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### Ferdinand Hochstetter in Australia, 1858-1859

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## Ferdinand Hochstetter in Australia, 1858-1859

### Abstract

The visit to Australia in 1858 of the Austrian Imperial Frigate *Novara* was part of a flag-waving exercise by the Austrian Habsburg monarchy, though it acquired added significance due to the inclusion on board of a scientific contingent comprising Ferdinand Hochstetter (geologist); Georg Frauenfeld and Johann Zelebor (zoologists); Eduard Schwarz and Anton Jelinek (botanists); Karl Scherzer (historiographer, ethnographer and economist); and Joseph Selleny (artist). Members of the crew, including Commodore Bernhard von Wüllerstorff-Urbair and Lt. Robert Muller, were also expert in the fields of meteorology, hydrography, oceanography, geophysics and linguistics. The records of these scientists and their various collections would have an impact beyond the mere politics of the *Novara* venture, with Ferdinand Hochstetter being the scientist to gain most from his association. The *Novara* departed its home port of Trieste on 30 April 1857 and returned on 26 August 1859. Some twenty-one official volumes recording the findings of the expedition appeared between 1861 and 1876 under the series title *Reise der Österreichischen Fregatte Novara um die Erde 1857, 1858, 1859*. Numerous papers were published by scientific bodies such as the Vienna Academy of Science, and Austrian museums were presented with foreign collections for study and display.

### Keywords

hochstetter, 1858, 1859, australia, ferdinand

### Disciplines

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## Ferdinand Hochstetter in Australia, 1858-1859

Michael Organ

### Hochstetter and the *Novara* Expedition

The visit to Australia in 1858 of the Austrian Imperial Frigate *Novara* was part of a flag-waving exercise by the Austrian Habsburg monarchy, though it acquired added significance due to the inclusion on board of a scientific contingent comprising Ferdinand Hochstetter (geologist); Georg Frauenfeld and Johann Zelebor (zoologists); Eduard Schwarz and Anton Jelinek (botanists); Karl Scherzer (historiographer, ethnographer and economist); and Joseph Selleny (artist). Members of the crew, including Commodore Bernhard von Wüllerstorff-Urbair and Lt. Robert Müller, were also expert in the fields of meteorology, hydrography, oceanography, geophysics and linguistics. The records of these scientists and their various collections would have an impact beyond the mere politics of the *Novara* venture, with Ferdinand Hochstetter being the scientist to gain most from his association. The *Novara* departed its home port of Trieste on 30 April 1857 and returned on 26 August 1859. Some twenty-one official volumes recording the findings of the expedition appeared between 1861 and 1876 under the series title *Reise der Österreichischen Fregatte Novara um die Erde 1857, 1858, 1859*. Numerous papers were published by scientific bodies such as the Vienna Academy of Science, and Austrian museums were presented with foreign collections for study and display.<sup>1</sup>

Christian Gottlieb Ferdinand Hochstetter was born in Esslingen, Württemberg, Germany, on 30 April 1829, the son of Christian Ferdinand Hochstetter (1787-1860), a Lutheran parson and professor at Esslingen's Royal High School Teachers College.<sup>2</sup> The younger Hochstetter entered Tübingen University in

- <sup>1</sup> For a modern-day account of the *Novara* expedition and its aftermath, see Karl von Scherzer, *Die Weltumseglung der Novara 1857-1859*, ed. by Günter Treffer (Wien, Molden, 1973); and Renate Basch-Ritter, *Die Weltumseglung der Novara 1857-1859: Österreich auf allen Meeren* (Graz, Akademische Druck- und Verlags-Anstalt, 2008).
- <sup>2</sup> Biographical and other works on Hochstetter in English are to be found in: Henry Woodward, 'Obituary - Dr. Ferdinand von Hochstetter', *The Geological Magazine*, I(XI) (1884), pp. 526-528; Julius von Haast, 'In Memoriam: Ferdinand Ritter von Hochstetter', *New Zealand Journal of Science*, 2(5) (1884), pp. 202-220; Mabel Rice (ed.), 'Hochstetter Centenary Issue', *New Zealand Journal of Geology and Geophysics*, 2(5) (1959), pp. 824-963; Walter Carlé, *Carlé's Biography of Ferdinand von Hochstetter*, transl. by C. A. Fleming, L. O. Kermode, J. Northcote-Bade and K. B. Spörli ([Lower Hutt], Geological Society of New Zealand, 1988); C. A. Fleming, 'Hochstetter, Christian Gottlieb Ferdinand von', *The Dictionary of New Zealand Biography. Volume One: 1769-1869* (Wellington, Allen & Unwin/Dept. of Internal Affairs, 1990), pp. 199-200; Les

