

150 years: the National Herbarium of Victoria, 1853-2003

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Abstract

The National Herbarium of Victoria was founded with the appointment on 26 January 1853 of Victoria's first Government Botanist, Ferdinand Mueller. With a brief to investigate the local flora, Mueller worked assiduously to make the results of his work available to the public. Mueller's research concentrated on the discovery of the Australian flora. His successors as Government Botanist struggled with a lowered expectation on the part of government of the role of the Herbarium and inadequate resources. The collections were built from nothing into a world-class herbarium. In more recent times research programs have continued to document the Australian flora and some have expanded to take advantage of new research techniques.

In 1853 the colony of Victoria was enjoying an unprecedented level of prosperity, with burgeoning gold revenues and waves of immigrants seeking their fortunes. This young colony, less than 20 years old, had achieved a measure of independence in 1851 with the formal separation of the Port Philip District from New South Wales. The citizens now had a large degree of self-determination having, among other things, a partially elected parliament. Lieutenant Governor Charles La Trobe exercised an enlarged vice-regal decision-making responsibility. He and his civil administrators had the difficult job of establishing a public infrastructure that was capable of dealing with a rapidly enlarging population and its spread into uncharted parts of the country. Their vision was to ensure Victoria's long-term prosperity. It was in this climate that La Trobe appointed Ferdinand Mueller (Fig. 1a) as Victoria's first Government Botanist on 26 January 1853 and effectively founded the National Herbarium of Victoria.

Mueller was the third scientific officer to be appointed to a public office in Victoria. The first was the Government Geologist, Alfred Selwyn, appointed in London in August 1852. This was an obvious necessity in a colony where the overriding preoccupation was the extraction of gold from the ground. With his next two appointments La Trobe was able to combine his duty with his personal inclinations. Being himself a talented naturalist, La Trobe determined that the colony's floral as well as geological resources should be investigated. William Swainson was engaged by La Trobe in September 1852 for a term of one year to study the timber trees of the colony, particularly the Eucalypts. This was not a happy arrangement, Swainson failing to deliver any useful results (Maroske & Cohn 1992). La Trobe's other botanical appointment was an undoubted success.

Mueller arrived in Victoria from South Australia in August 1852 with an introduction to La Trobe and a burning ambition to write what he termed a 'universal flora of Australia'. As Government Botanist Mueller's brief was to study the indigenous flora of Victoria. Although he was a member of the Committee of Management of the Melbourne Botanic Gardens from 1853, the daily management of a botanic garden was not part of his responsibilities. Mueller was appointed solely on the responsibility of the local authorities. No equivalent appointment had been made in any of the Australian colonies to that time, making Mueller's appointment unique in Australia. In addition, Mueller was not a member of the British botanical establishment, the usual source of colonial botanical appointees. Rather, his training had been in northern Europe, a fact that later caused some disquiet on the part of the leading botanical luminaries in Britain. With this

background Mueller entertained no doubts that he was in a position to research the then largely unknown Australian flora. He did not view his role as that of gatherer of raw materials for others to work on back home. In his career in Victoria Mueller's continental contacts proved to be at least as important as those he forged with botanists in Britain.

