

Julius Haast, Ferdinand von Hochstetter, New Zealand and the 1873 World Exhibition in Vienna: Mobilising Nature by Knowledge, Objects, Labels and Inscriptions

Marianne Klemun

Department for History, University of Vienna, Universitätsring 1, 1010 Vienna

Email: Marianne.Klemun@univie.ac.at

Like Persia and the Ottoman Empire, New Zealand played a greater role at the 1873 World Exhibition in Vienna than in previous exhibitions. As one of 40 British colonies, out of which only 11 were represented in Vienna, New Zealand was determined to showcase its resources, artefacts of trade, natural history objects, maps and illustrations independently of Australia and London. The representation of New Zealand's natural history was particularly shaped by the expertise of Julius Haast and Ferdinand von Hochstetter and their on-going cooperation after their shared research trips in New Zealand from 1858–1859.

Hochstetter was involved in the organisational body of the Viennese World Exhibition and influenced its design and promotion in the press, while Haast as the director of New Zealand's Canterbury Museum contributed sensational and internationally admired unique objects. Moa skeletons were articulated and 60 birds mounted under the direction of Hochstetter. The exhibition provided them both with the opportunity and resources for ensuring their ongoing international fame, and established the authority of both naturalists among the general public. The moa skeletons were the main stars in this respect at the Vienna exhibition and contributed to the fame of both Haast and Hochstetter.

This article opens a broader perspective on the role of the Vienna World Exhibition as a third space between the “centre of calculation” (Latour 1987) in London and the supportive position of the colony and the self-promotion and media response to the activity of Hochstetter and Haast in Vienna. It shows how London's intentions to attract trade and commerce was shifted towards attention to New Zealand's physical uniqueness in terms of nature under Hochstetter's influence. Lists in catalogues and labels provided an interface between the objects on display and their perception by visitors. The article aims to give an understanding of how this medium of inscription at the exhibition connected materials, landscapes, knowledge and display as a comprehensive perspective of instructive sensations and interplay with the audience.

Keywords: articulating moa skeletons, catalogues and labels as mediators, dissemination of science, Ferdinand von Hochstetter, fossils, Julius von Haast, specimens on display, Vienna World Exhibition 1873

Introduction – Perspectives

Of all countries, the twin islands of New Zealand stood out particularly on account of the richness of the display of the enormous variety of their natural products and the marvel of a special catalogue, in English, French and German, with scientific names and further details concerning their usability and so on (Zwanziger 1874: 94).

These were the enthusiastic words of a natural history expert in his detailed report on New Zealand's contribution to the Vienna World Exhibition of 1873 and we learn from this quote that the catalogue and “scientific names” on labels accompanying objects at the Exhibition were appreciated by an audience interested in science. In this paper further public reactions in Vienna

are examined for the first time. Firstly, by way of introduction, some well-established information on the World Exhibition in Vienna is presented, including the aims and preparations in which James Hector, Ferdinand von Hochstetter and Julius Haast were engaged as natural scientists. Their commitment to effectively displaying the moa skeletons and their promotion of the natural environment of New Zealand may be considered as decisive factors in the public success of the part of the exhibition that focused on New Zealand. Accordingly, the perceptions of the Vienna public will be discussed.

A broader perspective on world exhibitions from the point of view of a science historian will be opened up by focusing on the entanglements between nature and culture, objects and inscriptions, experts and laymen. This paper aims to develop an understanding of world exhibitions which not only promoted economic determinism, but also connected materials, landscapes, and knowledge in a comprehensive perspective. The display is seen as an interplay with the audience. An argument will be presented that not only did industry, trade, resources and the applied sciences play a significant role, but that natural objects and their inscriptions became powerful as media at the peak of collecting and musealisation. The relationship between objects and scientists can be traced according to the concept of Agency in reference to Bruno Latour (Latour 1987; Latour 1988). Lists in catalogues and labels provide an interface between the objects and their perception.

Vienna World Exhibition – A General View

World exhibitions were no doubt platforms of nationalism, colonialism, imperialism, consumerism, exoticism, technical advances and sciences. Semantically and visually, monumentalism, abundance, speed, figures, statistics, expansion, and topicality were associated with each other and merged into a phantasmagoria. Interest in world exhibitions was heightened through signs of the new epoch, through steel and glass, machines and materials, coal and iron (Klemun 2011), all owing their significance to the idea of progress. Entertainment through the presentation of knowledge and identity-creating patterns of competition and comparison between nation states were striking phenomena, marking a new level of internationality. The World Exhibition in Paris in 1878, for instance, can be understood as a mechanism for the development of complex exchanges and communication on the scale of internationalism. The fact that the first International Geological Congress took place at the same time and hand in hand with the exhibition (Ellenberger 1999) is indicative of the close connection between science and politics.

The Vienna World Exhibition of 1873 was officially opened by Emperor Franz Joseph I on 1 May 1873 with a reception for 500 diplomats and officials at 12 noon, and closed to the public on 2 November 1873. It was open for 7 months. The exhibition was staged in the Prater, a park that was formerly the imperial hunting ground. It was open to the public for pleasure during the Enlightenment period (Pemsel 1989). Like a city on the outskirts of a city, in an area of 233 hectares, 16 hectares were devoted to the construction of many new buildings. In terms of space, the World Exhibition surpassed that in Paris in 1867 by a factor of five. Some 42,000 exhibitors contributed their objects and artefacts to the exhibition and 7.3 million visitors attended. According to Wesemael (2001: 52); “The concept of the exhibition as a manifestation of societies and cultures was emulated in the large-scale world exhibitions of 1873 in Vienna, 1876 in Philadelphia, and 1878 and 1889 in Paris.”

