

Charles Weldon (de Burgh) Birch (Count Zelling), an unassuming botanical and zoological collector in central and north-eastern Queensland

John Leslie Dowe^A

^AAustralian Tropical Herbarium, James Cook University, Smithfield, Qld 4878, Australia
Email: john.dowe@my.jcu.edu.au

Abstract

Charles Weldon (de Burgh) Birch (Count Zelling) (1821-94) was an amateur botanical and zoological collector active in central and north-eastern Queensland 1852-93. He was the embodiment of the wandering naturalist, but as with most amateur collectors he remained on the fringe of 'official' science. Birch's first documented zoological collections were land and freshwater shells collected in 1857 at the Namoi River. He went on to collect freshwater invertebrates, fishes, insects, gastropods and later reptiles, a total of at least 60 specimens which were mainly sent to the Australian Museum and later the Queensland Museum. His first documented botanical collection, a *Nymphaea* sp. from Thomson River, was made in 1870, and was collected with the encouragement of Baron Ferdinand von Mueller, Victorian Government Botanist, and the most eminent Australian botanist of the nineteenth century. About 760 botanical specimens collected by Birch are extant, most of which are in the Herbarium of the Royal Botanic Gardens Melbourne. A significant early influence on Birch's later activities was Samuel Stutchbury, New South Wales Government Geological Surveyor to whom Birch acted as assistant 1852-55 and for whom he anonymously collected palaeontological, mineralogical and zoological specimens as part of his field-work duties. In 1870, Birch became involved in the search for the lost explorer Ludwig Leichhardt, and was commissioned by the Ladies' Search Committee to undertake an expedition to investigate a possible survivor of Leichhardt's missing party living in the Thomson/Diamantina Rivers area. The search revealed no positive evidence of Leichhardt or his party. Birch took on additional names which he related to his ancestry, 'de Burgh' in 1871 and 'Count Zelling' in 1874, and which he used in official documents, written works and specimen labels. Based on specimens that he collected, Birch is commemorated in four plant and animal taxa including the Galvanised Burr, *Sclerolaena birchii* (F.Muell.) Domin; the Gidgee Skink, *Egernia stokesii zellingi* De Vis, 1884; the Proserpine Dual-banded Snail, *Bentosites birchi* Iredale, 1933 [*Sphaerospira gavisa* Iredale, 1933]; and a clam-shrimp *Limnadopsis birchii* Baird, 1860. Including the above eponymous taxa, Birch collected the type specimens of bryophytes (2 taxa), lichens (2), angiosperms (14), gastropods (1), branchiopod crustaceans (1), insects (1) and reptiles (5).

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Handling editor: Donald Franklin

Citation: Dowe JL. 2016. Charles Weldon (de Burgh) Birch (Count Zelling), an unassuming botanical and zoological collector in central and north-eastern Queensland. *North Queensland Naturalist* 46: 16-46.

Introduction

The circumstances that motivated amateur scientific collectors in nineteenth century Australia are as varied as the men and women involved. Some collectors acted with a conviction that they were contributing to the grand scheme of scientific knowledge, whilst for others it was a personal discovery of the native flora and fauna which they encountered as a new continent was being settled, 'tamed' and scientifically catalogued (Maroske 1993; Olsen 2013; Lucas & Lucas 2014). Some are commemorated in the names of plants and animals that they collected, and through that practice a portal is opened to the activities of 'everyday people' who occupied themselves with the collection of scientific specimens mostly for their own amusement and edification, or for a sense of involvement or possibly the advancement of industry and pastoralism (Maroske 2014). Many amateurs are primarily remembered through their herbarium and museum specimens and the manner in which they were studied and catalogued by professional botanists and zoologists, but otherwise remained on the periphery of 'official' science (Barker & Barker 1990). If not for their specimens many amateurs would have remained anonymous and forgotten to both society and science (Clarke 2008). Among the most unassuming of amateur collectors was Charles Weldon Birch whose persistent curiosity about the natural world has left a not insignificant scientific legacy and, what can be ascertained from the available evidence, led a life devoted to learning and the sensitive appreciation of the natural world. This paper provides a broad assessment of Birch's life and activities, and examines his contribution to botanical and zoological sciences in Australia through his collections and interaction with professional scientists.

Methods

Prior to this research, the existing information about Charles Weldon Birch was scant and uncoordinated. The Australian National Herbarium's *Biographical Notes* allocated two lines to him (ANH 2014). George (2009), in *Australian Botanist's Companion*, included ten lines under Charles Weldon de Burgh Birch, a further two lines under his latter appellation 'Count Zelling', but treated the names as two individuals whereas they were one and the same person. Neither Charles

Weldon Birch, nor 'Count Zelling' is listed in Flora of Australia's 'Botanists, collectors and early voyagers' (Orchard 1999) or the *Australian Dictionary of Biography* (ADB 2006-2015). Original documents related to his life history events, such as birth, christening, death and employment, were sought and located. Newspaper articles were used to reconstruct some of his botanical and zoological collecting activities. Correspondence items were located in the Mueller Correspondence Project collection, Royal Botanic Gardens Melbourne, the State Archives of Queensland and New South Wales, the Birch Family items in the State Library of Queensland and those held privately by family descendants, and the unpublished correspondence of Samuel Stutchbury and Reverend William Branwhite Clarke in the State Library of New South Wales. Records related to his employment were located in the digitised *Returns of the Colony* series and in the James Cook University Library's Archive Collection. MELISR, the collection database of the National Herbarium of Victoria, provided information about his botanical collections and the archives of the Australian Museum provided information about his zoological collections. The current nomenclature used here for both plants and animals follows the *Atlas of Living Australia* (ALA 2015). Botanical specimens collected by Birch have been located in the following herbaria: BM (Natural History Museum, London); BRI (Queensland Herbarium, Brisbane); G (Conservatoire et Jardin botaniques de la Ville de Genève, Switzerland); K (Royal Botanic Gardens Kew, UK); MEL (Royal Botanic Gardens Melbourne); NSW (Botanic Gardens and Centennial Parklands, Sydney); and PERTH (Western Australian Herbarium, Perth). Zoological specimens have been located in QM (Queensland Museum, Brisbane) and AM (Australian Museum, Sydney). In the verbatim quotes included in the text, missing words and sentences are indicated by an ellipsis, and author additions are included in square brackets.

Results

Family history

Charles Weldon Birch (Fig. 1) was born on 25 June 1821 in Camberwell, England, the second child of Augustus and Rosa Birch.¹ Augustus Birch (1786-1840) was a British Army Commissariat Officer.

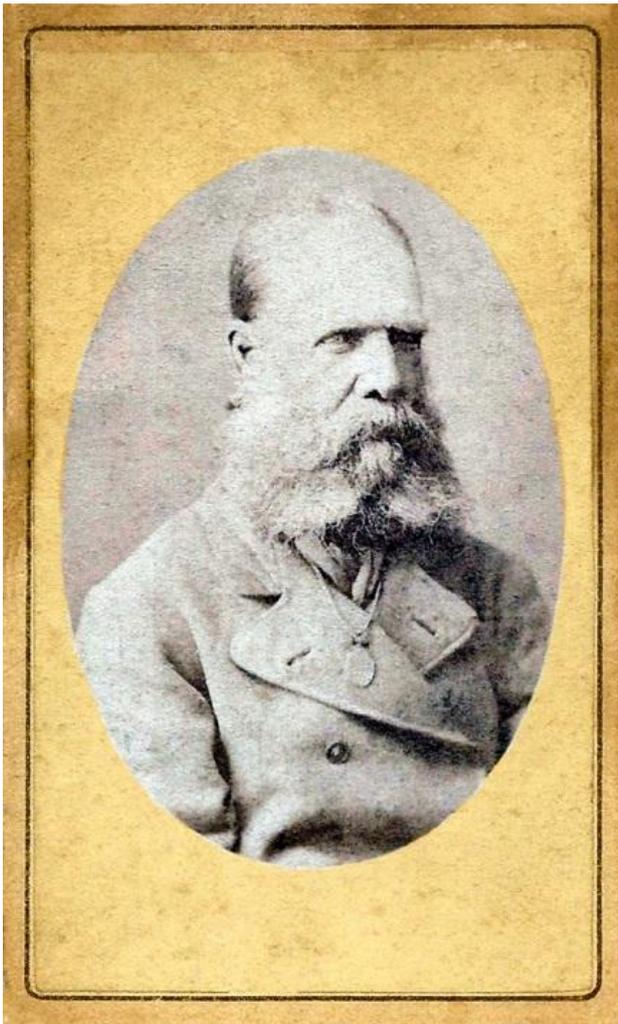


Figure 1. Charles Weldon de Burgh Birch, Count Zelling, in later life.

Date and photographer not known. Original in the possession of Birch family descendants.

Charles' mother, Rosa Manuela Francisca Depaula Birch (née Zelling) (1787-1854), was born in Cadiz, Spain, the daughter of a Swedish businessman Gustaf Magnus Zelling and his Spanish wife Maria (her second marriage). Gustaf had moved to Spain from Stockholm to further his business interests (Barbour 2015). Augustus and Rosa Birch had six children.

Augustus was variously stationed with the British Army Commissariat in Spain, Portugal,² France, England and the Netherlands. He was promoted in 1816 to Deputy Assistant Commissary-General (War Office 1830). Charles and his elder brother Gustavus were born in England, whilst three of his younger siblings, John, Rosa and Charlotte, were born in the Netherlands.³ A sixth sibling, Dorothy,

was born in Sydney in 1832.⁴ In 1828, Augustus was assigned to the Colony of New South Wales (War Office 1830, 1834), and the family moved to Sydney, arriving on the *Governor Ready*, 16 January 1829 (Howe 1829).⁵

Some members of the immediate Birch family were prominent in court circles and the arts and literature in Britain. Augustus' brother (Charles' uncle) Jonathan Birch (1783-1847) was a translator of ancient texts and a tutor to the children of Frederick III of Prussia who married Princess Victoria, Queen Victoria's eldest daughter (Lee 1903). Jonathan Birch's son, Charles Bell Birch (1832-93) (Charles' cousin) was an eminent English sculptor,⁶ and an Associate Member of the Royal Academy (Stephens 1909). He is represented in Australia by a number of public statues including the Lewis Wolfe Levy Fountain in Royal Botanic Gardens Sydney; the statue of Queen Victoria in Victoria Square, Adelaide; and the sculpture *Retaliation* in the Art Gallery of New South Wales. He is also represented by public and private pieces in India, Canada and the United Kingdom, including his most well-known public piece, the Griffin at Temple Bar, London. Other cousins of Charles included Samuel Bagster [Jnr] (1800-35), who was an authority and author on bees and bee-keeping, and Cornelius Birch Bagster (1815-93), a photographer, historian and author (Bagster 1861; Taylor 1989). Samuel [Jnr] and Cornelius were the sons of Eunice Denton Bagster (née Birch), Charles' aunt, and Samuel Bagster [Snr] (Eunice's husband), founder of the publishing firm Bagster & Sons, known for their ecclesiastically innovative versions of the Bible (Maxted 2014). Neither Charles nor his elder brother Gustavus married, whilst their siblings mostly married into 'well-connected' families. Younger brother John Anthony married Elizabeth Byrne, and of the three sisters, Rosa married Sydney solicitor George Pownall, Charlotte married Henry Lumsdaine, a high-ranked public servant who was New South Wales Chief Inspector of Distilleries 1859-80, and Dorothy married William Gibbes, also a Sydney solicitor.⁷

1829-40: Early years in Sydney

The Birch sons, Gustavus, Charles and John, were aged nine, eight and five years, and two of the three daughters, Rosa and Charlotte, aged four and three years respectively when the family arrived in Sydney January 1829.⁸ The family lived in a number

of residences in inner Sydney 1829-31 (Barbour 2015), before moving to Windsor in 1832,⁹ Emu Plains 1834-37 (O'Shaughnessey 1834),¹⁰ and in Liverpool Street, Sydney in 1840 (Hart 1840). Augustus purchased land at Emu [now known as Emu Plains] in trust for Charles in September 1837.¹¹ There is some evidence to suggest that Augustus had an interest in natural history, as he wrote to Eunice Bagster that he had prepared a 'number of skins of rare birds' and that he was friendly with James Busby, a noted viticulturist.¹²

School enrolment records indicate that Gustavus attended Sydney College, and John, the youngest son also attended Sydney College and later the King's School at Parramatta (B. Minatel, Sydney Grammar College, pers. comm.). No enrolment records have been located for Charles at either of the schools that his brothers attended, or for any other school, although Augustus Birch noted in a letter in February 1831 to Eunice Bagster that 'The two eldest have made excellent progress at school...Charles has also had a prize for the 2 last ½ years'.¹³ It is possible that he attended a local school as he later wrote that, when he was nine years of age, he 'was residing at Mrs Ryan's house at the corner of Prince and Argyle Street in 1831' which was then in near proximity to both the Church of England and Presbyterian schools (Barbour 2015). From the available evidence, Charles was educated to the age of fifteen, and though the family was not wealthy, they mixed within the political and administrative society of colonial New South Wales.

*1841-55: 'You will devote your time to collecting other objects of natural history which are the true adjuncts of geology, including all the marine organic products as well as the fauna and flora.'*¹⁴

Birch acquired land at Mudgee, in present-day central New South Wales, in 1841,¹⁵ and was employed there as a Clerk in the Surveyor General's Office, which was then administered by Sir Thomas Livingstone Mitchell, now mostly remembered for his exploration of inland eastern Australia.¹⁶ After the father Augustus's death in 1840, the remaining family resided at Rushcutters Bay in Sydney 1843-44 (Barbour 2015). In 1846, Charles was among the 'gentlemen presented' at the installation of Sir Charles FitzRoy as Governor of New South Wales.¹⁷ In May 1847, Birch was

appointed as the Clerk of Petty Sessions at Mudgee,¹⁸ however he returned to the Surveyor General's Office in late 1847, again as a Clerk,¹⁹ and by 1852 was listed as an Extra Clerk.²⁰ On 1 April 1852, he commenced as Assistant to the Geological Surveyor Samuel Stutchbury, a position he held until 30 November 1855.²¹

The Geological Surveys

Samuel Stutchbury (1798-1859) was appointed as the New South Wales Government Geological Surveyor in 1850 (Bryan 1954; Branagan 2012), and arrived in Australia 16 November 1850.²² He was formerly Curator of the Museum of the Philosophical Institution at Bristol, highly regarded as a naturalist, zoologist, palaeontologist and geologist (Matthews 1982; Benton 2012), as well as a natural history collector (Wood 1828; Chalmers-Hunt 1976). Stutchbury commenced a series of 16 geological and mineralogical surveys of New South Wales (then including the yet to be established Queensland) in 1851,²³ and which were completed in 1855. The surveys commenced in the Sydney area and progressively extended as far north as the Fitzroy River in central Queensland. Stutchbury produced 16 tri-monthly reports published in the *Votes and Proceedings of the Legislative Council of New South Wales 1851-56* (Stutchbury 1852-1857; Etheridge & Jack 1881), but these publications received very little exposure to a wider scientific audience (Jack & Etheridge 1892). After completing the surveys, Stutchbury returned to England in ill-health apparently exacerbated by his Australian sojourn, and died in Bristol in 1859 (Crane 1983).

