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June 1998

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Abstract

During 1858 and 1859 the Austrian geologist Ferdinand Hochstetter visited Australia in connection with the Novara round-the-world scientific expedition. While much of significance was published as a result of Hochstetter's researches in New Zealand during 1859, the same cannot be said for his time in New South Wales and Victoria. With the aid of recently uncovered manuscript geological notebooks and contemporary material originally issued in German-language scientific journals, a preliminary assessment can be made of his visit to the Australian colonies. Aspects of the reception Hochstetter and his fellow Novara scientists received, and in turn his views on the state of scientific endeavour in Australia, are discussed. Brief excursions to the Newcastle coalfields in 1858, and the Victorian goldfields in 1859, are also highlighted.

Disciplines

Arts and Humanities | Social and Behavioral Sciences

Publication Details

This article was originally published as Organ, MK, 'Osterreich in Australien': Ferdinand von Hochstetter and the Austrian Novara Scientific Expedition 1858-9, *Historical Records of Australian Science*, 12(1), June 1998, 1-13.

'Österreich in Australien': Ferdinand von Hochstetter and the Austrian *Novara* Scientific Expedition 1858–9

Michael Organ *

During 1858 and 1859 the Austrian geologist Ferdinand Hochstetter visited Australia in connection with the *Novara* round-the-world scientific expedition. While much of significance was published as a result of Hochstetter's researches in New Zealand during 1859, the same cannot be said for his time in New South Wales and Victoria. With the aid of recently uncovered manuscript geological notebooks and contemporary material originally issued in German-language scientific journals, a preliminary assessment can be made of his visit to the Australian colonies. Aspects of the reception Hochstetter and his fellow *Novara* scientists received, and in turn his views on the state of scientific endeavour in Australia, are discussed. Brief excursions to the Newcastle coalfields in 1858, and the Victorian goldfields in 1859, are also highlighted.

Introduction

A little known episode in the annals of Australian science concerns the visit to New South Wales in 1858 of the Austrian Imperial Frigate *Novara*. Though primarily a flag-waving exercise on the part of the Austrian Habsburg monarchy – in much the same manner as the Wilkes United States Exploring Expedition of 1838–42 and Dumont d'Urville's French expedition aboard the *Astrolabe* during 1826–7 – the round-the-world voyage of the *Novara* in 1857–9 was given credibility by the presence on board of a scientific contingent comprising Ferdinand Hochstetter, geologist; Georg Frauenfeld and Johannes Zelebor, zoologists; Eduard Schwarz and Anton Jelinek, botanists; Karl Scherzer,

historiographer, ethnographer and economist; and Joseph Selleny, artist. Members of the crew, including Commodore B. Wüllerstorff-Urbair and Lt. Robert Müller, were also expert in the fields of meteorology, hydrography, oceanography, geophysics and linguistics.

Under the patronage of Archduke Ferdinand Maximilian, and with a scientific brief from Alexander von Humboldt, the *Novara* departed Trieste on 30 April 1857 with scientists and crew ready to take all manner of readings, collect and exchange specimens both animate and inanimate, and acquire publications for dispatch to Vienna. All this material would later be studied by the Austrian scientific community. Following the vessel's return to Trieste on 26 August 1859, some 21 official volumes recording the findings of the *Novara* expedition appeared between 1861 and 1877 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.¹

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 to Australia, an extended stay of some four weeks was required to carry out repairs in Cockatoo Island's FitzRoy Dock. This allowed the scientists on board time to study at length aspects of Sydney and its immediate environs. One of those to take up the opportunity and leave the crowded confines of the *Novara* was 29-year-old geologist Ferdinand Hochstetter.

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Biographical Outline

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.² The elder Hochstetter was a scholar in his own right, publishing popular works on botany, geology and palaeontology. Ferdinand entered Tübingen University in 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)³ 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.'⁴ Despite the constraints of life on board a crowded frigate with a crew of 334, and the limited time spent on shore, Hochstetter was nevertheless able to carry out extensive investigations of the geology of various Pacific islands and parts of Asia, before heading south to the Antipodes.