The illumination of the site was brilliant, using gas from the Austrian territory of Galicia (now Western Ukraine). It is worth mentioning that by the turn of the century the Habsburg Empire was to become the second largest oil-producing entity after the United States of America. In the Austrian press, the exhibition was hailed as a “picture of the culture of our time” ([Anonymous b] 1873: 1) and a testimony to the unity of the Empire’s ethnic groups. A contemporary stated that he was in awe of the Palace of Industry which was “a church of civilization” (Groß 1873: 3). In the Rotunda at the centre of the whole

exhibition, one of the moa skeletons was prominently exhibited. Even Emperor Franz Joseph admired them. Months after his visit, he recalled the occasion during an audience with Hochstetter. According to an entry in Hochstetter's private diary for 1 December 1873, "the emperor speaks of the giant birds of New Zealand" ("Der Kaiser spricht von den Riesenvögeln von N[eu] S[eeland]") (Holzer undated: 7).

Industry was a main driver of the exhibition, embodied in the opulent building of the German company Krupp and the machinery hall, but there was also a building for agriculture (Bömches 1874). Japan, Persia, the Ottoman Empire, and notably New Zealand, played a greater role at the Vienna 1873 World Exhibition than in previous exhibitions. This was based on the Habsburg Empire's geopolitical orientation towards the Orient, but also on the intensive knowledge-based exchange which resulted from the export of doctors, geologists and lawyers to those empires or colonies. Expeditions such as the circumnavigation of the world by the Austrian frigate *Novara*, and those completed independently by Hochstetter, who famously undertook geological surveys of parts of New Zealand in 1858–1859, also formed the foundation for global networks that manifested themselves in the Exhibition.

New Zealand's Intentions and the Colony's Struggle to Organise a Distinct Presentation of its Own in Vienna

The invited nations determined the orientation of their own specific exhibitions. As one of 40 British colonies, out of which only 11 were represented in Vienna, the colonial administration of New Zealand considered it a must to participate. This was clearly stated in a letter from the Agent-General for New Zealand in London, Isaac Earl Featherston (1813–1876), to William Gisborne, the Colonial Secretary in Wellington, dated 27 June 1872, a year before the opening in Vienna:

I have the honor [sic] to bring under the notice of the Government the subject of the approaching International Exhibition at Vienna, which promises to be on a very magnificent scale.

During my recent visit to the Continent, the vital importance of our Colony being properly represented on this occasion was urged upon my attention at Hamburg [sic], at Berlin, at Frankfurt, and other commercial centres. The Value to New Zealand of such an advertisement cannot, I think, be overrated.

The Colony has never yet had an opportunity of adequately exhibiting its natural and industrial resources; and I would therefore press upon the Government the importance of seizing the present one – the more as there seems now no hope of our getting any space allotted us in this Exhibition now taking place here ...

It is very desirable that the pastoral and agricultural capabilities of this Colony should be exemplified by a good series of wools, tins of preserved meat, and everything in the way of pulse and grain, wheat, barley, oats &c.

The natural productions of the country should be also fully represented, especially the Phormium and other indigenous fibres, together with everything calculated to show their adaptability for rope, cordage, textile fabric and paper ...

It will be desirable also to exhibit a carefully arranged collection of minerals, rocks, and soils, in illustration of the immense physical resources of the country that still await development.

Specimens of coal from various parts of the Colony, with full information as to the extent and position of the fields, and samples ... and, altogether, an exhibition of the kind I have indicated

would be calculated to bring the Colony into favourable notice, and to give a fresh impetus to our trade and commerce.

And the Government will be able to command the valuable advice and assistance of such men as Dr. Hector and Dr. Haast in the Colony, I feel that it is unnecessary for me to do more at present than to suggest, in this general way, what is necessary to be done (The Vienna Exhibition 1873: 1).

In December 1872, a preliminary exhibition, called the New Zealand Interprovincial Exhibition, was held in Christchurch, which – through a call in the *New Zealand Gazette* (No. 48, 23 September 1872) – had attracted the active participation of New Zealand institutions, private companies and interested parties. From their contributions, the most attractive objects were selected for the Vienna Exhibition (Nathan 2015: 130–131). By 23 September 1872 “2,500 square feet of floor space” for wool, wood and coal and an “extent of wall space for the maps and plans” were considered to be necessary for “a distinct Court” (The Vienna Exhibition 1873: 1).

Philip Cunliffe Owen, the Secretary of the British Exhibition Committee asked whether the New Zealand exhibition committee wished to be subordinate to the organisation in London or whether it wanted to take the matter into its own hands. The latter was chosen and emphasised by New Zealand’s authorities “as it is important that New Zealand should retain its distinctive characters in the proposed collective representation of the Australasian groups” (The Vienna Exhibition 1873: 2).

To distance itself from both the other colonies and from the colonial power in London was an extraordinarily wise decision because, as it turned out, the other British colonies were less careful in presenting their exhibitions, as was observed in the official report published in Vienna (Grefe 1874: 10, 14, Lott 1874: 23). The Austrian press also complained that “England had no idea of how to satisfy the curiosity of the Central European Landlubbers” ([K.Th. R.] 1873).

Furthermore, the mother country was judged by the press in Vienna to be rather inactive:

The practical Old England is tired of exhibiting. Or is the indifference of ‘Great Britain’ only a deliberate intention, in order to be able to represent the natural wealth of its innumerable colonies in raw products all the more brilliantly; does the mother veil her splendour in order to let that of the children shine all the more splendidly? (Braun 1873: 9).

It was also important for researchers like Julius Haast to build up their international authority independently of the scientific centre in London.