1853-1896

Mueller enjoyed the position of Government Botanist for 43 years (Home *et al.* 1998, 2002). He was untiring in his efforts to promote the study of the Australian flora. As a qualified pharmacist he had a particular interest in the investigation of plants for the benefits that could be derived, be they medicinal, industrial or agricultural. This was also, he believed, essential in a new colony that was still trying to find its feet. In his career Mueller described more than 4500 previously unknown Australian taxa. As a resident he became the acknowledged point of contact for botanists visiting Australia on their travels, for overseas botanists seeking information and specimens of the Australian plants, and for colonists wishing to enlarge their knowledge of the indigenous flora. He published extensively so that his discoveries could be known as widely as possible. With a small amount of government funds voted for the purpose, and utilising a wide range of botanical journals, Mueller issued a stream of articles and illustrated books on the Australian flora (Sinkora 1998). To his great disappointment he was unable to write what he termed a 'universal flora of Australia', bowing to pressure to cede the authorship to a botanist within the British botanical establishment. He then sent his entire Australian collection to Kew in stages. Without access to these specimens George Bentham would not have been able to write the *Flora australiensis* (Bentham 1863-1878). From 1857 to 1873 Mueller had the additional role of Director of the Botanic Gardens. His efforts to make the Gardens into the aesthetically pleasing and educative institution he believed they should be were ultimately at odds with some sections of the population. In 1873 the directorship was abolished to remove Mueller from the Gardens, a matter of enduring bitterness for Mueller (Cohn & Maroske 1996). The positions of Government Botanist and Director remained separate for 50 years.

When Mueller took up office, there was no government collection of dried plants. His first course of action was to make one. To this end, on 29 January 1853 he set out on the first of his three extended explorations of Victoria. His reputed delicate health notwithstanding, Mueller enjoyed a long career as explorer, bushman and collector. Although he was in the service of the government of Victoria Mueller had no thought of confining his botanical research to just that colony. On the contrary, he claimed as his field the whole of the continent. There were few parts of Victoria that Mueller did not visit with the purpose of collecting specimens. His field work extended into other colonies as well: the area around Brisbane and the Glasshouse mountains in Queensland; areas around Sydney and Twofold Bay in New South Wales; the south-west regions of Western Australia; and Tasmania. As botanist to the North Australian Exploring Expedition Mueller made the first collection of the flora from the inland of Australia.

As Government Botanist Mueller was in an excellent position to be the focus of botanical activities within Australia and became the authoritative voice on the indigenous flora. Plant collections made on official exploring expeditions in the other Australian colonies were sent to Mueller for identification. So too were the specimens gathered on private expeditions. Thus the collections of John McDouall Stuart, Eugene Fitzgerald, John and Alexander Forrest, Ernest Giles, the Victorian Exploring Expedition and the Elder Expedition among others all came to Melbourne. Individuals also sent him specimens, receiving in return encouragement to study the plants in their local areas. In this way a continued supply of new material was ensured. Advertisements were placed in newspapers seeking collectors, bringing private citizens such as Jessie Hussey from Port Elliot in South Australia into his network. Mueller's fellow botanists in other colonies, for

instance Frederick Bailey, William Woolls and Charles Moore, were enthusiastic correspondents and the source of many interesting specimens for Mueller. The necessity for a paid field collector was something Mueller continually urged upon the government, with mixed success. His longest-serving paid collector was John Dallachy who preceded Mueller as officer-in-charge of the Botanic Gardens in Melbourne. Sometimes others, Charles Stuart and Augustus Oldfield among them, were paid by Mueller from his own resources when his official budget had little or no capacity to pay collectors.

Mueller did not only utilise Australian sources for his specimens. He exchanged material with his overseas correspondents, happily sending duplicates of his Australian collections to institutions overseas. In return he received large numbers of specimens from other parts of the world, some as little known botanically as Australia. Some hundreds of Robert Brown's Australian collections were received in the dispersal of duplicates from London. By judicious purchases Mueller acquired the incomparable collections of Joachim Steetz (Short & Sinkora 1988) and Wilhelm Sonder and the personal herbarium of James Drummond (Short 1990). This brought to the Herbarium material from the earliest collections made in Australia as well as a broad range of exotic species. Mueller knew these were needed for comparative purposes if the Australian flora was to be properly elucidated.

Mueller's own collections, the specimens sent to him by his collectors from all over Australia, and the specimens he received from overseas amounted to the largest herbarium in the southern hemisphere. In 1894 he estimated the size of the Herbarium as over one million sheets (Mueller 1894). More importantly, the collections contained many types, and specimens from areas that have now been transformed as a consequence of European settlement and in some cases, for instance the Northern Territory, areas that have not been surveyed since. They therefore form an invaluable scientific and historical resource. Little serious taxonomic work can now be done on the Australian flora without reference to the Melbourne collections.

