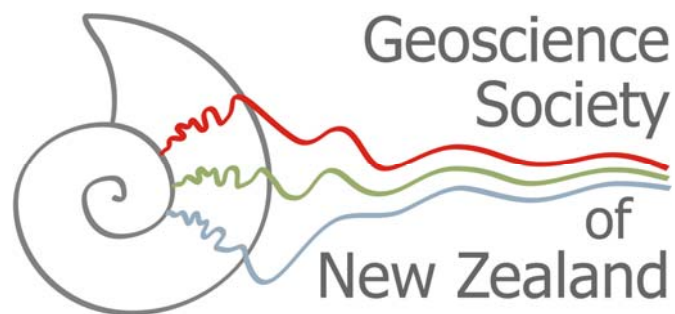


The Correspondence of Julius Haast and James Hector, 1862-1887

Sascha Nolden, Rowan Burns & Simon Nathan



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Figure 1: Location map, showing the main geographic features mentioned in the text. Provincial boundaries are shown as they were in 1862-64 when Haast was working for Canterbury Province and Hector was working for Otago Province. Although Southland was separate from Otago at this time, Hector took no notice of the boundary, and included Southland in his mapping of Otago province.

Introduction

Julius Haast¹ (1822-1887) and James Hector (1834-1907) were two of the dominant personalities in the scientific life of late 19th century New Zealand. Both had wide interests, and made significant contributions in geology, biology and ethnology. They corresponded for 25 years, from the arrival of James Hector in 1862 until the death of Haast in 1887, and their letters give a fascinating window into changing ideas and scientific controversies.

Hector and Haast were primarily employed as geologists, with the hope that they would discover minerals that could be exploited in the young colony of New Zealand. But both men were fascinated by the distinctive fossils and living plants and animals of their new homeland, and gave high priority to building up collections for the museums that they were involved with.

In the early 1860s Hector was employed by Otago Province while Haast was based in the adjacent Canterbury Province (Fig. 1). From 1865, Hector was employed by the central government, and had responsibilities for a number of scientific organisations including the New Zealand Geological Survey and the Colonial Museum. In contrast, Haast stayed in Canterbury, and always had more difficulty than Hector obtaining funding. But, as a result, he had few administrative responsibilities, and was able to spend more time on scientific work.

Although Haast and Hector generally respected each other as competent scientists, there were regular arguments – a reflection of different personalities, regional rivalries, and competition between the two museums. The extent of their rivalry, and the extent to which it involved other members of the small scientific community, has only become clear as we have transcribed this collection of letters as well as correspondence with Joseph Hooker, Walter Mantell and Frederick Hutton.

Sources of the Haast-Hector correspondence

We are fortunate that both Haast and Hector carefully saved their correspondence, and that so many of their letters have been preserved.

The letters from Haast to Hector were filed in the Colonial Museum, and are now held in the archives of the Museum of New Zealand Te Papa Tongarewa, mainly in the MU198 and MU147 series.

Letters from Hector to Haast were filed by Haast, either at his home or at the Canterbury Museum. On his death in 1887 all his papers were packed up by his son, Heinrich von Haast, and later used as source material for his book, *The life and times of Sir Julius von Haast*, published in 1948. The Haast family papers were presented to the Alexander Turnbull Library (MS-Papers-0037), and the letters from Hector are held on folders 076-083 which have been microfilmed (MS-Copy-Micro-0717). Some of the pages in this collection are out

¹ Julius Haast was awarded a hereditary knighthood by the Austrian Emperor in 1875 which entitled him to use the prefix 'von' before his surname. As these letters largely predate his knighthood, he is referred to as Haast throughout this collection.

of order, and the final folder consists of undated fragments. We have been able to reassemble some of the letters, and this is indicated in footnotes.

Over 300 letters were written by Haast and Hector to each other, mostly between 1862-1874, and we decided to present the letters in chronological order to illustrate the interplay between the writers over the years. We have generally not included short formal business letters that have no personal component, but those that have not been transcribed are listed in Appendix 3. When we assembled the letters it became clear from checking cross references that quite a number were missing – at least 7 letters from Haast to Hector, and more than 40 from Hector to Haast (listed in Appendix 4). It is not clear if these were never preserved, or if they were taken out of the collection at some stage. Although it is disappointing to realise that the collection is incomplete, we believe that the main themes in the correspondence are clear from the letters that have been transcribed.

Transcription of the letters was initially carried out as two independent projects. Rowan Burns and Simon Nathan transcribed most of the letters as part of a study of James Hector, while Sascha Nolden transcribed many of the same letters while studying the correspondence between Julius Haast and Ferdinand von Hochstetter. We joined forces, which has resulted in a more comprehensive publication. Additional assistance was sought from colleagues, especially for the identification and spelling of biological names. Although Haast and Hector both have handwriting that is not easy to read, most of their letters can be deciphered by working through them slowly and carefully. We have retained the spelling, punctuation, capitalisation, abbreviations shown in the original letters, although a few full stops have been added where they were obviously intended. The underlining in the original letters has been retained except for biological names² and for ships, both of which are given in italics. Words that cannot be read but for which a reasonable guess is suggested by the context are shown by [?]. Words that cannot be read at all are shown by dashes, the number of dashes corresponding to the approximate number of illegible letters.

Changing relationships between Haast and Hector

Haast arrived in New Zealand in late 1858, and spent eight months exploring parts of the North Island and Nelson as an assistant to geologist Ferdinand Hochstetter. He was subsequently employed to explore the remoter parts of Nelson province, and took up the position of provincial geologist for Canterbury in early 1861. Later that year, Hector was appointed provincial geologist in Otago, and arrived in April 1862. One of his first acts was to write to Haast – the first letter in the series.

For the next two years Haast and Hector explored the remoter parts of their adjacent provinces, and often corresponded on geological issues. Hector was one of the organisers of the New Zealand Industrial Exhibition, held in Dunedin in early 1865, and Haast helped organise a display from Canterbury.

Hector took up a new position in charge of the New Zealand Geological Survey for the central government in 1865, and moved to Wellington. From this time onwards he was involved in geological exploration all over New Zealand. Haast's position with the

² For biological names we have used the convention of capitalizing the name of a genus, but putting the species name in lower case.

Canterbury Provincial Council ended in 1868, and he considered leaving New Zealand. Hector employed him on contract a number of times to undertake fieldwork in different parts of the South Island, especially reporting on coalfields in Canterbury. Haast also obtained some income as director of the Canterbury Museum, and later lectured in geology at the newly established Canterbury University College.

In 1874 Hector and Haast had a serious quarrel over the unauthorised publication of the results of an excavation at Sumner, initiated and overseen by Haast. It was an issue that split the scientific community in New Zealand, and has been exhaustively described (for example, von Haast 1948, pp 722-758; Reid 2009; Yaldwyn, Dawson & Davidson 2006). There is a four-year gap in the correspondence. Eventually the two men started communicating again, but there was never the same warmth in their letters as there had been previously. Papers relating to this argument are given in Appendix 1.

In 1885 there was debate about the appointment of the Executive Commissioner to the Colonial & Indian Exhibition to be held in London in 1886. Haast, Hector and Buller were reported to be the leading contenders, but Haast was chosen, allowing him a government-funded trip to England and Europe. He died shortly after his return in 1887. Despite their differences, it is fitting that the final letter in the series is a note from Hector welcoming Haast back to New Zealand.

More details on the careers of Haast and Hector are given in the online Dictionary of New Zealand Biography:

Haast: <http://www.teara.govt.nz/en/biographies/1h1/1>

Hector: <http://www.teara.govt.nz/en/biographies/1h15/1>

What did Hector and Haast argue about?

Apart from the Sumner cave affair, much of the discussion and disagreement between Haast and Hector was about the age of rocks in different parts of the South Island. Haast investigated well-exposed sections in the Waipara valley in north Canterbury and at Amuri Bluff in Marlborough. He made many fossil collections, but the palaeontology of the time was not good enough for precise dating. One of the continuing arguments was whether the vertebrate-bearing beds at Waipara and Amuri Bluff were the same age, and whether they were late Mesozoic or early Tertiary. Some sequences did not contain identifiable fossils, and there were debates about whether there were breaks or whether the sequences were continuous. It took almost a century until these arguments were resolved using microfossils.

While Haast was working on contract for Hector, he prepared a number of reports that were published in the *Reports of Geological Exploration* (RGEs). Hector often added comments or footnotes (as he invariably did to reports by his staff), but Haast objected, and found this demeaning. He also objected to Hector's practice of sending other staff members to re-examine sequences that Haast has reported on without consulting him (Appendix 2)

As Hector edited both the *Reports of Geological Explorations* and the *Transactions and Proceedings of the New Zealand Institute*, he effectively controlled the publication of scientific work in New Zealand. In reality almost all of Haast's manuscripts were published with little or no modification, but he resented Hector's influence, and often commented to colleagues about this.

In reading the letters once they had been reassembled, we were struck that the tone was little different to that used today by active researchers who are competing in the same field. Rivalry and argument is the way science works. But today the researchers would be using email, and publishing their results electronically.

Acknowledgements

The letters in this collection have been reproduced with permission from the Alexander Turnbull Library (mainly letters written by Hector); the Museum of New Zealand Te Papa Tongarewa (mainly letters written by Haast); and the Board of Trustees of the Royal Botanic Gardens, Kew (letters in Appendix 1).

Many colleagues have helped us during the compilation of this collection of letters, and we would specially like to thank:

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Transcriptions of the letters between Julius Haast and James Hector, 1862-1887

In the section that follows, the letters are presented in chronological order

1: Hector to Haast, 19-4-1862

ATL MS-Papers-0037-076

[Dunedin?]
19th April 1862

My dear Sir,

I have just arrived here from England and as my work will confine me for some time at least to this Province I shall not have the pleasure of waiting on & consulting with you so soon as I would wish. I therefore take this opportunity of enclosing a note which our friend Dr. Hooker³ requested me to deliver to you, & to express the hope at the same time that you will have leave occasionally to correspond with me & give me the benefit of your advice & experience of the Country.