Birch's employment in the Surveyor General's Department enabled him to volunteer for the position of Assistant to the Geological Surveyor Stutchbury. Birch, at age 31, was first engaged in field work during Stutchbury's sixth geological survey, which covered the area from Mudgee to Talbragar River, May-July 1852. Receiving only a minimal wage, Birch had to employ, at his own expense, workers who helped with the geological surveys.²⁴ Birch's main tasks included the collecting of geological and palaeontological specimens, and assisting with mapping and the sometimes difficult duty of the logistics of field work in unsettled locations where the Aborigines were frequently hostile.²⁵ Although Birch collected zoological specimens during the surveys there are no extant

specimens that bear Birch's name for the period when he was employed as Stutchbury's assistant. However, it is possible that specimens labelled as collected by Stutchbury were collected by Birch or other assistants, but with only Stutchbury's name being recorded. A number of new taxa collected during the geological surveys were named to honour Stutchbury (see listings below). A geological map signed by Birch and showing the area between Brisbane and the Condamine River survives and is presented in Figure 2. Maps from other geological surveys have been located but are otherwise not signed by Birch.

Because of the absence of Stutchbury due to illness (McCabe & Thompson 1856), Birch was the primary field geologist for the latter sections of the fifteenth survey, Kilcoy to Port Curtis, Oct.-Dec. 1854, and all of the sixteenth and final survey, Port Curtis to Fitzroy River, Mar.-June 1855. In his report for the fifteenth survey, Stutchbury (1855) noted that the route of the survey from Wide Bay to Port Curtis was:

deduced from the note book of my assistant, Mr. Charles W. Birch, whom I was obliged, in consequence of severe illness, to put in charge of the party, with instructions to proceed to Port Curtis, myself taking advantage of a passage from Wide Bay to Port Curtis, in the government chartered schooner *Tom Tough*... I hope to have the opportunity of testing the correctness of his observations upon my return journey.

The illness referred to was a severe case of ulcerated sores on his legs caused by sand fly bites, and an injured arm sustained during a fall from a horse at Port Curtis in January 1855. In March 1855, Stutchbury sailed to Sydney to recuperate and did not return to Port Curtis until September 1855 (McCabe & Thompson 1856).

As noted above, Birch was in charge of the last two geological surveys. Although Stutchbury recorded that part of the fifteenth survey was based on Birch's notes and observations (Stutchbury 1855),

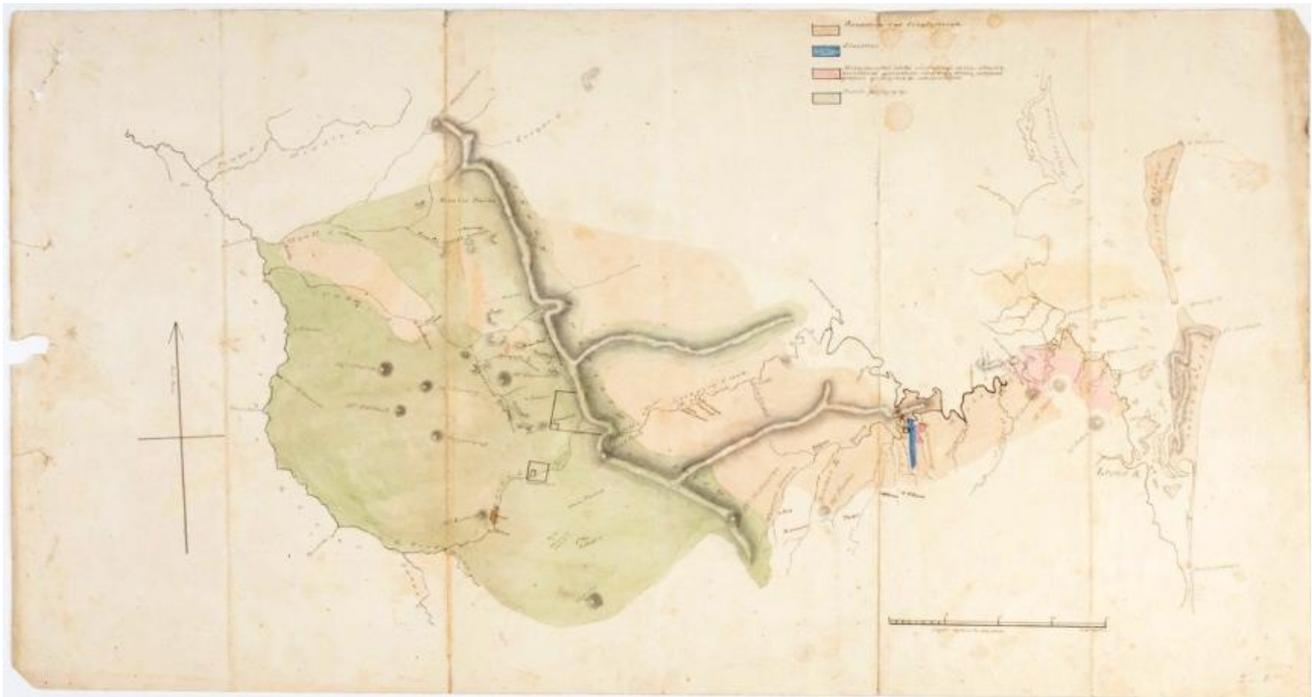


Figure 2. An example of the geological maps created by Charles Weldon Birch.

This map shows the area between Brisbane and the Condamine River. The original measures 32.5 x 61 cm, and is undated [State Library of New South Wales, Call No. Ca 84/32]. This map was used as the base map for Samuel Stutchbury's 11th Tri-monthly Report of October 1853.

The shaded area indicates the total area examined and the legend [coloured blocks, now faded] indicates the types of rocks: From top down they are: Sandstone & Conglomerate (orange); Limestone (blue); Metamorphic Rocks (rose); Basalt, Porphyry (green). The scale bar indicates eight mile intervals, i.e. 8 miles/1 inch. Charles Birch's name appears under the scale bar. A zoomable image of this map can be accessed via the State Library of New South Wales Online Catalogue >Search> Charles Weldon Birch Map.

he otherwise made no reference to Birch's input into the sixteenth survey (Stutchbury 1856). An indication of the 'superior/subordinate' relationship between Stutchbury and Birch is indicated by the series of precise instructions that were given to Birch regarding the sixteenth survey and were detailed in a letter from Stutchbury, February 1855:

1st. That you will to the utmost extent of the small power left with you extend the Geological Survey from the north side of the Boyne River to the Calliope coastwise

2 That you will on the western side examine the country as far as your limited means will allow you

3 That you will take every advantage of examining the islands lying to the north of Graham's Creek in Curtis Island

4 That in this service during my temporary absence you will not risk the lives of any of the party and that where necessary you will from time to time solicit the assistance by escort from the Commanding Officer of the Native police of this district

5 That you will note carefully all that you may think worthy and color in your map as completely as within your means

6 That where in abeyance of means of Geological survey (the primary object of the service) you will devote your time to collecting other objects of Natural History which are the true adjuncts of Geology, including all the marine organic products as well as the fauna and flora of the interior when the seacoast is not within your reach

7 That most especially do I desire that you avoid any collision with the aboriginal natives or place in risk the lives of any of your party

8 That at any expense not regarding the ration allowance you will not allow for the want of proper necessary when obtainable any of my men to become sick of scurvy, fever argue or other diseases mainly dependent upon proper food being supplied

9 That you will observe a lenient discipline over the party which I have exemplified unto you for nearly three years, for their comfort and benefit

10 Wishing you all success, health and happiness²⁶

Birch proceeded with the surveys, and reported in a letter of reply to Stutchbury, March 1855, writing that:

Since your departure from Port Curtis I have examined the country east of the Calliope as well as its eastern bank – similar geological features to those already met with between Auckland Creek and Stowe are exhibited – jasperized slate – The river appears to be studded with low islands covered with mangroves the channel is however deep and large vessels might lie alongside the points and high banks that abut upon the river.²⁷

One of the remits of the surveys was to collect specimens for accession into colonial institutions with an emphasis on the Australian Museum (Anon 1852). It can be surmised that specimens were collected by Birch under Stutchbury's instructions and name, as Stutchbury had ultimate responsibility for the scientific outputs of the surveys. Birch later claimed that he had made large collections of natural history specimens that he entrusted to Stutchbury,²⁸ though there was no explanation as to the types of specimens and their fate.

A number of fossil sites were noted in the fifteenth report, Kilcoy to Port Curtis (Stutchbury 1855). At Maryborough, fossil shells were collected from a sandstone quarry and it can be suspected that the specimens were collected by Birch or other assistants during Stutchbury's absence. Stutchbury wrote in the survey report that the collection consisted:

of the following genera, several species of a genus, and several duplicates of a species. *Astartila cytherca*, and other species; *Asarte*; *Cardinia* of Agassiz, *Pachydon* of Stutchbury; *Cardinia recta*, and other species; *Cardium*; *Eurydesma*; *Homomya glendonensis* [*Vacunella curvata* Morris, 1845], and two other species; *Maeonia*, several species; *Modiola*; *Nucula*; *Pachydomus*; *Pecten*, several species.

The zoological specimens, as far as is known, included land shells and insects. Of the land shells, six new species were collected; five from Drayton Range (near Toowoomba) and one from Port Curtis. The specimens were cited as being collected by 'Mr Stutchbury'. The species included '*Helix*

ductilis Pfr., *H. stutchburyi* Pfr. [*Galadistes stutchburyi* Pfeiffer, 1857], *H. delta* Pfr. [*Hedleyoconcha delta* Pfeiffer, 1857], *H. pliculosa* Pfr., *Helicina draytonensis* Pfr. [*Pleuropoma draytonensis* Pfeiffer, 1857] (Pfeiffer 1856a)', and 'Melampus (*Ophicardelus*) *stutchburyi* Pfr.' [*Ophicardelus sulcatus* H.& A.Adams] (Pfeiffer 1856b). These were described by the German conchologist Louis Pfeiffer based on specimens in the collection of Hugh Cuming. It is not known how Cuming obtained the specimens, but he was one of the most determined and compulsive collectors of natural history specimens at that time in England (Dance 1980). Adding to doubts about Stutchbury's professional credibility, accusations were made that he was selling his specimens rather than depositing them in Australian institutions as per his contract.²⁹

Of insects, two new species of *Amycterini* (weevils) were described by Macleay (1866) from specimens that were collected from unnamed sites in what is now Queensland, and cited under the non-specific descriptor of 'Stutchbury's Expedition'. The *Amycterini* is a tribe of weevils in the Curculionidae, and the new species were *Sclerorinus stutchburyi* Macleay and *Talaurinus euomoides* Macleay.

After the geological surveys: 'I have undergone hardship, pecuniary loss, and great personal danger in the prosecution of my duties.'³⁰

The geological surveys were completed in late 1855. Birch's contract with the Surveyor General's Department finished in November of that year, and Stutchbury returned to England. Looking for employment, Birch contacted the geologist Reverend William Branwhite Clarke, Australia's leading geologist of that era (Grainger 1982; Organ 1998, 1999). Birch wrote to Reverend Clarke in the hope of securing a position in other geological and mineralogical surveys and wrote summarising his role in Stutchbury's surveys:

I continued in the services until within one month of Mr Stutchbury's departure for England when I left under circumstances that I shall hereafter avail during the whole of this time. I exerted myself to the satisfaction of the Geological Surveyor which may be gleaned from the circumstances of having received the maximum salary allowed to Volunteer

Surveyors within two years, but which under ordinary circumstances I should not have become entitled to under four years – and that I have undergone hardship, pecuniary loss, and great personal danger in the prosecution of my duties. I may mention the following few instances. For two years I voluntarily gave up a portion of my salary to retain the services of an extra man to enable us to carry on the survey more effectively, Mr S also engaging an extra labour for the same purpose. During an examination of Bribie Island and the coast, I volunteered alone to take charge of the camp (well knowing that we were among the more desperate aborigines of the district), whilst the rest of the party were examining the mainland, during their absence the Aborigines surrounded the camp and I kept them at bay until the return of the party, and thus saved the camp from pillage – At Wide Bay Mr Stutchbury was unwilling to take the party overland to Port Curtis, the blacks were troublesome, he begged if I would do so, as he was unwell, I consented and brought the party safely to Port Curtis without accident, this journey was one of great anxiety we were carrying twelve months provisions, and the Blacks at Wide Bay were aware of our destination, the party consisted of three men and myself, a constant watch was necessary the greater part of which harassing duty devolved upon me – Shortly after arriving at Gladstone, Mr Stutchbury left to visit the Barrier Reefs in the "Jack" whilst I examined the Calliope and the Boyne – Upon Mr Stutchbury's return to Gladstone he made preparations for a journey to Sydney upon a frivolous pretence – I tried to dissuade him from doing so, but without success – for five months from that time, during his absence, I laboured zealously to fill up the Geological map of the district to the best of my ability – my party now consisted of two men and myself, and notwithstanding the aborigines, I performed my hazardous duties without the assistance of the Native Police. Although I would gladly have availed myself of their services, had they not been required to keep the Aborigines in check at Gladstone – I also was the first I believe to navigate the Fitzroy, and examine some of the Islands in Keppel Bay – I also made large collections of specimens of Natural History, and entrusted

them to Mt Stutchbury when he went to Sydney for deposit in the Sydney Museum.³¹

Despite the complaints, accusations and other distractions brought to bear on Birch during the geological surveys, the experience of having worked with a proficient scientist such as Stutchbury nevertheless equipped Birch with the skills, inclination and interest to continue to collect natural history specimens. It is from this time that Birch started to take a consuming interest in scientific collecting, a practice that he maintained for the rest of his life.