1896-1941

For the 50 years or so after Mueller's death the Herbarium languished in the doldrums. The staff declined to two people (other than the Government Botanist) whose duties centred around providing identifications particularly for the Department of Agriculture, and curation of the collections when time permitted. Development of the agricultural industries of the state were a priority for successive governments. The Herbarium was transferred to the Department of Agriculture in 1903, the better to facilitate the identification of weeds and stock-poisoning plants by Herbarium staff for Departmental officers and farmers. In 1913 the Herbarium was again transferred, back to the Chief Secretary's Department. The Herbarium's function of providing a plant identification service for the public benefit continued undiminished. Research as a primary herbarium function slipped off the agenda. It was as though having got a world class herbarium the authorities could only see one purpose for it. Mueller's repeated efforts to impress upon both public servants and government ministers alike what he considered a proper sense of the importance of the Herbarium had not borne fruit.

Mueller's successors reflected the importance placed on both the position of Government Botanist and the Herbarium by successive governments. Johann Luehmann (Fig. 1b) had served as Mueller's deputy and clerk since 1869 and received his botanical training under Mueller's tutelage. Although he was officially acting as Government Botanist from Mueller's death in office, Luehmann was not gazetted as Government Botanist and Curator of the National Herbarium until December 1900. It was during Luehmann's term as Government Botanist that the Herbarium was officially named the National Herbarium of Victoria. Luehmann was not the botanist that Mueller had been, having no strong vision of the research that should be done or the direction the Herbarium

