

## ALPINE BOTANICAL EXPEDITIONS OF FERDINAND MUELLER

by

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### ABSTRACT

Gillbank, Linden, Alpine botanical expeditions of Ferdinand Mueller. *Muelleria* 7(4): 473-489 (1992). — Victoria's first Government Botanist, Ferdinand Mueller, directed his first three official field trips towards Victoria's alps. In providing the earliest botanical surveys of the region, Mueller's mid-nineteenth century expeditions were important for phytogeography and plant taxonomy. They also constitute an important episode in Australia's botanical history.

### INTRODUCTION

The Historic Places Section of Victoria's Department of Conservation & Environment initiated a project on the heritage of Victoria's alps. As the author of the flora and fauna section of that project, I have attempted to follow the botanical footprints of a succession of observers across the region — the first being the Colony of Victoria's first and long-serving Government Botanist, Dr Ferdinand Mueller. Thanks to Mueller, the region has almost as long a scientific as a pastoral history. By 1860 Mueller had laid firm taxonomic foundations for the flora of Victoria's alps and had cemented Victoria's alps into the very foundations of Victoria's botanical history.

This paper describes Mueller's mid-nineteenth century botanical exploration of Victoria's high country. Where appropriate I have used Mueller's own words. In these quotations I have left names as he spelt them.

The Colony of Victoria's civic-minded first governor, Charles La Trobe, created the position of Government Botanist and on 26 January 1853 appointed Dr Ferdinand Mueller to it. While plant collections had previously been made from other parts of the colony, the flora of Victoria's alps still awaited botanical investigation. Mueller responded to this geographical gap in colonial botanical knowledge with a sense of urgency and fascination. Right from his appointment he was determined to botanically explore the region and describe its flora. With some encouragement and support from Sir William Hooker, then director of the Royal Botanic Gardens at Kew, Mueller proceeded to overcome inclement weather and unknown geography to realize this particular ambition — an essential prerequisite for any published flora of the colony.

During his first decade as Government Botanist Mueller made seven journeys into the high country, four of them of great botanical significance. Although his first three major botanical expeditions in Victoria all targetted the alps, it was not until his third expedition that he managed to reach the heart of Victoria's alps.

Mueller's reports and correspondence are primarily botanical and, with few exceptions, include scant details about the routes followed and the people who provided him with accommodation, directions and company. Consequently it is difficult to reconstruct his precise routes and to determine where he was trail-blazing and where he was following in the footsteps of miners or stockmen. Certainly in parts of Victoria's alps Mueller was exploring uncharted country. In order to map the physiography and flora he recorded geographical as well as botanical information and named plateaux as well as plants. Mueller's botanical interests extended beyond the discovery and naming of plants. He was interested in where

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they grew — their habitats and geographic distributions — as well as their taxonomic positions. As he documented the flora of Victoria's alps, he was keen to compare it with that of other regions — the alps of Tasmania, New Zealand and South America and also other less-elevated parts of continental Australia. Mueller was an example *par excellence* of the nineteenth century phytogeographer.

Also typical of his times was Mueller's pragmatic interest in plants — he was forever on the lookout for new useful plants. Plants of medicinal, food or timber value were of economic interest to the colony and mother England. With a broad appreciation of the landscape, Mueller was also interested in the agricultural, pastoral and mining potential of the alps and in possible access routes.

#### FIRST EXPEDITION — BUFFALO AND BULLER

On top of his agenda as Government Botanist was the botanical exploration of Victoria's alps. On the 29th of January 1853, only three days after his appointment, Mueller set off on horseback via the new Ovens goldfields 'on a botanical journey towards Mount Aberdeen and the alpine country near the Mitta Mitta' (Mueller to Lonsdale, 29 Jan. 1853). He was accompanied by Mr John Dallachy, the Superintendent of Melbourne's Botanic Gardens, who was collecting for the Gardens.

Four weeks later Mueller placed the first European foot on the summit of Mt Aberdeen (the Horn) on the Buffalo range. It was not a solo performance. His guide was the surveyor, Mr Barnett (Mueller to Lonsdale, 9 Mar. 1853). Mueller was pleased with his botanical findings. In his first annual report as Government Botanist, Mueller (1853: 3) recorded that:

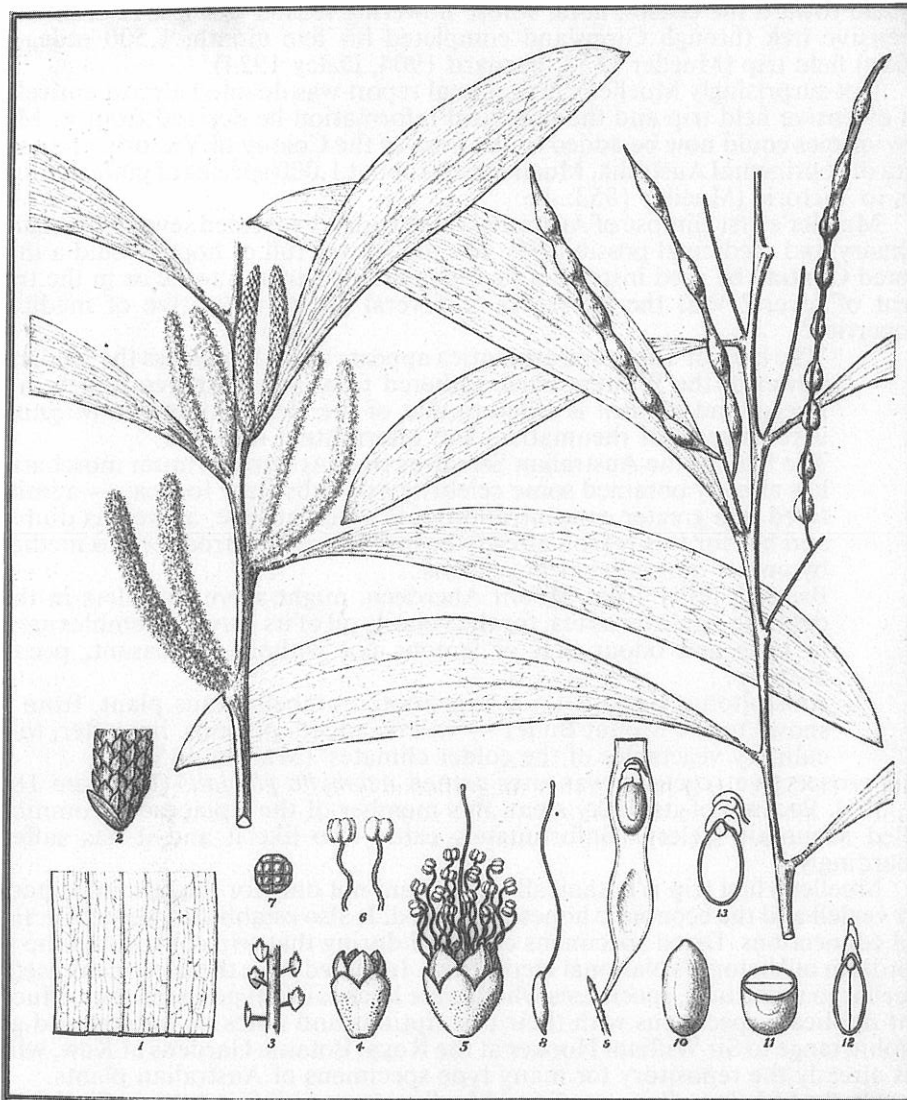
'I ascended Mount Aberdeen and another peak more than 4,000 feet high, and examined the rich, almost tropical, vegetation which borders the rivers rising in these mountains. It was in this locality that our exertions were rewarded with the discovery of the high, majestic *Grevillea Victoriae* and other rarities.'