The *Novara* visited New South Wales between 5 November and 7 December 1858, at a time when debate over the age of the eastern Australian coalfields was taking place, and gold fever was still rampant. While in Sydney, Commodore Wüllestorf-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 as follows:⁵

Sydney

November 9, 1858

My dear Sir Roderick

The Governor of New Zealand wrote to me a short time ago, asking me to send down a competent person to examine and report upon a coal-field which had just been discovered near Auckland. I had nobody at my disposal so I asked the Commodore of the Austrian frigate, 'Novara', to help me, which he gladly consented to do, and has sent his geologist (Dr. Hochstetter), to examine the Auckland coal-field.

From the specimens sent to me, I should say it was lignite, formed from the debris of a Kauri pine forest: the Kauri gum is mixed with the coal in great quantities. I do not know what the specific gravity of ordinary lignite is: the specimen I examined was as heavy as ordinary coal, being 132.8, as near as possible the same as that of coal to the south of Sydney.⁶



Figure 1. Ferdinand Hochstetter, Auckland, 1859. (Auckland Institute and Museum, ref. C2679) Photographer: Bruno Hamel. Hamel was official photographer on Hochstetter's New Zealand geological surveys and journeys of exploration during 1859.



Figure 2. 'Naturalists' cabin on board "Novara". (M.L. ref. DG*D6 f.1, Dixson Galleries, State Library of New South Wales). Pencil sketch by Joseph Selleny, official artist with the *Novara* expedition. This highly detailed work features Ferdinand Hochstetter at his desk, and was most likely taken in 1857, during the early stages of the voyage.

The bed of lignite is said to be about four feet thick.

Yours very truly

Wm. Denison

Upon leaving Sydney, the *Novara* sailed towards New Zealand, arriving off Auckland on 22 December. Following some Christmas festivities involving the largely Catholic crew, Hochstetter and a group of *Novara* scientists and sailors set out on the Drury survey, followed by a journey down the Waikato River. With the coalfield report completed relatively quickly, Hochstetter prepared to leave New Zealand with his comrades.⁷ However, the local authorities strongly urged his remaining 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 our intrepid geologist behind. Hochstetter was now presented with an opportunity to engage in detailed field work over geologically unexplored country of much variety. His detachment from the *Novara* and enthusiastic reception in New Zealand enabled him to investigate not only the Drury coalfield, but also other parts of the North and South Islands. He was to spend approximately nine months in the colony, acquiring geological specimens, making drawings, preparing maps, submitting reports, and compiling notes for writing up upon his return to Vienna. He was assisted in this by recently arrived geologist Julius Haast.⁸

Hochstetter finally left New Zealand for Sydney aboard the *Prince Alfred* on 2 October 1859, arriving there on the 8th. He stayed for only eight days, during which time he arranged transport of his various collections to Austria and a passage to Melbourne. He also had contact with the Australian Museum, and revisited old

acquaintances. Hochstetter's recently discovered manuscript geological notebook of the time reveals his sociable nature, with Sydney entries for the artist and Australian Museum curator George French Angas, the pianist Madame Amalie Rawack, the newspaper editor and publisher John Degotardi, the scientist William Macleay, Governor Sir William Denison, and the photographer Wilhelm Hetzer, most of whom he had met during the previous visit in 1858.⁹

On 13 October he was honoured with a dinner by the German *Turn-Verein* 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"'.¹⁰ On 15 October Hochstetter boarded the *Wonga Wonga* for the coastal voyage to Melbourne. Arriving there on the 18th, he enjoyed an extended four-week stay, during which time he was able to make the acquaintance of the local scientific community, amongst whom numbered many Germans and Austrians. These included his host, the Government Botanist Ferdinand Mueller, the geologists Alfred Selwyn, C. D'Oyly H. Aplin and G.H.F. Ulrich, the palaeontologist Professor Frederick McCoy, the artist Eugen von Guerard, and political figures including Governor Sir Henry Barkly.