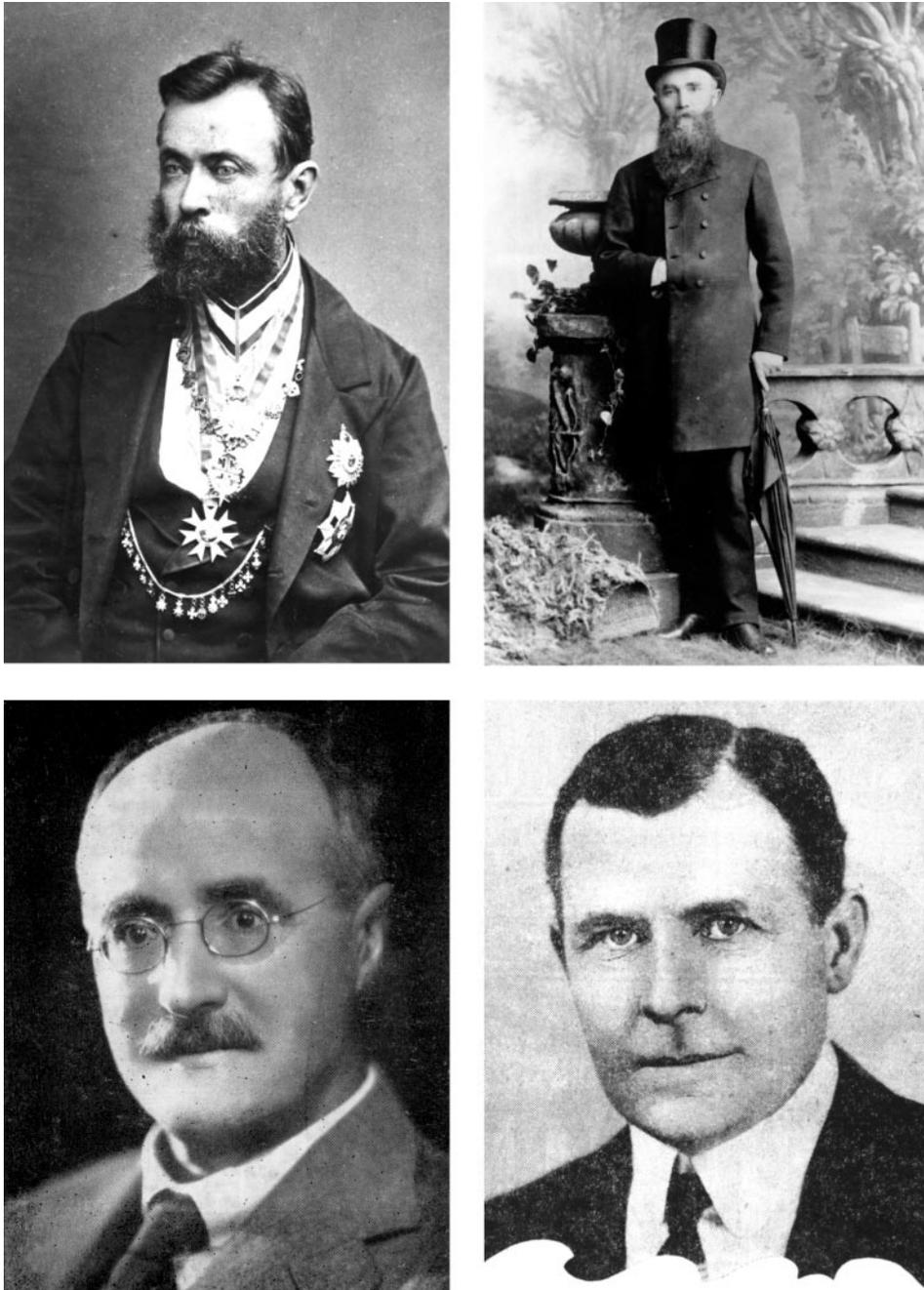


Figure 1. **a** (top left) Ferdinand Mueller, Government Botanist 1853-1896, Director of the Melbourne Botanic Gardens 1857-1873; **b** (top right) Johann Luehmann, Government Botanist 1896-1904; **c** (bottom left) Alfred Ewart, Government Botanist 1906-1921; **d** (bottom right) Frederick Rae, Director and Government Botanist 1926-1941 (reproduced with permission from the La Trobe Collection, State Library of Victoria).

should take. By now the Herbarium staff comprised only James Tovey, James Audas and Luehmann himself. His term of office was more of a holding operation, with which the government seemed quite happy. Luehmann died in office in 1904.

In Alfred Ewart (Fig. 1c), the Herbarium once again had a dynamic and ambitious leader. Recruited in London, and with a strong research background in plant physiology, Ewart threw himself into the work of the Department of Agriculture. He also engaged in some taxonomic work even though he had no training or previous experience in this field. His *Flora of Victoria* (Ewart 1931), although published 10 years after he left the Herbarium, was the first such work published since Mueller's *Plants indigenous to the colony of Victoria* (Mueller 1862). However, Ewart was only part-time as Government Botanist. While his mornings were spent at the Herbarium, his afternoons were spent at the University of Melbourne as the foundation Professor of Botany. His five-year contract for the joint positions was renewed twice, the second time with much equivocation on the part of the government. The government did not even consider the position of Government Botanist as being on the Public Service establishment. It was with some relief that in 1921 Ewart gave up the position of Government Botanist and became Professor on a full-time basis.

William Laidlaw [no portrait available] was Biologist with the Department of Agriculture and had never worked in a herbarium. He nevertheless succeeded Ewart as Government Botanist. During his short tenure the Herbarium continued as it had for the past 25 years. In 1924 Laidlaw found himself having to take on the responsibilities of Director of the Botanic Gardens. Being close to retirement this was not what he had wanted. In Laidlaw the two positions were reunited for the first time since 1873. As the Botanic Gardens were under the Department of Crown Lands the Herbarium now changed departments again. Laidlaw did not live long enough to enjoy either his new role or his retirement. He died in office in 1925. The relative importance placed on the Gardens and the Herbarium was apparent with the next appointments to the position of Director and Government Botanist. Frederick Rae (Fig. 1d), Alex Jessep (Fig. 2a) and Dick Pescott (Fig. 2b) all came to the position after some time on the staff of the School of Primary Agriculture at Burnley. Both Rae and Jessep were Principal immediately before coming to the Herbarium and Gardens. The mild controversy that attended Rae's appointment was more about the powers of the Public Service Board than whether Rae was the most appropriate of the applicants, all horticulturists.