1856-69: 'I beg to forward for your inspection some specimens of fibre obtained from a plant much resembling an acacia.'³²

Following the completion of the geological surveys in 1855, Charles returned to Mudgee and later despatched letters and specimens from various locations near the Namoi River. The first zoological specimens collected under his name were received by the Australian Museum in November 1857, and consisted of land and fresh-water shells from Turrawong.³³ A further consignment was sent to the Museum in December 1858, and consisted of 'specimens of *Paludina* [freshwater molluscs]' from Wee Waa.³⁴ A new species of clam shrimp, *Estheria birchii* Baird, 1860 [*Limnadopsis birchii* Baird, 1860] (Fig. 3), was described on a specimen collected by Birch from the Namoi River, and named in Birch's honour by William Baird (1860):

In compliance with Sir W. Denison's [Governor of New South Wales 1855-61] request that the name of the collector "should be commemorated in connexion with the species," I have named it *Estheria birchii*.

Not being able to obtain a position in geological surveying, Birch fell back on his vocation as a land surveyor. He continued to collect zoological specimens, including fresh-water shells, and despatched them to the Australian Museum in 1861 (Trustees 1862). Also in 1861, he obtained a licence for a pastoral property (a run) in Queensland at Warrego South, and moved to the Maranoa area. In 1862 he obtained licences for Tinnenburra and Tuen on the Warrego River.³⁵ These licences were transferred to other licensees in 1863.³⁶ Birch remained in the Warrego area, his postal addresses including Wooroorooka (Warrego River) and Bandour (Thomson River) at that time. In partnership with John McKenzie, Birch was granted a licence for the run of Gum Holes in 1869,³⁷ but this was transferred to another licensee in 1870.³⁸ The turn-over of licences for new runs during this time was frequent as new settlers were often not able to establish the required, and unrealistic, stocking rates which were conditional to continue their leases (Palmer 1903).

In spite of unsettling events, Birch maintained his interests in the natural environment. During his travels he had observed and experimented with the use of the legume shrub *Sesbania cannabina* as

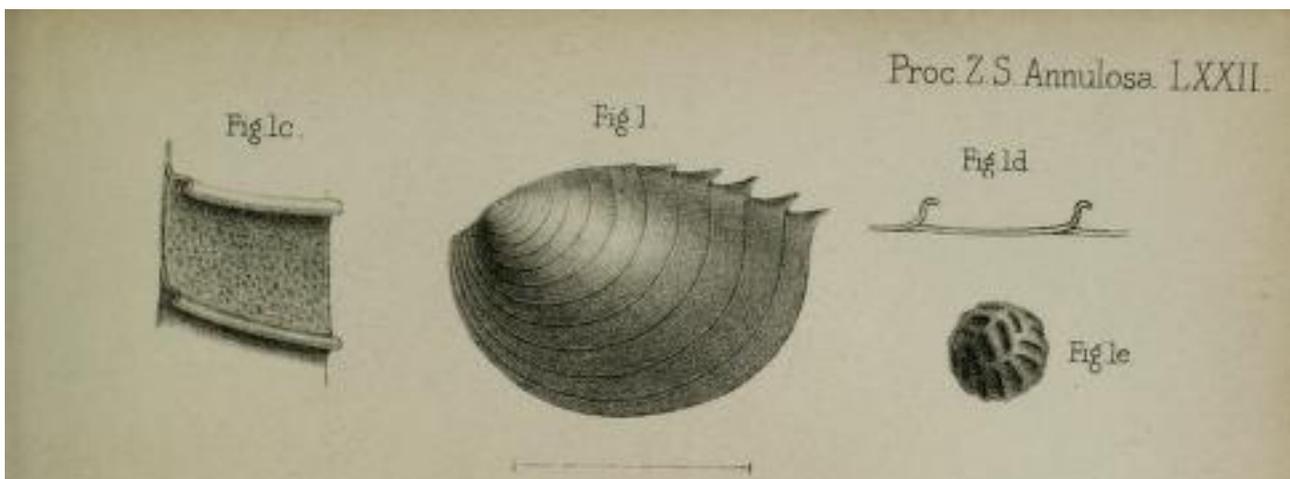


Figure 3. Original illustrations of *Limnadopsis birchii* [as *Estheria birchii*].

Reproduced from Baird DR. 1860. *Proceedings of the Zoological Society of London*, Part 28, Annulosa, Pl. LXXII.

a source of vegetable fibre (see Walker *et al.* 2005). He sent samples to various institutions and newspapers in the hope of attracting interest in it as a resource, describing the plant as:

resembling an acacia in appearance, although very different in other respects. For instance, the wood is light, porous, and the centre contains pith. The leaves diverge from a long petiole, the base of which is provided with a nerve rendering it sensitive, the flower is yellow, dotted with brown spots and not unlike a half-blown pea blossom. The tree or scrub grows to the height of twelve to fourteen feet, and during my observations in Queensland, I have frequently been compelled to make a detour rather than encounter the obstruction it presented by the denseness of its growth. The fibre may be obtained from three to six feet in length, without difficulty, by adopting proper means, by maceration to detach the fibre from the stem...I consider it a valuable addition to the natural productions of Queensland.³⁹

*1870-75: 'I shall note everything worthy of being recorded paying especial regard to the preservation and collection of plants.'*⁴⁰

During the late 1860s the disappearance of the explorer Ludwig Leichhardt in 1848 was still a topic of considerable public interest and an on-going series of reports of supposed relics and suspected sightings of expedition party survivors usually in remote localities (Campbell 1936; Lewis 2013). In January 1870, it was reported by settler Henry Powell (1870) that:

on Coopers Creek, I encountered a tribe of natives who informed me that at a certain distance to the west, a white man crippled with disease was living with and supported by a tribe of natives.

Powell proposed that the white man may be a survivor of Leichhardt's party and suggested that a search be initiated. The Victorian Government Botanist, Baron Ferdinand von Mueller (Fig. 4), was in receipt of Powell's letter, forwarded by Robert Baird, who suggested that a greater public awareness could be created if the high-profile Mueller were to be involved. Mueller (1870) responded, calling for action to be taken and:

to invoke the aid of the generous ladies of the Leichhardt Search Committee for rendering it



Figure 4. Baron Ferdinand von Mueller, photograph by John Lindt, circa 1884. State Library of Victoria, accession number H37475-24; reproduced with permission.

an adequate inducement to an enterprising bushman to go out on this new errand of Leichhardt's supporters and friends.

It is in this atmosphere of public interest and debate (see Scott 1870) that correspondence was also received by Mueller from Edward Schneider of Tambo, Queensland, similarly claiming knowledge of a white man, who walked on crutches and was living with the natives, though not in the same area as suggested by Powell (which was to the south of the junction of the Barcoo and Thomson Rivers), but more to the north and being to the west of the Thomson River.⁴¹ The first contact between Birch and Mueller was in relation to correspondence received by Mueller from Schneider, as noted above. Schneider is listed as a botanical collector for Mueller during 1870-71, with about 200 specimens collected in the Barcoo River/Tambo area, mostly held in the National Herbarium of

Victoria (George 2009). Birch was apparently mentioned by name in a letter from Schneider (which has not been located to confirm this), and Mueller wrote to Birch in August 1870 but alluding to this:

This day, dear Mr Birch, I learnt from my countryman, Mr Schneider of Tambo, that you also lately heard of the presence of a white man among the nomadic tribes beyond the Thomson River, and that you anticipate this poor errant being is a survivor of Leichhardt's party. As I take a deep interest in the fate of the missing explorer and his companions, I beg of you to leave nothing within your powers undone to bring in this white man, and to unveil thus the fate of Leichhardt. It is now a good occasion to do so, the enormous fall of rain has filled all the water holes and thus the central portion of Australia [1870 was a very wet year for most of Australia, see Hunt 1914], can this year (as far as supply of water is concerned) be traversed with facility. I really believe that two good bushmen with two natives would get the matter at rest in one month. If the white man was proved to be one of Dr Leichhardt's companions (and who else can it be?) then a large reward would easily be collected by subscription. So pray, do what you can. This is a honourable task that devolves on you⁴²

Mueller wrote to Birch indicating that a small amount of money was available if he was interested in organising a preliminary search for the supposed Leichhardt party survivor, and if that produced anything of interest then a larger search could be organised. In a following letter Mueller wrote:

I was much pleased dear Mr Birch, to receive your interesting letter of 2 Oct. [letter not located], which gives one a fuller insight into your visions concerning the search after Leichhardt from the Thomson River. The heavy demands made for all charities particularly lately the orphans and widows of the fallen warriors render the collecting for any new search expedition in Leichhardt's interest almost a hopeless task. I will however give a lecture before my countrymen in first instance, and if twenty or thirty pounds sterlings are of any use to you for commencing a preliminary search and for trying to get hold of the apparently insane white man, you can draw to

that extent upon me through a bank or in any other way. With Sir Will Denison I continue to interchange letters when I write I will remember you to him. I would advise you to get the local aid of a few squatters and to start before the water of this very rainy year is dried up. A splendid bushman like yourself need only for a short trip a few blackfellows and horses, to make a preliminary search with such means as you have and if any prospects arise, to do good by continuing the enterprise I will endeavour to get some funds together...If you should discover a new stream or a new mountain, I should be grateful, if you would name it after Field Marshall Baron Jochmus, now on a visit to Australia [Oct.-Nov. 1870]⁴³ and send me a tracing of the map showing the locality.⁴⁴

Birch, now aged 49, was subsequently commissioned by the Ladies Search Committee, through the insistence of Mueller, to investigate the probability that the white man was a survivor of Leichhardt's party. Previously, the Ladies' Search Committee, which was founded in March 1865, funded a search by Duncan McIntyre after he discovered, in late 1864,⁴⁵ what he believed were traces of Leichhardt's expedition in the Gulf of Carpentaria near the Dugald and Flinders rivers in 1863 (Mueller 1865; Lewis 2013). The Ladies' Search Committee, mainly the wives of prominent businessmen, politicians and doctors (Gill 1981; Lewis 2013), was formed of:

sixteen ladies, two from each religious domination, to undertake the task of collecting the necessary funds.⁴⁶

That particular search for Leichhardt was commenced by Duncan McIntyre and his party in July 1865, but was ultimately unsuccessful. The deaths of successive leaders, McIntyre in June 1866 and his replacement William Sloman in December 1866, left the expedition in disarray and the venture was abandoned in May 1867 (Gill 1981), and the Ladies Search Committee went into abeyance albeit to be revived, though with somewhat diminished available funds, by the 1870 reports (Lewis 2013).

In anticipation of commencing the new search expedition in 1870, Birch proffered a plan to Mueller,⁴⁷ and began preparing for the expedition. Mueller notified potential supporters and other interested parties,⁴⁸ and Birch was sent, by

Mueller, some of the latest maps of the area, writing in February 1871 that:

I gladly send you, dear Mr Birch, the only copy which I have left of the beautiful map published by my illustrious friend, Prof. Dr. Petermann, on the Austral countries. It embraces all the most recent discoveries, so I kept this great geographer always posted up in anything concerning Australia. Let me hope that you will incur no unnecessary risks, that your surrounds will be glorious, and that we look forward to your movements with hope and the fullest confidence.⁴⁹

At this time Birch had taken employment at Bowen Downs Station, where he was primarily engaged as a surveyor (Bowen Downs Station Records 1870-75). During the 1870s hundreds of kilometres of fencing was constructed at Bowen Downs (Macmillan 1963) and surveying for fencing allowed Birch to explore the local area, and to visit remote locations within the catchments of the Barcoo, Thomson and Diamantina rivers. Birch's first botanical collection is dated 1870, around the time he made contact with Mueller. The specimen was a *Nymphaea* sp. (Water-lily) (Fig. 5) collected at Isis Downs from the Thomson River. It is assumed that Mueller requested that Birch collect plants for him, but no specific correspondence related to this has been located. Mueller had established a large and complex network of collectors with whom he corresponded (Olsen 2013; Maroske 2014), and Birch's location in inland Queensland and his ability and willingness to involve himself in botanical activities presented Mueller with an excellent opportunity to develop a 'professional' relationship that would be of benefit to both.

Despite being first engaged by the Ladies Search Committee in November 1870, Birch did not undertake the Leichhardt search until April 1873, and which he then completed by late May of the same year. Birch had become involved in a number of court matters which preoccupied him for the best part of two years. The first matter involved the theft of cattle from Bowen Downs Station, and Birch was called as Crown witness against his former partner John McKenzie.⁵⁰ This matter continued into 1872.⁵¹ A second court matter involved charges brought by Birch in December 1870 against Sub-Inspector Edward Wheeler, of the Queensland Native Police, accusing him of the

abduction, maltreatment and murder of Aborigines, and in particular the abduction of Birch's 'interpreter' that he required for the Leichhardt search expedition. Sub-Inspector Edward Wheeler, as well as his notorious older brother Inspector Frederick Wheeler (Skinner 1975; Hillier 1994), had a history of maltreatment of Aborigines (Richards 2014), but both had escaped prosecution or even a reprimand, for a number of serious infringements.⁵² The interpreter mentioned by Birch was an Aboriginal woman named Tindar. In relation to Tindar's role, Birch wrote in a letter to the Private Secretary of Governor Blackall in December 1870 that:



Figure 5. Specimen of *Nymphaea* sp., [Herbarium number, MEL2208217] collected by Charles Weldon Birch at Isis Downs, Thomson River, 1870, his first known botanical specimen.

Reproduced with permission, Royal Botanic Gardens Melbourne.

NB: The specimen includes only a portion of the flower and it is positioned at the top of the sheet for better storage. This appears to be the whole specimen.

I may be authorised to recover them [abducted Aborigines]– notwithstanding any opposition from others to the contrary – my reason for this is that for some time I have desired mediums between the Aborigines and myself and for that purpose instructed two of these blacks, who were good linguists, understanding 5 or 6 different dialects from the difference I should say languages, to comprehend and express themselves in English fluently – from there I learned the possibility of getting traces of Leichhardt, and their willingness to accompany me in the search – they understanding the “Pilchere” dialect spoken by the blacks on the lower Thomson... I accepted the leadership of the search for Dr Leichhardt's remains upon the faith of the great assistance I should derive from these blacks or at least two of them – named Kie Kia, Tindar. If any impediment is raised I must of necessity abandon a project for the solution of which funds have been placed in my hands – and so much previously expended without using ordinary means to ensure success... in the abandonment of a search involving disappointment both upon those who have so disinterestedly stepped forward to make one more effort to dispel the mystery that hangs over the fate of Dr Leichhardt (The Ladies Committee Melbourne) and myself well convinced that from what I have heard and seen that success is more than problematical, if my plans are not wholly deranged by a misguided Native Police official and which can be avoided by the concession I hope to receive to claim for their restoration, if still alive.⁵³

Edward Wheeler was absolved of the accusations brought by Birch by an internal inquiry on the grounds of insufficient evidence. However, Birch pursued the matter, appealing to the Colonial Secretary to re-investigate the claims. Birch was openly sympathetic to the plight of Aborigines and showed an attitude of protection toward those whom he knew were being mistreated or abused. The matter was re-investigated by the government but charges relating to Birch's accusations against Wheeler were not sustained, but he was otherwise dismissed from the Native Police in October 1871⁵⁴ on the grounds of ‘violence’ (Richards 2008).

