.

MUELLER'S LOST BATTLE

Ferdinand Mueller strenuously objected to the construction of the Melbourne Observatory on its present site.

As Halina Eckersley recounted in *Botanic Magazine* Volume 4, after a number of sites were surveyed for the construction of a magnetic observatory, land near the Botanic Gardens was thought most suitable. This was close to the site where Mueller subsequently proceeded to have his Botanical Museum erected in 1860.

The authorities seriously considered having the newly-completed Museum demolished in favour of the Observatory buildings. Mueller countered by suggesting Government House Reserve for their location, stressing that if the Botanical Museum was demolished a new building would have to be completed a year before it could be used for the storage of dried material. The Observatory site was marked out in May 1861. Eckersley wrote that Mueller decided the best way to get rid of his unwanted neighbours was to make the Observatory complex appear to have been built across a public thoroughfare. Deviously, he planted a double row of trees forming an avenue up to and abutting the south boundary of the Observatory grounds.

Professor Wilson, a member of the Board of Visitors (a governing body for the Observatory), complained that 'Dr Mueller had the unparalleled impudence to tell me that he intended the walk to run round the end of our ground and then resume its own line on the opposite side. His purpose however is obvious. Either to drive away the Observatory altogether, or, failing that, to make it appear as much as possible an obstacle to the public. To make it seem as if we had built it across an established public walk. It is clear at all events that we shall experience from him long opposition that his influence and unscrupulousness can bring to bear... Also if anything can be done to fence in our ground *at once* it should be done. It will never do for us to allow the footpath to be planted and made and then to come in and block it up.'

Mueller defended his action on the grounds that numerous pedestrians passed daily from South Yarra to Princes Bridge. He would 'not only confer a service on numerous residents in the neighbourhood, but also lead a beautiful avenue both to the Observatory and Museum'.

The Surveyor General declared Mueller's path to be unauthorised. After discussions, the site of the Observatory was moved slightly eastwards and became elliptical in plan, but Mueller was still unhappy – writing 'that the panoramic view from my museum by the intended building is entirely spoiled'.

His complaints were to no avail, and the Observatory was there to stay, albeit with a very unhappy neighbour.

The 1999 Addition to Observatory Gate

The new visitor complex, designed by Peter Elliott Architects, attracts many visitors daily to its indoor/ outdoor Café, Gardens' Shop and Visitor Centre. It is the starting point for day and night-time Observatory tours and Gardens tours conducted by the Voluntary Guides.

The interior of the building is dominated by large skylights of translucent glass that allow natural light to illuminate two unique decorations. The bluestone floor in the Visitor Centre features an exceptional example of sandblasting

Photo by Lesley Skinner

Arthur Boyd's Shoalhaven Saplings *in the Visitor Centre at Observatory Gate. Tattersall's commissioned the work from the Victorian Tapestry Workshop as a 150th anniversary gift for the Gardens.*

THE LANDSCAPE OF OBSERVATORY GATE

When the Observatory was established, the landscaping acted as a screen to help protect the delicate instruments from dust. Today, the drama of the architecture is set off by sweeping expanses of green grass.

But beside Birdwood Avenue, an indigenous grassy woodland was created in 1998 around four *Bursaria spinosa* (blackthorn) trees and one *Eucalyptus melliodora* (yellow box). All are listed on the National Trust's Register of Significant Trees, and are believed to be of about the same age as the Observatory. If not true remnants, they are certainly progeny of original specimens. Sadly, one *Bursaria* was lost after being uprooted by strong September winds in 1999, but fortunately the RBG Nursery had previously propagated seed and cuttings from the *Bursarias* to ensure the protection of their genotype. So a new generation of material has been planted there to provide a succession.

Indigenous herbaceous species such as *Themeda triandra* (kangaroo grass) and *Tricoryne elatior* were carefully removed from the Observatory site before construction work began, and replanted during a searing hot spell in February, in time for the official opening on 10 March. They are now looking very much at home.