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 fraternity, with dinners at Hockin's Hotel and the Criterion Hotel. On 16 November a meeting of the Philosophical Institute of Victoria (later the Royal Society of Victoria) was given over to his presentation of an illustrated lecture on the geology of New Zealand.¹¹ Hochstetter's manuscript notebook of the visit contains detailed entries on individuals met with, plus discussions on aspects of the local geology.

Hochstetter boarded the steamship *Benares* on 18 November for the return voyage to Europe, via Western Australia and Suez. He arrived back at Trieste, the home port of the *Novara*, on 9 January 1860, some four months after his shipmates. Major geological publications associated with the *Novara* expedition and his visit to

New Zealand began appearing in 1862. They included the three volume geological section of the *Novara Reise*, published in Vienna in 1864–6, and separate works on New Zealand.¹² Various articles were also published in Austrian scientific journals of the day.¹³

Hochstetter was a prolific writer during this period.¹⁴ He began compiling 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 42 parts within that journal. Three of these dealt with New South Wales, while some of his letters from the *Novara* also appeared in Stuttgart's *Schwäbische Merkur* during 1858. A bibliography of Hochstetter's Australian and New Zealand publications reveals the extent of his endeavours between 1859 and 1864. Apart from official *Reise* material, it includes numerous geological, geographical and palaeontological reports prepared for bodies such as the Vienna Imperial Academy of Science and the Imperial and Royal Geological Institution. Four Australasian articles appeared between 1859 and 1864. They included 'Notice of some fossil animal remains, and their deposits in Australia: on *Diprotodon Australis* (Owen) and *Nototherium Mitchelii* (Owen)' (1859); 'Geological surveys in Victoria' (1859); and 'Bone remains and related plaster-castings from Australia and New Zealand' (1864).¹⁵ Hochstetter was also heavily involved in the *Novara* publication programme, a project that was not completed until 1877.

Following his return to Austria in 1860, Hochstetter married an English woman, received a knighthood from Württemberg, and was appointed Professor of Mineralogy and Geology at the Royal and Imperial Polytechnic Institute in Vienna, a post he held until 1874. From this base he continued to teach, work in the field, and write prolifically, publishing numerous articles and books, including a popular textbook of mineralogy and geology. Hochstetter was a member of many learned societies and president of the Geographical Society of Vienna from 1867 to 1882. It was only ill-health (diabetes and bronchial problems) that caused him to relinquish this position.

In 1872 Hochstetter was selected by the Austrian Emperor Franz Joseph as tutor in natural history to Crown Prince Rudolph. During 1876 he was appointed first superintendent of the Imperial Natural History Museum in Vienna, and still held that post at the time of his death on 18 July 1884, aged 55. Obituary notices spoke of his genius, his 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. As a memorial, the *Novara Wiener Zeitung* articles were compiled by V. von Haardt and published in Vienna during 1885 as *Ferdinand v. Hochstetter's Gesammelte Reise-Berichte von der Erdumseglung der Fregatte 'Novara' 1857-1859*.

In addition to the many accolades he received for his work in his homeland, Hochstetter attained renown as an expert on New Zealand. A 1956 Viennese magazine article proclaimed him 'Professor and Honorary Chief of the Maoris'.¹⁶ More recently, New Zealand writers and scientists have raised him up as the 'founding father' of New Zealand geology, and 'undoubtedly the outstanding member of the *Novara* expedition'.¹⁷ From a New Zealand perspective this may be true, as his treatises on New Zealand geology published in 1864-7 remain landmark works, setting a solid foundation for later studies. Hochstetter continued to research and publish upon New Zealand throughout his life. He also donated specimens to museums there through his continuing friendship with Julius Haast, and maintained a real affection for the colony. It was only due to the constraints of ill-health, a young family, and his many duties at home, that plans to revisit the islands never came to fruition.

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. Only minor notices and journal articles on Australian geology and palaeontology appeared, and the Sydney section of his *Wiener Zeitung* articles contains little science, being mostly of a social and political nature, though valuable at that.