Rae had charge of the Herbarium during perhaps the most difficult times any public administrator had to face. It is doubtful that anyone could have done better coping with the stringencies engendered by the great depression. So hard were the times that salaries, including that of the Director, were cut by up to 20 per cent. Funding problems were not new for the Herbarium. In the early 1870s and again in the 1890s Mueller struggled with budget cuts when the staff faced dismissal or transfer to other departments. Under Rae the Herbarium still had only two staff, James Audas and Frank Morris. Rae was not expected to undertake any taxonomic research and he did not do so. He did, however achieve two things that greatly affected the future of the Herbarium. The first was the construction of a new Herbarium building within the Gardens, using funds generously donated by Sir Macpherson Robertson. In 1934 the collections made their way across Birdwood Avenue from Mueller's now extremely cramped Herbarium (Fig. 3a) to their new commodious accommodation (Fig. 3b). This building now serves as the research and administration centre for the Herbarium and Gardens. Rae's second achievement was to appoint to the Herbarium a university-trained botanist and its third staff member, Jim Willis (Fig. 2c). In the latter years of Rae's tenure he suffered increasingly from ill-health.

Upon Mueller's death in 1896, the collection building program virtually came to a halt. For the next 70 years or so accessions to the collections dwindled to a trickle. The governments of Queensland and New South Wales now both had botanists on staff and so the Australian public had two centres other than Melbourne to which they sent their