I have read your interesting memoir upon Nelson⁴ with great care & regret that I had no map to which I could refer, as there are many points of detail which I was unable to follow without one. In several places you refer to a map as extant. If it is published I would esteem it as a great favour to be allowed a sight of it for a short time. In the Melbourne Papers the other day I saw a short notice of a more recent & still more brilliant research you have made in the Western ranges of Canterbury & of which I trust we shall soon hear more in detail, especially respecting the Glacial Phenomena. Dr. Mueller⁵ told me that he expected a paper from you on that subject for the Royal Society of Melbourne, & I hoped at one time that I might have been able to remain for the meeting at which it would be read.⁶

It is now more than eighteen months since I first heard of you from Dr. Hochstetter,⁷ but then I did not expect that I might soon have the pleasure of meeting with you & discussing the Geology of New Zealand as a subject of mutual interest. Hoping that we may soon meet, I remain Ever Yours Sincerely

James Hector.

To Julius Haast Esq.
Canterbury.

³ Joseph Dalton Hooker (1817-1911), English botanist and explorer who corresponded with both Haast and Hector.

⁴ Julius Haast, *Report of a geological and topographical exploration of the Western Districts of Nelson Province, New Zealand*, Nelson: J. Elliott, 1861.

⁵ Ferdinand von Mueller (1825-1896), German botanist, physician and explorer in Melbourne.

⁶ Haast's paper, 'On the Physical Geography and Geology of New Zealand, principally in reference to the Southern Alps', was read at the meeting of the Royal Society of Victoria on 26 May 1862.

⁷ Ferdinand von Hochstetter (1829-1884). Hector and Hochstetter met at the thirtieth meeting of the British Association for the Advancement of Science held at Oxford in June and July 1860, where according to the official report "Dr Hector's Notes on the Geology of Captain Palliser's Expedition in British North America" and "Professor F. von Hochstetter's Remarks on the Geology of New Zealand, illustrated by Geological Maps, Drawings, and Photographs", were presented.

2: Haast to Hector, 16-5-1862

Te Papa MU000198/001/0031

Lake Tekapo
16 May 1862

My dear Sir,

Hearing from Sir Roderick Murchison⁸ as well as from Dr Hooker and Dr Hochstetter by this mail, awaiting me here, that you had left England for Otago, it was my intention to write to you, to congratulate you on your safe arrival and to offer you the hand of friendship. It was therefore with great pleasure, that I found amongst my New Zealand letters your kind note and although I shall start in a few hours, I must express you my great pleasure in seeing you safely arrived. It is a great satisfaction for me to know now that there is somebody whom I can consult and as you may depend upon my willingness in placing to your disposal all my experience in this most interesting country, I reckon on your kindness, that you will assist me in the same way. As soon as I shall be back in Christchurch towards the middle of next month, I shall do myself the pleasure in having a copy of my Nelson map prepared for you & at the same time, I shall draw you a section through this Province from East to West with the necessary notes, as well as other material on the Geology of the Northern part of this Island. You would oblige me very much at the same time in telling me in a short note, in what formations the Gold occurs in Otago, if in Granite or metamorphic rocks.

We have no plutonic rocks on this (Eastern side) of the central chain and I was not able to find any auriferous rocks; there is gold everywhere, but only a few specks after days labors. I think in all deference to Sir Roderick that his theories do not keep good for all countries.

I made a very interesting journey, you will read of it in the Canterbury papers. I must be very short, but as soon as I am back I shall write longer.

I shall stay in Christchurch till Beginning of October, if you find a spare fortnight, I should be most happy to see you, I can offer you a bed and a hearty reception.

I remain in the meantime my dear Sir
Yours very sincerely
Julius Haast.

Dr Hector
Provincial Geologist
Dunedin, Otago.

Postscript. Dr Hochstetter, who is just at the redaction of his New Zealand work, is very anxious to give a small sketch map of both Islands. He wrote me, to give him some details about Otago but as I never have been there, I was very sorry to comply to the wishes of my dear friend. It would be therefore very kind of you, if with the next mail after having seen the Goldfields you would send him some few hints, so as to enable him to bring at least

⁸ Sir Roderick Impey Murchison (1792-1871), Scottish geologist and Director of the British Geological Survey.

that part of your Province. He of course will bring your work under your name, as he does mine. It is not necessary to enter into any details, only the general outlines, but it ought to be done with the first mail.

His adress is
Prof F von Hochstetter
Polytechnisches Institut
Vienna Austria

Yours very sincerely
Jul. H.

3. Haast to Hector, 21-6-1862
Te Papa MU000198/001/0031

Geological Survey Office, Christchurch
21 June 1862

My dear Sir!

I wrote you a few weeks ago & hoped that I would hear from you with this mail, but on arriving, I was sorry not to find any letters of yours amongst my parcels.

According to my promise I send you today a rough copy of my Nelson Map; in following my route, you can easily ascertain the geological features of the Country. Had I found the time I would have sent you also a Copy of my geological map, but I was so very busy with geological work for the province & my last contributions to Hochstetter's N. Z. Work, that I could not manage it. I hear you are back from your preliminary survey of the Otago Goldfields & am very anxious to hear something about the results. Do you not intend to publish anything about it? I was reading with great interest the other day in the *Proceedings of the Geological Society* your glorious paper on your researches in British North America. How I would have liked to have been with you. Also Dr Petermann⁹ brings a long description of your journey in the *Geographische Mittheilungen*. In the case you understand German, I shall with pleasure send it over to you.

In a few days I shall start with a steamer for a month to the mouth of the Grey, to survey the Canterbury part of these important coalfields, in a view to enable a company to work it. I shall be back beginning of August, perhaps landing on my return in Dunedin, to see you for a moment and to take you with me if you can spare a fortnights time.

I should be delighted to see you here and to show you our interesting tunnel through the Caldera wall of Bank's Peninsula. I had some very interesting letter of Prof Owen,¹⁰ Dr Hooker, Sir Charles Lyell¹¹ by the mail & of course of friend Hochstetter, who writes regularly with each mail.

⁹ August Heinrich Petermann (1822-1878), German geographer and cartographer.

¹⁰ Sir Richard Owen (1804-1892), English biologist, palaeontologist and comparative anatomist.

¹¹ Sir Charles Lyell (1797-1875), British lawyer and geologist.

Prof Tyndall¹² has been so much interested by my glacier descriptions that he would like very much to come out and as he says in his letter to me, "to make an excursion among those never trodden peaks". A very interesting fact is that the whole Alps, as far as I surveyed them, consist of palaeozoic rocks, without any sign of plutonic or even eruptive rocks. The Geology is there extremely difficult, no fossils. Only Sandstones, slates, shales & pebblebeds (no limestones) in endless succession & in very huge foldings, intersected by great faults in all direction. But I know that the western side of the Alps (at the Westcoast) consists of Gneiss, Mica schists, Chlorite & Graphite slates with porphyry granites at their base. At the Eastern side the Alps are bound on the western extremity of the Canterbury Plains by very large volcanic zone (Quartzose Trachytes, Richthofen's Rhyolites with Melaphyres Amygdaloids & Diorites)¹³.

The Geology of Otago must be highly interesting the three only specimens which ever I saw, were a piece of Mica schist, of Basalt & Pumicestone tuf.

You have seen without doubt in the Newspapers, what our N. Z. Alps are like & what conclusive proofs of the glacial period are to be found.

Can we not manage to meet in the course of next summer's campaign? I shall be at Lake Whanaka, coming from the Westcoast end of March and at Lake Hawea in April. What a pleasure it would be, if we could geologize along the Waitaki together. Perhaps we could make a hasty excursion from Lake Pukaki to glorious Mt Cook & to the great Tasman Glacier. You could come with me, to see the sources of the mainfeeder of Lake Hawea.

To celebrate your arrival, I named a splendid mountain range in the Alps between the Godley & Classen Glaciers, the main feeder of the river forming Lake Tekapo the Hector range. I shall show or send you a sketch of it. It is a magnificent range covered with glaciers.

I hope you will find the time to write me a few lines with next mail
Believe me, my dear Sir,
very sincerely yours
Julius Haast

Dr J Hector F.G.S.
Government Geologist
etc.
Dunedin Otago

¹² John Tyndall (1820-1893), Irish physicist.

¹³ There is no closing bracket in the manuscript letter

4: Hector to Haast, 2-7-1862

ATL MS-Papers-0037-076

Dunedin
2nd July 1862

Dear Sir,

I have just received your interesting letter of 21st ult. I only received your previous letter on the 17th ult. on my return from the interior of the Province and though I answered it at once you could not have received my letter before you wrote again to me. Many thanks for the tracing of your Nelson map. I shall now be able to reperuse your valuable report with renewed interest.

I have now seen a good deal of this province but as yet I have published no report, as until my observations have been extended into a few other localities and been well digested they can have little value except as food for newspapers. You know quite well that Geological detail is very repulsive and not at all instructive to the general public, and until one can feel able to venture securely on generalizations it is better to abstain from publishing.

I regret very much tho that I have missed seeing your account of the Mt. Cook Glacial phenomena. Could you kindly refer me to the date & paper in which it was published. Dr. Mueller told me that in the paper you had sent for him to Communicate to the Royal Soc. of Melbourne you gave full details of those phenomena. I suppose you will soon have printed copies of that paper and I should esteem it a great favour if you could send me one as I fear if any traces of Glacial drift occur in this province they have altogether escaped me. However with you they may be confined to high elevations, but if so it is difficult to conceive any cause for their absence from the low grounds, always supposing that I understand you right in taking your remarks as applying to Glacial drift not Glacier Phenomena merely. In my last note I gave you a few particulars of the Auriferous rocks here, and you may depend on having a more detailed account with sections very soon. I shall be delighted to see you in August as you pass from your trip to the West Coast.