A fund of £500 for expenses was provided by the New Zealand Government for the transfer of materials and exhibits from Christchurch to Vienna and for the installation (The Vienna Exhibition 1873: 2), although this sum was not sufficient. The British Government appointed Charles Clifford (1813–1893) former speaker of the New Zealand House of Representatives and Isaac Earl Featherston, the first Agent-General for New Zealand in London as commissioners, both of whom were to organise, accompany and represent the exhibition in Vienna (The Vienna Exhibition 1873: 3). Julius Haast, Hochstetter’s friend and the best authority on New Zealand botany, geology and ornithology, was disappointed at the decision, as he had expected to be nominated for the position himself, “but somehow the matter did not arrange itself, as the govt wanted me to do too much emigration business.” Haast regretted the situation, as evidenced by a letter of 10 January 1873 to Joseph Hooker (1814–1879) Director of Kew Gardens, edited by Sascha Nolden et al. (2013: 166). London, however, had the final decision on the selection of the commissioners.

Selecting Objects and Setting up the Exhibition: The Influence of the Naturalists

Featherston, as the colony's representative, was primarily concerned with industry and trade, but soon admitted to the Colonial Secretariat that the exhibits Haast contributed were important: "I feel sure that these fossil remains will be objects of considerable interest to the general public for the New Zealand Court" (The Vienna Exhibition 1873: 6). It was not until November 1872, however, that Featherston made contact with Hochstetter in Vienna to officially request help, not neglecting to mention the personal acquaintance that had arisen during Hochstetter's visit to New Zealand:

When you were on an official visit to New Zealand, in 1858, I had the pleasure, as Superintendent of the Province, of meeting you at Wellington; and, in common with the rest of the colonists, I have felt considerable interest in the results of your scientific researches ...

As arrangements are being made on so magnificent a scale for the International Exhibition in Vienna, it is the desire of the New Zealand Government that the Colony should be well represented on that occasion; and I am now taking such steps as I can to insure this object. From your knowledge of the physical character and resources of the Colony, added to your large general experience, I feel sure that you would be able to assist me materially and with your opinion and advice (The Vienna Exhibition 1873: 6).

Hochstetter pledged his support (The Vienna Exhibition 1873: 6), as it was a thematic focus from which he himself could once again publicly consolidate his already existing authority regarding New Zealand's natural history.

Long before this Hochstetter had written to Haast on 25 February 1872 (Nolden 2013: 159) and asked about New Zealand's plans for the Vienna World Fair, and in his letter of 29 February he personally encouraged Haast to participate:

I hope that New Zealand will be grandly and comprehensively represented. If you are able to have any influence on this, then do so, and let me know what is being done in this regard. Enclosed is a clipping showing what the exhibition building is supposed to look like, not pretty, that's for sure, but practical and of colossal proportions in the Prater (Nolden 2013: 159).

Hochstetter was one of 216 members of the Vienna organising committee and involved in three of 26 thematic sections (*Officieller Ausstellungs-Bericht* 1873). In the list of all members of the Austrian Commission he was mentioned in his function as President of the Geographical Society ([Anonymous a] 1872: 2). He was also a professor at the Polytechnic Institute (predecessor of the Technical University) and an ordinary member of the Imperial Academy of Sciences in Vienna. Not only was he respected as an authority in Vienna on the basis of the results of the *Novara* expedition and his New Zealand book (Hochstetter 1863), but he was also an excellent networker within Vienna's academic circles (Klemun 2020). In this respect, his influence on the design of this part of the exhibition was central (which we can see especially in the letters between Hochstetter and Haast edited by Sascha Nolden 2013). Thus, Hochstetter again joyfully affirmed his support in his letter:

I have told our general director of the exhibition all about what you wrote concerning this, and Mr Featherston also wrote to ask me for assistance, which I have promised him, as I am prepared to do anything for New Zealand, to my very end (Nolden 2013: 160).

Hochstetter was probably also responsible for the fact that, in the run-up to the exhibition, hints appeared in the Austrian press that intensive preparations were being made in New Zealand for the

exhibition: “New Zealand will also be participating in the exhibition in a similarly active manner, where, as we learn from the ‘Littleton [sic] Times’, numerous meetings are being held to discuss and prepare the exhibition’s programme” ([Anonymous a] 1872: 1).

Clifford himself travelled to Vienna shortly before the opening on 1 May and was pleased to note that the objects had arrived by train from the port of Trieste, somewhat delayed but in one piece (*The Vienna Exhibition* 1873: 12). Prior to this, on 21 March a circular had been sent from London, soliciting contributions from England for the New Zealand section (*The Vienna Exhibition* 1873: 9), which was enriched at the last moment by the 250-specimen bird collection of James Brogden and works of art by Alexander Brogden (*The Vienna Exhibition* 1873: 11). The birds had to be mounted in Vienna and it is not clear how and when these specimens were collected in New Zealand (McAllan 2007: 72). At the last moment, and too late, authorities in London interfered in an irritating and time-delaying manner, asking for more objects in England via the circular. This resulted in delays, which caused different information about the register of objects to be published in the official catalogues of the Vienna World Exhibition, a catalogue for the whole British Empire produced in London, and the “catalogue of all objects in the New Zealand Court in three languages” (*The Vienna Exhibition* 1873: 11). The catalogue for the New Zealand exhibition, published in Vienna in German, French and English ([Anonymous a] 1873) is based on the catalogue that was organised in New Zealand (Appendix. Descriptive Catalogue 1873). But it differed from the official catalogue, where the bird specimens of New Zealand were mentioned, because of the troubles mentioned above.

That the giant moa had not yet arrived at the opening on 1 May (Kingstone 1873: 3) was not reported by Clifford, the commissioner, to New Zealand. But the shortcoming was registered in Vienna in Austrian press reports about the New Zealand Court (Kingstone 1873: 3). The jury for the prizes had already made its decisions and in July Hochstetter had to intervene by asking Franz Hauer, Director of the Imperial Geological Survey in Vienna (Nolden 2013: 162) and member of the jury, to visit the New Zealand exhibition again. Haast was subsequently awarded a medal for his exhibits (Fig. 1) as was reported in the press: “Haast, Dr., Austria [sic], Vienna, exhibition of the characteristic skeletons of the bird genus moa, geognostic survey in New Zealand [Haast, Dr., Österreich[sic], Wien, Ausstellung der charakteristischen Skelette der Vogelgattung Moa, geognostische Aufnahme in Neu-Seeland.]” ([Anonymous c] 1873: 15). The “Commander’s Cross of the Order of Franz Josef with and without Star” was awarded to Featherston, as “grossbrit. Commissär für Neu-Seeland [Great Britain’s Commissioner for New Zealand]” ([Anonymous] 1874: 3) in January 1874, although he was not present in Vienna.