Mueller (1855b: 107) named this magnificent *Grevillea* 'surpassing in size and splendour all others in this colony' (Mueller to Lonsdale, 9 Mar. 1853) after 'Her Gracious Majesty the Queen'. Another mountain plant whose beauty impressed him was a species of *Correa*. Mueller (1853: 7) wanted to name it after Governor La Trobe. However he later realized that William Hooker had already named it *Correa Lawrenceana*. This illustrates the difficulty of identifying plants in a new environment so far from major botanical collections, libraries and other botanists. His names for the *Grevillea* and an *Acacia*, which Mueller (1858b:7) named after Dallachy, have endured. *Grevillea victoriae* and *Acacia dallachiana* (Fig. 1) can still be seen on Mt Buffalo, and Mueller's specimens are now the type specimens in Melbourne's National Herbarium. Seven of the 20 species Mueller collected on Mt Buffalo were new (Willis 1989).

It was March before Mueller and Dallachy descended to the Ovens River. The lateness of the season and the condition of their horses prevented their reaching the higher alpine country. Instead Dallachy took living specimens of attractive ornamental plants, including the beautiful species of *Grevillea* and *Correa*, straight back to the Botanic Gardens in Melbourne, while Mueller proceeded alone to Mt Buller (Mueller to Lonsdale, 9 Mar. 1853).

Mt Buller had not previously been botanically explored. There Mueller hoped to observe Victoria's genuine alpine flora. He was not disappointed.

'I was delighted to observe here for the first time, this continent's Alpine vegetation which in some degree presented itself as analogous with the Alpine Flora of Tasmania (*Ranunculus Gunnianus*, *Euryomyrtus alpina*, *Celmisia astelifolia*, *Gentiana Diemensis*, *Podocarpus montana*, *Trisetum antarcticum*, &c.), and which was by no means destitute of its own peculiar species (*Phebalium podocarpoides*, *Goodenia cordifolia*, *Hovea gelida*, *Oxylobium alpestre*, *Brachycome nivalis*, *Anisotome glacialis*, &c.). Remarkably enough, only one of these exhibits any similarity to the

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## *Acacia* *Dallachiana* F.v.M

Fig. 1. *Acacia dallachiana* reproduced from *Australian species of Acacia and cognate genera*, F. Mueller (1888)

singular subalpine forms discovered by Sir Thomas Mitchell on the Australian Grampians' (Mueller 1853: 3).

Of the 26 species Mueller collected on Mt Buller eight were new (Willis 1989). After investigating the flora of the adjacent ranges Mueller travelled down the Goulburn River and up King Parrot Creek. Disappointed at not reaching the alps near the Mitta Mitta, Mueller decided to explore parts of the Gippsland alps. However he was again thwarted. Floods from recent inundating rains prevented his reaching the Baw Baw mountains. Fearing that alpine plants would have finished flowering before he reached them, Mueller lowered his sights and turned

instead toward the coastal flora, whose flowering season was less restricted. An extensive trek through Gippsland completed his five month, 1,500 mile, first official field trip (Mueller 1853, Barnard 1904, Daley 1924).

Not surprisingly Mueller's first annual report was devoted almost entirely to his extensive field trip and the botanical information he derived from it. Many new species could now be added to the flora of the Colony of Victoria and to the flora of continental Australia. Mueller listed about 1,000 species of plants indigenous to Victoria (Mueller 1853: 4).

Mueller's first glimpse of Australia's high country revealed several plants with culinary and medicinal possibilities. His report was full of hope. Could a thick-rooted Gentian be used instead of its European cousin as a tonic or in the treatment of fevers? Was the bitterness of several plants indicative of medicinal properties?

'The bark of *Tasmania aromatica* appears to me to possess the medicinal power of the Wintera bark, gathered from a similar tree in Tierra del Fuego; and its fruit is allied to that of the North American *Magnoliae* used in cases of rheumatism and intermittent fever . . .

The bark of the Australian Sassafras tree (*Atherospermum moschatum*) has already obtained some celebrity as a substitute for tea; — administered in a greater concentration, it is a diaphoretic, as well as diuretic, and has for this reason already been practically introduced to medicine by one of our eminent physicians . . .

*Baeckea utilis*, from Mount Aberdeen, might serve travellers in those desolate localities as tea, for the volatile oil of its leaves resembles greatly in taste and odour that of lemons not without a pleasant, peculiar aroma . . .

*Anis[ot]ome glacialis* — a large-rooted umbelliferous plant, from the snowy top of Mount Buller — will be added, perhaps, hereafter, to the culinary vegetables of the colder climates' (Mueller 1853: 6).

This prospective vegetable was later named *Aciphylla glacialis* (Bentham 1867: III, 375). Because of its fleshy stem, this member of the Apiaceae is commonly called Mountain Celery. Unfortunately cattle also like it and it has suffered accordingly.

Mueller's first trip is botanically important not only for the new information it revealed and the economic hopes it inspired. It also established new collections and connections. Dried specimens collected during that trip constituted the primordium of Victoria's National Herbarium. Included were the specimens used by Mueller to name taxa, specimens which were later called type specimens. Mueller sent duplicate specimens with their descriptions and notes on habitat and geographic range to Sir William Hooker at the Royal Botanic Gardens at Kew, which was already the repository for many type specimens of Australian plants.

On the fifth day of his expedition Mueller penned his first letter to Sir William Hooker, announcing his appointment as Government Botanist (Cohn 1989, Maroske and Cohn 1992) and intimating his intention of describing the flora of Australia. He proposed a mutual interchange of specimens and asked for assistance in the revision and publication of manuscripts (Kew Correspondence v.74, 135). Thus was begun the vast correspondence between the Botanical Gardens at Melbourne and Kew. In order to have his work read and recognized, Mueller was pleased to have his letters to Hooker and his government reports published in *Hooker's Journal of Botany and Kew Garden Miscellany*. It was the original place of publication for some of his botanical discoveries.