1847 to study for the Lutheran ministry; however, his interests in the earth sciences were to distract him from any religious vocation. He completed his theological studies in 1851 and gained a doctorate in philosophy the following year, presenting a thesis on the mineralogy of calcspar. Hochstetter joined the Austrian Geological Survey in 1853, following an invitation from Professor Wilhelm von Haidinger (1795-1871),<sup>3</sup> who was impressed with the skills of this young geologist. He was subsequently appointed chief geologist for Bohemia, and in 1856 admitted as a lecturer to the University of Vienna. With Haidinger's support, Hochstetter found favour at the Austrian court and, as a consequence, was offered the position of official geologist to the *Novara* expedition. While this posting provided him with the opportunity to travel the world and expand his geological knowledge, it also had limitations. English palaeontologist Henry Woodward, in an 1884 obituary notice of Hochstetter, observed that 'a voyage round the world with but short stoppages at distant and isolated stations might serve for general scientific investigation, but afforded but little opportunity for the geologist'.<sup>4</sup> Despite the constraints of life on board a crowded frigate with a crew of 352, and despite the limited time spent on shore, Hochstetter was nevertheless able to carry out extensive investigations.

The visit of the *Novara* to Australia took place during the latter stage of the two-year voyage. Following visits to South America, China, the Philippines and various Pacific islands, the frigate arrived in Sydney on 5 November 1858. Due to damage suffered in a South China Sea storm whilst en route, an extended stay of some four weeks was required to carry out repairs in Cockatoo Island's Fitz-Roy Dock. This allowed the scientists on board time to study at length aspects of Sydney and its immediate environs, prior to departing on 7 December. While in Sydney, Commodore Wüllerstorff-Urbair met Governor-General Sir William Denison on 6 November and the issue of the need for an official geological survey of the Drury coalfield in Auckland, New Zealand, was raised. The Austrian offered his support, and on 9 November Denison was able to write to Sir Roderick Murchison that Hochstetter had been secured for the work.<sup>5</sup>

Kermode, 'Ferdinand Hochstetter in New Zealand', *Newsletter of the Geological Society of New Zealand Historical Studies Group*, 5 (1992), pp. 1-16; Les Kermode, 'Ferdinand von Hochstetter', in James N. Bade (ed.), *The German Connection: New Zealand and German-speaking Europe in the Nineteenth Century* (Auckland, Oxford University Press, 1993), pp. 152-161.

<sup>3</sup> William A. S. Sarjeant, 'Wilhelm Karl von Haidinger (1795-1871)', in: Sarjeant, *Geologists and the History of Geology - An International Bibliography from the Origins to 1978* (London, Macmillan, 1980), vol. 2, p. 1178.

<sup>4</sup> Woodward, 'Obituary', p. 527.

<sup>5</sup> Sir William Denison, *Varieties of Vice-regal Life* (London, Longmans, Green & Co., 1870), vol. 1, p. 454. Governor Denison was also a trustee of the Australian Museum and an amateur geologist and natural historian. He donated numerous animal and geological

Upon leaving Sydney, the *Novara* sailed for New Zealand, arriving off Auckland on 22 December. Following some Christmas festivities involving the largely Catholic crew, Hochstetter and a group of scientists and sailors from the *Novara* set out on the Drury survey, after which they undertook a journey down to the Waikato River. With the coalfield report completed relatively quickly, Hochstetter prepared to leave New Zealand with his comrades.<sup>6</sup> However, the local authorities strongly urged his remaining behind to carry out further surveys. Initially hesitant at accepting - as it would require his detachment from the *Novara* - Hochstetter's mind was changed when undertakings were given to cover all his expenses, support the survey with porters and equipment, pay his return passage to Vienna, and assist with publications.

The *Novara* departed Auckland on 8 January 1859, leaving Hochstetter behind to engage in detailed fieldwork. Following nine months' intense activity, he left New Zealand on 2 October, arriving in Sydney six days later. After a stay of eight days he journeyed to Victoria and undertook an extensive tour of the goldfields there. Hochstetter eventually boarded the steamship *Benares* on 18 November for the return voyage to Europe via Western Australia and Suez, arriving back at Trieste on 9 January 1860, some four months after his shipmates. Following his return, Hochstetter was appointed Professor of Mineralogy and Geology at the Royal Imperial Polytechnic Institute in Vienna, a post he held until 1874. He was president of the Geographical Society of Vienna from 1867 to 1882, and in 1876 was appointed first superintendent of the Imperial Natural History Museum in Vienna. Hochstetter still held that post at the time of his death on 18 July 1884, aged fifty-five. Obituary notices spoke of his genius, skills as an educator, and the breadth of his geological researches. In Austria, he came to be regarded as a pre-eminent geologist, mineralogist and stratigrapher, with the *Novara* expedition just one episode in a busy life.

### Hochstetter and Australia

Whereas Austrians and New Zealanders have much to honour Ferdinand Hochstetter for regarding the development of scientific inquiry in their respective countries, the results of his brief visits to Australia in 1858 and 1859 appear meagre, especially when we consider the fact that he was a prolific writer during

specimens to that institution during his term as Governor-General of the Australian colonies from 1855 to 1860.