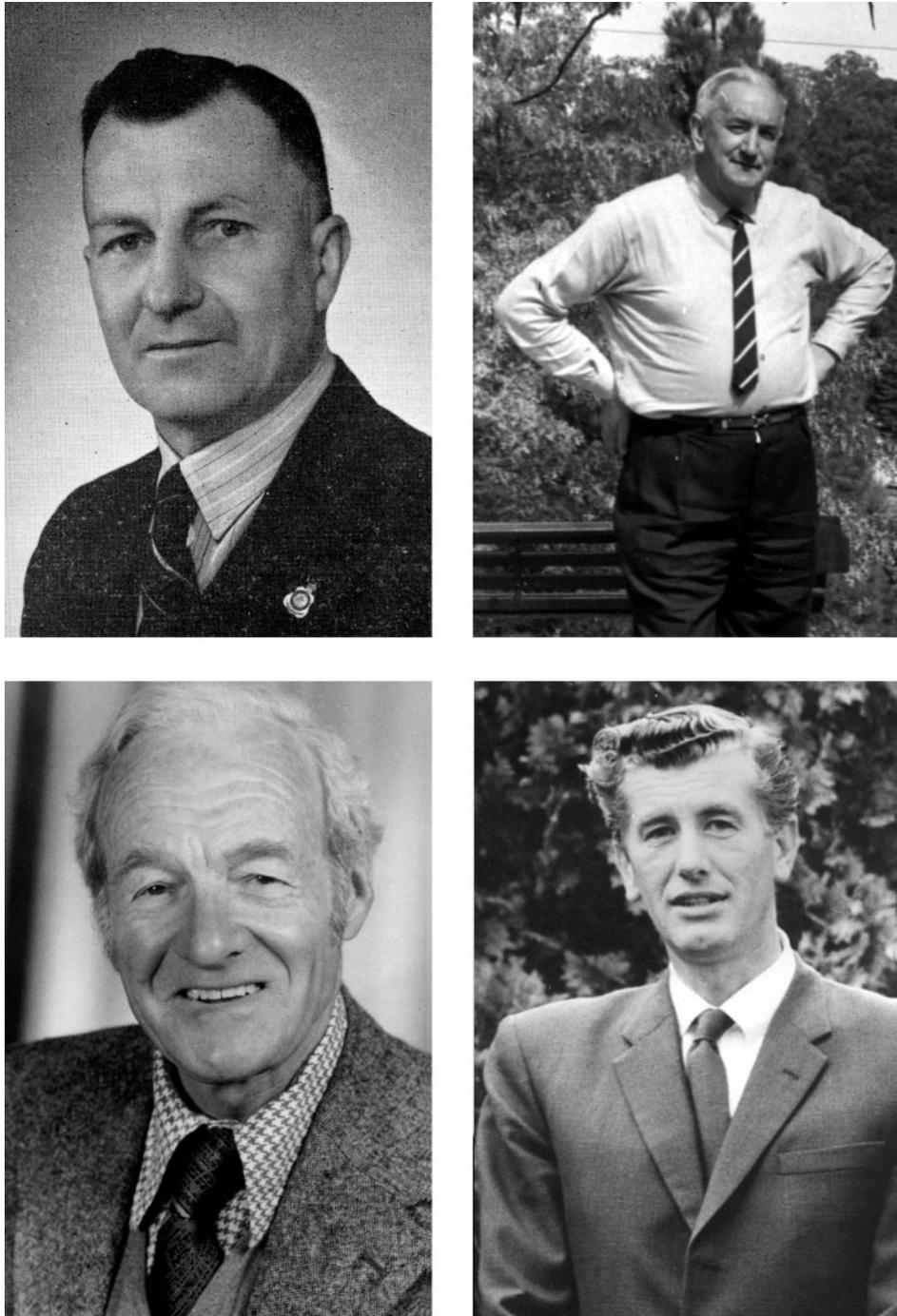


Figure 2. **a** (top left) Alexander Jessep, Director and Government Botanist 1941-1957; **b** (top right) Richard Pescott, Director and Government Botanist 1957-1970; **c** (bottom left) James Willis, Acting Director and Government Botanist 1970-1971; **d** (bottom right) David Churchill, Director and Government Botanist 1971-1992.

specimens. Melbourne's position as the focus of Australian botany could not be sustained. Herbarium routines changed such that specimens sent for identification were rarely retained. This fruitful source of specimens was hence largely untapped and valuable information lost. By their own efforts, using their weekends and vacations, the Herbarium staff valiantly continued the practice of field collecting.

Of great importance was the connection with the amateur circle of botanists and collectors, many of whom were members of the Field Naturalists Club of Victoria. Herbarium staff have been enthusiastic members of the Club from its inception in 1880. This association resulted in the accession to the Herbarium of significant collections at a time when there was little official capacity to enlarge the collections. Carl Walter, Norman Wakefield, Thomas Hart, Bill Hunter, Charles Sutton, Keith Rogers and Herbert Williamson are among those who were closely associated with Herbarium staff and whose personal collections are now in the Herbarium. In particular Jim Willis formed a strong link between the Herbarium and the Club.

1941-2003

Alex Jessep (Fig. 2a) came to the job upon Rae's death in the middle of World War II. Although Jessep recognised that both the Herbarium and Gardens needed an injection of staff and funds, this of necessity had to be a long-term program. Among the first problems he had to face was the need to vacate most of the ground floor and the library on the upper floor to make way for the air force as part of the war effort. Jessep's main interest was in horticulture and he enjoyed a high reputation for his work on camellias and roses. This did not mean, however, that he overlooked the needs of the Herbarium. A priority, he considered, was to issue a botanical journal in which the research results of the staff could be published. In this he had as an example Mueller's *Fragmenta phytographiae australiae* (Mueller 1858-1882). With financial support from the Maud Gibson Trust, the first issue of *Muelleria* was published in February 1956. Under Jessep three more botanists joined the Herbarium: Ray Smith, Arthur Court and Helen Aston.