Until the arrival of the skeletons, a footprint of a moa replaced the bones. Even this caused a sensation — a mysterious, preserved trace, which tempted an observer to also discuss Māori as an endangered ethnic group owing to the British colonialism so despised in the Austrian press:

What we come to now, however, is a species of bird that is already quite extinct. It is the giant moa. Nothing of it remains, other than a print of its foot, which pressed itself thousands of years ago in mud now hardened into sandstone. This sandstone slab with the footprint of the extinct giant bird, which inspires many thoughts, comes from Poverty Bay and is intended by the Auckland Institute as a gift for Professor Hochstetter. In a few weeks, the skeleton of this antediluvian, probably flightless bird, painstakingly assembled by Dr. Haast from individual bones found, will also be exhibited. Likewise, the aborigines of the country have to be put on the list of extinction ... All in all, New Zealand forms one of the most interesting parts of the exhibition and is all the more worth a visit, as the journey there is not connected with the dangers of a 3,000 mile long sea voyage (Kingstone 1873: 3).



Figure 1. Certificate from the Viennese International Exhibition of 1873 for Julius von Haast. Dated Vienna, 18 August 1873, signed by Archduke Rainer Ferdinand of Austria and Wilhelm von Schwarz-Senborn. Printed by Rudolf von Waldheim, Vienna; letterpress in red and black, with signatures in black ink, on paper, 423 x 592 mm. MSO-Papers-0171-17, Alexander Turnbull Library

This discourse about the extinction of birds was introduced to the Austrian public by Hochstetter's well known and greatly admired book about New Zealand (Hochstetter 1863: 458). The English presentation in the catalogue for the Vienna World Exhibition particularly promoted migration, but this aspect did not go down well in the Viennese press. Rather, there was a warning against it, and the portrayal of the pleasant climate in New Zealand was ridiculed for this reason: "But the British government uses the exhibition to give very extensive information about the conditions in New Zealand ... and hopes to increase the population of that Australian island" ([Anonymous d], 27 June 1873: 9).

With regard to natural history research, however, Vienna, as the venue of the World Exhibition, became the third player between London and the colony performing the role of a neutral mediator. This was the result of the on-going friendly scientific relations between the actors Hochstetter and Haast since the former's stay in New Zealand in 1858–1859. The connection supported the Austrian critique of British colonialism in the press.

The arrangement of the exhibition was based on a memorandum drafted by James Hector, the chief scientist for the New Zealand Government, but finalised by the agent in charge of Australia and New Zealand, Phillips Bevan (The Vienna Exhibition 1873: 11), much to Hochstetter's displeasure. Hochstetter oversaw setting up the articulation of the moa skeletons and bird specimens, while Haast, as the Director of Canterbury Museum, contributed the very attractive skeletons, maps and birds.

Hector's memorandum made detailed suggestions in advance for the arrangement of the exhibits in Vienna, and this was taken into account. The order was significant and demonstrated the economic priorities: (1) Wool, (2) Woollen Goods, (3) Phormium, (4) Grain, (5) Coals, (6) Minerals and Ores (including gold), (7) Woods, (8) Miscellaneous Objects Preserved Meats, Native Tanning Barks, Photographs, Moa Skeletons, Plans and Maps. For the moa skeletons item, although it appeared towards the end of the list, it was nevertheless admitted that the skeletons of those birds "will form a striking centre-piece for the New Zealand Court" (The Vienna Exhibition 1873: 4–5). This assumption was actually fulfilled, and the skeletons and mounted birds became the attraction par excellence at the exhibition in Vienna.

James Hector, an experienced traveller in Canada as a member of the Palliser expedition, Director of the Geological Survey of Otago (from 1861), and, since 1865 Director of the Colonial Museum in Wellington, was well prepared for this task. He produced a geological map especially for the Vienna exhibition (Nathan 2014: 96). Difficulties arose, however, in shipping the items to Europe, since the objects were divided between different shipping lines (The Vienna Exhibition 1873: 5). The objects provided by Haast from Canterbury Museum, which included the attractive moa skeletons, 60 birds, minerals, maps and photographs, were to be sent directly to Hochstetter at the Polytechnic Institute. Official support was expected by the Premier of New Zealand, George Marsden Waterhouse (1824–1906), who wrote to one of the commissioners: "It would also be advisable to enlist the good offices of Professor Von Hochstetter in favour of the New Zealand exhibits" (The Vienna Exhibition 1873: 5). But much more was expected of Hochstetter by Waterhouse:

I understand there are many articles in the Museum and other public places of deposit in Vienna which would greatly enhance the appearance of the New Zealand exhibition if they could be obtained on loan; and as Dr. Von Hochstetter still, I believe, takes much interest in New Zealand, he would doubtless, if asked, give valuable assistance to yourself and Sir Charles Clifford at the Exhibition. His services would be especially valuable in the preparation of any portions of the New Zealand Catalogues requiring a scientific knowledge connected with the Colony, and in the revision of the translation of the Catalogue into the German language (The Vienna Exhibition 1873: 5).