It would be extremely interesting could we meet in the course of next summer and perhaps we may arrange to do so. I am quite flattered by your having given my name to a range of Mts. I must try to reach them if I can in some of my journeys. I am just starting again for the North district of the Province.

Ever Yours Sincerely,
James Hector.

5. Haast to Hector, 11-7-1862

Te Papa MU000198/001/0031

Christchurch
11 July 1862

Dear Sir

I just receive your kind letter of the 2 of July & am very sorry to state that your last letter, in which you gave me some information concerning the auriferous rocks in your Province did not reach me. Perhaps that you neglected to put a postage stamp upon it & that for this cause it is still lying at the Post Office in Dunedin. It will be a great pleasure for me to receive some information about your auriferous rocks. I suppose that they exhibit the usual cleavage of goldbearing rocks in other part in the world & in the Nelson Province. As far I visited & examined our Alps, there is not the least sign of Cleavage, although the rocks are very much jointed.

I am just preparing a section through the Island from Banks Peninsula to the West Coast across Mt Cook & as soon as it is finished, I shall send you a copy, it will give you an idea of the structure. For the greatest part, the ranges have a synclinal axis, the valleys being represented by the anteclineals, broken away & removed. – I send you inclosed the newspaper in which you find a short account of my last campaign. These letters were not written for publication, but only for the purpose to give to one of my friends here an opportunity to say some thing about my doings. But he thought them so important, that he nearly published them in extenso, with all my bad jokes in them. You will see, what I say about glacial phenomena. The outlet at the southern end of Lake Pukaki lies about 32 miles from the terminal face of the Great Tasman Glacial at an altitude of 1746 feet. These old moraines are so clear that even my men said instantly when we came to the Lake: here are old moraines. There are two different terracelines in the Alps. The one is horizontal, of marine origin(?)¹⁴, the other sloping down from 3 to 1 degree of glacial origin. The following diagram will best show you



Below & within these horizontal lines the mountains are smooth, about 5500 above, they are craggy. When by the orographical features of the country, no glaciers could come down, the terraces (I counted sometimes 32) are all horizontal.

¹⁴ Underlining and question mark possibly inserted by recipient of letter.

I hope you will agree with my explanation of these phenomena. It is highly interesting to see, how those old Moraines round the Lakes, disappear below the drift formations



From the Lakes till within ten miles from the East Coast the whole country is covered by drift formation for the greatest part consisting of stratified Boulders, gravel, with here & there a bed of clay; although mostly horizontal these beds are often exceedingly disturbed (striding[striation] of icebergs) the rivers flow all in terraced beds but 10 miles from the sea they begin to flow above the plains like Adige & Po & a true alluvial formation overlies the Boulder or drift formation.

That this drift formation consists really of the deposits of Icebergs, I am convinced, because I found amongst them erratic blocks with their edges quite regular. But generally speaking they are well rounded, which is not surprising, when you see, how soon even 100 yards from the glacial core the debris is already rounded & one may conceive that the sea did the same by currents. And even in the glaciers itself they are sometimes perfectly well rounded boulders. – For instance all the smaller debris on the great Tasman glacier for two miles upwards in the centre are all rounded. The glacier is here concaved from a large watercourse during the melting of the snows & after heavy rains. I shall not go to the Grey before Spring, the weather is not inviting & 4 winter campaigns have given me Sciatica, so that I must be careful in the future. You are quite right, there are very few people who like to look at geological detail reports, but I consider we do not work for the Colony alone but for the scientific world & for ourselves.

Is there not a covering of the Boulder formation in Otago? The formation of the Canterbury plains has some resemblance with that of the plains of Patagonia as described by Darwin.¹⁵ If I find the time I shall come over for a fortnight to see you & your goldfields & bring with me what I think will interest you.

Please write to me when I am certain to see you in Dunedin. Really I am extremely sorry that I did not get your last letter, it would not only have given me much pleasure, but I would also have received much valuable information.

When Major Richardson¹⁶ was here on his way to the General Assembly, I had a good many conversations with him & showed him my collections. I was very much amused, in observing that he had already picked up some Geology, probably by conversing with you.

I hope to hear soon from you & when you will be in Dunedin.

As soon as I get some copies of the *Transactions of the Royal Society of Victoria*, I shall send you a copy.

¹⁵ Charles Robert Darwin (1809-1882), English naturalist.

¹⁶ Sir John Larkins Cheese Richardson (1810-1878), New Zealand politician and cabinet minister.

Ever yours very sincerely
Julius Haast

Dr J. Hector
Dunedin

The Ranges which come from the Central Alps run in a diagonal line & protect the lower part of the Country, lying East from them from Drift, but the rivers which come from Lake Whanaka & Hawea, ought to show this phenomena.

6: Hector to Haast, 29-7-1862

ATL MS-Papers-0037-076

Dunedin
29th July 1862

Dear Sir,

I have just received your letter of 11th last full of interesting information, and along with it the account of your arduous journey through the N.Z. alps. I am quite at a loss to understand how you have not received my second letter to you (this is now the 4th). I remember distinctly posting it myself with the proper stamp. However it contained nothing of much importance as I can with pleasure again send you the information about our Gold rocks.

The Schists which form the mass of the Country have a general strike of WNW and as a rule dip at low angles. They are all more or less Metamorphoid, jointed and foliated however not cleaved. It is rare to find beds that can clearly be referred to any of the typical metamorphic rocks – i.e. Mica Schist, Gneiss &c. It seems as if the crystalizing force had been feeble.

The presence of or absence of Quartz, which often occurs in large quantities, seems to depend on the original constitution of the stratum before altered, as alternations of Quartzless and Quartziferous beds are common. The Quartz always, so far as I have yet seen, occurs as interfoliated laminae or as a network of thread like veins – no true veins such as in Victoria have yet been detected. But after all I believe this to be a trivial distinction, as the largest veins of Massive Quartz in the world all tend to feather edge (i.e. to thin out in all directions) even when they occur in well cleaved & vertical slates.

Such are the characters of the Schists as they crop out in the Surface, but in certain localities especially where overlaid by Tertiaries of a certain age, on being laid bare, either by stream or by mining operations, the schists are found to be much decomposed, and reduced to a state almost like clay trammel by friable Quartz veins. When this character prevails, the richest diggings are perhaps to be expected. But of course that again depends on the development of the Gold Drifts. Where the Causes that produced these remarkable drifts have not operated, of course there can be no gold washing, and where they have been too intense, the drift will be too poor or in other words the proportion of gold to the whole material will be too small to work with a profit. But I get rather into detail & trespass on your

patience I have no doubt. I shall take care that you are one of the first to receive a copy of my report when it is published & then you can better follow my musings.

You very flatteringly invite my opinions about your Moraine observations. They are of high value & of extreme importance theoretically if established. I see a difficulty, even with your little diagram to help me, but which I have no doubt you can meet. Granting that the sloping beds are of Glacier origin, have you clear evidence that the level terraces are of Marine origin? Were the Island to be submerged, the snow line & therefore terminal line of Glacier Ice would rise, not descend with decrease of altitude. The state of the Globe would require to be very different from the present to bring Glaciers to the sea level of an Oceanic Island in this Latitude – & yet it might be possible were the Mountains high enough & steep enough – or rising abruptly from the water's edge to the snow line with only rugged valleys – for in that case we might suppose that the forward motion of the Glacier could be more rapid than the rate of melting. And yet as a rule, we do not find that the steepest Glaciers descend lowest. The drainage in that case is so much aided that the Ice takes on its crystalline structure, & being thus rendered porous becomes a better conductor of heat. However these are all merely vague suggestions which I throw out for your consideration, as I have no doubt you have studied the subject in application to your case, which I have not.

My knowledge of the Province is as yet imperfect, especially of the Central portion – but from the Matura in the South to the Waitaki in the North and as far back as the Molyneux & up to the Dunstan Range in the interior I have seen no formations with erratics – at least due to other than water action. When I go up to the Hawea Lake I shall keep a sharp look out as you suggest for the Glacial Phenomena.

I am delighted to hear that you have a mind to visit this province, I am certain many besides myself will be glad to see you. I am very sorry that I cannot in my time make you a hospitable offer of accommodation, as I have no fixed residence of any kind. I shall however do all I can to be of service to you and as I have no prospect of being away for any length of time until the spring is established, you cannot be far out if you write by one mail & come by the following one. I shall make my plans so as to meet you without fail.

Ever Yours Sincerely
James Hector.

To Julius Haast Esq
Canterbury.

7: Haast to Hector, 9-8-1862
Te Papa MU000198/001/0031

Geological Survey Office
9 Aug. 1862

My dear Sir,

It is only to day, that I find a moment's time to enter with any length into your very interesting report, which has given me a very fine idea of your goldfields. Will you now allow me to present you with a few observations bearing upon the subject. Unfortunately I have no map of Otago before me, so as to be able to follow your reasonings & I must confess to the shame of our land offices that also not that I could get one of Mr Thomson¹⁷'s excellent maps for inspection.

Your observations of our tertiaries are very true, although you have not seen them in such perfection, as they are in our Province. There are two volcanic zones in our Province, bounding the Canterbury plains to the East, the older one forming Mountains often 5000 feet high in quartzose Trachytes with Pearlites, Obsidian (sperulitic) of submarine origin, some of most beautiful structure, but without visible lavastreams or craters & no pumicestones. At their base we meet with extensive tufaceous beds overlaid by extensive lignite beds, over which Limestones make their appearance. Afterwards new eruptions took place at the eastern base of these older volcanic rocks consisting of heavier basic volcanic rocks; Dolerite & Basalts breaking through & disturbing the sedimentary strata before-mentioned. These latter have lavastreams & signs of small craters are to be observed.