#### SECOND EXPEDITION — COBBERAS

In August 1853, before submitting his first report, Mueller wrote to the Colonial Secretary seeking permission to further botanically explore the colony including the alps. An assistant, three horses and a barometer were required

(Mueller to Forster, 22 Aug. 1853). Before the end of his first year as Government Botanist, Mueller was well into his second journey of botanical exploration and was again approaching Victoria's alps. After collecting in the Grampians and other parts of western Victoria during November and December 1853, he travelled along the Murray to Torrumbarry where early in January Mueller (1854a) wrote to Hooker:

'My main harvest of new, and I hope also ornamental plants, will be likely in the Alps to which I am now proceeding; and for the investigation of some prominent points, I shall devote the favourable months of February and March, and, if the weather becomes not too inclement, also April next.'

In his reply Hooker noted with pleasure that:

'you are en route for the Alps, the very locality that I lately suggested to your new Governor, Sir Chas. Hotham, as certain to yield the most interesting flora, or one that must be very instructive for botanical geography. He has promised to do all in his power to promote the cause of Botany, and to place you and me in frequent communication' (Hooker to Mueller, 9 Apr. 1854).

In January 1854, probably following the tracks of a succession of gold miners along George Gray's stock route, Mueller travelled up the Mitta Mitta valley, across the Gibbo Range, back to the Mitta Mitta and on to Omeo. Again he was prevented from reaching the colony's highest peaks. Extensive bushfires raging in the intermediate mountains prevented his visiting the Bogong mountains, whose summits Mueller (1854b: 4) reported to be 'covered with eternal snow and glaciers'. And so Mueller turned east toward the rugged Cobberas mountains and the adjacent plateaux.

'The valleys are either covered with spongy mosses (chiefly *Sphagnum*), which become transformed into peat, or produce nutritious grasses, some luxuriant enough to recommend their introduction into countries of the arctic zone — (*Hierochloe antarctica*, *H. submutica*, *Agrostis frigida*, *A. nivalis*, &c.) The vegetation of the Coborras [*sic*] Mountains does neither fully agree with that of Mount Buller, examined last year, nor with the Alpine Flora of Van Diemen's Land, although the following series of its plants may indicate its partial identity with both: — *Ranunculus pimpinellifolius*, *R. scapiger*, *Geranium brevicaule*, *Acacia bos-siaeoides*, *Hovea gelida*, *Oxylobium alpestre*, *Anisotome glacialis*, *Didiscus humilis*, *Celmisia astelifolia*, *Eurybia megalophylla*, *Brachycome nivalis*, *B. multicaulis*, *Ctenosperma alpinum*, *Ozothamnus Hookeri*, *O. cinereus*, *Antennaria nubigena*, *Senecio pectinatus*, *Goodenia cordifolia*, *Gaultheria hispida*, *Leucopogon obtusatus*, *Lissanthe montana*, *Richea drachophylla*, *Prostanthera rotundifolia*, *Euphrasia alpinia*, *Gentiana Diemensis*, *G. montana*, *Grevillea Australis*, *Pimelea gracilis*, *Podocarpus montana*, *Exocarpus humifusa*, *Juncus falcatus*, *Restio Australis*, *Oreobolus pumilio*, *Lomaria alpina*, *Polytrichum dendroides*, &c.' (Mueller 1854b: 4)

The Cobberas vegetation was sufficiently different from that of Mts Buffalo and Buller to yield many species new to Mueller and to science. A third of the 59 species Mueller collected on the Cobberas were new (Wakefield 1969; Willis 1989). Mueller (1854: 4) recorded modestly that he 'had the gratification of adding several new species, probably peculiar to the Alpine Flora of Australia' and mentioned *Asterolasia trymalioides*, *Hierochloe submutica*, *Phebalium phylicoides* [which he named *P. phylicifolium*], *Eurybia* [which he renamed *Olearia*] *alpicola*, *Gnaphalium alpigenum* [now *umbricola*], *Agrostis gelida* [now *muelleriana*], *Mniarum singuliflorum* [now *Scleranthus singuliflorus*], *Centella* [now *Oschatzia*] *cuneifolia*, *Anisotome* [now *Aciphylla*] *simplicifolia*, and *Ozothamnus planifolius*. Other species for which Mueller's specimens from the Cobberas have become the

type specimens include *Pimelea alpina*, *Leucopogon macraei*, *Brachyscome nivalis*, and *Olearia megalophylla* (Wakefield 1969). Mueller's names have endured for all four.

By a circuitous route including the Tambo and Snowy Rivers Mueller returned through Gippsland to Melbourne. His intention to scale Mt Wellington was thwarted by heavy rain (Mueller to Foster, 18 Apr. 1854). His horseback journey of 2,500 miles within six months had revealed almost 500 species new to Victoria, a quarter of which were new to science (Mueller 1854b: 5).

### THIRD EXPEDITION — WELLINGTON BUT NOT BOGONG

Mueller's third expedition in the summer of 1854/5 was his most important alpine expedition. As well as attempting the ascent of Mts Wellington and Bogong, Mueller also followed the alps across the border into NSW.

In a letter accompanying his second annual report, Mueller sought permission from his Excellency the Lieutenant Governor, Charles Hotham:

'that I might according to Sir William Hooker's desire extend my exploration over the whole alpine chain unrestricted to geographical boundaries, principally as the northern slope of the alps, within the borders of New South Wales' (Mueller to Foster, 9 Oct. 1854).

Mueller argued that, since Dr Joseph Hooker had completed his study of the Flora of New Zealand and was currently engaged in the elaboration of the Flora of Tasmania, a botanical investigation of the alps of continental Australia was highly desirable.

With His Excellency's sanction, Mueller set out on the 1st of November 1854 to explore the alps both inside and outside the colony's border. He travelled down the La Trobe valley then across to the Avon River, where Angus McMillan, an early explorer and settler in Gippsland, had a property, 'Bushy Park'. On the snow-stormy 14th November 1854 he ascended Mt Wellington. Between the summit of Mt Wellington and the nearby Haidinger Range, Mueller collected about 40 species, of which eight were new (Willis 1989). The gem of his collection was a small white buttercup which he discovered on Mt Wellington. In his letter to Hooker from McMillan's property, Mueller (1855a) officially named it *Ranunculus Millani* after his host and described it in Latin. With the publication of this letter in *Hooker's Journal*, Angus McMillan was botanically commemorated for his ascent and naming of Mt Wellington and other peaks, and for his assistance to Mueller. By then Mueller (1855b) had also described *R. Millani* in a paper on Australian alpine plants which he presented to the Philosophical Society of Victoria in September 1855. Two specimens which Mueller collected from Mt Wellington in November 1854 are type specimens for *R. millanii* in the National Herbarium of Victoria.