RBG horticulturists consulted historic documents about Melbourne's indigenous vegetation and records in the Herbarium before deciding what to plant.

Landscape architect Chris Dance was consultant for the planting design for Observatory Gate, working with RBG staff. A feature is the low serpentine wall and lilly pilly hedge along the axis of the Collimating Marker and the Eastern Transit Room. The new planting near the Visitor Centre is contemporary in design with a strong architectural character. *Eucalyptus gregoriensis*, a plant collected and described for the first time on the 1996 field trip to the Northern Territory for the Gardens' 150th anniversary, holds pride of place there. It's a symbolic link between the old and the new at Observatory Gate.

The development adds 3.5 hectares to the 35.4 hectares area of the Gardens, and gives general access to this site for the first time in 50 years.

Heather Ironmonger

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craftsmanship which echoes the engraving method used by nineteenth century printers. It depicts finely detailed botanical illustrations of plants that were collected in the early years of settlement at Port Phillip. Rubbings may be taken from these images. In marked contrast, the glass panel at the front of the information desk illustrates scanned electron-micrographic images that show the structure of plant pollen at a highly magnified level.

Changing exhibitions may be seen in the small room behind the information desk, and interesting living plants in the glass display case. The rare Wollemi Pine attracted a great deal of attention when shown there.

A finishing touch to the Pacific Dunlop Plaza was unveiled on 6 October – a sculpture entitled *Neutrino* by Canberra-based artist Glen Dunn. Its spherical form is in harmony with the gentle curves of the dome, arched windows and portholes of the old Observatory buildings, yet its modern materials are in keeping with the contemporary architecture and hard-surfaced plaza. The sculpture was commissioned by the RBG to commemorate the opening of Observatory Gate, with assistance from Philip Morris-Australia/NZ/South Pacific.

Photo by Helen Fahey

After Neutrino, *weighing 1.5 tonnes, was delivered by crane, Glen Dunn appeared relieved to have his stainless steel and marine ply sculpture safely on the ground. It was later firmly anchored to the Pacific Dunlop Plaza.*

The Astronomical Society of Victoria

The Astronomical Society of Victoria formed in July 1922. Today, with over 800 members, it can claim to be the largest amateur astronomical society in the southern hemisphere. The ASV has had links with the Observatory precinct since the Society's inception. Several founding members served on the staff at Melbourne Observatory, among them the ASV's first President, Charles Merfield, then the Chief Assistant Astronomer. The Society was granted permission to erect its first operational observatory, the Zeiss House, in the grounds in 1936. In 1946, a small roll-off shed was built to house its 200 mm reflecting telescope; seven years later this was moved into the Astrograph House, where it remains today.

Inside the Astrograph House, showing telescope and dome.

Trained ASV volunteer demonstrators conducted free public viewing nights at the Observatory for about 50 years until the beginning of 1999. Many continue to share their knowledge as guides for the very popular new Night Sky tours arranged by the RBG. The ASV has other links with Observatory Gate: since 1996, it has been using rooms in the Great Melbourne Telescope building, and the Society's extensive astronomical library is housed in two rooms in the main Observatory building. Visitors are welcome to attend our monthly meetings in Mueller Hall.

On a broader front, the Society is developing a deep sky observing site near Heathcote, and also has a home base in Burwood where a large 400 mm aperture reflecting telescope is in constant use.

Rod Brown

RBG GROWS TOWARDS 2000

by Heather Ironmonger

It's a glorious sunny Sunday morning and Observatory Gate is abuzz. The cappuccino machine is working overtime. Friends gossip on the Pacific Dunlop Plaza while handsome dogs strain on their leads, impatient to be on the move. Children are everywhere, kicking balls on the inviting expanse of grass, or skipping along the low curving wall that borders Observatory House. A group departs on a guided tour. Customers succumb to the beautiful temptations in the shop.

RBG Director Dr Philip Moors is justifiably proud of this new $7.5 million gateway to the Gardens. 'The Observatory Gate development has been an outstanding success; it has achieved everything that we hoped for, and more. It has established an important new set of visitor facilities. We've been delighted with the increased patronage at the Gardens Shop and the popularity of the Café. I've not heard of any adverse reactions.'