Your explanation of the gold drift is very good & I am delighted to hear from a man, who has seen so much as you, such clear reasoning, which must be right.

We have no gneiss or mica schist in our Alps, at least as far I explored them, although towards Lake Ohau the strata begins to be somewhat of metamorphic character.

What a pity to be kept in Timaru, by those scoundrels, instead of coming to Dunedin, I had such a great desire to see you & to talk shop with you & brought specimens, maps & sections with me to show you, but I can not help it. All our strata in the Alps stand nearly vertical or nearly so. They being in fact only a succession of synclinals & anticlinals but the vallys the anticlinals & the mountains the synclinals, showing what an enormous denudation has taken place. I would rather be astonished to hear, that you have observed Granites *in situ*. Even on the western side of Mt Cook at the West coast & more South there are not plutonic rocks to be observed but true Gneiss & Mica schists.

In a report which I have prepared and of which I shall do me the pleasure of sending you a copy, I have given a general outline. I think you will probably not altogether agree with me about the formation of our Canterbury plains, but it is my conviction & if I see that I am wrong, I shall certainly acknowledge it. I send you with this mail a copy of my adress as President of the Phil. Inst of Canterbury. I had so very short time, that I could not collect more material, but not withstanding I hope that the perusal will not be without interest for

¹⁷ John Turnbull Thomson (1821-1884), Chief Surveyor of Otago.

you. You see I took the liberty to have also some talk about you. Have the kindness to tell me candidly your opinion about my reports etc.

Dr Hooker writes me as follows:

“I hope that you have seen Dr Hector, who took a letter from me to you. I shall write to him shortly, at present what with the exhibition and my father having been in poor health & other matters I have been quite overwhelmed with work & am unequal to all the calls on my time.”

And now my proceedings. I shall be at Lake Pukaki towards the 10 of Novb. & be about Lake Ohau & the western branch forming it till end of Novb; then I shall proceed to Lake Hawea & ascend the rivers forming it thru to Lake Whanaka, do the same & try to reach the West coast by an old Maori pass across the Alps; you will easily hear on the stations where I am & I should be delighted if we could meet & have some explorations together! Do try to arrange your journeys in such a way that we can meet.

Believe me my dear Sir
very sincerely yours
Julius Haast

Dr J. Hector
Govern. Geol.
Dunedin
Otago NZ.

8: Haast to Hector, 15-8-1862

Te Papa MU000198/001/0031

Christchurch
15 Aug 1862

Dear Sir!

I had the other day the pleasure of seeing Mr Wayne¹⁸, telling me, that I could expect very soon a letter from you & I gave him my *carte de visite*, so that you may see, how your colleague looks. Have the kindness to send me yours in return.

In the meantime I had the pleasure of receiving your letter of the 29 ult. with many interesting communications. The more I hear about your auriferous rocks, the more I am anxious to see them, but unfortunately there is no chance of coming down so soon, as I have to go in this fortnight to the Greymouth in steamer & I shall not be back before begin of October. But if you would find an opportunity of sending me a few specimens of the Rocks, you would oblige me very much. This would enable me, to compare them with some of our alpine rocks, of which those South of Mt Cook in the rivers which form Lake Ohau will have probably some resemblance. But vedremo.¹⁹

¹⁸ Frederick Wayne (1834-1901), MP who represented the Hampden electorate of Otago from 1863-1866.

¹⁹ Vedremo (Italian), is the first-person plural future of Vedere, which means ‘to see’ or ‘to find out’, thus *Vedremo* means “we shall see” or “we shall find out”.

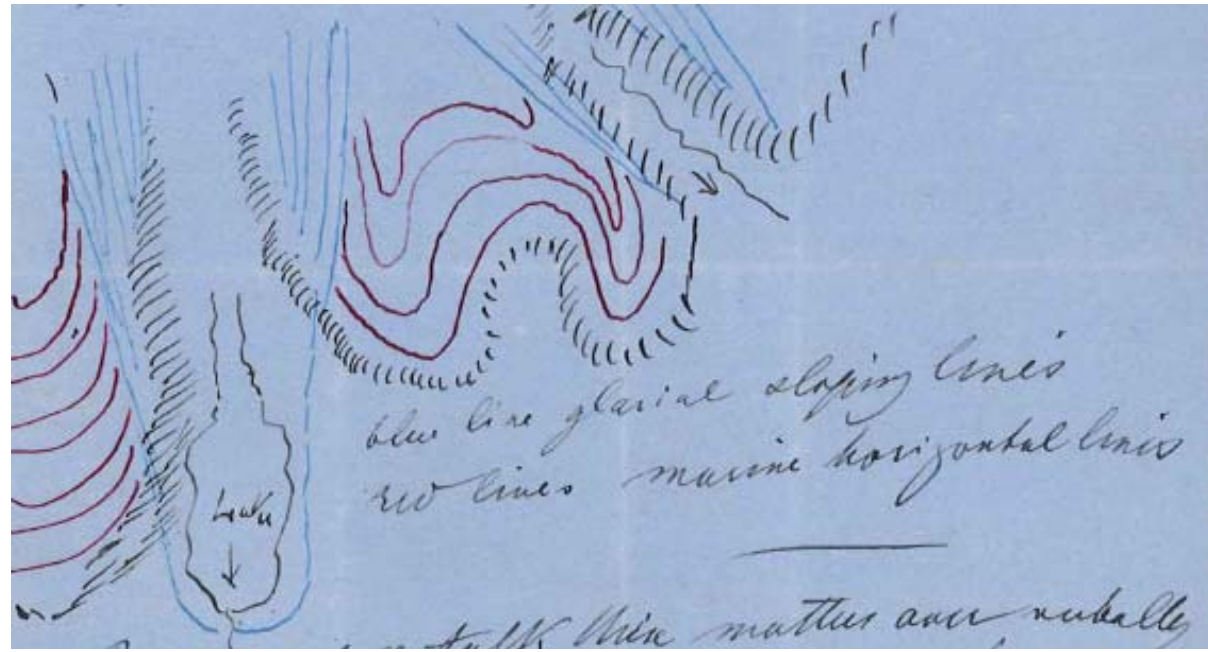
I shall be delighted of receiving your report & shall study it with great benefit. I have read with great care your valuable observations concerning the glacial phenomena in the Alps, but I can not change my ideas concerning them.

It is clear to me, that the level terraces are of marine origin, because where no glacial agencies were at work, you can follow them down to the foot of the hills. They are in fact raised beaches one above the other, whilst where glaciers descended, they very soon disappear below the sloping terraces, where at level spots, the mountains returning, the old moraines are still visible & so fresh as if they were formed to day.



Now it is evident, that when during the glacial periods the country sank, the summit of the chains appeared above as rocky islands covered with perpetual snow, that they sent down glaciers into the sea; as soon as the country rose again, the glaciers descended lower & lower till at least they reached at x terra firma, the upheaval continuing they retreated more & more, covering with the sloping terraces all the hills, the outrunning spurs of which not being liable to be destroyed by the actions of the glaciers remained intact.

So Sloping Terrace A corresponding with the moraine shore of the Lakes covers the marine line, it is followed by B etc. till we reach the present glaciers. But the following sketch (made in the greatest haste the mail closing) will give you still a better insight.



But we shall talk these matters over verbally much better & when I find a weeks time after my return begin of October, I should try to come down & bring all my fieldbooks specimens sketches with me.

Inclosed I send you the proof sheet of our Nelson Map, it just arrived by way of Australia but please return it to me as soon as possible, as I want it for some corrections, but I thought it would interest you. You will observe the entire change of the formations (NE & SW line). The Spencer mountains are the Northern continuation of our Southern Alps, they continue across the Straits to the Northern Island & go to the East cape as Ruahine range. You see that Hochstetter has changed our Cretaceous rocks at the West coast to tertiaries (Eocene); he first thought they were cretaceous & I followed him, till the Palaeontologists fixed their tertiary age.

In fact it is very difficult at the beginning to find the true sequences. As the sloping lines show, the glaciers did not descend steeply, I measured many slopes, they were from 2 to 5, but generally about 3°.

I shall be delighted to hear from you again. With this mail one of my friends leaves for England, he takes my whole Mt Cook herbarium with him to Dr Hooker. How delighted he will be to go through it.

Goodbye my dear Sir, do not work too hard, so that you find the time to write me sometimes,

Ever yours sincerely
Julius Haast.

To Dr Hector
Dunedin.

9: Haast to Hector, 23-8-1862

Te Papa MU000198/001/0031

Christchurch
23rd Augt. 62

Dear Sir,

I wrote you with one of the last mails, sending you a geol. map of the Nelson Province for examination & have now the pleasure to tell you, that as I can not get a steamer to go to the West coast, I intend of paying you a flying visit in Dunedin. In the case you will be beginning of Sept. in Dunedin, I will expect an answer by the first returning steamer & shall afterwards start immediately. I suppose the discovery of the new goldfields will equally bring you soon again in the field & it is equally my intention to explore the country between Lake Ohau & Hawea for the purpose of seeing if there are any auriferous rocks & it is very possible that during the spring we can meet again some where at the Alpine Lakes.

Requesting an immediate reply, I remain my dear Sir,
very sincerely yours
Julius Haast

Not knowing if you are already gone away, I adress this letter to the Provincial Secretary's office.

10: Hector to Haast, 25-8-1862

ATL MS-Papers-0037-076

Dunedin
25th August 1862

My dear Sir,

I return you the map of Nelson which I hope will reach you in time. I am sorry that the letter lay here a few days before I received it or perhaps I might have returned it by an earlier opportunity. It is very interesting & I have made a rough tracing of it for reference. I have not had time therefore to study it at all, as it requires reference to your Journals. Many thanks for your consideration in sending it. I have also received your *carte de visite*. I am sorry I have not got one of my phiz. or I should send it as you ask it but I shall get one if I can for you.