<sup>6</sup> Ferdinand Hochstetter, 'Report of a Geological Exploration of the Coalfield in the Drury and Hunua District in the Province of Auckland, New Zealand', *New Zealand Gazette*, 2 (1859), pp. 9-12; *Auckland Provincial Government Gazette*, 8(2) (1859), pp. 14-17.

this period.<sup>7</sup> Hochstetter compiled reports of both a scientific and general nature from the time he first boarded the *Novara* in April 1857. One such exercise included his work as a roving journalist for a Viennese newspaper, the *Wiener Zeitung*. Between 1857 and 1859, Hochstetter sent home reports of his travels which were published in forty-two parts within that paper. Three of these dealt with New South Wales. Some of his letters from the *Novara* also appeared in Stuttgart's *Schwäbische Merkur* during 1858. As a memorial, the *Novara* reports that had appeared in the *Wiener Zeitung* were compiled by Vinzenz von Haardt and published in Vienna in 1885 as *Ferdinand v. Hochstetter's Gesammelte Reise-Berichte von der Erdumseglung der Fregatte „Novara“ 1857-1859*.

A bibliography of Hochstetter's Australian and New Zealand publications reveals the extent of his endeavours between 1859 and 1864. Apart from material in the official publication series documenting the *Novara's* voyage, it includes numerous geological, geographical and palaeontological reports prepared for bodies such as the Vienna Imperial Academy of Science and the Imperial Royal Geological Survey. Four Australasian articles appeared between 1859 and 1864. They included 'Notes on some fossil animal remains and their resting places in New Holland - On *Diprotodon Australis* (Owen) and *Nototherium Mitchelii* (Owen)' (1859); 'Geological Surveys in Victoria, Australia' (1859); and 'Bone remains and related plaster-castings from Australia and New Zealand' (1864).<sup>8</sup> Hochstetter had some input into the official narrative of the *Novara* expedition, published in both German and English editions during the 1860s.<sup>9</sup> Sections therein on 'Gold-diggings of New South Wales', 'Priority of Discovery of the Victoria Gold Fields' and 'Geological Speculations as to Age of Australia' were most likely written by him. Australian newspapers have

7 A complete catalogue of Hochstetter's published work is to be found in: Franz von Heger, 'Ferdinand von Hochstetter', *Mitteilungen der Kaiserlich-Königlichen Geographischen Gesellschaft*, 27 (1884), pp. 345-392.

8 Ferdinand von Hochstetter, 'Notizen über einige fossile Thierreste und deren Lagerstätten in Neu-Holland - Über *Diprotodon Australis* (Owen), und *Nototherium Mitchelii* (Owen)', *Sitzungsberichte der Mathematisch-Naturwissenschaftlichen Classe der Kaiserlichen Akademie der Wissenschaften*, 35 (1859), pp. 349-358; 'Geologische Aufnahmen in Victoria, Australien', *Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt*, 11 (1860), pp. 24-26; 'Schreiben des Herrn H. Ulrich aus Australien', *Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt*, 12 (1861-1862), pp. 23-28; 'Knochenreste und Gypsabgüsse solcher, aus Australien und Neu-Seeland', *Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt*, 14 (1864), pp. 36-37; 'Fossile Beuteltiere aus Australien', *Verhandlungen der Kaiserlich-Königlichen Geologischen Reichsanstalt*, 14 (1864), pp. 36-38.

9 Karl von Scherzer, *Reise der Oesterreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859... Beschreibender Theil* (3 vols.; Wien, Kaiserlich-Königliche Hof- und Staatsdruckerei/Karl Gerold's Sohn, 1861-1862); *Narrative of the Circumnavigation of the Globe by the Austrian Frigate Novara, ... in the years 1857, 1858, & 1859...* (3 vols., London, Saunders, Otley, & Co., 1861-1863).

proven to be a rich store of information, with almost daily reports appearing on the activities of the scientists and crew of the *Novara* and of Hochstetter's later travels in Victoria.

Why did Ferdinand Hochstetter publish so little Australian material of a scientific nature? During the two months he spent in New South Wales, Victoria and Western Australia, he had an opportunity to study aspects of the local geology and carry out fieldwork, visiting both the Newcastle coalfields and the Castlemaine goldfields. He acquired a comprehensive collection of published works on Australian geology, including items by Joseph Jukes, Paul Strzelecki and W. B. Clarke, and, in addition, he spoke at length with many local geologists and collectors. However, he did not publish any consolidated work on Australian geology following his return to Vienna in 1860. It is likely that Hochstetter considered the 1849 publication by American geologist James Dwight Dana, which included a detailed description of the geology of New South Wales and its sedimentary formations, plus the work of Clarke, Samuel Stutchbury, Jukes and Strzelecki, to have that colony covered, especially in regard to debate over the structure and age of the sedimentary formations around Sydney.<sup>10</sup>

With regard to Victoria, the situation was somewhat different. The Geological Survey in that colony had been set up in 1852, and by 1859 was involved in a programme of field surveys and the publication of concise geological maps.<sup>11</sup> As with New South Wales, there was apparently no need for a detailed summary of Victorian geology on Hochstetter's part. His time upon returning to Austria could, therefore, best be spent describing the geology of little-known areas such as the Pacific Islands and New Zealand, where no official geological surveys were in place and a concise synthesis of what was known to date, along with Hochstetter's own findings, was required. The further imperative of economic exploitation resulting from the discovery of gold, coal, and iron ore deposits was also a driving factor during this period, and this is reflected within the official publication series arising from the *Novara's* voyage. Hochstetter would honour his commitment to Clarke and others to identify various Australasian fossils and forward European specimens to local museums by way of exchange; however, the production of any substantial treatise on Australian geology would be left in the hands of the locals.