Of course the sun does not shine every day, and biting winds now and then deter alfresco diners. Some tourists regard Observatory Gate as a destination in itself and venture no further into the Gardens. Early on, visitors attracted by the publicity were disappointed by the lack of on-site information about the Observatory buildings. But in July the innovative signs, long plagued by production difficulties, were finally installed, explaining the fascinating astronomical heritage of the site. Interpretation and displays are to be prepared for the interiors of the buildings, also.

Well, we've had the installation of the automatic watering system, the 150th birthday celebrations, now Observatory Gate. The second stage of the Observatory site plan is years away, perhaps a decade, not to think of yet more fund-raising! Is there a feeling of let down? 'Definitely not', exclaims Philip Moors, 'we're just enjoying a period of consolidation. Our current focus is to secure funding to develop the Children's Garden on Education Lawn (between Observatory House and Dallas Brooks Drive) – involving landscaping and planting with educational themes and providing facilities to support the education programs.' Also on the agenda is the exciting vision for the Australian Garden at RBG Cranbourne, which will establish a horticultural highlight on the bushy site where visitors sometimes feel the title 'Botanic Gardens' is a misnomer.

In its 1997-2002 Corporate Plan for the Gardens, the Board aspires to establish RBG Melbourne 'as the pre-eminent botanic garden in Australia within five years'. This supremacy is to be earned not only with horticultural excellence and scientific distinction, but also by embracing the highest possible standards of staff, workplace and financial management. 'Our goal gives us an incentive to be innovative, and we can demonstrate that we're on target in a number of ways, for instance: Observatory Gate, the Australian Garden, the number of times that we're consulted by interstate gardens, and the frequency of visits by Ministers and senior politicians', Philip Moors says.

Photo by Lawrence Cohn

There's always activity at the Pacific Dunlop Plaza.

Money Matters

In 1993, to mark its centenary, Pacific Dunlop promised $2.2 million to the Gardens over a 10-year period. Three years remain of its generous commitment as the Gardens' principal corporate sponsor.

Philip, who was appointed in 1992, is not surprised that his primary focus must be on raising revenue. Budgetary objectives have been broadly met, with about $900,000 added by the RBG to the $5.62m recurrent annual funding from the Government in 1998-99. Philip believes the most useful lessons from his 1998 overseas tour were learned from United States gardens where the growth of funds through philanthropy is as 'finessed' a skill as the propagation of rare species. One result is his new *Director's Circle,* where he has already recruited more than 40 people willing to donate at least $1000 a year to the Gardens. 'We've had a strong response and would welcome more; I expect this group will organise some social events, and we'll develop other projects to encourage community support', Philip reports. *Garden Guardians* and *Garden Companions* are other new categories in the hierarchy of donors.

The Board is in the early stages of establishing an endowment fund, whereby a capital sum can be invested to earn an income for RBG projects. In

the US, hundreds of millions of dollars are donated and used in this way.

It was once said that the Gardens 'survived by invisibility' for the first half of the 20th century. Now the opposite is true; a high profile is essential. No longer able to exist solely on intrinsic beauty and Government funding, the Gardens are increasingly capitalising on their attractions, at the same time enriching Melbourne's entertainment options. In the 1998-99 summer, Moonlight Cinema drew 42,405 patrons, *Much Ado About Nothing* 16,572, and *Wind in the Willows* 7000. On one single Saturday evening in December, 2600 people were comfortably accommodated at cinema and live theatre, the Terrace Reception Centre, Gardens House and a party in a marquee! The newly-grassed area adjoining the Friends' office at Gate Lodge, to be known as Theatre Lawn, will provide an excellent venue next summer. Theatre and cinema performances will run between mid-December and the end of February next summer, and there may be music as well.