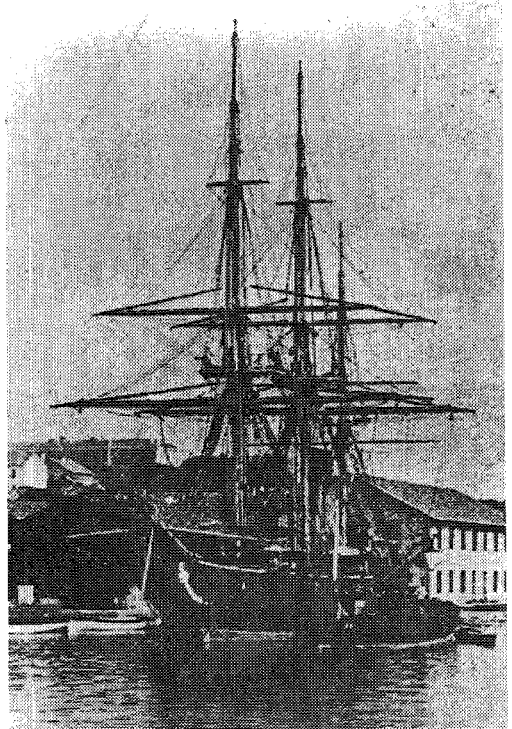


Figure 3. The Austrian frigate *Novara* taking on stores at Sydney in 1858. From L. Lind, *Fair Winds to Australia: 200 Years of Sail on the Australia Station* (Sydney, 1988), p.86. Whilst in Sydney, the *Novara* spent time in Cockatoo Island dock, undergoing repairs as a result of damage suffered in a storm en route to Australia. One of the boats on board this grand sail training vessel was a Venetian gondola – it became perhaps the first such boat to cruise Sydney harbour.

Furthermore, all this material was originally published in German, thereby limiting access to it by Australian scholars. During the 1980s the late J.E. Fletcher published two papers on the Australian visit of the *Novara*, noting therein that much original research needed to be carried out before the full story could be told.¹⁸

With little in the way of scientific publications to assist in revealing aspects of Hochstetter's time in the colonies, we must look to other sources. He had some input into the official narrative of the *Novara* expedition, published in both German and English editions during the 1860s.¹⁹ 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 Hochstetter. Newspapers have also proven a rich store of information. The visit to Sydney in 1858 of an Austrian man-of-war, with a largely Catholic scientific contingent on board, was something of a novelty. Almost daily reports appeared in the local papers commenting on the activities of the scientists and crew of the *Novara*. Likewise the geologist's visit to Melbourne the following year received attention in the media, though a single Austrian scientist was not as newsworthy as an Austrian frigate with over 300 crew. Further aiding our task is the existence of Hochstetter's Australian and New Zealand geological notebooks in a private collection in Austria. Their eventual translation and study may lead to a fuller appraisal of his geological investigations and an understanding of the manner in which he approached field work. They form a valuable adjunct to the *Wiener Zeitung* articles, which however remain the most lively account of the Austrian geologist's visit to New South Wales in 1858.

The question could be asked: why did Ferdinand Hochstetter publish so little of a scientific nature on Australia? His work in New Zealand and subsequent publications on that subject reveal his capabilities as a geologist, both in the field and in print. He was nothing if not prolific. During the two months he spent in New South Wales and Victoria he had an opportunity to study aspects of the local geology and to carry out fieldwork, visiting both the Newcastle coalfields and the Castlemaine goldfields. He acquired a collection of published works on Australian geology, including items by J.B. Jukes and W.B. Clarke, and in addition he spoke at length with many local geologists and collectors. However no consolidated work on New South Wales geology appeared following his return home from New Zealand in 1860, and Victoria was dealt with only in a few letters/articles to the Vienna Academy of Science and the Geological Institution. If this is indeed an omission – for Hochstetter's published volumes on the geology of the *Novara* expedition are selective with regard to locality – then a possible reason is to be found within the English translation of Hochstetter's 1864 volume on the geology of New Zealand.²⁰

That work makes numerous references to the American J.D. Dana's *Geology of the United States Exploring Expedition* and the

accompanying atlas of plates.²¹ Dana's text contains a short reference to the Bay of Islands, New Zealand, and a more substantial section on the geology of New South Wales and its sedimentary formations. His detailed analysis, based in part on fieldwork undertaken during 1839–40 with the Reverend W.B. Clarke, is a landmark in the history of Australian geology. Having been published in 1849 (though in a very limited edition of 100 copies), it answered many questions concerning the geology of the Sydney Basin. Dana's figuring of local fossils was likewise significant.