What use, then, is a study of Hochstetter's time in New South Wales, Victoria and Western Australia? The answer lies in observing his interaction with the local community of scientists, with those of his fellow countrymen who had set-

10 James Dwight Dana, *Geology. United States Exploring Expedition. Volume X* (Philadelphia, C. Sherman, 1849); Dana, *Atlas. Geology. United States Exploring Expedition. Volume X* (New York, Geo. P. Putnam, 1849).

11 Thomas A. Darragh, 'The Geological Survey of Victoria under Alfred Selwyn, 1852-1868', *Historical Records of Australian Science*, 7(1) (1987), pp. 1-25.

tled in the colony, and with his own, largely unpublished thoughts on aspects of Australian geology and various topics such as the Australian Aborigines.

### New South Wales, 1858

What did Ferdinand Hochstetter do during his visit to New South Wales in November-December 1858? A knowledge of his movements can be gleaned from his manuscript geological notes, the published *Wiener Zeitung* articles and the official *Novara* publications, various newspaper notices, and the extant reports and diaries of his shipmates, including those of Karl Scherzer.<sup>12</sup> With these resources, we can apply the 'historical microscope' to reveal a detailed picture of this episode, both from Hochstetter's perspective as he went about the business of geologising, and from that of the colonists he encountered.

Upon the arrival of the *Novara* in Sydney, Hochstetter was keen to get into the field, to perhaps visit the Blue Mountains, the goldfields at Bathurst, and the local coalfields. At the earliest opportunity, one group of *Novara* scientists and sailors headed south to the Illawarra district, where local Aborigines were studied, botanical and entomological specimens were collected, and a visit to the local coal mines took place. Another party, which included Hochstetter and the artist Joseph Selleny, went north to Newcastle and the Hunter Valley, spending some time with the Scott family at Ash Island. Hochstetter's manuscript notes on the 'Geologie von New South Wales' indicate he visited the Newcastle coalfields and inspected in some detail the workings of the Newcastle Coal and Copper Company and the Victoria Tunnel Seam. He also engaged in discussions with William Keene on the geology of the region, and signed the visitors book in Keene's museum on Monday, 8 November 1858.<sup>13</sup> Evidence suggests his party caught a steamer from Sydney to Newcastle on the evening of Sunday, 7 November, and had returned to Port Jackson by 12 November, around which date Hochstetter sent off another report to the *Wiener Zeitung*.

During the following weeks, he carried out fieldwork in the immediate environs of Sydney and Parramatta, and made contact with the Reverend W. B. Clarke and his family, though that gentleman was otherwise engaged during much of November in an Anglican synod. Dr Julius Berncastle<sup>14</sup> provided

12 Karl Scherzer, 'Tagebuch geführt während einer Reise um die Erde 1857-1859'. Mitchell Library, Sydney, 3 vols., MSS A2633-5, 834 pp. The Sydney section is at A2635, pp. 42-77.

13 David F. Branagan, *Geology and Coal Mining in the Hunter Valley, 1791-1861* (Newcastle, Newcastle Public Library, 1972), p. 72.

14 Julius Berncastle (1819-1870) was former Assistant Colonial Surgeon of Van Diemen's Land (1841-1842), and practised as an oculist and aurist in Sydney from 1854 to 1867, before moving on to Melbourne. See H. J. Gibbney and Ann G. Smith (eds.), *A Bio-*

Hochstetter with details of the quickest route to Bathurst, but unfortunately time constraints meant he was unable to make the journey. At the 18 November meeting of the trustees of the Australian Museum, a letter from Hochstetter was tabled, along with a report on the receipt of gifts of one hundred Miocene fossils from Vienna, published geological works for Professor John Smith of Sydney University, and a Haidinger bronze medallion. In return, the Austrian scientist requested a collection of geological specimens from the Museum's collections.<sup>15</sup> The Trustees eventually despatched, by the *Novara*, a large collection of 'Mammalia, Aves and Ethnographical specimens, together with casts of the fossil skull and bones of the *Diprotodon* and other extinct Australian Mammals'.<sup>16</sup>

On 25 November, Hochstetter was one of several speakers at a special *Novara* dinner hosted by the Sydney German Club. His words that evening were 'solemn and serious' as he reminded the audience 'of the merits of German science which have also accrued in Australia, and how proud we must be that among the names of those men following their goal to scientifically explore the interior of Australia with self-sacrificing devotion, the name of a German tops the list, Dr. Leichhardt, whom the colonists named as their best friend and whose fate, in spite of every effort by noble fellow-men, is still shrouded in mystery. Most probably though, he has died a martyr's death in the service of science. Dr. Hochstetter asked the assembly to rise in silence in memory of our unfortunate compatriot Dr. Leichhardt'.<sup>17</sup> This was followed by toasts to Alexander von Humboldt, Governor Denison, and H. R. H. Prince Albert.