Birch's relationship with the Aboriginal woman Tindar is unclear. It was proposed by Chief Inspector George Murray that ‘it was well known in

the District that he [Birch] was cohabiting with her [Tindar]’ and that Birch had ‘been trying to procure the services of the police to recover his runaway Gin’.⁵⁵ Notwithstanding this, Tindar was not reunited with Birch for the Leichhardt search expedition and her ultimate fate is not known.

Although Birch was unable to commence the search for Leichhardt in 1870, he was still able to explore the local region. In late 1871, Birch visited the area between the Belyando River and the upper Thomson River, discovering a large salt lake to the south of Lake Buchanan. In a letter to Mueller, Birch wrote that:

I made a geographical discovery, which with a single exception in Queensland has not its equal and the naming of which I leave to you. Leaving Bowen Downs I passed over about 33 English miles [53 km] of downs and after 10 miles [16 km] N 40° E entered the edge of a desert through a break in the range that divides the waters of the Thomson and Belyando. Here there were numerous freshwater and soda springs. After going 20 miles [32 km] through the desert, I turned eastwards at its end and struck a magnificent lake with bays, islands and promontories, the greater part of which, however, was dry at this time and covered with salt plants...I determined the width of the lake from west to east as 15 English miles [24 km]...and its length cannot amount to less than 35 English miles [56 km].⁵⁶

As noted above, Mueller had earlier written to Birch regarding the naming of new geographical features. He specifically requested that if any new features were to be located that he would like Birch to name them after the Austrian Field-Marshal August Jochmus who had recently visited Australia.⁵⁷ Birch did not name any features himself, but in relation to the naming of the lake, Mueller wrote to Jochmus in February 1872:

noble Marshall, I am able to send you the sketch of a large inland lake, to which I attached your famous name, and which will always remind us of your visit to Australia...I believe, that surveyor Birch would feel very honoured to receive a few words of acknowledgement and, may I add, perhaps a small souvenir.⁵⁸

Subsequently, Jochmus wrote to Birch (undated letter, possible early 1872), thanking him for the honour:

The Chevalier von Mueller has been pleased to communicate interesting letter dated Bowen Downs 4th Dec 71 and has stated that he has done me the honour of selecting my name to be given to the extensive Lake lately discovered by you in Queensland. I have lost no time in thanking Doctor von Mueller for this record of a traveller in Australia, whose sole merit there can be, that he takes a sincere interest in the regions, which will become, no doubt, once the future happy homes of uncounted millions of the human family, for whom you and your companions in enterprise and spirit now open the roads to welfare and prosperity. The task is arduous but it is to be hoped, that it will, sooner or later, lead to well deserved credit and honours.⁵⁹

The name Lake Jochmus is now an unused earlier name for Lake Galilee.

It is around this time, 1871, that Birch added the first of two additional appellations to his name. A middle name, *de Burgh*, was added to his signature and to collection labels. He later wrote to his youngest sister Dorothy Gibbes (née Birch) claiming that he was:

the surviving male of a long line of ancestors of our name, known indifferently as de Burgh, Birches and Birch – the former is pronounced Birsh hence the corruption from the original name you know we trace back to Charlemagne one of whose daughters married Count Thionville who was created grand governor of The Burghs this man was the founder of our family name as a proof of this we bear the coat of arms of France with the exception that letters are silver instead of gold as being derived from the female line.⁶⁰

From his base at Bowen Downs, Birch was making extensive zoological and botanical collections at this time. He took an interest in the fishes of the Thomson River, writing informal reports that were published in newspapers (Birch 1872a, 1872b). Birch was now fully engaged with Mueller with botanical collecting, and had developed a rapport with him based on his respect for Mueller's pioneering botanical endeavours. Birch (1872c) wrote supportively of Mueller in a newspaper article:

Those who reside in the bush have many opportunities for the collection of specimens of

the flora of our colonies, and we ought to avail ourselves of, and show our appreciation of, the labours of a gentleman who is now devoting his time to the collection and classification of the flora of the colonies, and particularly Queensland, by aiding him by every means in our power...I have been led to call attention to the subject before you from having received from Baron F. Von Mueller a number (lvii) of his valuable work upon the flora of Australia and Polynesia, entitled '*Fragmenta Phytographiae Australiae*'.

Later in the same article, Birch described how to collect and prepare plant specimens and despatch them to Mueller at the Botanic Gardens, Melbourne. In addition to his collaboration with Mueller, Birch made donations around this time to the Queensland Acclimatisation Society, including plant specimens and seeds,⁶¹ birds and marine molluscs (Birch 1872d, 1872e).

*Leichhardt Search Expedition, 1873: 'Rest assured that all I can do toward your great work now being published I will do with pleasure.'*⁶²

By 1873, the court matters that occupied Birch since late 1870 were either resolved or deferred, and he was able to finally start the expedition to search for traces of Leichhardt. The day before his departure on 11 April 1873, he wrote to Mueller:

Tomorrow I start for the westward and I shall be guided by the nature of the country and the facilities that water affords to carry out the project so long contemplated. I shall note everything worthy of being recorded paying especial regard to the preservation and collection of plants. I estimate my absence will be for nearly three months...The party consists of 4 whites, including myself and two black boys and about 16 horses – I shall keep record of course and diary – the various rocks shall be described – and the country fully described as to its suitability for pastoral purposes. – Pray convey my instructions to the Ladies Committee and my apologies for having delayed so long to fulfil my engagement.⁶³

Birch completed the expedition in late May 1873 and returned to Bowen Downs where he corresponded with Mueller regarding the botanical collections:

I forward by this mail my dear Baron some botanical specimens obtained during a tour to the westward in the neighbourhood of Mueller's Range and I think that some new as I have not seen them elsewhere...I will send you my diary, and a map, at my earliest leisure...The Mueller Range is reddish sandstone with depths of porphyry – there are numerous isolated hills in the neighbourhood – one particularly I shall call Mt Mueller not so much for its size but that it forms a distinguishing feature on the landscape of which the Mueller Range forms a part – rest assured that all I can do toward your great work now being published I will do with pleasure and my greatest regret is that I am not sufficiently independent to devote my whole time to exploration and the collection of the flora of this colony and the minerals with which it abounds.⁶⁴

Further on in this letter, Birch proposed naming one of the isolated 'hills' in the range as Mount Mueller. It is not known which particular hill he was referring to as the map of the expedition has not been located. The range was originally named by John McKinlay in 1862, during his Burke and Wills search expedition, described as 'running north and south with three detached mounds of hills' and therefore topographically a range. McKinlay (1863) named it as Mount Mueller although the gazetted name is Muellers Range, and the former has not been taken up as the name of any feature in Queensland (QPN 2015).

Birch's report about the search expedition was not as immediately forthcoming as were the botanical specimens. Unfortunately, the original report, map and diary have not been located, although Birch provided a 'few remarks', published in newspapers, which is the only known account that is directly relatable to the expedition (Birch 1873). In the remarks, which are relatively extensive, he described items of interest such as the letter 'L' on various trees, and something of the route that Leichhardt may have taken. He went on to describe the geological features, mineralogy, and topography.

The following year, Birch collected a specimen of an unusual burr at Bowen Downs, and sent it to Mueller in Melbourne who described it as a new species and named it in dedication of Birch as *Anisacantha birchii* F.Muell. (Mueller 1874). The current name is *Sclerolaena birchii* (F.Muell.)

Domin, and is known as the Blue, Galvanised or Chinese Burr, a common dry-country plant in inland eastern Australia (White 1925; Wilson 1984) (Fig. 6). Birch's plant specimens had otherwise been used as the type specimens for a number of new species, but none had been named for him until then. The first to be used as a type, some years earlier, was a specimen described by Mueller (1871) as *Lythrum robertsii* F.Muell. [*Nesaea robertsii* (F.Muell.) F.Muell. ex Koehne]. This species was named for James F. Roberts who was a horticulturist and gardener active in Melbourne around that time, and renowned for his prized citrus produce. Mueller named many new plant species after associates and acquaintances as a form of reward and acknowledgment for their assistance or contribution to botanical matters (Darragh 1996; Gillbank 1996; Maroske 1996; Moore 1997; Webb 2003). This period was among Birch's most productive years with regards to plant collections, and at least 220 specimens have been located for this period (Table 1).

It is around this time, circa 1874, that Birch started to use the second of his additional names 'Count Zelling' (he adopted *de Burgh* two years earlier) in his signed articles, official correspondence and specimen labels. Zelling was the surname of his mother. In a later letter to his sister Dorothy Gibbes in 1888, Birch outlined something of the family history, as construed by Birch:

our grandmother, Spanish side, was married to a brother of General Carnot before she married our grandfather Zelling and had one son. This General Carnot with Prince Tallyrand and Cambecerer were the three consuls appointed after the first great Revolution in France...His son is now the President of the French Republic – so he is my grandbrother & you are his grandsister.⁶⁵

He added in a subsequent letter that:

our grandfather Zelling's crest was a mailed and gauntleted arm and hand issuing from a coronet, holding a claw bearing a boars head.⁶⁶

1876-79: 'I trust you will my dear Baron excuse my pencil note, the weather is so hot that the ink dried nearly as rapidly as I put it in the pen.'⁶⁷

Following the Leichhardt Search expedition, Birch entered a brief period of reduced activity regarding botanical and zoological collecting. Within this



Figure 6. *Sclerolaena birchii*, detail of leaves and spines.

Photo by Tony Rodd, 2013, 130605-8611, accessed from <https://creativecommons.org>, Dec. 2015.

Table 1. Summary of botanical collections of Charles Weldon de Burgh Birch, Count Zelling.

Based on herbarium record data from BM (Natural History Museum, London), BRI (Queensland Herbarium), G (Genève Herbarium, Switzerland), K [Kew Herbarium, London), MEL (National Herbarium of Victoria), NSW (National Herbarium of New South Wales) and PERTH (Western Australian Herbarium).

Year	No. of specimens	Collection locations
1870-75	235	Isis Downs, Barcoo R., Roma R., Thomson R., Bowen Downs, Diamantina R.
1876-79	2	Peak Downs, Belyando R.
1880-85	159	Diamantina R., Alice R., Aramac
1886-93	280	Port Denison, Don R., Mt Elliot, Proserpine R., Junction Ck, Montalbion, Tait R., Herbert R., California Ck
undated	85	
Total	761	

period, only a few specimens were received by Mueller from Birch. However, he took an increased interest in pastoral activities, collecting a series of grass specimens which he sent to the Royal Agricultural Society of Queensland in Brisbane.⁶⁸ He defined the different species mainly on their usefulness as fodder. For example, he noted that

Panicum brizoides [*Paspalidium flavidum* (Retz.) A.Camus]) was 'decidedly a good fattening grass', and that *Helopus annulatus* [*Eriochloa procera* (Retz.) C.E.Hubb.] 'produces a large quantity of succulent fodder'. In total, 16 grass species were annotated by Birch, each described on their distribution and pasture values. The fate of the

grass specimens is not known, having not been located in any Australian herbaria. He was locally well-travelled during this period because of his surveying work, with correspondence addressed from places as wide-spread as Aramac, Beaufort, Blackall, Bogantungan, Clermont and Springsure.

Birch undertook three extended excursions during this period, each of which was reported in newspaper articles, within the genre of naturalist/explorer. The first of the excursions started at Evesham (Fig. 7), first following Dar Creek, meeting Western River in the vicinity of the junction of Oondooroo Creek, travelling downstream on Western River, to join the Diamantina and travel downstream to as far south as Cork Station, then returning to Bowen Downs, a distance of about 400 km. A brief description of the flora was included in one of the newspaper reports (Birch 1877a):

The prevailing timber is gidgee [*Acacia*

campadgei R.T.Baker], yarren [*Acacia omalophylla* A.Cunn. ex Benth.], grows, coolabah [*Eucalyptus coolabah* Blakely & Jacobs.], along the banks of the streams, also tea-trees [*Melaleuca* spp.], but very poor specimens; a fleshy-leaved tree bearing a blackish-blue fruit (good); several varieties of capparid, including a climber [*Capparis lasiantha* R.Br. ex DC] and one with leaves like a she-oak, bearing a small fruit [*Apophyllum anomalum* F.Muell., MEL590479]. A singular mimosa, with round leaves deeply veined, or rather honey-combed [*Acacia retivenea* F.Muell. subsp. *retivenea*], also a dark-pink grevillea [*Grevillea wickhamii* subsp. *aprica* McGill], the two last on the summit of Mount Turee, one of the entrances to the gorge [The closest resemblance to a gorge is a section of Diamantina River just north of Williams Creek junction] already spoken of.