On the 22nd of November 1854 Mueller left the Avon River intent on climbing the Bogong mountains which he considered to be the heart of Australia's alps and king of Victoria's mountains. Mueller travelled up the Mitchell, Wentworth, and Dargo Rivers, and crossed the Dividing Range near the upper part of the Cobungra River to approach Mt Bogong from the south. He reported that on the 3rd of December he ascended the two highest and still snowclad peaks of the Bogong Range, which, in the mistaken belief that they were Australia's highest peaks, he named after Victoria's first two governors:

'Considering that mountains of such altitude, probably the two highest in the Australian Continent, deserve distinctive names, I solicit His Excellency's permission to name the grandest of both Mount Hotham, and the second in height Mount La Trobe, — as I trust to be entitled to the great honor of being the first man who ever reached these commanding summits of the Australian highland' (Mueller 1855c).

Mueller (1855c) also sought to name other peaks and plateaux after respected scientists, surveyors and explorers — Hooker's Plateau, Mount Leichardt [*sic*],

Kennedy's Height, Mitchell's Plateau and Clarke's Peak. Fortunately December 3rd was a clear day and so in order to define the positions of his two peaks, Mueller took compass bearings from their summits on surrounding known peaks

Mueller (1855c) noted that on both mountains:

'mighty masses of snow lay far below the summits, lodging chiefly in the ravines, and these never melt entirely under the summer sun.'

and that a:

'depressed Glacier Flora, imitating in some degree the botanical features of the European and other Alps, covers scantily the icy tops' (Mueller 1855d).

The two peaks yielded 23 plant species including the type specimens of five (Willis 1989). Mueller (1855d: 5) noted that:

'Reflecting on the general results of this journey, I trust to be justified in considering them not without some importance, at least for the geography of plants. The expedition was planned more with a view of ascertaining the alliance between the vegetation of the Alps of Australia and plants of other countries, than with anticipations of largely enriching thereby the number of plants already under notice. Still . . . the total amount of either truly alpine, or at least subalpine plants of this country, exceeds 100 species, and it is pleasant to perceive that half of these are endemic, or not yet elsewhere discovered; whilst by far the greater part of the other half comprises such as inhabit Tasmania, or are likewise natives of New Zealand . . . I beg to allude to the sudden reappearance of several European plants in the heart of the Australian Alps . . . — *Turritis glabra*, *Sagina procumbens*, *Alchemilla vulgaris*, *Veronica serpillifolia*, *Carex Pyrenaica*, *Carex echinata*, *Carex canescens*, *Carex Buxbaumii*, and *Botrychium Lunaria*.'

On reaching Omeo, excited by his physiographical findings and eager to have his names officially recognized, Mueller dashed off a special report describing his mountain discoveries to the Colonial Secretary in Melbourne. He sent a copy of this report and a more botanical letter to Sir William Hooker and both duly appeared in Hooker's Journal (Mueller 1855e & f).

Mueller continued via Mt Tambo to the Munyang (Snowy) Mountains. On New Year's day he reached the most northerly peak and later ascended Mt Kosciusko. Mueller's specimens for over one third of the 70 species which he collected in the Snowy Mountains are type specimens (Willis 1989). They include *Ranunculus anemoneus* (Fig. 2) which grew along springs near summits of the Snowy Mountains and *Caltha introloba* from gravelly places irrigated with melting snow. En route back to Melbourne Mueller (1855g) informed Hooker briefly with taxonomic indecision of the more interesting plants:

'One of the most remarkable amongst them is assuredly a large-flowering *Ranunculus*, with generally numerous and always white petals, having much of the habit of an *Anemone*. It grows very seldom below 6000 feet, and chiefly on springs and on the margin of melting snow. Five Umbelliferae, belonging to as many distinct genera, are associated with it, as also a dwarf inconspicuous Composite, with leaves much like *Oreobolus*, a slender procumbent *Pentachondra*?, a monostachyous *Carex*, a rooting *Gnaphalium*, a very distinct *Plantago*, and a smooth *Craspedia* (*C. leucantha*), with white flowers and sphacelate scales . . .

The Ranunculaceous *Caltha*-like plant with inward bent leaves, to which I previously referred [in letter from Omeo (Mueller 1855f)], is frequent enough on the Munyang [*sic*] Mountains, and after having seen it in a more advanced state I am much more inclined to refer it to *Caltha* . . . I should be delighted, Sir William, in finding, after my return, Dr. Hooker's Flora of New Zealand, and what may be printed of the Flora of Tasmania, arrived by your orders, so that I can draw a comparison in the botanical features of the Australian Highlands.'