Two days later a solemn 'Te Deum' mass and full parade of the ship's compliment was held on board the *Novara*, followed by a special breakfast for local dignitaries, including Wilhelm Kirchner, the Prussian consul and de facto Austrian ambassador. Karl Scherzer noted in his diary that 'the Commandant was highly displeased that Drs. Hochstetter and Frauenfeld did not also attend'.<sup>18</sup> No reason was given for their absence, though one suspects the two were either not engaged in legitimate scientific pursuits, or the Commandant had reprimanded them formerly over their absence. Before leaving Sydney on 7 December, Hochstetter received a lengthy letter from the Reverend W. B. Clarke, requesting help in the identification of some foraminifera from Geelong, and of plant impressions in a red schistose rock from near Green Ponds, Tasmania. He also received drawings and a casting of a fish from Cockatoo Island which Clarke

*graphical Register 1788-1939. Notes from the Name Index of the Australian Dictionary of Biography. Volume I.* (Canberra, Australian Dictionary of Biography, 1987).

15 See Minute Book I, 1836-63, 'Special Meeting of Trustees, 18 November 1858' (Australian Museum Archives, Sydney).

16 Australian Museum - Report of the Trustees for 1858, *Journal of the Legislative Council of New South Wales*, 1 (1859-1860), pp. 371-378.

17 *Sydney Morning Herald*, 29 November 1858.

18 Scherzer, 'Tagebuch', p. 68.

had provisionally identified as *Platysomus*. The letter reveals more about the Reverend Clarke and his feelings of isolation from the European scientific community than anything of substance about Hochstetter, though it does point to the warm feelings which existed between the two men.<sup>19</sup>

Parsonage  
St. Leonard's  
30th Novr. 1858

My dear Sir,

I have sent on board *The Novara*, addressed to you, a box comprising the specimens which were selected from my private collection; and I have added to them several others of which I beg your acceptance. You can present them in my name to any Institution in Vienna to which they may be acceptable.

The limestones from Geelong containing *Foraminifera* I shall be very thankful to have compared by Prof. Ehrenberg with a view to determine the probable position of the beds from which they come in the Tertiary formation according to the English division into Pleiocene, Meiocene, Eocene.

There is a piece of schistose rock of a red colour, from near Green Ponds in Tasmania, on which are impressions of a plant quite new, I think, to the Carboniferous Formation to which it belongs. Perhaps you would be good enough to get a decision as to that plant from your well-skilled Palaeo-botanists. A similar request I make with respect to the other fossils, especially the Fish. The drawings I enclose of the Fish from Cockatoo Island. I have called a *Platysomus*, as I believe it to be. You have a cast of it in the duplicates, from the Museum: — a bad cast, but the only one that was made.

In the parcel which is not enclosed in the Box are the Catalogues, of which I obtained another copy,<sup>20</sup> [and] the two volumes I promised you — some loose newspaper articles of mine on the search for my poor friend Leichhardt, and on Gold in Granite &c &c.<sup>21</sup>

19 The manuscript notebooks are part of the 'Hochstetter Papers', in the private collection of Dr Albert Schedl (Geologische Bundesanstalt, Vienna). The collection includes a number of New Zealand and Australian geological notebooks and letters. Of specific relevance are: (a) W. B. Clarke to F. Hochstetter, manuscript letter, dated Sydney, 30 November 1858, 10pp; (b) F. Hochstetter, 'Geologie von New South Wales', manuscript notes [November–December 1858], 26pp; (c) 'Neu-Seeland und Australien [Book No. 5]', manuscript notebook, 1859, 175pp; (d) F. v. Mueller to Mrs F. v. Hochstetter, manuscript letter, dated Melbourne, 3 October 1884; (e) John Smith, 'Memo respecting the Water of the Waikato & the Waipa, for Dr. F. Hochstetter', manuscript note, dated Sydney University, 14 October 1859.

20 This most likely refers to the *Catalogue of the Natural and Industrial Products of New South Wales. Exhibited in the Australian Museum by the Paris Exhibition Commissioners* (Sydney, 1854). It included Clarke's list of 'Geological Specimens illustrating the succession of the Rock Formations in New South Wales', incorporating a geological time scale; and mineralogical surveyor Frederic Odenheimer's description of rocks from the Peel River goldfields.

21 For reference to W. B. Clarke's newspaper articles on matters concerning local geology and exploration, including his support of Ludwig Leichhardt, see M. K. Organ, 'W. B.

When my present public duties are less onerous I shall be happy to supplement the present collections by others: and if you will do me the honor to write to me on your arrival in the 'Fatherland', I will attend to your wishes, so far as I may be able, through Mr Kirchner.