Unfortunately applications to fund provision of new public toilets and baby-changing facilities have been regularly rejected, while a lakeside information centre, new perimeter fencing and an upgraded nursery yard and depot remain on the wishlist. However, the orientation needs of visitors have been well catered for; the Sign and Print Officer has worked at full pace to amend map boards and signage, giving directions to Observatory Gate.

Students and Staff

In 1998 1.57 million visitors to the Gardens were recorded, and numbers have increased in the first six months of 1999. It could be argued that student numbers are even more significant, because they represent the future environmentally-aware generation. Between January and June 1999 11,115 students participated in activities in RBG Melbourne, and 5424 in Cranbourne. The Education Service, led by Stuart Pope, captivates pre-schoolers, enthuses primary children, engages

Photo by Annette Warner

The weather station on Education Lawn.

secondary students and offers solid academic instruction to those at tertiary level. A weather station is a recent addition to the 'outdoor schoolroom' at Observatory Gate. The RBG education programs continue to be highly regarded by the Minister, the Education Department and schools.

In 1998 the education program at Cranbourne was expanded, and there is now a full-time teacher funded by the Education Department. She has been able to capitalise on the ecological attributes of the site. Local schools use the Gardens routinely, and that helps to secure friends in the Cranbourne community. Students have planted more than 3000 trees in recent months. Some school groups even travel to Cranbourne all the way from areas north-west of Melbourne.

Recently two part-time rangers were appointed for the Melbourne Gardens and another at Cranbourne to provide security, information and assistance to visitors on weekends, relieving horticultural staff of these duties. Staff numbers are steady, with 67 filling horticultural roles (of whom 11 are females at both Melbourne and Cranbourne), 35 employed as scientists and Herbarium staff, 21 devoted to administration and business tasks, and 16 involved in public programs and education (including casual teachers). RBG Cranbourne has 21 staff including two casual workers. Some Cranbourne staff have been with the Gardens for 20 years, and quite a few Melbourne staff between 10 and 15 years. In the words of Philip Moors, 'We'd like people to look upon the Gardens as a satisfying lifetime workplace'.

Growth at Cranbourne

The 1998 planning decision which removed the threat of a highway intruding on RBG Cranbourne was a great fillip. Philip Moors is optimistic that a start will be made on the Australian Garden in 2000-2001. Collecting of plants and seeds is continuing in West Australia, Hattah-Kulkyne National Park and East Gippsland. The Maud Gibson Trust will support a collecting trip in the Flinders Ranges and western NSW this spring and summer.

With a grant of $80,000 from Parks Victoria, a new gateway has been developing at Cranbourne. Two 'rooms' have been created with *Eucalyptus scoparia* framing the roadway and a sweeping hedge of *Syzygium* forming the 'walls'. Massed planting of low shrubs and grasses completes the landscaping, which extends for 100 metres along the roadway. Steel gates, new signs, brush and rabbit-proof fencing and 8 km of drip irrigation are all part of the entry project.

ARCUE

The Australian Research Centre for Urban Ecology (ARCUE), the RBG division established in September 1998 with Baker Foundation support, has made an impressive start. Its purpose is to increase our understanding of the ecology, restoration and management of urban natural areas, in view of the environmental impact of rapidly accelerating urban settlement. (Looking at Victoria alone, 87 per cent of our population lives in urban areas.) Its research is focused on how to maintain the diversity and abundance of plants and animals in urban natural habitats.

ARCUE is housed for the moment at the Botany School at the University of Melbourne, with a field laboratory at RBG Cranbourne. As a starting point it has compiled a comprehensive bibliography 'A Reference Guide to the Ecology and Natural Resources of the Melbourne Region' and is developing a Geographic Information System database of the natural areas within the greater Melbourne area. ARCUE is supervising a number of honours and PhD students. With Greening Australia it held a workshop in May to assess the success of various revegetation techniques related to a project at Merri Creek.

Photo by David Cash

An important step in the development of the Observatory Gate project was the removal of LaTrobe's Cottage. With co-operation from the National Trust and Melbourne City Council, it was jacked up and driven across Birdwood Avenue for resettlement nearby.