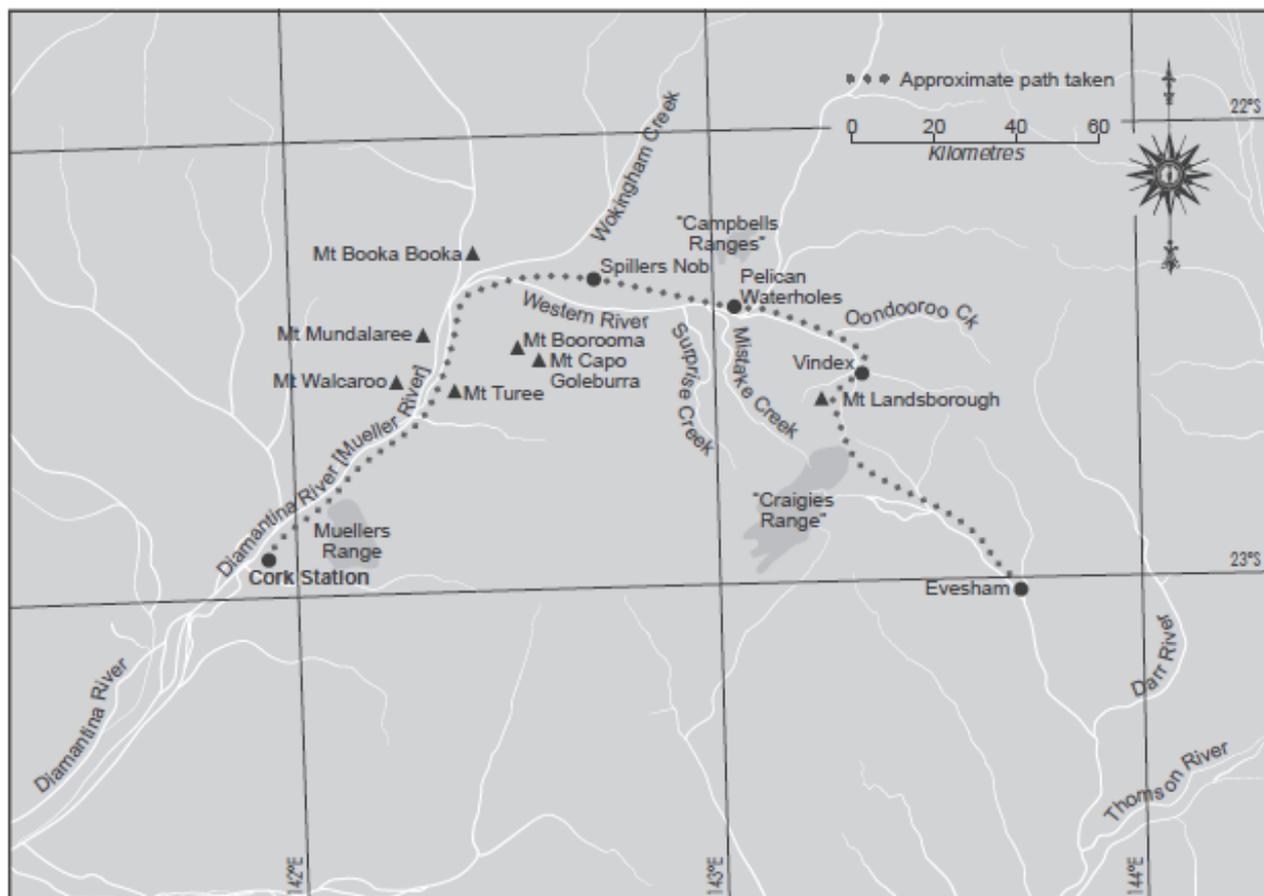


Figure 7. Route taken by Charles Weldon Birch from Evesham to Cork Station, Queensland.

Estimated from his article 'To the Diamantina' in the *Brisbane Courier*, 17 Nov. 1877, p. 3. Map prepared by Claire Burton, Cairns Regional Council.

At the junction of Western River and Diamantina River, Birch collected a zoological specimen which he named '*Hymenocaris vermicanda*' [*Hymenocaris vermicanda* Salter] and which he sent to the Queensland Museum. Birch (1877b) claimed that it was a living fossil 'insect', though correctly a clam shrimp, which he thought resembled fossils from Upper Silurian rocks, and the same as that figured in 'Dr. Page's Advanced Text Book of Geology' (see Page 1867). The veracity of Birch's claim, and the identity of the specimen cannot be confirmed as the specimen has not been located (K. Aland, Qld Museum, pers. comm.).

The second excursion took a track to the east (Fig. 8), commencing at Vindex Station on Western River, passing through Mount Cornish Station, along Cornish Creek to Tower Hill. Then proceeding onto Jericho, heading to Bully Creek, Vine Creek, to Mount Douglas, crossing the Suttor River, to St Annes and Mount Wyatt, crossing Bowen River

near Hornings Public-House, to Strathmore, Table-Top Creek, Bogie River and finishing at Euri Creek, a distance of about 700 km. Some minor botanical and geological observations were provided in the newspaper reports (Birch 1878). Soon after, Birch sent a specimen of *Hakea lorea* (R.Br.) R.Br. to the Royal Agricultural Society of Queensland, in the hope of introducing the plant into cultivation.⁶⁹

The third excursion took a course from the Don River to Blenheim on the Bowen River (Fig. 8). From Don River, Birch went to Euri Creek, then crossed Bogie River, to Coral Creek, Pelican Creek, Sonoma, crossing the Bowen River near Havilah, following Broken River upstream, and completing the excursion at Blenheim, a distance of about 150 km.⁷⁰ Birch (1879) provided a report with extensive lists of mammals and birds that he observed. The flora report was as follows:

The most remarkable trees were – the Leichhardt tree (*Sarcocephalus caudatus*) [*Nauclea orientalis* (L.) L.], white cedar

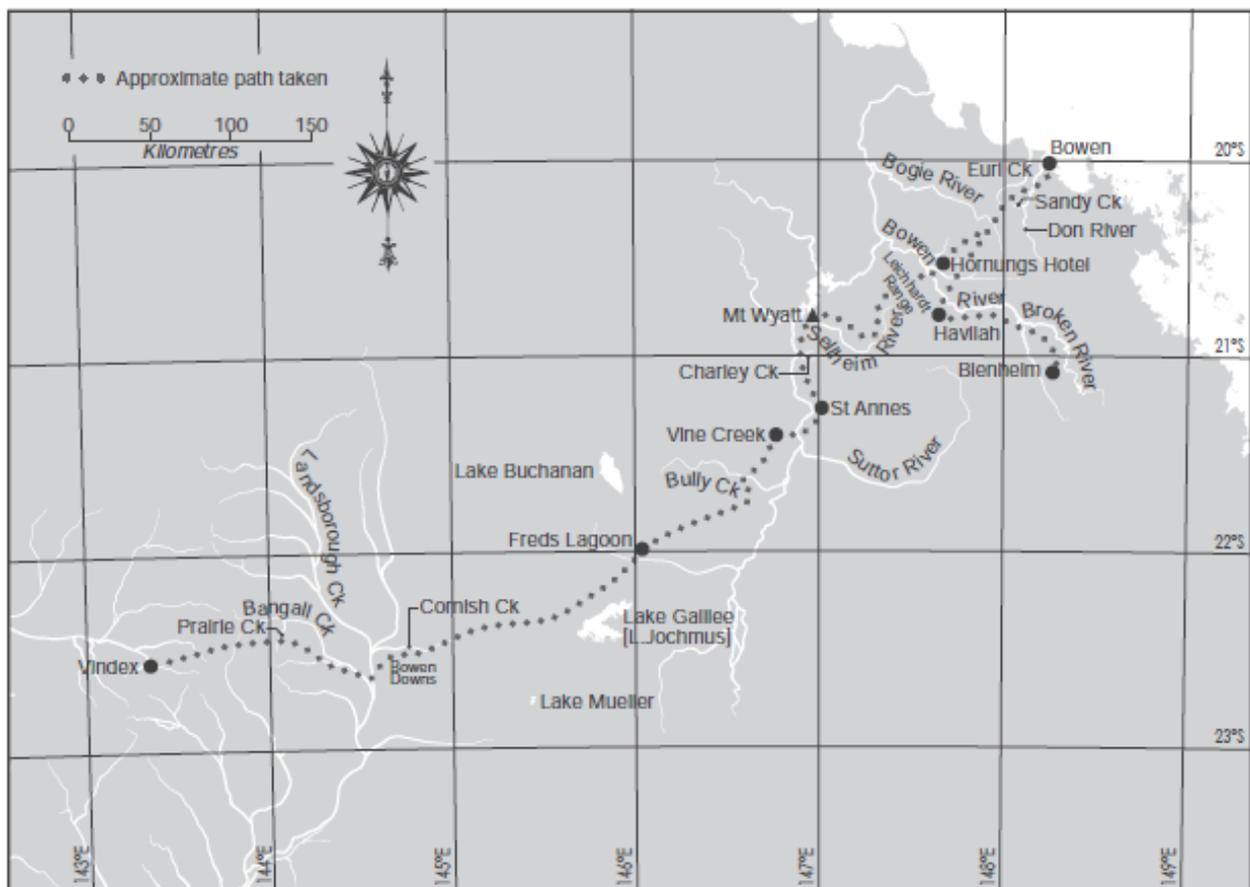


Figure 8. Route taken by Charles Weldon Birch, from Vindex to Euri Creek and onto Blenheim, Queensland.

Estimated from his article 'The Naturalist' in the *Queenslander*, 22 Mar. 1879, p. 372. Map prepared by Claire Burton, Cairns Regional Council.

(*Pentoceros Australis*) [*Melia azedarach* L.], a vegetable-silk-bearing shrub with crimson petals, well worth cultivating [*Asclepias curassavica* L., MEL2065716]; plum (*Owenia venom*) [*Pleiogynium timorense* (DC) Leenh.], with its singular stone; broad-leaved cherry (*Exocarpus latifolius*); several varieties of *Capparis*. Also a remarkable climber [*Tinospora smilacina* Benth.]: where the plant issues from the ground it is no thicker than a schnapper-line, growing thicker and thicker until it arrives at a maximum, then gradually tapering off to its termination, when a few leaves are exhibited. The stem is very porous, and in its contortions around a tree resembles a huge vegetable snake. I must notice a tree whose leaves emit, when bruised, a lemon odor; also the sandalwood (two varieties) [*Santalum* spp.], from which a fine perfume might be extracted.

1880-85: 'I shall attend to your wishes as regards water weeds.'⁷¹

Continuing his pastoral interest and his surveying career,⁷² Birch (1880, signed as 'Zelling') wrote on the need for the conservation of water and for the establishment of reserves to protect water sources. From 1883, Birch, now aged 62, had a

renewed interest in botanical and zoological collections, sending the botanical specimens again to Mueller in Melbourne,⁷³ and the zoological specimens, in particular reptiles,⁷⁴ minerals and fossils,⁷⁵ and insects,⁷⁶ to the Queensland Museum. Three new species of reptiles were described on specimens collected by Birch during this period. The first was the Gidgee Skink, *Silubosaurus zellingi* De Vis, 1884 [*Egernia stokesii zellingi* De Vis, 1884] (Fig. 9), described by De Vis (1884a), with the following annotation:

Locality Barcoo. This specimen was kindly contributed by Mr. C.W. de Burgh Birch, Count Zelling. As this gentleman has on previous occasions shown his desire to promote zoology, he is entitled to the compliment of having his name associated with the species.

The second was a species of iguanian lizard, *Macrops nuchalis* De Vis, 1884 [*Ctenophorus nuchalis* De Vis, 1884] (Fig. 10), and based on a specimen collected by Birch at Delta Station, Bogantungan (De Vis 1884b). The same specimen was later used to typify another new taxon, *Grammatophora inermis* De Vis, 1888 (De Vis 1888), but that taxon is otherwise also referable to the earlier named *Ctenophorus nuchalis*. The third



Figure 9. *Egernia stokesii zellingi*, the Gidgee Skink.

Photo by Alan Couch, accessed from <https://creativecommons.org>, Dec. 2015.



Figure. 10. The iguanian lizard *Ctenophorus nuchalis* collected by Charles Weldon Birch at Delta Station, Bogantungan in 1884 and originally described as *Macrops nuchalis*.

Photo by Eric Vanderduys.

species was a snake, *Hoplocephalus sulcans* De Vis, 1884 [*Hoplocephalus bitorquatus* Jan, 1859] (Fig. 11), collected by Birch in the 'Mitchell District' and also described by De Vis (1884c) who noted that the specific epithet was based on:

an observation of Mr. de Burgh Birch, that the snake can form its abdomen into a longitudinal furrow.

In what was an earnest show of support for Baron Mueller, Birch proposed reinstating the original name of a section of the Diamantina River to Mueller River. The original name was 'Mueller Creek', given by John McKinlay to that section of river between the junctions of Western River in the north, downstream to the Georgina in the south (McKinlay 1863). The river had been renamed as the Diamantina by the explorer William Landsborough to honour Lady Bowen, Contessa Diamantina di Roma, wife of Governor George Bowen (Landsborough 1866; QPN 2015). In a newspaper article written by Birch (1883), he suggested that:

As an acknowledgement of the valuable services rendered by Baron F. von Mueller to the colonies, it would be a graceful act on the part of the Queensland Government if they restored to the maps the original name given by M'Kinlay to what is known as the Lower Diamantina. The Diamantina proper is that part of the river above the junction of the Western River. From the Western River downwards to the junction of the Herbert or Georgina was named the "Mueller" by the discoverer...surely it is not too late to amend the error, and by substituting "Mueller" for so much of the river (from junction of Western River to junction of Georgina), carry out M'Kinlay's intention to do honour to a gentleman of such high attainments.

The proposal was not accepted and the particular section remains known as part of the Diamantina River.

It was around this time that Birch started to concentrate on botanical collections in preference to zoological specimens. The collection of specimens for Mueller during this time was steady,



Figure 11. The snake *Hoplocephalus bitorquatus* collected by Charles Weldon Birch in the ‘Mitchell District’ in 1884 and originally described as *Hoplocephalus sulcans*. Photo by Eric Vanderduys.

with a total of about 150 plant specimens collected between 1880 and 1885. Correspondence was maintained with Mueller, especially regarding the identity of plant specimens: For example, Birch wrote to Mueller in 1883:

I hasten to send you my dear Baron the flowers of the aromatic shrub [*Eremophila latrobei* F.Muell. var. *latrobei* MEL82787, Fig. 12], which you desired me to procure for you – I hope that if not new, they may prove a variety of some previously procured by others.⁷⁷

1886-94: ‘And here they laid him who did nature love, and o’er his grave the trees, murmur his requiem in the passing breeze.’⁷⁸

From 1886 to 1889 Birch resided in the Bowen/Proserpine River area. He was involved with surveying,⁷⁹ but later took on the role of ‘amanuensis’ (tutor) to the children of land owners. In this regard, he was associated with the family of Charles and Ellen Emmerson,⁸⁰ at Pretty Bend on the Proserpine River (see Clements 1975). Having moved to a new area, Birch renewed his efforts at collecting plant specimens, with about

120 collections in 1886 alone, and for the whole period the total was about 200 specimens. With regard to his plant collections from that area he wrote to Mueller in 1889:

I send you by this mail my dear Baron the fruit accompanied with the flowers of a plant of which you requested me a long time ago to get the former, also a few other specimens of the radiated stemmed plant I have not yet obtained the fruit [*Mackinlaya macrosciadea* (F.Muell.) F.Muell., MEL2249533], but if interesting I can procure it for you...I have been searching for snails and found some remarkably large and also some that were rare, amongst them one new – the finder has been ignored (that’s me) the person to whom I sent them, submitted them to Mr Brazier F.Z.S. [see Iredale 1958] – he, the person to whom they were sent, has received the credit of being the discoverer, tis a lesson I shall remember to the gentleman’s cost. My results “re” Mt Dryander shall be forwarded to you alone.⁸¹

Apart from plants and bryophytes, Birch also collected land-shells in the area, mainly from Mount Dryander in 1887. One specimen collected



Figure 12. Specimen of *Eremophila latrobei* F. Muell. var. *latrobei* MEL82787, collected by Charles Weldon Birch in 1883 from Alice River, with an example of Birch's handwriting. Reproduced with permission, Royal Botanic Gardens Melbourne.

from Proserpine River, possibly the collection that he referred to as 'rare' was named for Birch – *Bentosites birchi* Iredale, 1933 [*Sphaerospira gavisia* Iredale, 1933], with the following reference (Iredale 1933):

A very beautiful little shell closely allied [to *H. etheridgei*] from the Proserpine River, Queensland, is here named *birchi*, a name in the collection.