I shall send you some specimens of our schists as soon as I can get into the field for them but everything here is turned upside down by the excitement of this new Dunstan rush, and all my men are going off & my plans are disarrayed. I suspect that the pr---- of the country is perhaps not so rich in the nature of the rocks as in the manner in which the Tertiary denudation has been effected. I do not consider that anything had yet been clearly established about the manner in which Gold has first occurred in Nature. I cannot at least agree with the theory of its volcanic origin either in the drifts or in the Quartz. Selwyn holds very similar views with myself & he has had more opportunity of studying the Gold question than any one else.

By the way about your Glacial clays, perhaps I do not quite catch your meaning, but of course you

[*Copy terminates. Final pages of this file have been joined to Hector's letter of 22/10/1862, ATL MS-Papers-0037-076*]

11: Hector to Haast, 1-9-1862

ATL MS-Papers-0037-076, sheet 9, with MS-Papers-0037-083, sheet 9 inserted.

Dunedin
1st September 1862

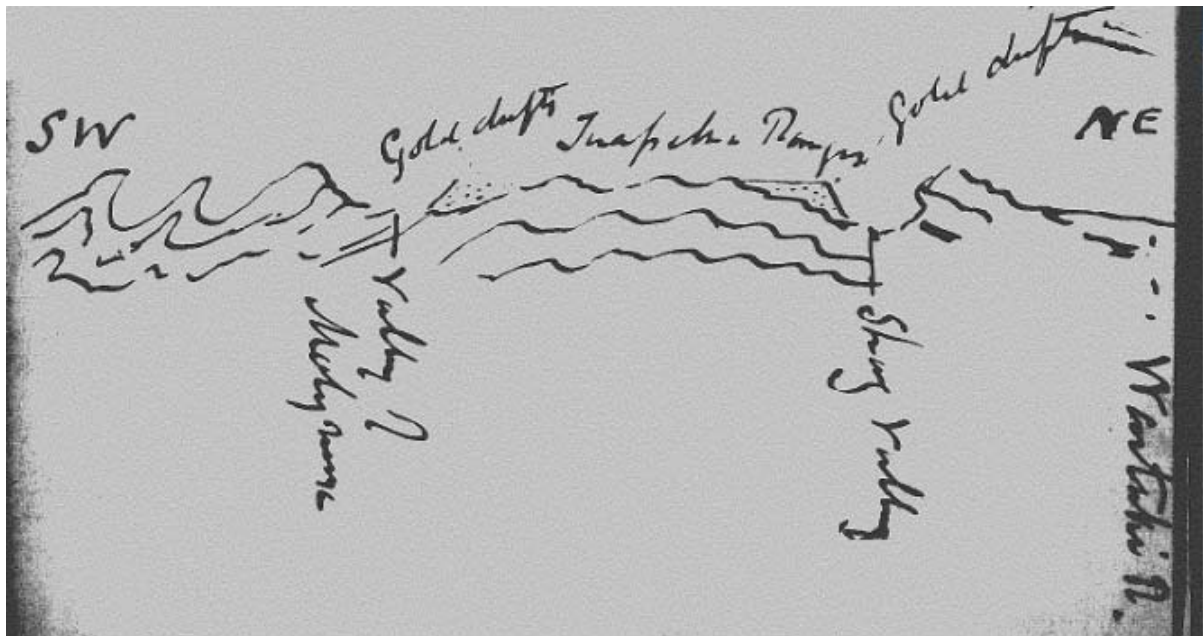
Dear Sir,

I have just received your note of 23rd Augt. which I suppose arrived late on Saturday evening by the *Omeo*. I am delighted to hear that you will be able to pay us a visit after all. I have to go for a few days to the North of the [province?] for a about 48[?] miles to visit a field party, but should be back in Dunedin before you can arrive.

I hope you have received your Nelson map safely back again in time.

Our new diggings I fear will form a source of disappointment in the first instance to many, as --- the rush has not been made to an established lead but to a district which is yet quite unprospected, and where there are no provisions & very little firewood. The men who got the 87 lb. weight were pottering about for months not working in one spot - & that will make all the difference to the bulk of the persons who have reached there as they know nothing of mining, except to sink where others sink, & wash when they see others washing.

Still I believe that there may be a fair quantity of gold in that district. The trend of the rocks here is as I have before said to you NW by W, but there are evident signs of those²⁰ whirling[?] more to a northerly direction, so that it is very probable that they occur with you, even if they do not simply come up as a great undulation as with us.



This is somewhat like the kind of thrust section we have.

I shall be delighted to guide you through the Country as far as time will permit.

With kind regards
I remain
Yours Truly
James Hector.

²⁰ MS-Papers-0037-076, sheet 9 ends, MS-Papers-0037-083, sheet 9 inserted.

12. Haast to Hector, 6-9-1862

Te Papa MU000198/001/0007

Timaru
6 Sept 1862

Dear Sir,

Being on my way of coming to see you, I was arrested by a party, who found quartz nuggets with gold in a stream about 40 miles from here in this Province, where they broke them from a quartz reef, so that, in the interests of the Province I stay here to examine the spots. I received your letter of the 25th with the map. So my long cherished journey has been retarded & it will not be before next winter that I shall have the pleasure of seeing you. In beginning of next Month I shall start work with a large prospecting party, the people being mad about a goldfield & come during Oct or November over to the Dunstan ranges of meeting you there, to have a good talk.

Believe me in the meantime my dear Sir,
very sincerely yours
Julius Haast

Dr J Hector
Dunedin

13: Haast to Hector, 13-9-1862

Te Papa MU000198/001/0002

Christchurch
13 September 62

Dear Sir!

Coming back last night from my trip to the so said newly discovered goldfields, which was a regular sell, I found your kind letter of the 1 of Sept & your highly valuable reports. Unfortunately I can not leave at present, having to write my address as President of the Phil. Institute of Canterbury & afterwards I shall take the field. Being exceedingly busy with the European mail, I shall write with the next steamer. What a pity that my so long desired for journey to come to see you has been interrupted. But we shall meet at the lakes in summer.

With next mail more from me.
Yours very sincerely
Julius Haast

Dr J. Hector
FGS etc.
Dunedin.

14: Hector to Haast, 22-10-1862

ATL MS-Papers-0037-076

Dunedin
22nd October 1862

My dear Sir,

I have to thank you for the copy of your most valuable and interesting address which I have just received.²¹ Your letter arrived by the previous mail but the Report you mention has not yet come to hand.

I cordially wish your Philosophical Institute every success in the important work which can & will I am sure perform both in advancing the interests of the Colony and those of General science. The want of some means of consolidating and discussing the abundant information which the settlers have acquired respecting the colony is a great loss to those who collecting information concerning it. This is a want which your Institute will be able to supply and I trust that it transactions will become the Repository for simple but important information that would otherwise be lost or only find a place among newspaper rumours.

The sketch you give of what has hitherto been done in the way of a scientific examination of the Colony is very acceptable. It was very much needed & must have cost you some little trouble to prepare. In your letter you ask my opinion about your views of the formation of the Canterbury Plains. I suppose however you treat of them in the report as I see no allusion to them in the address.

Is Darwin's view of the formation of the Patagonian shingle Plains not applicable?

I see in your address you allude to the supposed blending of Mesozoic flora with Palaeozoic fauna. If I remember rightly – that was only a suggestion thrown out by Prof. Morris²² in endeavouring to reconcile the difference between McCoy²³ & Clark²⁴. Was it ever established? I think quite the reverse.

By the way about Adhemar's²⁵ theory – I have not seen his new arguments, but do they meet the discussion of the subject by Herschel²⁶, Humboldt²⁷ & Lyell. I think they showed[?] that the amount[?] of Solar Radiation²⁸ must remain the same & that the only possible difference would arise from the few more winter nights during which there would be an excess of terrestrial radiation, & in any case the whole effect would be much inferior to the changes in Geographical outlines which we know otherwise to have taken place.

I am sorry I should not have the pleasure of exploring the Lake district with you this season as I have arranged to explore the West Coast ---- with our Chief Surveyor. We start on

²¹ Julius Haast, *Address Delivered at the Dinner of the Philosophical Institute of Canterbury*, Standard Office, Christchurch, 1862, 8pp.

²² John Morris (1810-1886), English geologist and professor of geology at University College, London.

²³ Frederick McCoy (1817-1899), Irish palaeontologist in Melbourne.

²⁴ William Branwhite Clarke (1798-1878), English geologist and clergyman in Sydney.

²⁵ Joseph-Alphonse Adhémar (1797-1862), French geologist.

²⁶ John Herschel (1792-1871), English mathematician, astronomer, chemist and botanist.

²⁷ Alexander von Humboldt (1769-1859), Prussian geographer, naturalist and explorer.

²⁸ MS-Papers-0037-076, sheet 10 ends, MS-Papers-0037-076, sheet 8 inserted.

the 1st December & will be absent during the Summer months so I must defer further examination of the interior until the next season.

I dare say you will see by the paper that they are still discovering new auriferous spots, & I have little doubt that the General distribution of the Gold will accord with what I stated we might expect.

What puzzles me most is the number of places exactly the same as the rich spots but where no gold can be detected. It almost looks to me sometimes as if had be found in the drifts.

Your observation about the succession of the Volcanic & Tertiary deposits are very interesting and nearly accord with those here. I send by this post a copy of a map of this province as you seem not to have such a thing at hand. Our survey is a great credit to the Province.

Ever Yours Very Sincerely
James Hector

Julius Haast Esq
Christchurch

I defer writing more till I get your report.

15: Haast to Hector, 5-11-1862

Te Papa MU000198/001/0003

Geological Survey Office
Christchurch
5 Novb. 1862

My dear Sir,

I have to thank you very much indeed for your kindly letter of the 22 Oct & see with pleasure, that you too find it is a good idea with our Philosophical Institute. It is needless to say, how delighted we should be, if in the course of this or next year you would write a paper for us, to be printed in our transactions. I wish it personally the more so, as you will be elected one of our first honorary members as soon as we meet again in Autumn.