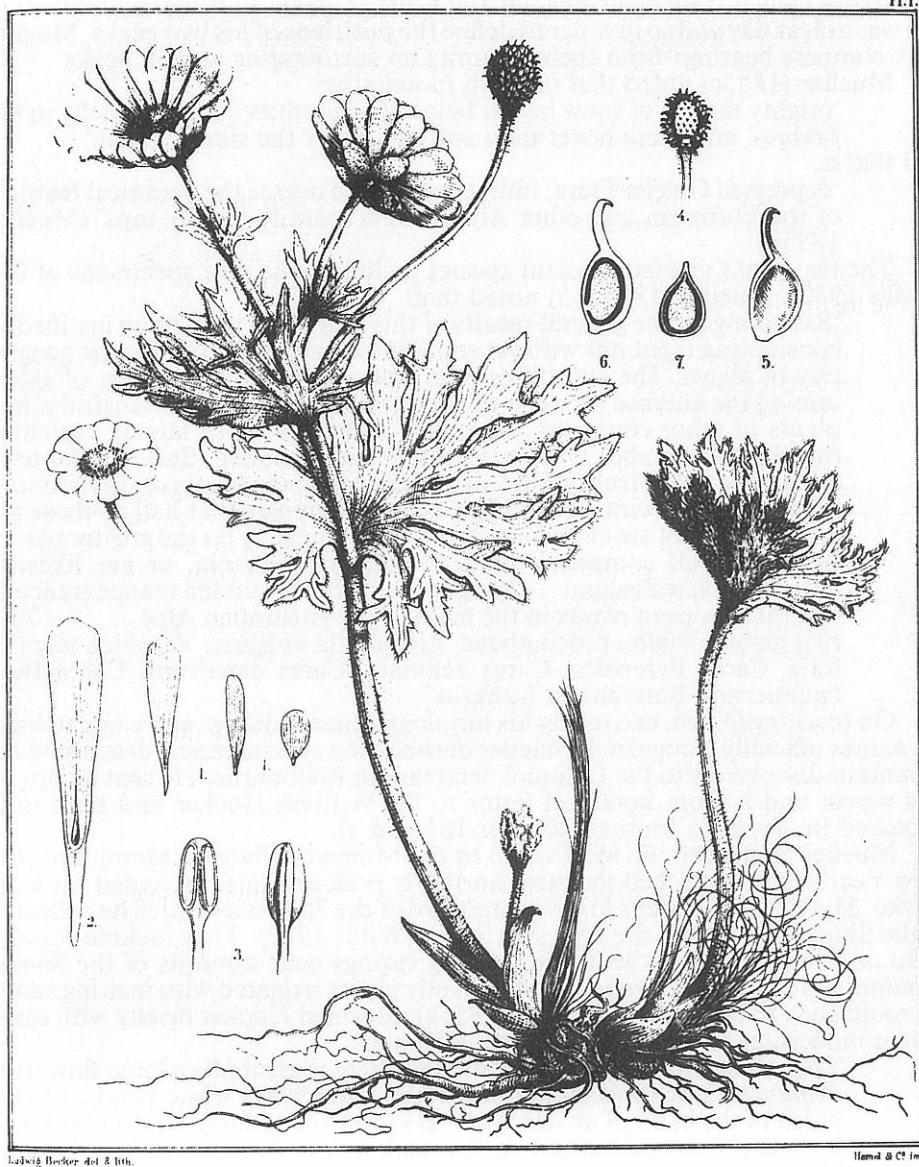


Fig. 2. *Ranunculus anemoneus* reproduced from *The plants indigenous to the Colony of Victoria*, F. Mueller (1864–1865)

Mueller believed that his survey of the flora of the alps was reasonably complete and wrote to Hooker that:

‘the plants mentioned in this and the two previous letters, together with those noticed in my reports, comprehend almost completely the Alps flora of this continent’ (Mueller, 1855g).

Via a circuitous route including the Buchan and Snowy Rivers, Mueller (1855d) returned to Melbourne, regretting that due to illness he was again prevented from ascending Mount Baw Baw:



'a wild, rocky, isolated summit at the south-western slope of the Australian Alps, hitherto unexplored, and perhaps the only locality from which additions may be expected of importance to our knowledge of the Alpine Flora.'

#### A MISIDENTIFICATION OF MOUNTAINS

Visible elements such as rain, floods and fire had obstructed Mueller on earlier trips. However on his most important alpine trip he was a victim of the unseen. In December 1854, despite his meticulous recording of the visible physiography of the area, Mueller's correct interpretation of his alpine whereabouts was thwarted by an invisible element. This caused him to write himself into Victoria's alpine history on the wrong peaks, and deprived him of the privilege of providing permanent names for those peaks. The problem was that Mueller's compass bearings on known mountains taken from his 'Mt La Trobe' and 'Mt Hotham' could not be reconciled with later surveys, so that the true identity of the peaks climbed and named by Mueller remained a mystery for many decades. Thus was history converted into mystery.

Mueller deeply regretted that those peaks received the names given subsequently by others and he continued to smart at the injustice of it. He was disappointed that Skene's 1874 map of Victoria included no recognition of his discovery of Mt Hotham or his later-named Barkly Range (Mueller to Shillinglaw, no date). A decade later, when James Stirling sent Mueller a copy of his geological map of the alps, Mueller replied that:

'What is called now Mt. Feathertop is my Mt. Hotham of 1854, and what is named Mt. Bogong I called then already Mt. Latrobe. (Barnard 1904: 24).

Despite Mueller's admission that his 'Mt Hotham' was not the officially-named Mt Hotham, the myth of Mueller's 1854 ascent of Mt Hotham endured for many decades.

Nearly a century after Mueller's trip another botanist, Norman Wakefield offered a geological explanation. Wakefield (1950) argued that consistent compass errors due to magnetic interference from basalt rocks were responsible for the mystery. By correcting Mueller's compass readings, his 'Mt Hotham' could indeed be identified as Mt Feathertop, but his 'Mt La Trobe' appeared to be Mt Loch rather than Mt Bogong.

A decade later another botanist went further. Stella Maisie Carr, who had carried out extensive ecological studies on the Bogong High Plains, used botanical, magnetic, and historical clues to attempt to reconstruct Mueller's route from his very brief report. Carr (1962) suggested that Mueller travelled up the valley of the Dargo River to its headwaters, crossed the Divide near the upper part of the Cobungra River, and rode across the grassy tablelands at its headwaters then on to Mt Loch (Mueller's 'Mt La Trobe'). From there Machinery Spur would appear an obvious route to the foot of Mt Feathertop (Mueller's 'Mt Hotham'). Although Mueller did not mention the two stockmen at George Gray's Cobungra run, Carr (1962) believed that he probably followed the Cobungra River downstream until he found their track to Omeo.

Thus it was that plants, whose only habitats are near Mt Bogong, were never discovered by Mueller, who did not realize that Victoria's highest alpine flora had eluded him. On the labels of his herbarium specimens and in his published descriptions of the plants he collected from Victoria's alps in December 1854, Mueller (1855b) used his geographical names for the collecting localities of those plants. A knowledge of history as well as geography is obviously vital for the correct interpretation of these botanical labels and papers!

Mueller would be pleased that, a century after he had suggested it, one of his geographical names did reappear. In honour of Sir William Hooker, Mueller had given the name 'Hooker's Plateau' to a region which Wakefield (1950) calculated would be close to the summit of Mt Bogong. After Wakefield's article was pub-

lished, the name 'Hooker Plateau' appeared near Mt Bogong on SEC, Department of Lands and Survey, and Army maps (Anon 1969). It appears on the Bogong Sheet of Keith McDougall's recent Vegetation Map of the Bogong High Plains, just SWW of Mt Bogong.

#### BEYOND WELLINGTON

In 1855 and 1856 Mueller accompanied Gregory on his northern Australian expedition. Two years after his return, Mueller visited Victoria's high country for the fourth time. He was accompanied by Angus McMillan, who supplied six horses and other requisites (Mueller to O'Shanassy, Jan. 1859). His short trip in January 1859 included an examination of the vegetation around the sources of the Macalister river, but was of greater geographical than botanical interest. Few plant specimens were collected, with very few representing new species. Mueller (1860: 9) charted numerous geographical features, including a great range which he named in honour of the Governor, Sir Henry Barkly.

'In this journey, the main range of the South Western Alps was ascertained to extend in an almost semi-elliptical line from Mount Wellington to Mount Useful, at an elevation varying from 4000 to 5000 feet, only the northern part of this mountain tract, encircling the sources of the McAllister [*sic*], being more depressed and somewhat broken. From several high mountains, then ascended for the first time, bearings were secured to elevations included in the trigonometrical survey. From the more elevated western portion of these mountains, now designated on the chart as the Barkly Ranges, a leading spur will in all probability be found to the hitherto unapproached alpine elevations of Mount Baw Baw.