Upon his arrival in Sydney in 1858, Hochstetter may not have felt any need to reiterate the published findings of Dana, Clarke, Stutchbury, Jukes and Strzelecki. This impression could also have been reinforced by his meetings with geologists William Keene (the New South Wales Examiner of Coalfields), and the Reverend W.B. Clarke. The latter had for nearly two decades been carrying out scientific studies in the colony and acting as a clearing house for all things geological. Though New South Wales did not have an official geological survey in 1858, the delineation of its geological structure and determination of the age of its various formations was well advanced.

With regards 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.²² 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 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 via the discovery of gold, coal and iron ore deposits was also a driving factor during this period, and this is reflected within the official *Reise* volumes. 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, but the production of any substantial treatise on Australian geology would be left in the hands of the locals.

Of what use, then, is a study of

Hochstetter’s time in New South Wales and Victoria? The answer lies in observing his interaction with the local community of scientists, and his own thoughts on the state of colonial geology. The example of New South Wales during the latter part of 1858 can be given.

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 the manuscript geological notes, the published *Wiener Zeitung* articles and *Novara Reise*, various newspaper notices, and the extant reports and diaries of his shipmates, including those of Karl Scherzer.²³ 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 geologizing, 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 visit the Blue Mountains perhaps, 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, signing the visitors’ book in Keene’s museum on Monday, 8 November 1858.²⁴ Evidence suggests that his party caught a steamer from Sydney to Newcastle on the evening of Sunday, 7 November, and had returned to Port Jackson by the 12th, around which date Hochstetter sent off another report to the *Wiener Zeitung* and artist Joseph Selleny made sketches in Sydney.

During the following weeks Hochstetter 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 Berncastle²⁵ provided Hochstetter with details of the quickest route to Bathurst, but unfortunately time constraints meant he was unable to make the journey. At a meeting of the Trustees of the Australian Museum on 18 November, a letter from Hochstetter was tabled, along with a report on the receipt of gifts of 100 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.²⁶ 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’.²⁷

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.’²⁸ 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 complement 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’.²⁹ 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 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:³⁰

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,³¹ [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.³²

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')³³ 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 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.³⁴ 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, 1840–59. During November 1858 he was involved in a bitter dispute with Museum secretary George French Angas, arising out of Wall's dog having 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'.³⁵

The letter also brought Hochstetter into the continuing 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 prevalent 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'.³⁶ On the other hand, Hochstetter was of the new school of professional geologists who had received their training via the national geological surveys that 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:

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 Palaeozoic (or Primary) argillite formation.³⁷

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

As the *Novara* prepared to leave Sydney, on 5 December Hochstetter despatched another of his 'Travel-Log' pieces to the *Wiener Zeitung*.³⁸ 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 in 1856–60, and the *Sydney Morning Herald*. It should be remembered that the reports were journalistic effusions aimed at a popular readership, rather than the 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 that 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 other accounts of the Sydney stop-over. 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 'Travel-Logs', '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'.³⁹ 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 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'.⁴⁰

As a social piece, Hochstetter's 'Travel-Logs' 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; neither 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 during 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 lack of interest 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 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 Professor 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* was ill-timed. The Austrian contingent never received an official reception from the local scientific community, though individuals such as George Bennett, William Macleay, 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 breds and merinos' of New South Wales.

Whatever the reality of the local political environment, the scientists went about their collecting, and the sailors their socializing and carrying out of repairs to the *Novara*. With regard to Ferdinand Hochstetter, any more detailed analysis of his visit to the Australian colonies in 1858–9 must await the transcription and translation of his manuscript notebooks and letters.