My report goes with this mail & I hope, you will be kind enough to tell me your candid opinion. I wrote it at an hours notice, having the intention to give only a general outline but notwithstanding you will have an insight into the structure of our Province. I am very sorry, that we can not meet in the Lakes district, but I hope that in the course of next winter you will find the time to come and stay a month with me. I shall be able to make you more comfortable as I am just beginning to have a larger house built & besides myself there will somebody else to receive you & make you comfortable.

Hochstetters work on New Zealand is on the 8th sheet, but unfortunately the English edition is not yet to expect, as the necessary publisher has not yet been found.

I inclose two geological maps of the Northern Islands for inspection which without doubt will greatly interest you. Please send them back by convenience. I wish you much pleasure for your West Coast trip. Lookout for the Moa. I am certain it exists there, as two years ago the Hon. Watts Russel²⁹ when exploring with whaleboats the coast, killed a large Emu-like bird, and ate it! without even preserving a single feather.

And your *carte de visite*, when shall I receive it, I would be so glad to see at least your face.

I too think, that the auriferous rock question is far from being resolved & that much material has to be accumulated before it will be clear.

And now my dear Sir pardon me if already I ask you a favour, but I am certain, that you will like to oblige me. Having made up my mind to devote my life to New Zealand I became two years ago naturalized in New Zealand. Although I have a great many continental diplomas I should like very much to become fellow of the Geol. Society in London. Knowing from Sir Rod. Murchison's own letters, in what high estimation he holds you, I am certain, if you would do me the friendship to write him about it, that he would propose me. It is true in one of my last letters I alluded to the same subject to our common friend Dr Hooker, but I think that when you would have the kindness to mention the subject to Sir Roderick, that on your recommendation, he would take the matter up.

I do not know, if I deserve such an honour, but considering the many years which I have devoted to Geology the hardships & privations which I have endured for Science's sake, I may hope that I have at least some little claim. I should feel very thankful to you & you will oblige me very much, if you will tell me by next mail candidly, what you think about it. Dr F. Mueller – Melbourne, my intimate friend writes me, that he has equally written to Sir Roderick to propose me as FRGS... If I can do any thing for you, dispose equally freely of me.

Many thanks for the Otago maps, they are really splendid and I am only very sorry, I did not speak of it in my adress, but people thought it already too long.

Hoping to hear soon from you, believe me my dear Sir,
very faithfully yours
Julius Haast.

Dr J. Hector
FGS etc.
Dunedin.

Of course I write you about the Geol. Society matter quite in confidence.

²⁹ John Charles Watts-Russell (1825-1875), New Zealand politician and runholder in Canterbury.

16: Hector to Haast, 25-11-1862

ATL MS-Papers-0037-076

Dunedin
25th November 1862

My dear Sir,

I have only now received your kind letter enclosing two copies of your very capital report – one of which I return, & two of Hochstetter's maps, also returned. I have read your report with very great pleasure & profit & look forward to the time when I should be able to examine your map & sections. I have been absent for 3 weeks having ---- at the West Country so as to prepare for the expedition round to the Coast. I was round the Wanaka & at the Wakatipu Lakes & right in the heart of the Mountains. The Matippa River which flows into the Wanaka & source[?] at Mt Aspiring was a flood at the time so I did not get up to the Glaciers unfortunately, but it is a very easy Country to track in otherwise. I shall spend the greater part of next winter in the district I hope – as of course I did very little in the hurried trip I have made this time.

Our Gold Fields are rapidly extending to the N.W. as I expected but will reach the Western limit very soon now I think. Rocks such as you describe to prevail in the SW part of your Province are continued into Otago on the back-bone range. I am not very clear there are not exposures of strata which we have thinly developed in the Eastern part of the Province. The distinguishing character is the N.E. strike. The others having a N.W. strike. some of our richest gold spots are where the strata occur among the more altered rocks. I shall take some time to consider your account of the Glacial phenomena. I confess it is by no means clear to me as yet.

I shall have the greatest possible pleasure in writing to Sir Roderick when I next write to him that you are desirous of joining the Geol. Society. I sure there will not be the least difficulty for your name is well known to scientific men at home for your work on Nelson Province.

We start for the West Coast next month, but we are finding it difficult to get a proper steamer for the work. I write in great haste as I have just returned and am anxious to return the maps to you which I fear have already been kept too long.

Ever Yours Sincerely
James Hector.

17: Haast to Hector, 15-1-1863

Te Papa MU000198/001/0031

Lake Wanaka
15 January 1863

My dear Sir,

A few days ago I received your letter of the 25 of Novb together with the two geol. maps & a copy of my report. Why you sent back the latter I can not understand, probably that in my foreign English I did not explain myself clear enough. I observed in a Otago newspaper, that you had written a report, which I hope, you have been kind enough to send to me to Christchurch, because I am very anxious, to get your valuable information on the part of your Province already surveyed by you.

You see I am here in your territory and I find it highly interesting. On my way to the Makarora & from its sources to the Westcoast, I need to travel through Otago.

By the bye, in your letter (of the 25th of Novb I think) to the Superintendent, just returned from the Lakes, you call by mistake the Matukituki the Makarora.

You say that you can not entirely follow my theories concerning the lake formation & in order to understand each other better, I shall speak of what I observed round Lake Whanaka & Hawea. You speak of Tertiaries – do you mean by it, the strata which fill up the Valley of the Clutha as far as 4 miles south of the entrance of the Cadrona? Now when ascending this formation, I instantly recognised, although not so clear as those round Lake Pukaki & Tekapo, all the characteristics of old moraines. When coming from the Lindis & ascending these terraces, you will observe that formerly the outlet of Lake Hawea was flowing on the eastern side of the valley / perhaps two outlets & I saw it only in riding over. As before stated, much of the moraine character is effaced it looks almost as if in a later period the whole had been again under water, but if you follow the riverbed, look at the sections in the Clutha, the moraine character is very clear. And are there not erratic blocks enough, which are to be seen every where on these plains, & which point clearly with their angular sides to a morainic character. Afterwards at Roys station again the outlet of the Wanaka went formerly to the Cadrona.

It is true there are many interesting puzzles in the strata round the Lake, consisting of sand, silt or glacial mud, which all end at a high angle; but can they not show us, where the old bed of the Lake was, which had there a much higher bed. These strata may have been deposited on the uneven sloping sides of it. It is true, that only traces of terraces are to be detected, principally between Roy's & the Matukituki, but the great mass of Roches moutonnées is very clear. And may not many of these terraces have been effaced by debris or by the decomposition of the soft strata of these ranges. Another thing puzzles me very much namely why these old moraines lie at such a low elevation, because I think McKerrow³⁰'s altitudes of the Lakes are right. May we not assume, that the close neighbourhood of the central chain, Mt Avalanche Aspiring etc. lying close to the lake are the cause, or are the moraines round the lakes of a former period? If you go to the Ahuriri you will find the continuation of the strata which I described as lying north of the Ohau outlets. All the river beds which form our lakes are nearly straight & broad, whilst as I hear those of the Makarora & Hunter are although looking straight, confined in narrow channels, so that you can not take

³⁰ James McKerrow (1834-1919) had recently surveyed this area.

any horses with you. It is therefore possible, that the moraines which correspond with those round Lake Tekapo, Pukaki & Ohau are lying across those riverbeds which would be the reason of their being impassable for horses. May therefore the strata round Lake Wanaka etc. not perhaps correspond with those strata on the Ahuriri (long slip).

I think it would be very good before going to your Alps, to take an excursion to the outlet of Lake Pukaki & Ohau, it would show you very clearly, what I mean & give you perhaps a key to the deposits, through which the lakes are formed.

Have you read Prof. Ramsay³¹'s paper on the formation of the Switzerland etc lakes?³² I have not yet seen it, but Dr Hooker (who asks me to remember him to you) wrote me about it & told me that at first it had been poohpoohed by all geologists, but after further consideration he was thinking well of it, of course if there was no mechanical objection.

Now with the same mail I received a very interesting letter of Prof Tyndall, who is a very kind correspondent, in which he tells me, that he had been in the European Alps, to study the extension of ancient glaciers & on mechanical grounds he comes to the conclusion, that all the valleys of the Alps have been formed by erosion of enormous glaciers. So that in both hemispheres at the same time similar observations are made.

I should be delighted would you give some of your time to the study of this interesting phenomena & in the case you do not agree with me, (what I do not think, if you have seen the other lakes) to give me your reasons, so that we can come to some conclusions.

The rocks of these parts are not to be found in the Canterbury Province of the Eastern side of the Alps, but at our Westcoast. The change is very striking & full of suggestive matter, they begin first at the Lindis pass with a low dip. If you write me to Christchurch, I shall receive your letters, as they are sent to me. There is a fair example how large the amount of detritus is brought down by the river when seeing how the Matukituki has thrown quite a dam across the lake to an Island.

Our semi metamorphic rocks at the head of Lake Ohau are quite different & equally nearly vertical.

I hope, that you will have a pleasant journey, crowned with complete success. I shall write again when I am back from Jackson's Bay which will be in about 6 weeks, as I have been told, that you could not get a vessel for your purpose. The central chain looses very much in character; the mountains are not half so imposing & I believe that the glaciers will be of small extent only.

Believe me my dear Sir,
ever yours very sincerely
Julius Haast

Dr J. Hector
Dunedin.

³¹ Andrew Crombie Ramsay (1814-1891), Scottish geologist and Professor at the Royal School of Mines.

³² Andrew Ramsay, 'On the glacial origin of certain lakes in Switzerland, the Black Forest, Great Britain, Sweden, North America, and elsewhere', *Quarterly Journal of the Geological Society*, 1862, pp. 183-204.