This question which I left during my first visit unsolved I am anxious to set at rest during the next season. Mount Wellington, inasmuch as it can be reached by a path accessible to horses from the Avon Ranges, may be regarded as the southern key of the Australian Alps, from whence along the crest of the main ramifications of the high land a journey with horses seems possible in most directions. Otherwise, the dense underwood of the less lofty ranges, stretching between the alpine tract and the low land, frustrates any attempt to traverse the country between the Yarra sources and Gipps Land without cutting previously tracts through the jungle, whereas the main range, at elevations exceeding 4000 feet, is usually destitute of these impediments.' (Mueller 1860: 9)

#### THE BAW BAWS

By the end of the 1850s, Mueller had still not visited the south-western end of Victoria's alps. His phytological ignorance of this area, caused Mueller (1858a: 8) to delay production of the first fascicle of his proposed 'Flora of Victoria'. In 1860, while President of the Royal Society of Victoria, as well as a very busy Government Botanist and Director of Melbourne's Botanic and Zoological Gardens, Mueller did manage to find time to visit this part of the alps. In December 1860 he made his first ascent of the previously unexplored Baw Baws, a peak of which now bears his name.

Mueller (1861a: 13) approached the Baw Baws from the south — from Good Luck Creek where gold had recently been discovered by E.W. Gladman. He could not take his horses. The ranges were so broken and scrubby that to walk through the bush he had to cut a track as he went. He even offered two lone prospectors one shilling each per day to go with him to the summit. They declined. He consulted Mr Gladman who, during his difficult prospecting journey, had mapped part of the country between the Baw Baw Mountains and the La Trobe River. On the 23rd of December, accompanied by five men from the diggings, Mueller set out from Good Hope Creek.

Mueller (1861a: 13) reported that:

'In our progress over the ranges, which are chiefly timbered with Stringybark trees and a species of White Gum tree, we encountered much impediment by the density of the scrub, the tough-branched *Corraea ferruginea* being particularly obstructive to our march, until in gradual advance to the higher regions the underwood of the lower mountains recedes before the colder temperature, it being universally observed in our Alps, that at elevations above 4000 feet the dense scrubs chiefly on the sea-side slopes of our ranges either vanish or greatly diminish.

After having descended into the main valley of the Upper Tangil [now Tanjil], a beautiful mountain torrent, which rolls its waters with impetuosity over the granite boulders of its bed, a total change in the physiognomy of the vegetation was observed; whilst ascending the main range of Mount Baw Baw, the Stringybark trees were found replaced by delightful Beech forests which surround the main mountains on all sides, and are interspersed with Highland White Gum trees (*Eucalyptus coriacea*) and Cider trees (*Eucalyptus Gunnii*), under the shade of which certain ferns (*Aspidium proliferum* and *Lomaria procera*) predominate. Nothing can surpass the contrast in the landscape when we emerge from the dreary scrub to the shady forest of these evergreen Beeches (*Fagus Cunninghami*) which in a dwarfish form ascend even to the alpine summits of this range.'

Mueller may not have been far enough north for the upper Tanjil. In this unexplored and un-mapped wilderness it is not surprising that there should be some confusion about the names of streams.

On Christmas Day 1860 they camped on the summit of the highest eastern mountain of the Baw Baws. On the Baw Baws they observed koalas and wombats but no wild cattle, which were then found in many other parts of the alps. They traversed the length of the Baw Baw mountains and beyond to what Mueller (1861a: 14) believed to be the undiscovered eastern sources of the Yarra River — 'in alpine plains, elevated 4000–4500 feet, scrubby with heath-like vegetation and a variety of highland bushes, and producing occasional patches of grass and sphagnum-moor'. He considered this a suitable place for the liberation of red and fallow deer and scattered seeds of the large fruited Canada blackberry near alpine springs (Mueller 1871: 109). Returning via their track cut through the 'jungle', they reached Good Hope Creek on December 30.

During his week on the Baw Baws Mueller collected over 60 species. However, because the flora was similar to other alpine areas which he had already visited, only six were new species (Willis 1989). One was an attractive plant from the 'sources of the Yarra' and the 'Upper Tyers', which he collected for the Botanic Gardens. Mueller (1861b: 136) named this unusual heath plant *Wittsteinia vacciniacea* (Fig. 3) after the renowned German phytochemist, Dr G.C. Wittstein. Four of Mueller's specimens are now the type specimens for *Wittsteinia vacciniacea*. Since Mueller placed it with *Gaultheria* in the Ericaceae, *Wittsteinia vacciniacea* has kept its name but not its taxonomic position. The Baw Baw berry has been in and out of the Epacridaceae and is now the sole Victorian member of the Alseuosmiaceae. Following his discovery Mueller (1861a: 15) reported that:

'The restriction of this plant to the south-western part of the Alps, where it occurs in millions, as also the extensive existence of *Libertia Lawrencii*, *Oxalis Magellanica*, and the vast prevalence of *Fagus*, are to be ascribed to the increased humidity of the climate in this part of the snowy mountains, caused by the copious fern-tree vegetation of the surrounding country south and westward. To the same cause the timber, although in a diminutive state, owes its existence on the summit of these mountains at elevations which in other parts of the Alps are denuded of forest. Yet, although the above-mentioned plants introduce still more strikingly the