The Herbarium

Staff at the Herbarium continue their high success rate in attracting funding (more than $200,000 in 1998-99) from the Australian Research Council, the Australian Biological Resources Study and several philanthropic trusts. The Division is very active in co-supervising honours and post-graduate students (currently 15) with mutually beneficial results. The second Pacific Dunlop Fellow, Niels Klazenga from the University of Leiden in The Netherlands, took up his appointment in August.

RBG Melbourne is still the only botanic garden in Australia to have a mycologist on its staff. In fact this strength has been doubled with the appointment of Dr Teresa Lebel. Dr Tom May's FUNGIMAP collaborative project has gained an excellent community response. The Hermon Slade Foundation is granting $60,000 over three years to enable the fungi collections of the Herbarium – about 20,000 specimens – to be mounted and databased.

The total Herbarium collection is estimated at 1.2 million preserved plant specimens. Mounting onto stiff card began in the 1960s, and despite significant progress there's still a large backlog. Of course the specimens keep coming – up to 5000 a year. This prospect would dismay the faint-hearted, but not the patient and cheerful Collections Manager, Cathryn Coles. The Herbarium sends out and receives back on loan

between 7000 and 20,000 specimens annually; they go to every corner of the globe including North and South America, Japan and Europe. Steady progress is also being achieved in databasing all the Herbarium specimens. There are now 165,597 records on MELISR.

Volume 3 of the *Horticultural Flora of South-eastern Australia* is due for publication next year, while work has begun on a history of the National Herbarium of Victoria to be published for its 150th anniversary in 2003.

The name of the Research and Herbarium Division was changed to Plant Sciences and Diversity Division to reflect more accurately the focus of research programs into the next century. The scientists strive to advance knowledge of plants and plant communities, the conservation of biodiversity, and threats to biodiversity.

Dr Liz James continues to advance cutting-edge techniques in conservation genetics. One significant project concerns *Grevillea williamsonii*, known only from a single population of 13 plants in Grampians National Park. An ex-situ population is being assembled to conserve this rare species – an example of how the science of conservation biology has emerged to maintain diversity of plant life. The addition in October of Dr Frank Udovicic, a scientist skilled in using DNA techniques, will greatly strengthen RBG's capacity to unravel plant relationships – for instance, the connection between Australian plants and their possible Gondwanan antecedents.

Neville Walsh, who has concentrated on the *Flora of Victoria* for ten years, is now able to devote more time to rare and threatened plants, with the fourth and final volume published at the end of September. One recent success was the first germination, after several attempts, of the only Victorian plant of the pea family, *Swainsona recta*, which is on the brink of extinction.

Research horticulturist Rob Cross has had useful results in a collaborative project aimed at reducing the effect of cinnamon fungus and *Thryptomene calycina* – serious problems for commercial growers. Field trials confirmed the effectiveness of a mix of compost and microscopic organisms for biological control of Phytophthora. Good progress has also been achieved in boosting the micropropagation of superior forms of Banksia, a species in high demand for the cut-flower export industry.

Co-operation with the Nursery Industry

Botanic gardens and the nursery industry both aim to encourage the understanding and enjoyment of gardening and of plants. Moves are afoot to ensure closer co-operation, with the industry being included in commercial opportunities provided by new collections and introductions. The propagation of the Wollemi Pine is a high-profile

Photo by Lawrence Cohn

Dr Philip Moors takes his first look at the newly-published final volume of Flora of Victoria *with co-editor Neville Walsh. Neville is the only Herbarium scientist involved in all four volumes. A work of immense scholarship, this RBG project represents more than 10 years' work, and fills 3447 pages. Illustrations include exquisite colour plates by Anita Barley.*

example of a strategic alliance that will benefit RBG Sydney and the industry, and provide the public with access to new material.