Other land-shells were also collected by Birch, including *Helix rainbirdi* Cox, 1870 and *H. pachystyla* Pfeiffer, 1845 [*Xanthomelon pachsytlum* Pfeiffer, 1845]. The specimens were examined by Hedley (1889), who noted:

for the specimens on which the above observations were made, as well as for other kind assistance, I am indebted to Mr. de Burgh Birch, who collected these molluscs near the Proserpine River, Bowen.

Birch also collected two new species of hornworts from Bowen. The species were described as *Anthoceros evanidus* Steph. [*Phaeoceros evanidus* (Steph.) Cargill & Fuhrer] (Fig. 13), and *Anthoceros ferdinandi-muelleri* Steph., the latter being named for Ferdinand Mueller (Stephani 1916). Notes accompanying the type specimens of both *A. evanidus* and *A. ferdinandi-muelleri* indicate that the specimens were sent by Mueller from the Melbourne Herbarium in 1889, but only studied by Franz Stephani some decades after the deaths of both Birch and Mueller. Both specimens noted that C.W. Birch was the collector, 'ex Australia, Port Denison, 1889'. Stephani (1898-1924) was engaged in cataloguing the world's liverworts and hornworts during the early 1900s.

Birch, now in his late sixties, continued to live in the Bowen area until 1889, after which he moved, with the Emmerson family, to the Herberton area, where new silver mines were being developed (Kerr 1984). Here he was engaged in mine surveying and the tutoring of their children. He has been linked to the publican Charles Denford, who had premises at Herberton, California Creek and Coolgarra,⁸² and Birch resided at California Creek at this time.

Again, when entering a new area, Birch increased his plant collections, and sent them as usual to Mueller:

I forward you my dear Baron the flowers of the tree bearing the large capsules I previously sent

you – there are also in the parcel other plants new to me – we are 2000 feet above the sea – I have found a tree very straight in the stem bearing a fruit as large as a billiard ball, yellow outside and orange within as full of seeds as the *Capparis* but of different shape [*Siphonodon pendulus* F.M.Bailey, MEL2235968]. I have fruit and foliage of which latter I enclose a specimen – if you should fail to recognize the tree I will send the fruit.⁸³

Birch's health began to fail in 1893, although he maintained a keen interest in the natural world. In a letter to his niece Rosa Whysall (née Gibbes), in September 1893, he wrote that:

I have been suffering from neuralgia in the head between the scalp and the skull...no flowers yet I mean wild ones – I shall go to the coast about Christmas and search the scrubs for shells and orchids, and the beach for marine mollusks here there's a dearth of things that would interest me, but at the mines one might pick up specimens of ore – malachite, etc. I have some good stones but the cost of cutting is rather expensive.⁸⁴

Despite his increasing maladies, Birch maintained his enthusiasm for the discovery of new plant species, and in a subsequent letter to Rosa Whysall in December 1893 he wrote that:

I have found a new lily – with black flowers and a root like a turnip without a tap root but small rootlets growing out of the side [*Brachystelma glabriflorum* (F.Muell.) Schltr. MEL1537649] I have sent it to Baron Mueller.⁸⁵

His health was declining rapidly by now and in a letter to his youngest sister Dorothy Gibbes, in February 1894, he wrote that:

I am very unwell with rheumatism in the head tis a dead and a shooting pain.⁸⁶

With death unknowingly imminent, he wrote to Dorothy Gibbes in April 1894 (one month before he died) that:

about 4 weeks ago I got a shock of something it struck me in bed. For some time I have been subject to a cramping sensation in my legs on this occasion the sensation ran up my legs along my spine and upward to my head...I thought to myself this is death...Mr and Mrs Denford are very kind...if I should lose my billet I must go to an asylum.⁸⁷



Figure 13. Specimen of *Anthoceros evanidus* collected by Charles Weldon Birch at Bowen (as Port Denison) in 1889.

Birch, from his home in California Creek where he was being cared for by Charles Denford,⁸⁸ was

admitted to the Walsh District Hospital at Montalbion where he was:

unable to speak on account of the paralysis etc consequent on his apoplectic seizure. He passed away quietly and was interred in cemetery here by the Committee of the Hospital.⁸⁹

Birch, approaching his seventy-third year, passed away on 5 June 1894, with his death certificate noting the cause of death as '1.Senile degeneration 2.Apoplexy 3.Exhaustion'.⁹⁰ He was buried at Montalbion Cemetery in an unmarked grave. A simple death notice appeared in the Sydney Morning Herald:

Birch.— June 6, at Mt. Albion, Queensland, Charles Weldon Birch, second son of the late Augustus Birch, D.A.C.G., aged 73 years.⁹¹

Summary

Charles Weldon Birch made a significant contribution to botanical and zoological study of the places in which he travelled and lived, firstly in New South Wales then later in central and north-eastern Queensland. His instinctive interest in natural history was encouraged by his association with two scientists in particular. Firstly, the Geological Surveyor Samuel Stutchbury who Birch was assistant to from 1852 to 1855. Among Birch's responsibilities as assistant was to collect geological, palaeontological and zoological specimens. Birch's name cannot be directly associated with any specimens that were collected during the geological surveys, but on his own admission he collected large numbers of specimens for Stutchbury. These specimens were variously distributed to institutions in Australia and Britain, and labelled as either collected by 'Mr Stutchbury' or as 'Stutchbury's Expedition'. The second association that influenced Birch was that with Baron Ferdinand von Mueller, Victorian Government Botanist. Birch's initial contact with Mueller was in 1870, and was initiated by an appeal by Mueller for Birch to undertake a search for possible evidence of the fate of the lost explorer Ludwig Leichhardt. From this contact, and motivated by Mueller's urging, Birch started to collect botanical specimens, an activity that he enthusiastically continued up to the year before his death in 1894. About 760 botanical specimens have been located, and of these about 680 are conserved in the National Herbarium of Victoria, a few in other Australian herbaria, and a small number in non-Australian herbaria, for example

two specimens each at Kew, British Museum and Genève. The specimens account for about 500 species, which indicates that Birch mainly collected species that were new to him. The life forms that he collected were mostly herbs and shrubs, rarely trees. A summary of collection numbers over time is presented in Table 1.

Birch's zoological specimens are not as readily traceable as the institutions where they are most likely to be kept do not have, on the whole, their collections databased or otherwise accessible. Unlike botanical specimens, zoological specimens held a greater currency during the late nineteenth century and were traded and exchanged by individuals and institutions on a regular basis and discrete collections became subsequently broken up and widely dispersed. Zoological specimens also tended to be housed in specialised collections related to the orders and families of the species involved. About 60 zoological specimens collected by Birch have been located, but this is likely an under-representation of his collections. The botanical and zoological taxa based on a type specimen collected by Birch are listed in Table 2, and the taxa named to honour Birch are listed in Table 3.

Acknowledgements

For matters relating to Charles Weldon Birch's family history, I thank Barbara Dawson, Ian and Stephen Finch, and Philippa Barbour, all descendants of Augustus and Rosa Birch. Staff at Queensland Museum and the Australian Museum are thanked for information about Birch specimens. David Branagan is thanked for information about Samuel Stutchbury. Ruth Kerr provided historical information about Montalbion. Bridget Minatel and Jenny Pearce provided archival information for Sydney College and the King's School. Nimal Karunajeewa, Sara Maroske, Pina Milne, Sally Stewart and Alison Vaughan assisted with specimen images and archival information from the Royal Botanic Gardens Melbourne. Librarians at the State Library of Queensland, State Library of New South Wales, Queensland State Archives, State Records of New South Wales and Bowen Museum provided archival information. Eric Vanderduys is thanked for the reptile images. An anonymous reviewer is thanked for their constructive comments and suggestions.

Table 2. Taxa with the type specimen collected by Charles Weldon de Burgh Birch, Count Zelling.

Basionyms are listed first, and currently used names are included in square brackets. References to the type description and the type specimen are provided.

Taxon	Publication & Specimens
Bryophyta (Jungermanniopsida: Adelanthaceae)	
<i>Anthoceros evanidus</i> Steph. [<i>Phaeoceros evanidus</i> (Steph.) Cargill & Fuhrer]	<i>Spec. Hepat. (Stephani)</i> 5: 990 (1916); G136327/14
<i>Anthoceros ferdinandi-muelleri</i> Steph.	<i>Spec. Hepat. (Stephani)</i> 5: 1007 (1916); G136367/10
Ascomycota (Lecanoromycetes)	
<i>Parmelia hypoxantha</i> var. <i>major</i> Müll.Arg. [<i>Chondropsis semiviridis</i> (F.Muell. ex Nyl.) Nyl. ex Cromb.]. Parmeliaceae	<i>Flora</i> 66(5): 77 (1883); G, MEL5860
<i>Sticta parvula</i> Stirt. [<i>Chondropsis semiviridis</i> (F.Muell. ex Nyl.) Nyl. ex Cromb.]. Parmeliaceae	<i>Trans. & Proc. New Zealand Inst.</i> 32: 73 (1900); BM001097760
Angiosperms	
<i>Lythrum robertsii</i> F.Muell. [<i>Nesaea robertsii</i> (F.Muell.) F.Muell. ex Koehne. Lythraceae	<i>Fragm.</i> 7(57): 145 (1871); MEL1558272
<i>Kochia dichoptera</i> F.Muell. [<i>Maireana dichoptera</i> (F.Muell.) Paul G.Wilson]. Chenopodiaceae	<i>Fragm.</i> 8(60): 37 (1873); MEL42067, MEL42068
<i>Sclerolaena biflora</i> var. <i>cephalocarpa</i> F.Muell. [<i>Dissocarpus biflora</i> var. <i>cephalocarpa</i> (F.Muell.) A.J. Scott]. Chenopodiaceae	<i>Fragm.</i> 8(60): 38 (1873); MEL101425
<i>Threlkeldia proceriflora</i> F.Muell. [<i>Neobassia proceriflora</i> (F.Muell.) A.J.Scott]. Chenopodiaceae	<i>Fragm.</i> 8(60): 38 (1873); MEL102300
<i>Anisacantha birchii</i> F.Muell. [<i>Sclerolaena birchii</i> (F.Muell.) Domin]. Chenopodiaceae	<i>Fragm.</i> 8(66): 163 (1874); MEL101426
<i>Fimbristylis neilsonii</i> F.Muell. Cyperaceae	<i>Fragm.</i> 9(75): 79 (1875); MEL2295808
<i>Jacksonia rhadinoclona</i> F.Muell. Fabaceae	<i>Fragm.</i> 10(82): 37(1876); MEL228120
<i>Calandrinia pleiopetala</i> F.Muell. Portulacaceae	<i>Fragm.</i> 10(84): 70 (1876); Specimen not located.
<i>Scaevola parvifolia</i> var. <i>brevifolia</i> F.Muell. [<i>Scaevola parvifolia</i> F.Muell. ex Benth.]. Goodeniaceae	<i>J. Bot.</i> 15: 304 (1877); MEL1521528
<i>Cyperus dactylotes</i> Benth. Cyperaceae	<i>Fl. Austral.</i> 7: 273 (1878); MEL2288199, MEL2288201, MEL2288200. <i>Fl. Austral.</i> 7: 295 (1878); MEL2199630
<i>Eleocharis acuta</i> R.Br. var. <i>pallens</i> Benth. [<i>Eleocharis pallens</i> S.T.Blake]. Cyperaceae	<i>Fl. Austral.</i> 7: 649 (1878); MEL1058563
<i>Eragrostis lacunaria</i> F.Muell. ex Benth. Poaceae	<i>Repert. Spec. Nov. Regni Veg.</i> 20 (6-21): 267 (1924); MEL115402
<i>Dicerma biarticulatum</i> var. <i>australiense</i> Schindl. [<i>Aphyllodium biarticulatum</i> (L.) Gagnep.]. Fabaceae	<i>J. Adelaide Bot. Gard.</i> 9: 103 (1986); MEL100699
<i>Brunoniella acaulis</i> subsp. <i>ciliata</i> R.M.Barker. Acanthaceae	
Reptiles (Reptilia)	
<i>Silubosaurus zellingi</i> De Vis, 1884 [<i>Egernia stokesii zellingi</i> De Vis, 1884]. Scincidae	<i>Proc. Roy. Soc. Queensland</i> 1(2): 53 (1884); QM J253.
<i>Macrops nuchalis</i> De Vis, 1884 [<i>Ctenophorus nuchalis</i> De Vis, 1884]. Agamidae	<i>Proc. Roy. Soc. Queensland</i> 1 (2): 97 (1884); QMJ1406-J1410
<i>Hoplocephalus sulcans</i> De Vis, 1884 [<i>Hoplocephalus bitorquatus</i> Jan, 1859.]. Elapidae	<i>Proc. Roy. Soc. Queensland</i> 1(3): 138 (1884); Specimen not located.
<i>Grammatophora inermis</i> De Vis, 1888 [<i>Ctenophorus nuchalis</i> De Vis, 1884]. Agamidae	<i>Pro. Linn. Soc. New South Wales</i> 2: 812 (1888); Specimen not located.
Land snails (Gastropoda)	
<i>Bentosites birchi</i> (Iredale, 1933) [<i>Sphaerospira gavisa</i> Iredale, 1933]. Camaenidae	<i>Rec. Austral. Mus.</i> 19(1): 44, 57 (1933); Specimen not located.
Clam shrimp (Branchiopoda)	
<i>Estheria birchii</i> Baird, 1860 [<i>Limnadopsis birchii</i> Baird, 1860]. Limnadiidae	<i>Proc. Zoo. Soc. London 1860</i> : 392 (1860); Specimen not located.
Insects (Insecta)	
<i>Talaurinus euomoides</i> Macleay, 1865. Curculionidae	<i>Trans. Entomol. Soc. N.S.W.</i> 1: 225 (1866); Specimen not located.