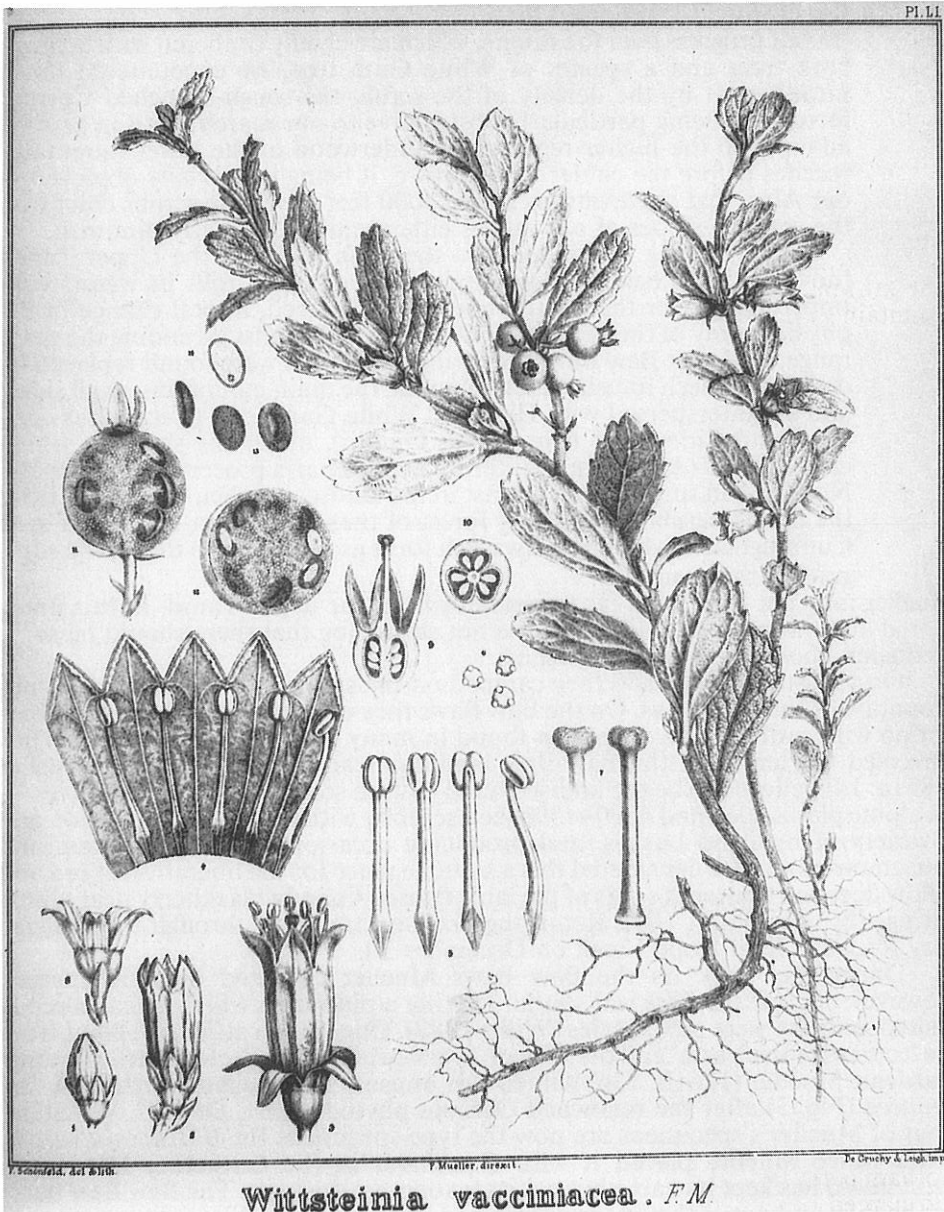


Fig. 3. *Wittsteinia vacciniacea* reproduced from *The plants indigenous to the Colony of Victoria*, F. Mueller (1864–1865)

feature of the highland vegetation of Tasmania into our Alps, my expectations of seeing amongst many other Tasmanian mountain plants also some of the curious alpine pines of that island reappear in our highlands, was not verified . . . *Decaspora Clarkei* (a dwarf half-shrub, with exquisite edible berries), *Leucopogon Maccraei*, *Orites lancifolia*, *Prostanthera cuneata*, *Podocarpus alpina*, *Gualtheria [sic] hispida*, and especially dwarf scrubs of *Tasmania aromatica* were very conspicuous on

the Baw Baw ranges, whilst *Lycopodium scariosum*, *Mitrasacme montana*, *Oxalis Magellanica*, and *Uncinia compacta* were only on this occasion ascertained to exist in the Australian mainland.'

After his Baw Baw trip Mueller (1861a: 15) confirmed his earlier suggestion that the whole of the Australian Alps could be traversed with pack-horses along the ridges, where there were adequate springs and pastures.

#### AROUND WELLINGTON

In March 1861 Mueller set off once more from 'Bushy Park' on the Avon River. With Angus McMillan again providing horses and requisites, Mueller (1862: 8) made a brief visit up the valley of the Macalister River to its rugged mountain sources and discovered a 'beautiful and fertile alpine table land' and a gentle descent from it into the valley and thence to the plains of Gippsland.

Two years later Mueller (1863: 9) was again in the mountains:

'The botanical investigations of the territory of our colony, now nearly completed, has during the last summer been extended from the Bunyip River to the sources of the Tarwan [*sic*], Tyers and La Trobe Rivers, and thence along the Upper Yarra Ranges to the sources of the Thomson River and Mount Useful.'

Accompanied by Alfred Walker and George Johnson, Mueller also traversed the ranges which he had attempted to name the Barkly Ranges. In the expectation that 'many of the gullies over which I passed will prove auriferous', Mueller (1863: 9) recommended that tracks be cut along the main ranges 'for the purpose of enabling the miners to advance with pack-horses to those positions from which the valleys can be readily explored.' Mueller recommended McMillan for the job (Mueller to Public Works, 1863). Both recommendations were later implemented by the Government.

At the end of his first decade as Government Botanist, Mueller had good reason for some satisfaction. He had completed a comprehensive botanical perustration of the full extent of Victoria's alps — from the Baw Baws to the Cobberas and had discovered and named many floral and physiographical features. Unfortunately his success at plant naming was not matched by that of his mountain naming, which caused him some dissatisfaction. In subsequent years he did visit the alps (Mueller to Jephcott, 5 Sept. 1877) but never as part of an epic field trip like those of the 1850s.

#### AAAS EXCURSION — HOTHAM AT LAST

Mueller's last glimpse of his beloved alps was when he was 64 years old. As president of the young Australasian Association for the Advancement of Science (AAAS) Baron von Mueller participated in the AAAS's alpine excursion to Mt Hotham (Fig 4) in January 1890. Mueller, ever practical, brought violet and strawberry runners to plant along the Diamantina creek just below the summit (Anon 1890). Although the myth of Mueller's 1854 ascent and naming of Mt Hotham persisted even after his AAAS visit, this was not the Mt Hotham climbed and named by him a generation earlier. In 1890 'The Baron' (Figs 5 & 6) was treading this part of Victoria's alps for the very first time.

#### IN RETROSPECT

Mueller was undoubtedly the first biological scientist to investigate Victorian's alps in a professional capacity. Due to his extensive alpine explorations Victoria's high mountain flora was reasonably well documented very early in the colony's history — within the first decade of its separation from NSW. Having climbed almost every major range, from Kosciusko in the north-east to the Baw Baws in the south-west, and brought back to Melbourne's National Herbarium a wealth of specimens, Mueller is the great botanical pioneer not only of Victoria's but of Australia's alps. In the seven volumes of Bentham's *Flora Australiensis*



Fig. 4. *The camp at Mt Hotham* reproduced from the *Illustrated Australian News and Musical Times* 1 Feb. 1890. (Reproduced by permission of the La Trobe Collection, State Library of Victoria)

(1863–78), over 200 species from the alps were cited as collected by Mueller, one third of them previously undescribed (Willis 1989).

Compilation of the flora of Victoria's alps did not stop with the cessation of Mueller's epic alpine explorations but it did slow down, depending on specimens sent to Mueller by other visitors to the alps. Decades would elapse before anyone else would make significant collections in the region.



Fig. 5. *The Baron Discourses* reproduced from the *Illustrated Australian News and Musical Times* 1 Feb. 1890. (Reproduced by permission of the La Trobe Collection, State Library of Victoria)



Fig. 6. *Botany* reproduced from the *Illustrated Australian News and Musical Times* 1 Feb. 1890. (Reproduced by permission of the La Trobe Collection, State Library of Victoria)

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## REFERENCES

## UNPUBLISHED LETTERS

Transcripts of Mueller's letters were kindly supplied by Sara Maroske of the Mueller Correspondence Project.