Acknowledgements

For assisting with the compilation of this article I would like to thank the following: Dr T.A. Darragh, Museum of Victoria; Professor Tony Wright, Geology Department, University of Wollongong; Dr Albert Schedl, Geologische Bundesanstalt, Vienna; Helen Mandl, Library, University of Wollongong; Erich Reiter, Österreichische Akademie der Wissenschaften, Vienna; George Vlado, Canada; Professor D. Branagan, University of Sydney; and Ken Orchard, Faculty of Creative Arts, University of Wollongong.

Notes

1. For a modern account of the *Novara* expedition and its aftermath, see K. Scherzer, *Die Weltumsegelung der Novara 1857-1859*, ed. G. Treffer (Vienna, 1973).
2. Biographical works in English on Hochstetter relevant to this article are to be found in: Henry Woodward, 'Obituary: Dr. Ferdinand von Hochstetter', *Geological Magazine*, 1 (1884), 526-8; J.v. Haast, 'In Memoriam: Ferdinand Ritter von Hochstetter', *New Zealand Journal of Science*, 2(5) (1884), 202-20; M. Rice (ed.), 'Hochstetter Centenary Issue', *New Zealand Journal of Geology and Geophysics*, 2(5) (1959), 824-963; Walter Carlé, *Carlé's Biography of Ferdinand von Hochstetter*, trans. C.A. Fleming, L. O. Kermode, J. Northcote-Bade and K. B. Spörli, Geological Society of New Zealand, Miscellaneous Publication, 40 (1988); C.A. Fleming, 'Christian Gottlieb Ferdinand von Hochstetter', in *Dictionary of New Zealand Biography: Volume 1, 1769-1869* (Wellington, 1990), pp. 199-200; L. Kermode, 'Ferdinand Hochstetter in New Zealand', *Newsletter of the Geological Society of New Zealand Historical Studies Group*, 5 (1992), 1-16; L. Kermode, 'Ferdinand von Hochstetter', in J.N. Bade (ed.), *The German Connection: New Zealand and German-speaking Europe in the Nineteenth Century* (Auckland, 1993), pp. 152-161.
3. W.A.S. Sarjeant, 'Wilhelm Karl von Haidinger (1795-1871)', in *Geologists and the History of Geology: An International Bibliography from the Origins to 1978* (London, 1980), v. 2, p. 1178.
4. Woodward, op. cit. (n. 2), p. 527.
5. W.T. Denison, *Varieties of Vice-regal Life* (London, 1870), v. 1, p. 454. Governor Denison was a trustee of the Australian Museum and amateur geologist and natural historian. He donated numerous animal and geological specimens to that institution during his term as Governor-General of the Australian colonies between 1855 and 1860.
6. This figure should most likely read 1.328. The relative density of coal lies in the range 1.00 to 1.65. An analysis of brown coal from the Hunua coalfield, Drury, near Auckland, carried out by C. Tookey of the Museum of Practical Geology in London and reported in Ferdinand Hochstetter's *Geology of New Zealand: Contributions to the Geology of the Provinces of Auckland and Nelson*, trans. C.A. Fleming (Wellington, 1959), p. 68, gave a specific gravity reading of 1.48.
7. F. 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), 9-12; *Auckland Province Government Gazette*, 8(2) (1859), 14-17.
8. Hochstetter and Haast worked closely together in New Zealand during 1859, and subsequently maintained a warm friendship for the remainder of their lives. This was expressed through a lively correspondence and the exchange of specimens between Austrian and New Zealand museums. See H.F. von Haast, *The Life and Letters of Sir Julius von Haast: Explorer, Geologist, Museum Builder* (Wellington, 1948).
9. The manuscript notebooks are part of the 'Hochstetter Papers', in the private collection of Dr A. 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, 10p; (b) F. Hochstetter, 'Geologie von New South Wales', manuscript notes [November-December 1858], 26p; (c) 'Neu-Seeland und Australien [Book No.5]', manuscript notebook, 1859, 175p; (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.
10. *The Empire*, 14 October 1859.
11. J. Macadam (ed.), 'Report on Ordinary Meeting - 16th November 1859', *Transactions of the Philosophical Institute of Victoria*, 4 (1860), xxxi.
12. F.v. Hochstetter, *Neu-Seeland* (Stuttgart, 1863); F.v. Hochstetter and A. Petermann, *Topographical-geological Atlas of New Zealand* (Gotha, 1863); *Geological and Topographical Atlas of New Zealand: Six*