Philip Moors has welcomed the RBG's developing links with the industry in Victoria. Plans for the Australian Garden at Cranbourne offer an opportunity for the industry to display new cultivars, and experiments with new propagation techniques will be conducted in trial beds. Philip can offer further examples: the new RBG rose garden includes a major display of the rose Victoria Gold, raised to mark the Rose Society's centenary, and the Gardens will again participate in the Melbourne International Flower and Garden Show in 2000.

Gardens Management

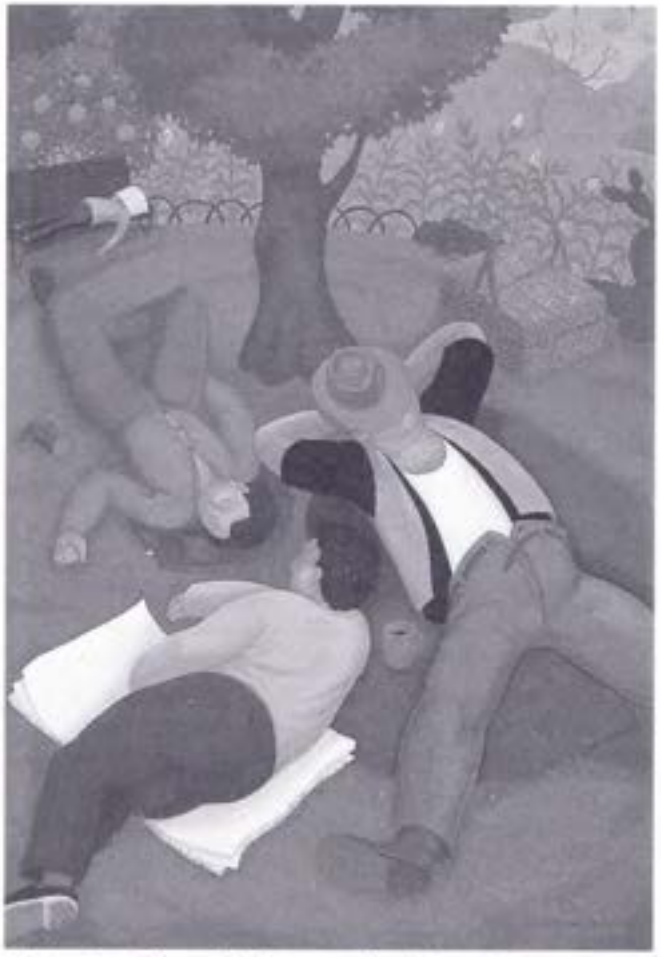
After a review of the Public Programs and Development Division, the Director announced in August that the vacant position of Divisional Director would not be filled, and that the Division's functions would be reallocated. Visitor Programs and Education Services are to be delivered through Melbourne and Cranbourne Gardens Divisions; the Business Development and Marketing Branches have been transferred to the Corporate Resources Division. To better reflect the important role of Philip Moors in fundraising activities, the Development Branch was attached to the Office of the Director.

Towards 2000

R T M Pescott's *History of the Melbourne Gardens* recounts that William Guilfoyle took a calculated risk by inaugurating summer moonlight concerts, held after closing time. Guilfoyle reported with great satisfaction that 'the conduct of the large number of people who attended was most orderly. So far as I could ascertain, not the slightest damage was done, even to the displacement of a label, and the grounds might, in my opinion, be safely used for a similar purpose many times during the year. It is evident that an interest has been created in the public mind concerning these Gardens, which induces visitors to aid in protecting them from the depredations of what is called the larrikin element.'

However, such impeccable public behaviour cannot be counted on in 1999; prudence reigns, with the Gardens, the Terrace Reception Centre and Gardens House remaining closed on New Year's Eve. The Café at Observatory Gate is booked for a private party.

All possible measures have been taken to guard against a Y2K disaster at the Gardens. However, just in case the automatic watering system seizes up, members of the Voluntary Guides and the Plant Craft Cottage will be ready to help with the hoses.



After Anne Marie Graham walked through the Gardens on New Year's Day, she captured the scene in an oil painting entitled The Morning After *with apologies to Bruegel. What will she see on 1 January 2000?*