Installation of the Exhibition: Designing Nature

Although the natural scientists Hector, Haast and Hochstetter were effectively involved in the run-up to the exhibition, they were ultimately not completely successful. The organisation of the New Zealand exhibition was determined by hierarchical structures, differences between centre and colony, and influenced by diverse interests, such as the focus on trade. This context undermined the realisation of the key scientific intentions of the naturalists, especially Hochstetter's, who wrote to Haast on 26 June 1873:

As far as the rest of the New Zealand exhibition is concerned, I had a number of battles with Mr Bevan who was given the task from London of arranging it, without even knowing New Zealand. The exhibit did not go according to my taste. But your skeletons will make a major improvement and give the New Zealand section a lift, making it far more interesting (Nolden 2013: 162).

Hochstetter complained that "Mr Bevan, who does not know New Zealand at all, was certainly not the right person, despite his best efforts, for the arrangement of the New Zealand section, which left much to be desired, nor for the representation of New Zealand's interests." (Nolden 2013: 162). Hochstetter's assertion was based on autopsy — having seen New Zealand with his own eyes — the traditional

argument of travellers. “In Vienna, all the timber was mixed up” (Nolden et al. 2013: 172), Haast later wrote disparagingly about the work that was done on the arrangement of the objects. This was about the timber that had been specially procured in Canterbury for the exhibition in September 1872 by Joseph Armstrong on behalf of Haast (Nolden et al. 2013: 164).

Hochstetter was authorised by Hector’s memorandum and by the Colonial Secretariat to set up Haast’s three moa objects and to get Haast’s 60 bird skins mounted (The Vienna Exhibition 1873: 5), but not to arrange the rest of the specimens at the exhibition. We can nevertheless assume that he had a significant influence on the reservation of sufficient space and on the design. It was Hochstetter who directed the attention towards nature. Featherston felt assured that Hochstetter himself will “appreciate the desire and exertion for his friends and coadjutors in science, Dr. Hector and Dr. Haast, to render the New Zealand exhibits useful and attractive from a scientific point of view” (The Vienna Exhibition 1873: 7). This scientific attitude included his expertise as a geologist who had been educated to describe, draw and judge the landscape (Klemun 2014).

But what had Hochstetter actually done regarding the moa skeletons? In a letter to Haast, he comments in detail on his work:

I am pleased to be able to write to you that the moa skeletons are standing upright before me, a truly magnificent sight. Dinornis giganteus stands 9 feet and 9 inches tall in Viennese measurements, and I am sure that nowhere in the world, sit venia verbo - if I am permitted to say so, there stands anything quite like it except with you in Christchurch. The task was a colossal one, but I was pleased to do it for you. I had every bone, vertebrae, skull and everything restored by a skilled plaster modeller, so the skeleton is now complete and the bones which were in an extremely brittle state are therefore protected from further decay. I set up Dinornis giganteus in stride like yours, and I will place Dinornis giganteus with the other two to complete a remarkable tableau. All four birds will be placed on a black painted pediment and placed together on a 1.5 foot high platform covered in a reddish brown cloth. On the same platform I will place the four stuffed kiwi, in between the skeletons. ... The birds will be placed in such a way that one may walk right around the group, and next to it, in a prominent position, will be your maps and photographs of the province (Nolden 2013: 161).

Hochstetter’s ambition to produce these reconstructions so faithfully required an extraordinary effort, as he wrote to Haast in a letter of 26 June:

I have now spent four quiet weeks working on the bones and skeletons every day, together with five other people, and I am no end pleased that I have just managed to have them finished before I go on a three week excursion to the Alps with the Crown Prince (Nolden 2013: 161).

Great attention was given by Hochstetter to the reconstruction and completion of the bones with plaster casts and their arrangement in order to ensure maximum visibility. In 1861 he had already given a lecture on the extinction of the large flightless birds in a Darwinian manner, using the reconstruction of a moa skeleton and the construction of a plaster model (Fig. 2) (Hochstetter 1862). Both were prepared by Gustav Jäger, a Darwinian scholar in Vienna, who described the procedure of articulating them in detail (Jäger 1863). This publication gave Hochstetter support in this matter. He was no specialist in anatomy but was eager to work on the articulation of the bones for the Vienna World Exhibition.

Hochstetter was disappointed with press reports on the skeletons, because “these things lie completely outside the horizon of our ordinary reporters” (Nolden 2013: 163). In response to many questions from the public, Hochstetter affirmed in a detailed article that three skeletons were indeed made of “real bones” (Hochstetter 1873: 4), and that only the fourth one was a cast, based