Dick Pescott (Fig. 2b) was an entomologist and spent 13 years as Director of the National Museum of Victoria before his appointment to the Herbarium and Gardens. He was able to bring to the role a background in taxonomic research and its administration. In continuing Jessep's work, Pescott campaigned even more strenuously for the resources to rebuild the Herbarium's research program. With encouragement from Pescott, Aston started research on the aquatic flowering plants of Australia with the intention of producing a book on these plants, the first such work published in Australia (Aston 1973). Lichenologist Rex Filson joined the staff in 1964, the first time a botanist specialising in cryptogams had been employed in any Australian government herbarium. Since then the Herbarium has continued to have at least one cryptogam specialist on staff. More recently, in 1994, Tom May joined the staff, the first mycologist employed with any Australian state herbarium. Pescott was also instrumental in ensuring that Willis's *Handbook to plants in Victoria* (Willis 1962, 1973) was published as a successor to Ewart's *Flora of Victoria* (Ewart 1931). By the time David Churchill (Fig. 2d) became Director and Government Botanist, Pescott's efforts in this respect had been largely successful.

Churchill was able to build on this by starting a vegetation survey program, then a neglected part of the Herbarium's work. Paul Gullan was appointed in 1975 to head this program, starting with surveys of the Gardens' annexe at Cranbourne and the Upper Yarra catchment area. The scientific aspects of the Gardens' horticultural programs were revitalised with the appointment of two Horticultural Botanists: Peter Lumley and Roger Spencer. A direct result of this was the publication of the *Horticultural flora of south-eastern Australia* (Spencer 1995-2002), the first publication of its kind in Australia. Other botanists were appointed whose research was directed to specific families. Field collecting became more directed to supporting those programs. This was particularly the



Figure 3. **a** (top) The Herbarium building in 1900, showing the original building of 1860 and the two extensions; **b** (bottom) The new Herbarium building, 1934.



Figure 4. The 1988 extension to the Herbarium building of 1934.

case when deficiencies in the collections were identified. By now the 1934 building was proving inadequate for a modern research institution. Churchill set in train the process that resulted in a three-storey extension being built in 1988 to accommodate the Library and collections (Fig. 4).

In 1985 the government amalgamated the Department of Crown Lands and Survey with the Ministry for Conservation and the Forests Commission to form the Department of Conservation, Forests and Lands. This had a profound impact in the Herbarium and Gardens. A high degree of anxiety was felt by the staff when all positions were declared vacant and people invited to reapply for their own positions. The survey team was transferred to the Arthur Rylah Institute for Wildlife Research. For a time the Herbarium was separated administratively from the Gardens. All the Department's technical staff, including those at the Herbarium, were pooled into a central technical support group. The Herbarium Assistants were thereby separated from the botanists who directed their work. In this enlarged department, the priority accorded the Herbarium and Gardens in the departmental scheme of things was of a similar level to that which it endured 60 years earlier. The position of the Herbarium and Gardens in a department where the main emphasis lay with the management of crown lands and forest resources was increasingly questioned. In 1992 the problem was resolved by the appointment of a board of management under the *Royal Botanic Gardens Act* of 1991.