It has given me great satisfaction and pleasure to have had the honor of making your acquaintance, and it will ever be an agreeable duty to attend to your wishes in any way, in which I can serve you in the interests of our common Science in relation to yourself, or the noble country to which you belong.

I have now a personal favor to ask of you, that you will kindly peruse the documents which refer to the discoveries of Gold in this country; and that you will, should opportunity occur, endeavour to do my share in that event the justice which belongs to me. The reward which the Colony gave to Mr Hargraves, which you will find mentioned in the Council Papers and also in Mr Carey's Book (called Hargraves')<sup>22</sup> was given, as you will find, not for the discovery, but for teaching the people how to wash the earth for gold, as per the manner practised in California.

I never claimed any reward, — what I have done, I have done in the cause of Science and for the advancement of the Colony. The £1000 which were awarded to me by this Colony, and the £1000 which were also awarded by Victoria, were given in consideration of the efforts I have made in the above behalf, and I shall be glad if you will bear this in mind.

I may, I trust, venture to say without any egotism, that the whole of the numerous gold localities which I have now indicated over an area extending through 17 degrees of latitude, and from 9° to 10° of longitude (calculating the extreme limits) have on examination by competent persons, been found to have been accurately indicated. And in this respect, I have no fear, that hereafter I shall receive justice, but in the turmoil of competition, you will see I have had difficulties in asserting any rightful position. I consider the prediction, if such it was, of my highly valued friend Sir Rodk. Murchison a totally independent affair, one which can, in no way, have influenced the actual discovery of gold in these Colonies, as affected my proceedings as the explorer of so enormous a region of auriferous rocks.

Lastly, I wish, as an independent member of the Board of Trustees of the Australian Museum, to express my deep regret, that the circumstances in which we are placed here by the conduct of the Curator have (as I doubt not) given an unfavourable impression to your mind and that of other members of the *Scientific Body* of our

Clarke as Scientific Journalist', *Historical Records of Australian Science*, 9(1) (1992), pp. 1-16; M. K. Organ, 'Bibliography of the Reverend W. B. Clarke', *Journal and Proceedings, Royal Society of New South Wales*, 127 (1994), pp. 85-134; and *The Letters of Ludwig Leichhardt*, coll. and transl. by Marcel Aurousseau (London, Cambridge University Press/Hakluyt Society, 1968).

22 Edward Hammond Hargraves' only book was *Australia and its Gold Fields* (London, 1855). Clarke, in his *Researches in the Southern Goldfields* (Sydney, 1860), pp. 300-301, points to 'a gentleman now living in the colony' (? Mr Carey) as the substantial author, or 'anonymous co-adjutor', of the book, with Hargraves' colleague Simpson Davidson also contributing some material. Clarke suggests that 'the middle of the work is all that, I presume, strictly belongs to the author [Hargraves]'. The latter was presented with a £5000 payment by the New South Wales government for his role in the discovery of gold.

progress in Science. Accustomed as you are to the well-arranged systems of management of Institutions and Museums in Germany, our unsettled and inefficient state of affairs may have surprised you. But you cannot with Austrian experience fully comprehend the difficulties in which we are placed in a new country like this – only 70 years advanced from the domain of the Savage and the Kangaroo.

Believe me,

My dear Sir,

Very faithfully Yrs.

W. B. Clarke

P.S. I will request you on your return to Vienna to present my compliments to Dr. Schmottzer, whom I had the honor of seeing here two years ago.<sup>23</sup> Mrs Clarke and my family desire their compliments to you.

Dr. Ferd.d Hochstetter

The troublesome curator Clarke referred to was William Sheridan Wall, employed at the Australian Museum between 1840 and 1859. During November 1858 he was involved in a bitter dispute with Museum secretary George French Angas, which arose after Wall's dog had defecated on the front stairs of the Museum on 19 October. As the curator was not in good health, he was retired by the trustees at the end of 1858, though Angas apparently told him 'to clear out of the building'.<sup>24</sup>

The letter also brought Hochstetter into the ongoing debate over the priority of the discovery of gold in Australia. This was something of a sore point with Clarke, who may be classed a member of the old school of 'gentleman scientists' and amateur natural historians originating in England during the first quarter of the nineteenth century. As pointed out by Rudwick, they were 'concerned with issues of recognition and scientific priority with an even greater intensity than later generations'.<sup>25</sup> On the other hand, Hochstetter belonged to the new school of professional geologists who had received their training via the national geological surveys which sprang up in countries such as England, France and Austria during the 1830s and 1840s. Despite the generational gap, Hochstetter, like Clarke, was not backward in promoting his own work. His New Zealand volume refers to the 'joy' of discovering ammonites in that country, while on the subject of gold he proclaimed:

23 Possibly a reference to Ludwig Schmarda, author of *Ludwig K. Schmarda's Reise um die Erde in den Jahren 1853-1857* (Braunschweig, 1861), who visited Sydney in 1854. See John Fletcher, *John Degotardi: Printer, publisher and photographer* (Sydney, Book Collectors' Society of Australia, 1984).