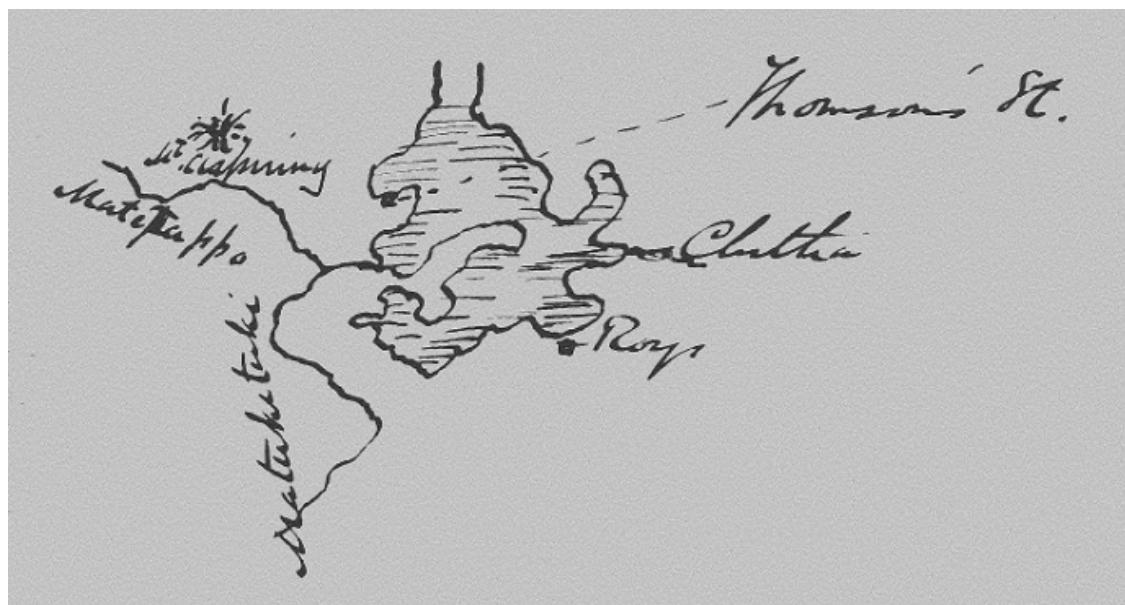
18: Hector to Haast, 25-1-1863

ATL MS-Papers-0037-077, sheets 1 & 2, with MS-Papers-0037-083, sheet 10

Camp Roy's Station, Wanaka Lake
25th January 1863

My dear Sir,

I have just intercepted your letter of the 15th on its way to town. I have been here for a few days preparing for a trip into the Mountains on which I start this evening. Were it not that my plans are all made, & also that I see by your letter that you are probably near the West Coast by this time, I should have liked very much to have run up the Lake to have a chat with you about the very interesting phenomena you have noticed in this district, but about the explanation of which we seem fated to differ. However it is no use discussing the matter till I have seen & studied the matter a little more as you have greatly the advantage of me in the extent of your experience in the Mountains here. I am sorry I returned the duplicate of your report as I would have liked much to have kept it, but I did so in consequence of a pencilled note written on it requesting that it would be returned. I have not published any report as yet except a formal report of the work done which I suppose is what is referred to in the papers. There is no Geology in it. It must be a newspaper mistake about the Makaroa River in my letter to the Superintendent as I certainly said the Matukituki & Matatappo in the letter itself & had no occasion to refer to the Makaroa at all. By the way McKerrow whose map you have got I suppose, makes a mistake & calls the Matetappo the Matukituki & vice versa.



This rough sketch will shew you the way they are named by the people here. I came here by the Waitaki & Lindus road and was as far up towards the Ohau Lake as McMurdo³³'s (of whose melancholly death you have doubtless heard) so that I saw what you refer to along the Ahuriri. I suppose you observed that the "Clay Cliffs" opposite to Walkers Station are l--- -- clays and shingle beds, tilted at an angle varying from 30° to 50° to the NW. Overlaid by horizontal breccia beds. This to my mind clearly indicates the part which faultings have

³³ Ronald McMurdo (died 1863), runholder at Benmore Station, died as the result of being kicked by a colt.

played in the distribution of what might be considered very recent Tertiary deposits & doubtless in causing the formation of the Lakes.

I had a talk with Ramsey about his Glacier formed Lakes before I left home, but have not yet seen his book. Hooker however has sent me an account of what he & Tyndale are wishing to make out. I foresee a hot discussion is brewing that will put a little life into Physical Geology again.

The Palaeontologists have had it too much to their selves[?] for years past. I make no doubt that I will stumble on you in the course of the season in the Mts. I shall have a camp at the Mt. Aspiring Glaciers where you will always find quarters³⁴ even if I am not there myself. It was a great pity that the West Coast expedition broke down as it frittered away half the summer for me. I must now try & make up for lost time.

Ever Yours Very Sincerely
James Hector.

19: Hector to Haast, 11-3-1863

ATL MS-Papers-0037-077

[Written by a neat hand, possibly Sullivan]

Central Camp, Matukituki River
11th March 1863

Dear Sir,

I have just heard with much pleasure of your safe return from a successful trip to the W. Coast, but too late to catch you before you resumed your explorations. It is only three days since I myself have also returned from the W. Coast, in the course of which I made an incursion into your Province. It was my desire to keep westward within the Province of Otago, but as close to the Boundary Line as possible. The mountains however compelled me to head the Matukituki river, where by a "Pass" over 5000ft above the sea I struck a river flowing northwards and having its origin in the largest glacier that descends from Mt. Aspiring.

Feeling a doubt as to its ultimate course, I followed it down for several days, and found it to be the principal tributary of a large river that enters the sea at or near Jackson's Bay. Jackson's river therefore, I suppose it must be named. I descended it to within 8 miles of the sea, but bad weather set in and we had been out of supplies for some time so turned back. We were away 16 days from the place where we had left our horses, although we had started with a short supply of provisions for only 7 days, so you may conceive that we had rather hard times of it, especially after the wet weather set in when we could not even get Woodhens.

The Jackson is a magnificent stream, with a valley 3 to 5 miles wide. It is a "shingle river" and has nearly a straight course in a NNE direction from its source in the glaciers of

³⁴ MS-Papers-0037-077, sheet 2 ends, MS-Papers-0037-083, sheet 10 inserted.

Mt. Richards to the sea. Mt. Richards is very imposing being covered with much ice, it is situated close to the Boundary Line.

The large tributary I descended, I took the liberty of naming after you, along with the glacier at its source, and the snowy range on the right side of its valley. The Haast glacier is 4 miles long from the ice cascade to its terminal moraine, and where widest about 1 1/2 miles. Its lower end is about 1800ft above the sea. The Haast river is nearly as large as the Matukituki, but a much more roustering stream. It cannot be forded except in few places, and consists altogether of ice water. The Haast Mts. rise to about 8000ft. They form the offshoot from Mt. Aspiring, next West to that on which The Glacier Dome occurs. I send you a rough sketch which will help you to understand the country.

I write just as I am starting for Dunedin where I am obliged to go for a few days on business, but I will be back in about two weeks, when I trust to have a long talk with you, especially concerning the glaciers ancient and modern.

Ever my dear Sir
Yrs very sincerely
James Hector.

Julius Haast Esq.

20: Haast to Hector, 18-3-1863

Te Papa MU000198/001/0031

Lake Wanaka
18 March 1863

My dear Sir!

I just received your letter of the 25 of January & hear at the same time, that you have reached the Westcoast, from whence I returned equally a few days ago. What a pity that you can not run up to the head of Lake Wanaka, where you will find me for the next 6 days, some very interesting geological phenomena & which will perhaps convince you are to be seen there, at the same time we could have a good chat. I have no creed in geological & scientific matters & no preconceived ideas, but seek only the truth. You would therefore confer a favour upon me, to tell me, your objections against my glacial theory & amongst other things. How do you account for the large angular blocks lying round Lake Wanaka, how did they come there, if not transported by ice?! Have you seen the old Moraines round Lake Ohau! If possible do come up. You will enjoy your boating expedition very much. It is worth while if you are near Lake Pukaki to go up & to follow the lateral Moraine on the side of the hills. This probably will convince you, that only after being convinced myself, I change my ideas. You know, that generally we Germans are anti-glacialists.

I am in a great hurry, the boat is waiting for my letter. If possible come up it will take you only three days & amply repay you.

Yours very truly & sincerely
Julius Haast.

21. Haast to Hector, 30-3-1863

Te Papa MU000198/001/005

Mr Wilkin's Station.
30 of March 1863.

My dear Sir!

It was with great pleasure, that I received your letter of the 11 of March & hoped to see you here after your return from Dunedin, but Mr Sullivan³⁵, the acquaintance of whom I had the pleasure to make, told me, that he expected you back only end of this week, so that probably I shall already have started for the Hunter, but hope to be back at the 15 of April & I should like very much indeed to meet you here, to have a long long talk with you, about many matters, interesting to both.

I have to thank you very heartily for the honour you have done me, in giving to a glacier, river & mountain my name & I regret only that you have already given a name to the Main river. – Do you not think, that Captn Jackson could be satisfied with the Bay & would you not allow me, as the river is in our Province to change its name in River Hector? – The altitude of the terminal face 1800 feet is about 1000 feet lower, than any glacier I have visited. Or is the number, which you give in your letter not an error in writing?

The great Tasman Glacier the largest, & therefore the lowest of our New Zealand glaciers (as observed by me) is more than 2700' above the level of the sea. You have probably before starting seen my report in the Canterbury papers. I had the pleasure of reading Mr Sullivan's very interesting letter on your West coast journey. You had a great deal of hardship to undergo & you deserve great credit for your endurance. What a pity that you had no dog with you; ours caught 21 Kakapos 1 Kiwi besides a lot of moulting Paradise ducks & Woodhens & fetched many a shot duck out the river, which otherwise would have been lost. Unfortunately you had too few people with you for swagging provisions. This is necessary in New Zealand & a man must have the courage to carry about 50^{lb}; it is only hard for the first few days, but afterwards you walk very well with it.