Under the *Act* the Director reports to the Board. The Herbarium is a constituent part of the Royal Botanic Gardens Melbourne while the Government Botanist, now styled Chief Botanist, reports to the Director. Jim Ross (Fig. 5) became Chief Botanist in 1992, having been Manager of the Herbarium since 1986. The botanists, the collections and the Library were formed into the Plant Sciences and Biodiversity Division (Fig. 6a). To ensure the protection of the specimens and library collections, they were designated the State Botanical Collection under the *Act*. The last decade has been a time of unprecedented development for the Herbarium. Staff numbers increased, not least because of research grants made by the Australian Biological Resources Study for research towards the *Flora of Australia* and the *Fungi of Australia*. Herbarium programs have also been expanded



Figure 5. James Ross, Chief Botanist 1992-present.

with money from many other funding bodies. A major achievement was the publication of the illustrated four-volume *Flora of Victoria* (Foreman & Entwisle 1993; Walsh & Entwisle 1994-1999). Research took a strongly conservationist direction, being concerned with rare and endangered plants. Significant appointments here are Neville Walsh, Senior Conservation Botanist, Elizabeth James, Conservation Geneticist, and Frank Udovicic, Molecular Systematist. A new laboratory was equipped to undertake molecular analysis of plant material. Collaborative programs were initiated with researchers in other institutions including Victoria's universities. Notable here is the Mueller Correspondence Project, a joint venture with the Department of History and Philosophy of Science at the University of Melbourne to edit and publish Mueller's correspondence (see Homes *et al.* 1998, 2002). External funds had allowed the Herbarium to offer fellowships, to attract botanists to the Herbarium for periods of up to three years. The Herbarium assumed a role in the training of future botanists. In association with tertiary institutions, Herbarium botanists act as joint supervisors of honours and higher degree students. Jim Willis Studentships, funded by a private donor, are offered to students finishing their undergraduate degrees to enable them to gain some taxonomic training.

Curation of the collections, for many years rather neglected because of lack of resources, was given a high priority. The responsibility of being custodians of these invaluable resources is taken seriously by the Herbarium staff. Using external funds the Herbarium undertook an ambitious project, the John T. Reid Project, that saw the label data associated with all specimens in four large families recorded electronically (Fig. 6b). Access to the wealth of information contained within the specimen was greatly enhanced. Most of the staff engaged on this Project continued with the Herbarium when state and commonwealth funds were made available to all Australian state and commonwealth herbaria as part of Australia's Virtual Herbarium project to ensure all their specimens were databased. Australia's Virtual Herbarium is expected to be completed by 2007.

When Mueller began his work as Government Botanist he had a clean slate. The resources he built up and the research he published are a legacy that has been relied upon



Figure 6. **a** (top) Plant Sciences and Biodiversity Division staff 1997: (left to right) Helen Cohn, Cheryl Edwards, Elizabeth James, Katherine Patterson, Simon Lewis, Helen Jolley, Geraldine Jones, Tom May, Joan Thomas, Josephine Milne, Jenny Tonkin, Marco Duretto, Jim Ross, Su Pearson, Cathryn Coles, Roger Spencer, Jill Thurlow, John Westaway, Tim Entwisle, Rob Cross, Peter Neish, Mali Moir, Neville Walsh, Enid Mayfield; **b** (bottom) Collections Branch and John T. Reid Project staff 2000: (left to right) Helen Rommelaar, Pembe Ata, Valentine Stajsic, Rita Macheda, Wayne Gerbert, Helen Barnes, Martine Paull, Elizabeth Naganowska, Linda de Veer, Doris Alfaro, Jill Russell, Catherine Gallagher, Cathryn Coles (Photo: Wayne Gebert).

by his successors at the National Herbarium of Victoria and by those studying Australian plants. The Herbarium suffered a long period when its work was little more than providing an identifications service and the resources to support its work were minimal. In the past 50 years, the Herbarium has undergone a resurgence under the leadership of successive Government and Chief Botanists. Both professional and technical staff numbers were increased and the research program revitalised. Mueller's work was directed towards the discovery of the indigenous flora and its relationships. The Herbarium's research programs now continue Mueller's work, with increased emphasis on conservation. Documentation of biodiversity and determination of floral relationships remain central in the Herbarium's research in systematics, conservation and horticulture. In this, the 150th year since the establishment of the National Herbarium of Victoria, we can reflect on the many achievements of the Herbarium's dedicated staff.

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