24 Ronald Strahan, *Rare and Curious Specimens. An Illustrated History of The Australian Museum 1827-1979* (Sydney, Australian Museum, 1979), pp. 23-24.

25 Martin J. S. Rudwick, *The Great Devonian Controversy: The Shaping of Scientific Knowledge among Gentleman Specialists* (Chicago, University of Chicago Press, 1985), p. 18.

I was the first to point out (in opposition to the former quite erroneous opinion) that the gold washed out of the quartz dust and boulders of streams flowing from the Coromandel Range, comes from quartz veins [...] that belong to an old Paleozoic (or Primary) argillite formation [...].<sup>26</sup>

Hochstetter was able to accommodate Clarke's request regarding the Australian priority of gold discovery within the pages of the narrative volumes of the *Novara* publication series; however, it was a small victory for the Reverend gentleman, and largely went unnoticed locally.

As the *Novara* prepared to leave Sydney, Hochstetter dispatched another of his 'travelogue' pieces to the *Wiener Zeitung* on 5 December.<sup>27</sup> This was to be the most substantial, covering the period from 12 November. In its compilation, he made liberal use of extracts from local Sydney newspapers such as John Degotardi's *Australische Deutsche Zeitung* ('Australian German Gazette'), published in Sydney between 1856 and 1860, and the *Sydney Morning Herald*. It should be remembered that the reports were journalistic effusions aimed at a popular readership, rather than the precise writings of a learned geologist with a scientific audience in mind. Hochstetter's account of the visit of the *Novara* to Sydney is primarily a description of the festivities which took place, and the reception by the local German and Austrian communities. It is sometimes difficult to distinguish between Hochstetter's own writings and those extracted from local dailies. His literary gifts are often found wanting, especially when we compare these reports with separate accounts of the Sydney stopover. A good example is the wonderfully lively and immediate manuscript diary of the expedition's ethnographer and official historian Karl Scherzer. In the words of a recent translator of the Sydney portion of Hochstetter's 'travelogues',

Scherzer's observations [...] are riveting – a very far cry from the platitudinous, actually downright boring blather of Hochstetter; an endless ping-pong game of fatuous addresses in the worst sort of Victorian (and German at that) pomposity, style and content of a paper of Lower Slobovia.<sup>28</sup>

In all fairness, much of the 'platitudinous blather' may have come from the hand of the *Australische Deutsche Zeitung* journalist Degotardi, though Hochstetter did prefer to include such passages in his reports to Vienna. This is understandable when we remember that the *Novara* voyage was just as much a diplomatic mission as a scientific expedition and sail-training exercise. For Ferdinand

26 Ferdinand von Hochstetter, *Geology of New Zealand: Contributions to the Geology of the Provinces of Auckland and Nelson*, transl. and ed. by C. A. Fleming (Wellington, Govt. Printer, 1959), p. 58.

27 Hochstetter's *Wiener Zeitung* articles were despatched from Sydney around 12 November and 5 December 1858. A third was written at sea on 12 December. They were published in Vienna between 29 January and 5 April 1859.

28 George Vladar, letter to the author, 29 May 1995.



Hochstetter, the ability to operate on a political and diplomatic level would prove important in his pursuit of Habsburg patronage and a successful professional career back home. As a counter to the aforementioned literary criticisms, Hochstetter's friend Julius Haast noted that his 1856 geological reports of Bohemia 'abounded in poetical originality'.<sup>29</sup>

As a social piece, Hochstetter's 'travelogues' fill many gaps in the record. No complete copies of the *Australische Deutsche Zeitung* from the period of the *Novara* visit are known in Australian collections; nor is there a personal journal by Hochstetter describing his Australian visit in a manner similar to Scherzer's diary. We only have his geological notebook, important as it is in revealing the extent of his scientific activities. Together with the *Wiener Zeitung* articles, it paints a vivid picture of the visit to New South Wales in 1858 by the *Novara*.

In comparing the reception Hochstetter received in Sydney in 1858 and Melbourne in 1859, there are marked differences. In both centres, the local German communities made him – and in Sydney, his shipmates – feel most welcome. Dinners, balls, home visits and presentations were arranged. In Melbourne, this involved a large section of the local scientific fraternity, many of whom claimed an attachment to the 'Fatherland'. The same could not be said for Sydney. The German presence there was not as marked, and amongst its ranks the emphasis was on commerce rather than science. Though the Sydney German community was very sociable, interest in the natural sciences was not an obviously uniting force. Furthermore, the reception given the *Novara* in Sydney by both officialdom and the local scientific community was somewhat subdued. This led a *Sydney Morning Herald* correspondent to write on 29 November 1858:

The *Novara* is in Port Jackson freighted with science. What is the Philosophical Society about? No soiree, no conversations, no formal recognition of our fellow-labourers in the paths of knowledge. Are we really earnest in the pursuit of learning?