- Mueller to Lonsdale, 29 Jan. 1853. B53/1036, unit 408, VPRS 3991 inwards registered correspondence, VA 860 Chief Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Mueller to Hooker, 3 Feb. 1853. Royal Botanic Gardens, Kew. Correspondence vol. 74: Australian letters 1851-58.
- Mueller to Lonsdale, 9 March 1853. A53/2892, unit 408, VPRS 3991 inwards registered correspondence, VA 860 Chief Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Mueller to Foster, 22 Aug. 1853. D53/8374, unit 203, VPRS 1189 inwards registered correspondence, VA 856 Colonial Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Hooker to Mueller, 9 Apr. 1854. Royal Botanic Gardens & National Herbarium Archives, M2.
- Mueller to Foster, 18 Apr. 1854. E54/4192, unit 203, VPRS 1189 inwards registered correspondence, VA 856 Colonial Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Mueller to Foster, 9 Oct. 1854. G54/11156, unit 203, VPRS 1189 inwards registered correspondence, VA 856 Colonial Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Mueller to O'Shanassy, no date [Jan. 1859]. K59/188, unit 747, VPRS 1189 inwards registered correspondence, VA 860 Chief Secretary's Office, Public Record Office, Laverton, Victoria, Australia.
- Mueller to Public Works, no date [1863], VPRS 1114, unit 1 p381. Abstract of letter.
- Mueller to Shillinglaw, nd [soon after October 1875]. Box 244/1, Shillinglaw papers, La Trobe Collection, State Library of Victoria, Melbourne, Victoria, Australia.

## PUBLISHED SOURCES

- Anon (1890) Alpine Notes. *The Sun* 31 January 1890, p. 11.
- Anon (1969) Appendix to Wakefield's 1950 article reprinted in *The Gap* (an educational and historical magazine produced in the Bairnsdale Inspectorate) 7: 56.
- Barnard, F.G.A. (1904) Some Early Botanical Explorations in Victoria. *Victorian Naturalist* 21: 17-28.
- Bentham, G. (1863-78) *Flora Australiensis*. (Lovell Reeve & Co.: London.)
- Carr, Stella G. M. (1962) The Discovery of the Bogong High Plains. *Proceedings of the Royal Society of Victoria*. 75: 285-289.
- Cohn, Helen M. (1989) Ferdinand Mueller, Government Botanist: The Role of William Hooker in his Appointment. *Muelleria* 7(1): 99-102.
- Daley, C. 'Baron Sir Ferdinand von Mueller, K.C.M.G., M.D., F.R.S, Botanist, Explorer, and Geographer' reprinted from the *Victorian Historical Magazine* 10 (1924) May and December.
- Hart, T. S. (1950) Compass observations affected by magnetic rocks. *Victorian Naturalist* 66: 199.
- Maroske, Sara & Helen Cohn (1992) 'Such ingenious Birds': Ferdinand Mueller and William Swainson in Victoria. *Muelleria* 7(4): 000-000.
- Mueller, F. (1853) First General Report of the Government Botanist on the Vegetation of the Colony, 5 September 1853, *Votes and Proceedings of the Legislative Council of Victoria, 1853-4*, vol 1, Paper no A.26a.
- This report was also published in *Hooker's Journal of Botany and Kew Garden Miscellany* 6: 123-126, 151-156 (1854).
- Mueller, F. (1854a) Botany of Victoria Colony. *Hooker's Journal of Botany and Kew Garden Miscellany* 6: 156-158.
- Mueller, F. (1854b) Second General Report of the Government Botanist on the Vegetation of the Colony, 5 October 1854, *Votes and Proceedings of the Legislative Council of Victoria, 1854-5*, vol 1, Paper no A.18.
- This report was also published in *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 306-314 (1855).
- Mueller, F. (1855a) Botany of Victoria (Southern Australia) *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 357-360.
- Mueller, F. (1855b) Descriptive characters of new alpine plants. *Transactions of the Philosophical Society of Victoria* 1: 96-111.
- Mueller, F. (1855c) Report of Government Botanist's Journey to Omeo, 16 December 1854, *Votes and Proceedings of the Legislative Council of Victoria, 1854-5*, vol 2, pt 1, p 233, Paper A45
- This paper was also published in Mueller (1855e).
- Mueller, F. (1855d) Annual Report from the Government Botanist for the year 1854, 25 June 1855, *Votes and Proceedings of the Legislative Council of Victoria, 1855-6* vol. 1, Paper no. A10.
- Mueller, F. (1855e) The Government Botanist's Report of his Journey from Melbourne to Omeo in the Australian Alps. *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 179-181.
- Mueller, F. (1855f) Botany of Victoria (Southern Australia) *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 233-235.
- Mueller, F. (1855g) Botany of Victoria (Southern Australia) *Hooker's Journal of Botany and Kew Garden Miscellany* 7: 235-237.
- Mueller, F. (1858a) Annual Report of the Government Botanist and Director of the Botanic Garden, 24 October 1858, *Votes and Proceedings of the Legislative Assembly 1858-9* vol. 2, Paper no. 17.



- Mueller, F. (1858b) *Fragmenta Phytographiae Australiae*. vol. 1. Melbourne.
- Mueller, F. (1860) Annual Report of the Government Botanist and Director of the Botanical and Zoological Garden, 12 January 1860, *Votes and Proceedings of the Legislative Assembly 1859-60*, vol 4, Paper No 37.
- Mueller, F. (1861a) Annual Report of the Government Botanist and Director of the Botanic and Zoologic Garden, 10 January 1861, *Votes and Proceedings of the Legislative Assembly 1860-1*, vol 3, Paper no 19.
- Mueller, F. (1861b) *Fragmenta Phytographiae Australiae* vol. 2.
- Mueller, F. (1862) Annual Report of the Government Botanist and Director of the Botanic Garden, 10 March 1862, *Votes and Proceedings of the Legislative Assembly 1861-2*, vol 3, Paper no 105b.
- Mueller, F. (1863) Annual Report of the Government Botanist and Director of the Botanic Garden, 15 April 1863, *Votes and Proceedings of the Legislative Assembly 1862-3*, vol 4, Paper no 61.
- Mueller, F. (1871) Forest Culture in its relations to Industrial Pursuits: A lecture delivered 22 June 1871. In Cooper, E. (ed.), *Forest Culture and Eucalyptus Trees*, (Cubery & Company, Steam Book and Ornamental Job Printers: San Francisco.) pp. 45-120.
- Wakefield, N.A. (1950) Baron von Mueller's Victorian Alps *Victorian Naturalist* 66: 169-76.
- Wakefield, N.A. (1969) Botanical Exploration of East Gippsland. *Proceedings of the Royal Society* 82: 61-67.
- Willis, J.H. (1989) Baron von Mueller's Travels in the Australian Alps, 1853-61. In Good, R. (ed.), *The Scientific Significance of the Australian Alps. The Proceedings of the First Fenner Conference on the Environment*, (The Australian Alps National Parks Liaison Committee: Canberra.) pp. 381-382.