Table 3. Taxa named to honour Charles Weldon de Burgh Birch, Count Zelling.

Basionyms are listed first, and currently used names are included in square brackets. References to the type description and the type citation are provided.

Taxon	Type description
<i>Anisacantha birchii</i> F.Muell. [<i>Sclerolaena birchii</i> (F.Muell.) Domin] Chenopodiaceae	<i>Fragm.</i> 8(66): 163 (1874). Type: Qld. Bowen Downs; holo: MEL101426
<i>Silubosaurus zellingi</i> De Vis, 1884 [<i>Egernia stokesii zellingi</i> De Vis, 1884] Reptilia: Scincidae	<i>Proc. Roy. Soc. Queensland</i> 1(2): 53 (1884). Type: Qld. Barcoo; QMJ253
<i>Bentosites birchi</i> Iredale, 1933 [<i>Sphaerospira gavisia</i> Iredale, 1933] Gastropoda: Camaenidae	<i>Rec. Austral. Mus.</i> 19(1): 44, 57 (1933). Type: Qld. Proserpine River; holo: AM C100651
<i>Estheria birchii</i> Baird, 1860 [<i>Limnadopsis birchii</i> Baird, 1860] Branchiopoda: Limnadiidae	<i>Proc. Zoo. Soc. London 1860</i> : 392 (1860). Type: not designated (<i>vide</i> Richter S. & Timms BV. 2005. <i>Rec. Austral. Mus.</i> 57: 341-354)

References

- ADB [Australian Dictionary of Biography]. (2006-2015). National Centre of Biography: Canberra. <http://adb.anu.edu.au>, viewed November 2015.
- ALA [Atlas of Living Australia]. 2015. www.ala.org.au, viewed December 2015.
- ANH [Australian National Herbarium]. 2014. *Birch, Charles Weldon de Burgh (f. 1870s-90s)*. <http://www.anbg.gov.au/biography/birch-charles-weldon.html>, viewed September 2015.
- Anon 1852. Proceedings. *Papers and Proceedings of the Royal Society of Van Dieman's Land* 2(1): 308-337.
- Bagster CB. 1861. *The Progress and Prospects of Prince Edward Island, Written during the Leisure Visit in 1861. A Sketch Intended to Supply Information upon which Enquiring Emigrants may Rely, and Actual Settlers Adopt as the Basis of a Wider Knowledge of their Beautiful Island Home*. Charlottetown.
- Baird Dr. 1860. Description of a new entomostracous crustacean, belonging to the order Phyllopora, from South Australia. *Proceedings of the Zoological Society of London* 28: 392-393.
- Barbour PJ. 2015. Biography of Rosa Manuela Francisca de Paula (Zelling) Birch, 1787 – 1854. Unpublished.
- Barker RM, Barker WR. 1990. Botanical contributions overlooked: the role and recognition of collectors, horticulturists, explorers and others in the early documentation of the Australian flora. In *History of Systematic Botany in Australasia*, ed. PS Short, pp. 37-85. Australian Systematic Botany Society: South Yarra.
- Benton MJ. 2012. Naming the Bristol dinosaur, *Thecodontosaurus*: politics and science in the 1830s. *Proceedings of the Geologists' Association* 123: 766-778.
- Birch CW. 1872a. Fish of Australia. *Queenslander* 30 March 1872: 6.
- Birch CW. 1872b. Australian fish. *Brisbane Courier* 13 April 1872: 7.
- Birch CW. 1872c. A valuable work. *Queenslander* 20 April 1872: 5.
- Birch CW. 1872d. *Plilonorynchus Holosericeus* (Wilcox) *Chlamydera maculata* – Bower Bird. *Queenslander* 9 November 1872: 6.
- Birch CW. 1872e. *Voluta Diadema*. *Queenslander* 16 November 1872: 6.
- Birch CW. 1873. The Leichhardt Search Expedition. *Wagga Wagga Express and Murrumbidgee District Advertiser* 30 August 1873: 4; *Queensland Times, Ipswich Herald and General Advertiser* 2 September 1873: 5; *Sydney Morning Herald* 4 September 1873: 3; *Brisbane Courier* 9 September 1873: 3.
- Birch CW. 1877a. To the Diamantina. *Brisbane Courier* 17 November 1877: 3.
- Birch CW. 1877b. *Hymenocaris vermicanda*. Living specimens of an Upper Silurian (Cambrian) fossil. *Queenslander* 1 December 1877: 13.
- Birch CW 1878. The explorer. From Vindex, Scott and Gordon's, on the Western River, to Euri Creek. *Queenslander* 9 March 1878: 23.
- Birch CW. 1879. The naturalist. A naturalist's ramble in the north. *Queenslander* 22 March 1879: 372.
- Birch CW [as Zelling]. 1880. The Conservancy of Water. *Western Champion* 15 September 1880: 2.
- Birch CW. 1883. The "Mueller River" of McKinlay. *Queenslander* 10 March 1883: 379.
- Bowen Downs Station Records. 1870-75. *Bowen Downs Station Records 1870-75*. Unpublished manuscript. James Cook University Archives: Townsville.

- Branagan DF. 2012. Fleshing out the landscape: two centuries of Australia's geological heroes. *Episodes: Journal of International Geosciences* 35(1): 44-56.
- Bryan WH. 1954. Samuel Stutchbury and some of those who followed him. *Queensland Government Mining Journal*, August 20, 1954: 641-646.
- Campbell J. 1936. The early settlement of Queensland: a reprint of the earliest known published memoirs of the settlement of Queensland. *The Bibliographical Society of Queensland*, 2nd series, 1: 5-30.
- Chalmers-Hunt JM. 1976. *Natural History Auctions, 1700-1972: a Register of Sales in the British Isles*. Sotheby Parke Bernet: London.
- Clarke PA. 2008. *Aboriginal Plant Collectors: Botanists and Australian Aboriginal People in the Nineteenth Century*. Rosenberg: Dural.
- Clements MI. 1975. A town called Proserpine. *Journal of the Royal Historical Society of Queensland* 9(6): 64-77.
- Crane MD. 1983. Samuel Stutchbury (1798-1859), naturalist and geologist. *Notes and Records of the Royal Society of London* 37: 189-200.
- Dance SP. 1980. Hugh Cuming (1791-1865) Prince of collectors. *Journal of the Society for the Bibliography of Natural History* 9(4): 477-501.
- Darragh T. 1996. Mueller and personal names in zoology and palaeontology. *Victorian Naturalist* 113(4): 195-197.
- De Vis CW. 1884a. On new Australian lizards. *Proceedings of the Royal Society of Queensland* 1(2): 53-56.
- De Vis CW. 1884b. On new species of Australian lizards. *Proceedings of the Royal Society of Queensland* 1(2): 97-100.
- De Vis CW. 1884c. Descriptions of new snakes with a synopsis of the genus *Hoplocephalus*. *Proceedings of the Royal Society of Queensland* 1(3): 138-140.
- De Vis CW. 1888. A contribution to the herpetology of Queensland. *Proceedings of the Linnean Society of New South Wales*, 2nd series, 2: 811-826.
- Etheridge R Jr, Jack RL. 1881. *Catalogue of Works, Papers, Reports, and Maps, on the Geology, Palaeontology, Mineralogy, Mining and Metallurgy, etc., of the Australian Continent and Tasmania*. Edward Stanford: London.
- George AS. 2009. *Australian Botanist's Companion*. Four Gables Press: Kardinya, Western Australia.
- Gill JCH. 1981. Duncan McIntyre and the search for Leichhardt. *Journal of the Royal Society of Queensland* 11(4): 51-73.
- Gillbank L. 1996. Mueller's naming of places and plants in central Australia – Victorian eponyms. *Victorian Naturalist* 113(4): 219-226.
- Grainger E. 1982. *The Remarkable Reverend Clarke: the Life and Times of the Father of Australian Geology*. Oxford University Press: Melbourne.
- Hart HG. 1840. *The New Annual Army List, Corrected to the 7th February, 1840*. John Murray: London.
- Hedley C. 1889. Notes on the Helicidae. *Proceedings of the Royal Society of Queensland* 6(2 & 3): 120-121.
- Hillier AJ. 1994. The Native Police under scrutiny. *Journal of the Royal Historical Society of Queensland* 15: 279-293.
- Howe R. 1829. *Surveyor and Searcher of Customs. New South Wales. Inward Passengers Lists*. R Howe: Sydney.
- Hunt HA. 1914. *Results of Rainfall Observations made in Queensland: Including all Available Annual Rainfall Totals from 1040 Stations for all Years of Records up to 1913*. Commonwealth Bureau of Meteorology: Melbourne.
- Iredale T. 1933. Systematic notes on Australian land shells. *Records of the Australian Museum* 19(1): 37-59.
- Iredale T. 1958. John (William) Brazier. *Proceedings of the Royal Zoological Society of New South Wales for the year 1956-57*: 105-118.
- Jack RL, Etheridge R Jr. 1892. *The Geology and Palaeontology of Queensland and New Guinea*. James Charles Beal: Brisbane.
- Kerr R. 1984. Irvinebank, mining community and centre of an empire: "God bless John Moffat". *Journal of the Royal Historical Society of Queensland* 12(1): 141-164.
- Landsborough W. 1866. News from the north. *Queenslander* 19 May 1866: 8.
- Lee Sir S. 1903. *Dictionary of National Biography: Index and Epitome*. Elder Smith: London.
- Lewis D. 2013. *Where is Dr Leichhardt?* Monash University Publishing: Clayton.
- Lucas AM, Lucas PJ. 2014. Natural history "collectors": exploring the ambiguities. *Archives of Natural History* 41.1: 63-74.
- Macleay W. 1866. The genera and species of the Amycteridae. *The Transactions of the Entomological Society of New South Wales* 1: 199-298.
- Macmillan DS. 1963. *Bowen Downs 1863-1963*. New Century Press: Sydney.

- Maroske S. 1993. 'The whole great continent as a present.' Nineteenth-century Australian women workers in science. In *On the edge of discovery*, ed. F Kelly, pp. 13-34. Text Publishing: East Melbourne.
- Maroske S. 1996. Introduction (Mueller Issue). *Victorian Naturalist*, 113(4): 128-130.
- Maroske S. 2014. 'A taste for botanic science': Ferdinand Mueller's female collector and the history of Australian botany. *Muelleria* 32: 72-91.
- Matthews LH. 1982. Samuel Stutchbury and Darwin's *Cirripedes*. *Notes and Records of the Royal Society of London* 36(2): 261-266.
- Maxted I. 2014. *Exeter Working Papers in Book History: London 1775-1800*: B. bookhistory.blogspot.co.uk, viewed 9 Sept. 2015.
- McCabe FP, Thompson J. 1856. *Survey and Settlement of Port Curtis*. New South Wales. Parliamentary Paper no. 366. New South Wales Legislative Council: Sydney.
- McKinlay J. 1863. *McKinlay's Journal of Exploration into the Interior of Australia (Burke Relief Expedition)*. FF Bailliere: Melbourne.
- Moore J. 1997. Green gold: the riches of Baron Ferdinand von Mueller. *Historical Records of Australian Science* 11(3): 371-388.
- Mueller F. 1865. Mr D. McIntyre's journey across Australia, from Victoria to the Gulf of Carpentaria, and discovery of supposed traces of Leichhardt. *Proceedings of the Royal Geographical Society of London* 9(6): 300-305.
- Mueller F. 1870. The fate of Leichhardt. *Brisbane Courier* 14 March 1870: 2.
- Mueller F. 1871. *Lythraceae. Fragmenta Phytographiae Australiae* 7(57): 145-147.
- Mueller F. 1874. *Salsolaceae. Fragmenta Phytographiae Australiae* 8(66): 163.
- O'Shaughnessey EW. 1834. *Australian Almanac and Sydney Directory: 1834*. Sydney.
- Olsen P. 2013. *Collecting Ladies: Ferdinand von Mueller and Women Botanical Artists*. National Library of Australia: Canberra.
- Orchard AE. 1999. A history of systematic botany in Australia. *Flora of Australia*, 2nd edn, 1: 11-103.
- Organ MK. 1998. "...a small fish in a small pond..." The Reverend W.B. Clarke (1798-1878): 200 years on. Part 1. *Journal and Proceedings of the Royal Society of New South Wales* 131: 101-112.
- Organ MK. 1999. "...a small fish in a small pond..." The Reverend W.B. Clarke (1798-1878): 200 years on. Part 2. *Journal and Proceedings of the Royal Society of New South Wales* 132: 23-28.
- Page D. 1867. *Advanced Text-book of Geology, Descriptive and Industrial*, 4th Ed. William Blackwood and Sons: Edinburgh and London.
- Palmer E. 1903. *Early Days in North Queensland*. Angus & Robertson: Sydney.
- Pfeiffer L. 1856a. Descriptions of thirty-three new species of land-shells, from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* 24: 385-392.
- Pfeiffer L. 1856b. Descriptions of two new species of *Melampus*, from Mr Cuming's collection. *Proceedings of the Zoological Society of London* 24: 393.
- Powell H. 1870. Supposed trace of Leichhardt. *Brisbane Courier*, 9 Feb. 1870: 3.
- QPN [Queensland Place Names]. 2015. *Queensland Place Names*, www.dnrm.qld.gov.au, viewed 30 September 2015.
- Richards J. 2008. *The Secret War: a True History of Queensland's Native Police*. University of Queensland Press: St Lucia.
- Richards J. 2014. "Many were killed from falling over the cliffs": The naming of Mount Wheeler, Central Queensland. In *Indigenous and Minority Places Names: Australian and International Perspectives*, eds. ID Clark, L Hercus & L Kostanski, pp. 147-161. ANU Press: Canberra.
- Scott AM. 1870. Leichhardt search expedition. *Brisbane Courier* 8 June 1870: 3.
- Skinner LE. 1975. *Police of the Pastoral Frontier: Native Police, 1849-1859*. University of Queensland Press: St Lucia.
- Stephani F. 1898-1924. *Species Hepaticarum*, Volumes 1-6. Georg & Cie: Geneva.
- Stephani F. 1916. *Species Hepaticarum* 5: 972-1007.
- Stephens Sir Leslie [Ed]. 1909. *Dictionary of National Biography*, Vol. 22. Oxford University Press: London.
- Stutchbury S. 1852-1857. *Further papers relative to the recent discovery of gold in Australia*, 7 Volumes. George Edward Eyre & William Spottiswoode: London.
- Stutchbury S. 1855. Geological and mineralogical survey [Fifteenth report]. *Votes and Proceedings of the Legislative Council during the session of the year 1855. With the various documents connected therewith*. Vol. 1. 1185-1192 [1-8]. William Hanson: Hyde Park, Sydney.
- Stutchbury S. 1856. Geological and mineralogical survey. [Sixteenth report]. *Votes and Proceedings of the Legislative Council during the session of the year 1855. With the various documents connected therewith*. Vol. 1. 1193-1197 [1-5]. William Hanson: Hyde Park, Sydney.