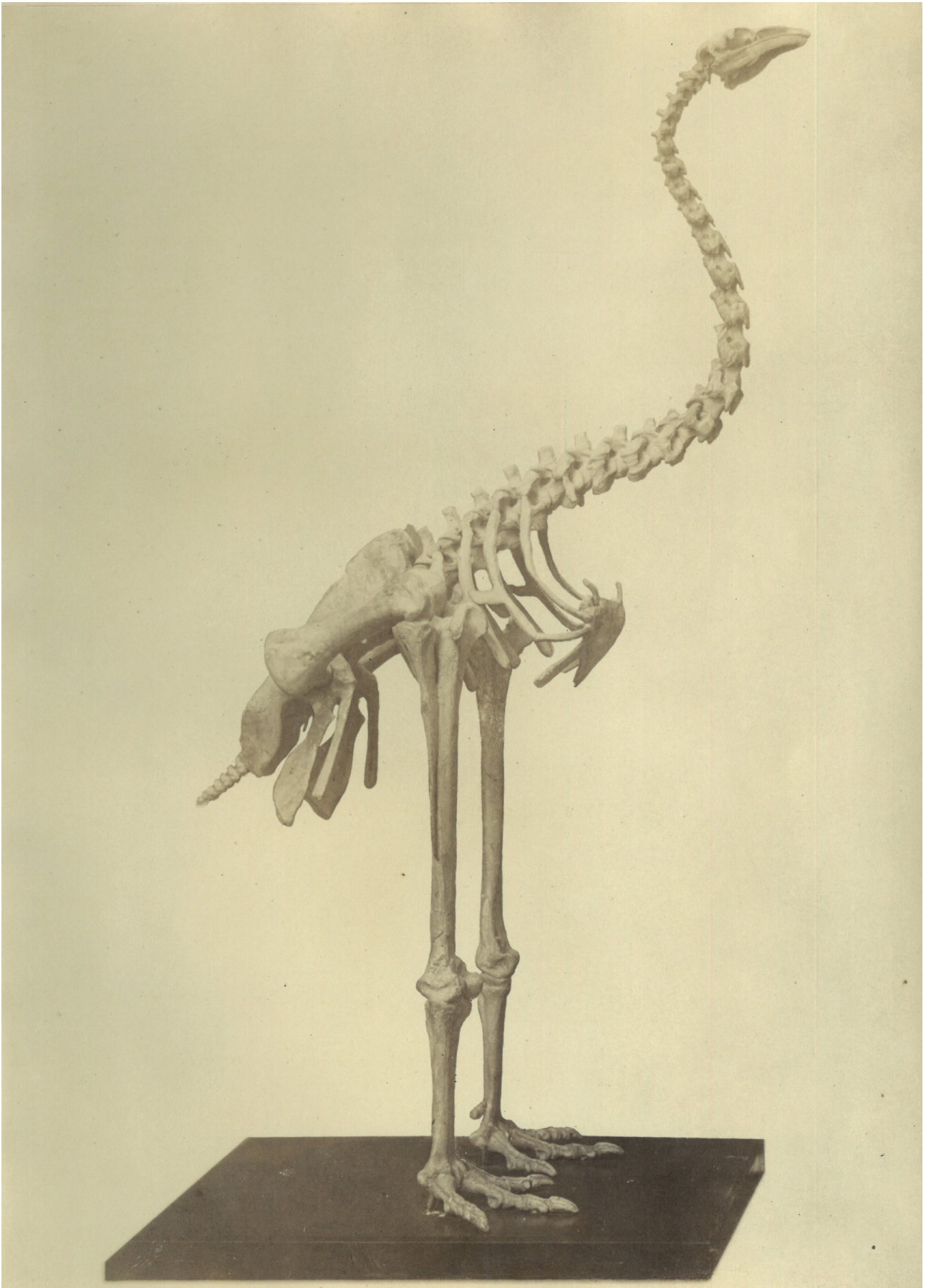


Figure 2. The articulated moa skeleton, by Gustav Jäger, exhibited at the World Exhibition in London 1862, the Novara Museum in Vienna 1862–1867, the World Exhibition in Vienna 1873, and in the Geological Survey in Vienna. Jäger 1863

on a find he had made together with Haast in a cave in 1859 (which was in the possession of the Geological Survey in Vienna).

Hochstetter based the mounting of moa specimens on those exhibited by Haast at Canterbury Museum. Seven articulated moa skeletons were already the centrepiece of that Museum in 1871 (Haast 1948: 623). Haast was founder and Director of the Museum and when a new building was opened in 1870 the Museum's collection of moa continued to grow. Haast exchanged bones with other museums, and they were a resource which facilitated his growing authority as a scientist in this field (Barton 2000).

The decisive factor for Hochstetter was that the skeletons were mounted and made the reality of the full-size animals comprehensible. Moreover, he positioned them in the middle of the New Zealand Court in the centre of the room in order to dominate the narrative about New Zealand (Fig. 3). This was not the first time that a reconstruction of an extinct giant had been viewable in Europe. At the World Exhibition in London in 1862 two specimens of moa were exhibited as part of the presentation of the Austrian *Novara* expedition (Scherzer 1862: 83). Subsequently, the skeletons were displayed in the Novara Museum 1862–1867 in Vienna. Moa fossils had already generated great attention among researchers and the general public in many other cities, especially in Paris and London. But now a group of four specimens surrounded by kiwi were to be exhibited in Vienna.

Moa bones first came to the scientific world's attention in 1839 (Hochstetter 1863: 446), after John Rule, an ex-naval surgeon from Sydney sold a piece of bone to the comparative anatomist Richard Owen in London, who immediately exhibited it as part of the leg bone of a gigantic bird. London was seized with fever of the moa bones, and Owen saw the bone as an opportunity to establish the reliability of his Cuvierian functionalist methods. They were based on the principle of correlation of parts, which states that all organs in an animal's body are deeply interdependent. Further debates and findings about moa skeletons in New Zealand gave Haast the status of an international expert, distancing him from merely serving the centre in London, as Barton argued (Barton 2000: 261).

As a third space between Owen in London, who in Latour's terminology acted as a "centre of calculation" (Latour 1987), and Haast in New Zealand, who as a scientist on the periphery had previously played a supportive role for the centre, Vienna now acquired a symbolic role underlining Haast's and Hochstetter's ongoing significance and fame. It was no coincidence that the press in Vienna emphasised that London did not yet have such a complete skeleton as Vienna had, and the press was full of praise for this one:

In the exhibition of the British colony of New Zealand is one of the greatest curiosities of the Palace of Industry. This is the skeleton of the giant bird Moa from the Canterbury Museum at Christchurch, which the latter is exhibiting under the direction of an Austrian geologist of repute, Dr. Julius Haast, a pupil of Hochstetter ... (Dr. H. 1873: 1).

The most informative and detailed articles came from Hochstetter's own pen. In this article signed only as "Dr. H." in September, he very skilfully put his own and Haast's work in a proper light. For example, he emphasised that it was his idea to "arrange for the submission of bird figures for the World's Fair" (Dr. H. 1873: 1). Hochstetter and Haast were celebrated in the press as a duo.