- Maps of the Provinces of Auckland and Nelson* (Auckland, 1864); *The Geology of New Zealand: In Explanation of the Geographical and Topographical Atlas of New Zealand* (Auckland, 1864); F.v. Hochstetter, *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859... Geologischer Theil. Erster Band: Abtheilung 1, Geologie von Neu-Seeland* (Vienna, 1864); *Reise... Geologischer Theil. Erster Band: Abtheilung II, Paläontologie von Neu-Seeland* (Vienna, 1864); *Reise... Geologischer Theil. Zweite Band: Abtheilung 1, Geologische Beobachtungen und Paläontologische Mittheilungen* (Vienna, 1866); *New Zealand: Its Physical Geography, Geology, and Natural History, with special reference to the Results of Government Expeditions in the Provinces of Auckland and Nelson. Translated from the German original, published in 1863, by Edward Sauter, ... with additions up to 1866 by the author* (Stuttgart, 1867).
13. For example, 'Die ausgestorbenen Riesenvögel von Neu-Seeland', *Schriften des Vereins zur Verbreitung naturwissenschaftlicher Kenntnisse in Wien*, 1 (1860-1), 213-46; 'Dunit, körniger Olivinfels von Dun Mountain bei Nelson, Neu Seeland', *Zeitschrift der Deutschen geologischen Gesellschaft*, 16 (1864), 341-4; 'Ueber das Vorkommen und die verschiedenen Abarten von Neuseeländischen Nephrit (Punamu der Maoris)', *Sitzungsberichte der Mathematisch-naturwissenschaftlichen Classe der kaiserlichen Akademie der Wissenschaften*, 49 (1864), 466-80; 'Geologie von Neuseeland: Beiträge zur Geologie der Provinzen Auckland und Nelson', *Neues Jahrbuch für Mineralogie, Geologie und Paläontologie* (Stuttgart, 1865), pp. 874-82.
 14. A complete catalogue of Hochstetter's published work is to be found in F.v. Heger, 'Ferdinand von Hochstetter', *Mitteilungen der kaiserlich-königliche Geographischen Gesellschaft*, 27 (1884), 345-92.
 15. F.v. 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), 349-58; 'Geologische Aufnahmen in Victoria, Australien', *Jahresbericht der kaiserlich-königliche geologische Reichsanstalt*, 11 (1860), 24-26; 'Schreiben des Herrn H. Ulrich aus Australien', *Jahresbericht der kaiserlich-königliche geologische Reichsanstalt*, 12 (1861-2), 23-28; 'Knochenreste und Gypsabgüsse solcher, aus Australien und Neu-Seeland', *Jahresbericht der kaiserlich-königliche geologische Reichsanstalt*, 14 (1864), 36-7; 'Fossile Beutelthiere aus Australien', *Verhandlungen der kaiserlich-königliche geologische Reichsanstalt*, 14 (1864), 36-38.
 16. 'Österreicher als Erforscher der Erde: Ferdinand Ritter von Hochstetter', *Österreichische Hochschulzeitung*, 1 January 1956, 4.
 17. Kermode, op. cit. (n. 2); Fleming, op. cit. (n. 2).
 18. J.E. Fletcher, 'Karl Scherzer and the Visit of the Novara to Sydney, 1858', *Journal of the Royal Australian Historical Society*, 71(3) (1985), 189-206; 'The Novara in Sydney, November-December 1858: On Unlocking a Time-war', in W. Boyd Rayward (ed.), *Australian Library History in Context: Papers for the Third Forum on Australian Library History, University of New South Wales, 17 and 18 July 1987*, School of Librarianship, University of New South Wales, (1988), pp. 7-25.
 19. K. Scherzer, *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857-1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair. (Physicalische und geognostische Erinnerungen von A. v. Humboldt). Beschreibender Theil*, 3 vols. (Vienna, 1861-2); *Narrative of the Circumnavigation of the Globe by the Australian Frigate Novara, ... undertaken by order of the Imperial Government, in the years 1857, 1858, & 1859. With a Preface by Commodore B. von Wüllerstorff-Urbair and Physical and Geognostic Suggestions by A. von Humboldt*, 3 vols. (London, 1861-3).
 20. Hochstetter, op. cit. (n. 6).
 21. James Dwight Dana, *Geology. United States Exploring Expedition, Volume X* (Philadelphia, 1849); *Atlas. Geology. United States Exploring Expedition, Volume X* (Philadelphia, 1849), 21 plates.
 22. T.A. Darragh, 'The Geological Survey of Victoria under Alfred Selwyn, 1852-1868', *Historical Records of Australian Science*, 7(1) (1987), 1-25.
 23. Karl Scherzer, 'Tagebuch geführt während einer Reise um die Erde 1857-1859', 3 vols., Mitchell Library, State Library of New South Wales, MSS A2633-5, 834p. The Sydney section is at A2635, 42-77.
 24. D.F. Branagan, *Geology and Coal Mining in the Hunter Valley, 1791-1861* (Newcastle, 1972), p. 72.
 25. Julius Berncastle (1819-70) was former Assistant Colonial Surgeon of Van Diemen's Land (1841-2), and practised as an oculist and aurist in Sydney, 1854-67, before moving on to Melbourne; see H.J. Gibbney and A.G. Smith (eds.), *A Biographical Register 1788-1939: Notes from the Name Index of the Australian*