Taylor MB. 1989. *Promoters, Patriots, and Partisans*. University of Toronto Press: Toronto.

Trustees. 1862. *Australian Museum*. Report of the Trustees of the Australian Museum, for the Year Ending 31 December, 1861.

Walker SR, Taylor IN, Milne G, Osten VA, Hoque Z, Farquharson RJ. 2005. A survey of management and economic impact of weeds in dryland cotton cropping systems of subtropical Australia. *Australian Journal of Experimental Agriculture* 45: 79-91.

War Office. 1830. *The Army List for January, 1830*. London.

War Office. 1834. *The Army List for April, 1834*. London.

Webb JB. 2003. *The Botanical Endeavour: Journey Towards a Flora of Australia*. Surrey Beatty & Sons: Chipping Norton.

White CT. 1925. Weeds of Queensland. No. 38. *Bassia birchii* (A "Chinese Burr"). *Queensland Agricultural Journal* 23(3): 200-201.

Wilson PG. 1984. Chenopodiaceae. *Flora of Australia* 4:81-330.

Wood W. 1828. *Supplement to the Index Testaceologicus: or a Catalogue of Shells, British and Foreign*. W Wood: London.

Endnotes

¹ *Baptisms solemnized in the Parish of Camberwell, in the County of Surrey, in the year 1822*. www.ancestry.com, viewed Sept. 2015.

² A Birch to R Birch, 23 Sept. 1827. Letter held in private family collection.

³ *Birch Family Correspondence*, M 840, State Library of Queensland; Netherlands, Births and Baptisms, 1564-1910. *Familysearch.org*, viewed Sept. 2015.

⁴ *Sydney Gazette and New South Wales Advertiser*, 3 Mar. 1832, p. 3, 'Births'.

⁵ *Sydney Gazette & New South Wales Advertiser*, 17 Jan. 1829, p. 2, 'Shipping Intelligence'.

⁶ *Australian Town and Country Journal*, 28 Oct. 1893, p. 29, 'A famous sculptor. His work in Sydney'.

⁷ *Empire* (Sydney), 4 Nov. 1854, p. 5, 'Barristers and Attorneys'.

⁸ R Birch to E Bagster, 3 Feb. 1829. Letter held in private family collection.

⁹ *Sydney Gazette and New South Wales Advertiser*, 3 Mar. 1832, p. 3, 'Births'.

¹⁰ *New South Wales Government Gazette*, Number 312, Jan. 2, 1838. The Town Allotments, p. 8; *New South Wales, Australia, Land Grants*. Town Purchase, p. 493.

¹¹ 'Town purchase'. Land Grants, p. 493. State Records New South Wales.

¹² A Birch to E Bagster, 17 Feb. 1831. Letter held in private family collection.

¹³ As above.

¹⁴ S Stutchbury to CW Birch, Feb. 1855. New South Wales State Records, AONSW 4/3276.

¹⁵ New South Wales, Registers of Land Grants & Leases, 1840-42.

¹⁶ New South Wales, Returns of the Colony, 1841. Ancestry.com, viewed Sept. 2015.

¹⁷ *Sydney Morning Herald*, 4 Aug. 1846, p. 2, 'Domestic Intelligence'.

¹⁸ *New South Wales Government Gazette*, no. 41, May 7, 1847; *Sydney Morning Herald*, 8 May 1847, p. 2, 'Petty Sessions'.

¹⁹ New South Wales, Returns of the Colony, 1847, p. 172. Ancestry.com, viewed Sept. 2015.

²⁰ New South Wales, Returns of the Colony, 1852, p. 173. Ancestry.com, viewed Sept. 2015.

²¹ *Colony of New South Wales*, 1853. p. 195; *Colony of New South Wales*, 1854. pp. 225, 400; *New South Wales, Colonial Secretary. Returns of the Colony*, 1855. pp. 254, 454. Ancestry.com, viewed Sept. 2015.

²² *Maitland Mercury and Hunter River General Advertiser*, 23 Nov., p. 2, 'Shipping Intelligence'.

²³ *Empire* (Sydney), 4 Jan. 1851, p. 3, 'Domestic News'.

²⁴ CW Birch to WB Clarke, 13 Dec. 1858. State Library of New South Wales.

²⁵ As above.

²⁶ S Stutchbury to CW Birch, Feb. 1855. New South Wales State Records, Container: 4/3276; Item number: 55/4682.

²⁷ CW Birch to S Stutchbury, 8 Mar. 1855. New South Wales State Records, Container: 4/3276; Item number: 55/4682.

²⁸ CW Birch to WB Clarke, 13 Dec. 1858. State Library of New South Wales, 139/34, 107.

²⁹ *Sydney Morning Herald*, 30 Nov. 1854, p. 3. 'To the Honorable the Colonial Secretary'.

³⁰ CW Birch to WB Clarke, 13 Dec. 1858, State Library of New South Wales, 139/34, 107.

³¹ As above.

³² *Sydney Morning Herald*, 4 Apr. 1866, p. 5, 'A Valuable Indigenous Vegetable Fibre'.

³³ *Sydney Morning Herald*, 9 Dec. 1857, p. 8, 'Donations to the Australian Museum during November, 1857'.

³⁴ *Sydney Morning Herald*, 8 Jan. 1859, p. 7, 'Donations to the Australian Museum during December, 1858'.

- ³⁵ *Courier* (Brisbane), 16 Sept. 1862, p. 4, 'Government Advertisements'.
- ³⁶ *Courier* (Brisbane), 6 Oct. 1863, p. 3, 'Government Advertisements'.
- ³⁷ *Queensland Government Gazette*, vol. 10, no. 54, 3 July, 1869, p. 800.
- ³⁸ *Queensland Government Gazette*, vol. 11, no. 31, 2 April, 1870, p. 469.
- ³⁹ *Sydney Morning Herald*, 4 Apr. 1866, p. 5, 'A Valuable Indigenous Vegetable Fibre'.
- ⁴⁰ CW Birch to F Mueller, 10 Apr. 1873, Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁴¹ *Brisbane Courier*, Thurs. 29 Sept. 1870, p. 3, 'Leichhardt relics'.
- ⁴² F Mueller to CW Birch, 29 Aug. 1870. Queensland State Archives, Item ID 846928 74/1714.
- ⁴³ *Argus*, 22 Oct. 1870, p. 4, '[Editorial]'; *Hawke's Bay Herald*, 20 Dec. 1870, p. 3, 'Baron von Jochmus'.
- ⁴⁴ F Mueller to CW Birch, 10 Nov. 1870. Queensland State Archives, Item ID 846928 74/1714.
- ⁴⁵ *Brisbane Courier*, Supplement, 12 Jan. 1865, p. S1, 'Late exploration of the shores of Carpentaria'.
- ⁴⁶ *Portland Guardian and Normanby General Advertiser*, 17 Apr. 1865, p. 3, 'Ladies' Leichhardt Search Committee'.
- ⁴⁷ F Mueller to CW Birch, 10 Nov. 1870. Queensland State Archives, Item ID 846928 74/1714.
- ⁴⁸ F Mueller to L Calvert, 31 Jan. 1871. Mitchell Library, State Library of New South Wales, A4496, Mueller Correspondence Project transcription, Royal Botanic Gardens Melbourne.
- ⁴⁹ F Mueller to CW Birch, 14 Feb. 1871. Queensland State Archives, Item ID 846928 74/1714.
- ⁵⁰ *Brisbane Courier*, 15 Feb. 1871, p. 3, 'Roma District Court'.
- ⁵¹ *Queenslander*, 27 Jan. 1872, p. 11, 'Roma'; *Brisbane Courier*, 29 Jan. 1872, p. 3, 'Roma District Court'.
- ⁵² *Brisbane Courier*, 21 Feb. 1871, p. 7, 'The Charge Against Sub-Inspector Wheeler'.
- ⁵³ CW Birch to Private Secretary of His Excellency S Blackall, 22 Dec. 1870. Queensland State Archives, Item ID 846928 74/1714.
- ⁵⁴ *Queensland Government Gazette*, vol 12, no. 105, 21 October, 1871, p.1516; *Brisbane Courier*, 23 Oct. 1871, p. 2, 'Official Notifications'.
- ⁵⁵ Chief Inspector George Murray to Colonial Secretary. 27 Mar. 1871, Queensland State Archives Item ID 846928 74/1714.
- ⁵⁶ Letter in *Petermann's geographische Mittheilungen* (1873, p. 41), in German text translated by Mueller from a letter received from Birch. Original letter has not been located. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁵⁷ *Brisbane Courier*, 18 Jan. 1872, p. 2, [Editorial]; *Queenslander*, 20 Jan. 1872, p. 2, 'Current News'.
- ⁵⁸ F Mueller to Field-Marshal Jochmus, 2 Feb. 1872. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁵⁹ Field-Marshal Jochmus to CW Birch, undated (circa early 1872). Birch Family Papers, M 840, State Library of Queensland.
- ⁶⁰ C.W. Birch to Dorothy Gibbes, 28 Oct. 1893. Birch Family Papers, M 840, State Library of Queensland.
- ⁶¹ *Brisbane Courier*, 10 Aug. 1872, p. 4, 'Queensland Acclimatisation Society'; *Queenslander*, 17 Aug. 1872, p. 5, 'Queensland Acclimatisation Society'.
- ⁶² CW Birch to F Mueller, 28 May 1873. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁶³ CW Birch to F Mueller, 10 Apr. 1873. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁶⁴ CW Birch to F Mueller, 28 May 1873. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁶⁵ CW Birch to D Gibbes, 30 Apr. 1888. Birch Family Papers, M 840, State Library of Queensland.
- ⁶⁶ CW Birch to D Gibbes, 1883 or 1884, Alice River Post Office via Bogantungan, Queensland. Birch Family papers, M 840, State Library of Queensland.
- ⁶⁷ CW Birch to F Mueller, 25 Feb. 1879. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁶⁸ *Queenslander*, 29 Apr. 1876, p. 20, 'Field and Garden Reminders for May'; *Queenslander*, 20 May 1876, p. 19, 'Forthcoming Shows'.
- ⁶⁹ *Queenslander*, 7 Sept. 1878, p. 722, 'Notices to correspondents'.
- ⁷⁰ *Queenslander*, 22 Mar. 1879, p. 372, 'The Naturalist'.
- ⁷¹ CW Birch to F Mueller, 27 Apr. 1889. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.
- ⁷² CW Birch to D Gibbes, 22 June 1883. Birch Family Papers, M 840, State Library of Queensland.
- ⁷³ *Brisbane Courier*, 2 Apr. 1881, p. 6, 'Queensland Museum'.
- ⁷⁴ *Brisbane Courier*, 5 July 1883, p. 3, 'Queensland Museum'; *Queenslander*, 14 July 1883, p. 23, 'Queensland Museum'; *Brisbane Courier*, 8 May 1884, p.

6, 'The Queensland Museum'; *Brisbane Courier*, 11 June 1884, p. 5 'Royal Society'; *Queenslander*, 16 Aug. 1884, p. 278, 'Queensland Museum'; *Brisbane Courier*, 6 Sept. 1884, p. 5, 'Queensland Museum'; *Brisbane Courier*, 13 Sept. 1884, p. 5, 'Royal Society of Queensland'; *Queenslander*, 20 Sept. 1884, p. 482, 'The Royal Society'; *Queenslander*, 11 Oct. 1884, p. 604, 'Queensland Museum'; *Queenslander*, 16 Oct. 1886, p. 29, 'Queensland Museum'; *Queenslander*, Sat. 13 Nov. 1886, p. 789, 'The Queensland Museum'.

⁷⁵ *Brisbane Courier*, 7 Feb. 1884, p. 5, 'Queensland Museum'.

⁷⁶ *Brisbane Courier*, 2 July 1884, p. 5, 'Queensland Museum'.

⁷⁷ CW Birch to F Mueller, 10 June 1883. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.

⁷⁸ CW Birch to D Gibbes. 14 Apr. 1886. Birch Family Papers, M 840, State Library of Queensland.

⁷⁹ CW Birch to D Gibbes, 22 June 1883. Birch Family Papers, M 840, State Library of Queensland.

⁸⁰ CW Birch to D Gibbes, 3 Apr. 1890. Birch Family Papers, M 840, State Library of Queensland.

⁸¹ CW Birch to F Mueller, 27 Apr. 1889. Mueller Correspondence Project, Royal Botanic Gardens Melbourne.

⁸² Queensland Police Gazette, 1889, p. 350; Pugh's Almanac, 1894, p. 153.

⁸³ CW Birch to F Mueller, 23 Mar. 1892. Note accompanying specimen of *Siphonodon pendulus*. Royal Botanic Gardens Melbourne.

⁸⁴ CW Birch to R Whysall, 7 Sept. 1893. Birch Family Papers, M 840, State Library of Queensland.

⁸⁵ CW Birch to R Whysall, 1 Dec. 1893. Birch Family Papers, M 840, State Library of Queensland.

⁸⁶ CW Birch to D Gibbes, 6 Feb. 1894. Birch Family Papers, M 840, State Library of Queensland.

⁸⁷ CW Birch to D Gibbes, 16 Apr. 1894. Birch Family Papers, M 840, State Library of Queensland.

⁸⁸ Walsh District Hospital to C Denford. 6 July 1894. Birch Family Papers, M 840, State Library of Queensland.

⁸⁹ A Jack to W [D] Gibbes, 24 June 1894. Birch Family Papers, M 840, State Library of Queensland.

⁹⁰ *Queensland Death Certificate*. Registration number 1894/001924 000282, Charles William Birch. Registrar-General.

⁹¹ *Sydney Morning Herald*, 11 July 1894, p. 1, 'Deaths'.