Hochstetter had organized a miniature volcano made of sulphur for the exhibition in the Ministry of Education section (Fig. 4). It consisted of a static model, but the material had "come about experimentally through nature itself" ([Anonymous e] 1873: 4). An anonymous visitor praised



Figure 3. The New Zealand Court at the World Exhibition in Vienna 1873, “Photographen Assoziation”.
Österreichische Nationalbibliothek/Austrian National Library

this presentation by Hochstetter and, in the context of volcanoes, he also referred to Haast’s moa skeletons, which he praised as also being particularly suitable phenomena for representing changes in the earth’s surface.

Hybrid and Identified Objects between Nature and Culture

The moa skeletons acted as hybrid objects that captivated scientists and the general public alike. On the one hand, they raised unresolved palaeontological questions which Hochstetter discussed publicly (Dr. H. 1873: 1), and on the other hand, they fascinated people because of their monumentality and uniqueness. They broadened the public’s view of the general phenomenon of extinction in the animal world, they enabled Māori legends to be integrated into natural history narratives, and they intertwined human history with natural history. The skeletons were objects that could also publicly advertise the importance of palaeontology as a young science. It was noticed that hardly any palaeontological collections were exhibited, other than in connection with suites of rock samples that served to explain the geological maps of New Zealand. One exception was the moa bones on display, according to one journalist, who described them as the “most striking” feature of the exhibition ([Anonymous e] 1873: 4).

Sensation, novelty and instructive entertainment were supplied by the skeletons, which were analogous to the botanical star of the exhibition, *Welwitschia mirabilis* Hook. F., recently discovered by the Austrian botanist Friedrich Welwitsch in Angola, and exhibited in the agricultural hall of the colonial power Portugal. That species also exhibiting a great age as “remnant from an earlier extinct flora” [als “Überrest aus einer früheren untergegangenen Flora”] (Zwanziger 1874: 137; Klemun 2022: 11f).

Naturalists and journalist particularly appreciated the fact that the abundance of materials and specimens on display were labelled with accurate descriptions in terms of content and taxonomy. The corresponding labels for the objects had been prepared in Westminster, as reported by the Agent-General to the Colonial Secretary:

In pursuance of your instructions, I have employed skilled draftsmen to prepare suitable show-cards (twelve inches square) to accompany all the principal exhibits, each of them having a



Figure 4. Model of a volcano made of sulphur by Hochstetter in cooperation with Müller and Opl at his brother's soda factory. Geologische Bundesanstalt Wien/Austrian Geological Survey

conspicuous heading to distinguish the Colony, and a concise description of the object, with the name of the exhibitor, in English, German and French (The Vienna Exhibition 1873: 11).

Hochstetter also stressed, in a letter to Haast regarding the display of the moa and the birds, that “the whole thing will have a large inscription stating: ‘The flightless birds of New Zealand, the extinct moas and the still living kiwi’. Exhibited by Canterbury Museum Christchurch, New Zealand, Director Dr Julius Haast. The birds will also have their own individual labels.” (Nolden 2013: 161).

The unmistakable identification of natural objects had become a sign of professionalism in collections, museums and botanical gardens and everyday practice. Correct information was guaranteed by labels, whose information was based on the standardised naming of natural objects with the scientific designation of the species (Latin binomen) practised since Carl von Linné (1707–1778). This was an expression of a worldwide process of access to nature standardised by internationalised practice, which was essentially Eurocentric. The common names of the plants, animals, stones or fossils on these labels, like “the flightless birds” in the respective local language were a concession to the non-academic public. The labels had a contemporary character in their consistent execution, depending on the material (tin, porcelain, wood, enamel, cement, metal, cast stone, aluminium, zinc), language, script, typeface and political local reference. Unlike the spoken word, which ran and runs throughout time, the typeface on the labels “lived from the simultaneity of the surface, as from the synopsis of the overview” (Krämer et al. 2012: 16).

Labels are not only a signifier in relation to the signifying natural object (the significat) (Lacan 2003), but material carriers of a signifying concept that classifiers chose in relation to scientifically negotiated agreements. They are medial messengers of referential contexts that favour different signifying and pointing characters through writing, materiality and colour. Popularly, they were analogised with citizens, who were “all provided with baptismal certificates and legitimation cards” (Anonymous 1863). It was the labels that travelled as concrete knowledge, mediated through the catalogues and even in newspaper articles (Zwanziger 1874: 94). The labels networked the horizons of meaning. The high print run of 500,000 copies of the German catalogue also played its part (Anonymous b 1872: 11).

The International World Exhibition as “Statistics Come to Life”

There are three objectives that the contemporaries in the press mentioned as the aims of the exhibition: to boost sales (business); competition between the states, including a show of performance by means of the objects; and sensationalism by means of news ([Anonymous f] 1873: 1). These were realised at the exhibition via different media in order to attract the attention of the public. Accordingly, three different types of communication were effective as systems of record: firstly, the lists of exhibiting companies, donors and objects in the catalogues; secondly, the visual representation of landscapes in drawings, sections, photographs and maps arranged according to states; and thirdly, the abundance of materials and specimens on display, which in the best case were provided with accurate descriptions of content and taxonomy on labels.

Extensive lists of exhibitors and objects in catalogues owed their existence to the extremely widespread statistical manuals popular since the eighteenth century. It was no coincidence that one critic of the exhibition had described “statistics as history that has come to a standstill” and meant: “in the same sense, the International World Exhibition could be described as statistics come to life” (Dr. G. K. 1873: 17). The exhibition could also be understood as a catalogue of goods [Warenkatalog]. However, the critic also feared that: “Not everyone is in a position to gauge and appreciate from the numerous individual manifestations of this colourful picture the nature and sum of the forces which have promoted progress and development here and inhibited it there” (Dr. G. K. 1873: 17).