- Dictionary of Biography, Volume I, A-K* (Canberra, 1987).
26. See Minute Book I, 1836–63, 'Special Meeting of Trustees, 18 November 1858', Australian Museum Archives, Sydney.
 27. 'Australian Museum: Report of the Trustees for 1858', *Journal of the Legislative Council of New South Wales*, I (1859–60), pp. 371–8.
 28. *Sydney Morning Herald*, 29 November 1858.
 29. Scherzer diary, op. cit. (n. 23), p. 68.
 30. Hochstetter papers, op. cit. (n. 9).
 31. 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 Odernheimer's description of rocks from the Peel River goldfields.
 32. For Clarke's newspaper articles on matters concerning local geology and exploration, including his support of Ludwig Leichhardt, see M.K. Organ, 'W.B. Clarke as Scientific Journalist', *Historical Records of Australian Science*, 9(1) (June 1992), 116; 'Bibliography of the Reverend W.B. Clarke', *Journal and Proceedings, Royal Society of New South Wales*, 127 (1994), 85–134; M. Aourousseau, *The Letters of Ludwig Leichhardt*, 3 vols. (Cambridge 1968).
 33. Edward Hammond Hargraves' only book was *Australia and its Gold Fields* (London, 1855). Clarke, in his *Researches in the Southern Goldfields* (Sydney, 1860) pp. 300–1, points to 'a gentleman now living in the colony' (?Mr Carey) as the substantial author, or 'anonymous coadjutor', 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 £5,000 payment by the New South Wales government for his role in the discovery of gold.
 34. Possibly refers to L.K. Schmarda, author of *Reise um die Erde in den Jahren 1853–57* (Brunswick, 1861), who visited Sydney in 1853. See J.E. Fletcher, *John Degotardi: Printer, Publisher and Photographer* (Sydney, 1984).
 35. R. Strahan, *Rare and Curious Specimens: An Illustrated History of The Australian Museum 1827–1979* (Sydney, 1979), pp. 23–4.
 36. M.J.S. Rudwick, *The Great Devonian Controversy: The Shaping of Scientific Knowledge among Gentleman Specialists* (Chicago, 1985), p. 18.
 37. Hochstetter, op. cit. (n. 6), p. 58.
 38. 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.
 39. George Vladar, letter to the author, 29 May 1995.
 40. Haast, op. cit. (n. 2).