A Member

A possible reason for this seeming disinterest on the part of the Sydney scientific fraternity (small though it was), may have been the Church of England synod then taking place, and occupying the energies of many of those same individuals who were staunch supporters of the Philosophical Society of New South Wales. This included (perhaps most significantly) the Reverend W. B. Clarke, then Vice-President of the Society; the Reverend William Woolls; and John Smith, to name but a few. With Clarke tied up in church business, and Governor Denison, President of the Society, somewhat indisposed due to the recent death of one of his children, the visit by the *Novara* came at a bad time. The Austrian contingent never received an official reception from the local scientific community, though individuals such as George Bennett, William Mac-

29 Haast, 'In Memoriam: Ferdinand Ritter von Hochstetter', p. 203.

leay, George French Angas, William Macarthur and William Keene did provide assistance and access to materials. The overt Catholicism of the Habsburg monarchy and the *Novara* crew (Hochstetter was Lutheran), may have been an additional factor in the somewhat cool reception given the Austrians by the largely Anglican 'pure bred and merinos' of New South Wales. When he arrived in Melbourne a year later the reception was decidedly warmer.

### Victoria and Western Australia, 1859

Following on his nine months in New Zealand, Hochstetter departed for Sydney aboard the *Prince Alfred* on 2 October 1859, arriving there on 8 October and remaining for just eight days, during which time he arranged transport of his various collections to Austria and a passage home via Melbourne. Whilst in Sydney, Hochstetter met with artist and Australian Museum curator George French Angas, pianist Madame Amalie Rawack, newspaper editor and publisher John Degotardi, scientist William Macleay, Governor Sir William Denison, and the photographer Wilhelm Hetzer, most of whom he had encountered during the previous visit in 1858. A brief account of his stay is contained in his manuscript diary of 1859, which also includes an account of his visit to Victoria and Western Australia. It has been translated by Thomas Darragh and published in a heavily footnoted scholarly edition.<sup>30</sup> As Darragh notes in his introduction: 'Notebooks and diaries of nineteenth-century scientists who either lived in or visited Victoria are scarce, if they exist at all. It is then very pleasing to find a notebook of a talented German geologist, Ferdinand Hochstetter'.<sup>31</sup>

On 13 October, he was honoured with a dinner by the German *Turnverein*, and presented with a complimentary address by its members. A local newspaper noted that 'Dr Hochstetter made a very happy reply, and the evening was passed in interesting conversation on science, and topics in connection with the "Fatherland"'.<sup>32</sup> On 15 October, Hochstetter boarded the *Wonga Wonga* for the coastal voyage to Melbourne. Arriving there on 18 October, he enjoyed an extended four-week stay, during which time he was able to make the acquaintance of the local scientific community, amongst whom were many Germans and Austrians. These included his host, Government Botanist Ferdinand von Mueller, geologists Alfred Selwyn, Christopher Aplin and George Ulrich, palaeontologist Professor Frederick McCoy, artist Eugen von Guérard, and political figures including Governor Sir Henry Barkly. Hochstetter's manuscript notebook of the visit contains detailed entries on individuals he met, plus discussions on aspects of

30 See Thomas A. Darragh, 'Ferdinand Hochstetter's Notes of a Visit to Australia and a Tour of the Victorian Goldfields in 1859', *Historical Records of Australian Science*, 13(4) (2001), pp. 383-437.

31 Darragh, 'Ferdinand Hochstetter's Notes', p. 383.

32 *The Empire*, 14 October 1859.

the local geology. In pursuance of his geological studies, Hochstetter made a tour of the Victorian goldfields between 25 October and 8 November, travelling to Castlemaine, Tarrangower, Bendigo, Ballarat and Geelong. Upon his return to Melbourne, he was fêted by the local German community, with dinners at Hockin's Hotel and the Criterion Hotel. On 16 November, a meeting of the Philosophical Institute of Victoria (later Royal Society of Victoria) was given over to his presentation of an illustrated lecture on the geology of New Zealand.<sup>33</sup>

Hochstetter left Melbourne on the afternoon of Friday, 18 November, and six days later, on 24 November, the *Benares* cast anchor at King George's Sound in Western Australia to take on coal. Though only in port for a day, Hochstetter's visit there was notable for the opportunity it offered him to see an Aboriginal corroboree, or 'war dance' as he termed it, and also to collect native botanical specimens, for which the area was noted for its extensive variety. The shipped weighed anchor the following morning at 6 a.m., and Hochstetter noted in his diary: 'So today, I have probably seen Australia for the last time'.<sup>34</sup>

Over one hundred and forty years later, through the work of Darragh and others, researchers were able to read these words and study Hochstetter's thoughts and opinions on a wide variety of topics ranging from science and society through to the Australian Aborigines, politics and the environment. Hochstetter's place in the annals of the history of Australian science has thus been secured and awaits further study.

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33 J. Macadam (ed.), 'Report on Ordinary Meeting – 16th November 1859', *Transactions of the Philosophical Institute of Victoria*, 4 (1860), p. xxxi.

34 Darragh, 'Ferdinand Hochstetter's Notes', p. 418.