For this very reason, the catalogue produced by the mother country provided extensive information on the colony, from which the press drew its knowledge. The daily newspapers praised the “diversity of natural products represented here” ([Anonymous f] 1873), the many types of coal, alluvial gold in 30 samples from as many locations, and the wheat and wool (Merino, Lincoln and Leicester provided by 22 growers). The information on the preparation process of New Zealand flax, and the species of wood (38 from Auckland, 82 from Wellington and 43 from the South Island, making a total of 163 species) were admired. The “rational way of setting up with bark, foliage and flowering irises [was found] ingeniously implemented.” (Dr. G. K. 1873: 17). This example vividly shows us how the numbers in the lists from the catalogues were transformed into powerful agents of the objects.

Clifford, for instance, affirmed the great appeal that the *Phormium tenax* exhibit had:

Among the earlier arrivals I may mention an admirably arranged collection of the Phormium tenax, showing it in every process of manufacture, from the raw leaf into rope and twine of every description; and its other products, from the coarsest sacking to the most perfectly bleached table linen of the finest texture. This was exhibited by Mr. Thoren, and was much noticed (The Vienna Exhibition 1873: 12).

The press in Austria mainly repeated in compressed form the data on trading power and wool exports to England: “Of the exhibited objects, the gold quartz with platinum (some pieces of pure gold are also to be seen) are of particular beauty, as are individual fine types of wool” ([Anonymous g] 1873: 5; [K. Th. R.] 1873: 8). In terms of the colony’s political intentions, the representation of trade and economy at the Vienna World Exhibition was successful. For the many authentic examples of goods, such as wool, coal, wood specimens, the *Phormium tenax* (New Zealand flax) used so diversely by Māori, various natural products such as meat and cheese, these were all visible as products and showed the wealth of the colony in a wide spectrum. This aspect was emphasised especially regarding alluvial gold, coal and minerals.

Physical Uniqueness

The geographical and physical uniqueness of New Zealand was well illustrated by topographical and geological maps, sketches, landscape representations, photographs, materials and natural objects. This is what was said about the New Zealand section of the World Exhibition:

If we may trust the illustrations. ... The coast of New Zealand, with its dark forests surmounted by white, heavenly chalk cliffs, bears a surprising resemblance to Corsica, whose rocky cliffs, gleaming far away, tower like white colossi from the blue sea and a wreath of dark laurel and chestnut forests ([Anonymous h] 1873: 5).

The passage attests to how the wood samples were aligned with the photographs for the visitor. At the same time, the public preferred the perspective of the European who was always accessing the world. Accordingly, Josef R Lorenz, in his article about the maps in general at the exhibition, judged Haast’s map, entitled “Reconnaissance-Map of the interior of the province of Canterbury, New Zealand, a hand drawing to the scale of 1: 253,440 (4 English miles = one English inch)”, to be the best, “the most interesting map of its kind” for the press among the “maps of all nations exhibited.” (Lorenz 1873: 3). Lorenz emphasised that “undescribed areas” are here “successfully drawn schematically and with one-side illumination ... which proves to be the most effective for the overview” (Lorenz 1873: 3).

What was perceived as characteristic of New Zealand’s natural history was especially the birds and the extinction of some species:

First of all, let us enter the room in which the products of the most peculiar flora and fauna of all parts of the world are open to inspection, and above all, let us look at the birds on display. Who knows how long it will take for the news to reach Europe that the last specimens of the bird species we have just been looking at have recently died out. The first thing that catches our eye is a group of two New Zealand owl parrots with pearly green plumage. They are strange birds. By day they hide in root holes under the ground and only emerge at night to eat titu berry or fern roots they dig up. They rarely use their wings and are therefore hunted by the natives with dogs. Furthermore, we notice three specimens of the wingless kiwi, which also leads a nocturnal life and feeds on insects, worms and seeds. Both kiwis and owl parrots are in the process of extinction. But now we come to a bird species that is already completely extinct. It is the giant moa (Kingstone 1873: 3).

The image of the Māori people in New Zealand presented at various world exhibitions has changed since their major appearance at the exhibition in London 1851 (Auerbach 2008). Māori people and artefacts were transformed from being curious entities to scientific specimens (Auerbach 2008). They were used to demonstrate what was perceived as progress made under the influence of

the Europeans. Māori provided a particular colour to New Zealand's identity. Many newspapers in Austria discussed the phenomenon of Māori in the same breath as the extinction of the moa (Kingstone 1873: 3). The aversion to British colonialism was evident in many Austrian columns (Bacano 1873: 1–2).

Conclusions

The analysis of New Zealand's part in the organisation of and preparation for the Vienna World Exhibition in 1873, has shown the powerful ambiguity between the imperial centre in London and the supportive position of colonial contributors. It made obvious how a third space in between, the Vienna World Exhibition, undermined the controlling authority by shifting the focus from trade of the colonial centre to that of nature in the colony. This perspective was also semantically tangible in the newspapers. The moa skeletons and New Zealand's uniqueness were highlighted in the press. The agency of the admired, debated and researched fossil moa skeletons was important not only for claiming scientific authority for Haast and his patron Hochstetter, but also for Hochstetter, as an architect of the exhibition. It was he who articulated the skeletons and in the right manner, giving them and himself authenticity and credibility among the Viennese public. The carefully crafted arrangement of the display and the professional narrations articulated by labels went hand in hand.

The focus on media (inscriptions, labels, list in catalogues, and drawings or photographs) provided an understanding of how knowledge was disseminated. The role of instructive entertainment had its foundations in lists and registers presented in catalogues. All these inscriptions travelled from those documents to the exhibits and thence to the newspapers. The different functions of the media were established by the distinct types of inscription practices connecting objects and their agency between knowledge and perception. Hector, Hochstetter and Haast had global connections as friends and scientists who exchanged their knowledge over many years. These relationships underlined the importance of natural history objects at the exhibition and also strengthened their status in society and science, which was reinforced by the press. The exhibition manifested not only objects but also networks between New Zealand and the Habsburg Empire, as documented in the press.

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