I see by Mr Sullivan's letter, that you met also ancient moraines.

Since I have studied carefully the ranges at the head of Lake Wanaka I have a little changed my ideas concerning the formation of the lakes Wanaka & Hawea, although properly speaking they are still Moraines, but only deposited in another way. I shall not enter into any details, thinking that you will go to the head of Lake Wanaka & look for yourself, but I am certain, that I shall not be far from the only possible explanation. You have to go about 5 miles up the Makarora & you will see all what you want. I can also now understand why the strata round Lake Wanaka where they occur, are sometimes tilted & thrown in different directions.

It is evident from all my observations that the *Dinornis*, *Palapteryx* etc. are geologically speaking of a very new origin, not older than drift formation. In those strata round Lake Wanaka Moabones have been found!

³⁵ John W Sullivan was secretary and astronomical observer on Palliser's expedition in North America, before coming to New Zealand, He worked as a reporter in Dunedin, and sent back accounts of the trip to the West Coast which were published in the Otago Daily Times.

Hochstetter, who is publishing a geological map of New Zealand on a small scale (in a N.Z. atlas) wishes very much, to have some details concerning Otago. Could you not give him an outline, such as I gave him of Nelson & Canterbury. Of course he would use it as coming from you & it would be a pity if your whole Province would be a blank in the map. This publication is the more desirable as it will give an idea of the general structure of both Islands & the relations of plutonic & volcanic rocks. Hochstetter's work will have been published in German end of December. In case you read German, I shall send you a Copy for perusal. The English translation will appear a few months later. There is a good deal about this Island in it as I have furnished him with sections, maps & sketches & text, concerning the Alps.

Do arrange it, that you can be here towards the 15th of April and I am ready to wait for you a few days if I know that you are coming at an appointed time.

The conical hills which rise so conspicuously above the alluvial plains of Jackson's Bay are Granites, the coast ranges there Gneiss.

Have you seen Cameron³⁶'s report on his trip to the Westcoast. The man lost himself in the mountains, on this side of the pass & met my men coming back, as we were camped on the western side of the pass to swag on provisions. They amused themselves to spin him a yarn, about the pass, which he took up & gave a description, the most ridiculous is his account of the coast, Rocky, the mountains falling into the sea, whilst for 5 to 6 miles it is a large alluvial plain, where a man without billhook, tomahawk etc. would be a week before going & returning. It is a true digger's yarn.

I hope to find some news of you at Norman³⁷'s when I return from Lake Hawea.

I hear your botanist has made a large collection; what a pity that I can not see it, because I would have told you all what is really new.

Ever my dear Sir
Yours very sincerely
Julius Haast

22: Hector to Haast, 4-4-1863

ATL MS-Papers-0037-077

Wanaka Ferry
4th April 1863

My dear Sir,

I have just received your note of the 30th ult. on my return from Town this evening. I hope to be able to meet you on the 15th but lest I miss you I write a few hurried lines.

³⁶ Charles Cameron was a prospector exploring the Southern Alps, who claimed to have been the first European to cross by the Haast Pass in January 1863, something that was strongly refuted by Haast at the time.

³⁷ William George Norman was an early settler at Kaiapoi.

I am sorry that your report as published in the Canterbury Papers had not reached Dunedin before I left (4 days ago). I regret this much as I should then have had the advantage of your account of the structure of the country you have explored.

I must first explain to you why I did not send Hochstetter any sketch of the Geology of the Province although I certainly think I explained it in answer to your previous request that I would do so. I am very averse to premature conclusions only partially unfolded. Even now I have only been 11 months in the Colony and as I came out with the express object of making a deliberate examination & report on its Geological structure, you will I am sure perceive that the publication of any hasty first impressions, especially by the hands of another, would only tend to commit me. I do not deny that very soon after my arrival in the Province I acquired the idea of its Geology by which I shall probably abide, but I care not to forgo too soon my right of changing my mind. In a science like Geology the principles of which are yet quite unsettled we cannot be too cautious.

Your remarks about my trip to the West, the account of which you have seen in the newspapers, are very just. The want of a dog was a great nuisance – the one I had was lost, too late to be replaced. Still we got a fair supply of game except during the wet weather. I never started with the intention[?] of making the Coast or I should certainly have done so. I was only spying out the land & when we came on the large river curiosity prompted me to discover where it flowed to.

I can on no account consent[?] to the name of the Jackson being changed in my favour. It is the natural name for the river from the bay into which it flows & has no reference to the man's name.

I came to the conclusion that Cameron had not reached the coast from the perusal of his own account & on the very ground that you do. The New Zealand Pilot, or admiralty guide to the Coast distinctly states & the chart also shews that between the Awarua (the river you reached the Coast by I presume) & the smaller river which is 6 or 8 miles to the south of it, there is a sandy beach. This beach is continued right on to Jackson Bay & is I have little doubt the bar or shore spit formed by the Jackson & Awarua Rivers. It was this bar I have no doubt which masked the mouth of the Jackson & prevented its discovery by the Survey Officers as it is not laid down on the chart. They lay down the Conical Hill (which I named Mt. Rayer) close round which Jackson flows to reach the sea & which prevented my observing the exact position of its mouth.

I am rather surprised that Mt. Rayer or any of the three conical hills should be granite. If so it is of the utmost importance to the question of the extension of the gold fields.

Do I understand you aright that you still find the phenomena in progress at the head of the Wanaka Lake which produced the deposits forming the lower plains. If so I have entirely misunderstood you previously, as I thought you imputed them to a glacial epoch when the Island was submerged many thousand feet – 5000 I think you said.

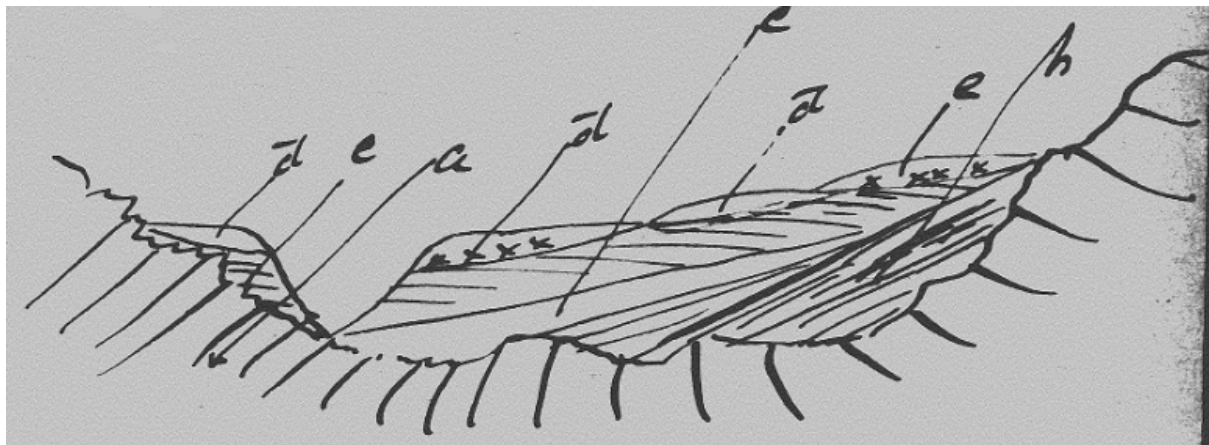
Glacier phenomena I of course expected to find largely developed in the neighbourhood of an Alpine range – & of course they must have been once more extensive than now without calling the ---- of a Glacial Epoch. I labour perhaps under this disadvantage that all I have yet learnt[?] of your views is from the report a copy of which you kindly sent me. In your letters you often refer to opinions you have formed but of which I am ignorant. I

do not perceive much difference in the phenomena in those Mts. from those in other Mt. chains. The differences are in degree & not in kind. There are many parts of which cannot be easily unravelled especially with reference to the distribution of Moraine detritus in anomalous positions – but have such deposits in the European Alps even, have as yet fully & satisfactorily explained? Certainly not to my mind.

With reference to the Boulder deposits of the Wanaka Plains & those on the rock shelves along the sides of the vally – that they are directly or indirectly of Moraine origin I have no doubt – but that they are the moraines of the Glaciers which scooped out these great valleys I cannot yet see my way to understanding.

I was rather agreeably disappointed with the character of the woods even low down on the flats towards the West Coast, as I found little difficulty in passing through them with a little struggling with the aid of a light bill hook - ----- I chose[?] the proper lines of direction as indicated by the growth of particular kinds of timber, experience in doing which is the great secret of exploring thickwoods. The Western forrests here are nothing to the woods on the Pacific slope of the British America.

I think your views of the Geological age of the Moa agrees with the generally named opinion. The remains have never been found lower than the Post Pliocene shingle terraces & alluvial flats. They are very abundant in the loam around the terraced plains in the old Tertiary basins of this province.



This is a sect. across the Manuherikai or Maniototto plains.

- a. schists
- b. older Tertiary – with coal.
- c. Tranquil Lake deposits of Pipe Clay & sand.
- d. Newer Lake deposits charting strong current action, with Moa bones at base (marked xxx)
- e. Loam deposits, also with Moa bones.

My principal Alpine Plants went home to Hooker by last mail. The gatherings extended to about 8700 ft. but perhaps there is not much novelty among them. Only one or two seemed to be rare. I think by the way that I got *Celmisia vernicosa* that Hooker has been long anxious for as he only previously got it in the Auckland Islands. However I only judge it is it from memory.

I have not seen any of my party yet so I dont know what my plans will be for the next few weeks, but I must be in Dunedin by the end of the month as if all goes well I shall start early in May for the West Coast by sea. I have just been to Dunedin to Charter a small schooner for the purpose & have put her in the hands of the ship wrights to be fitted up. I shall be gone for 5 months I suppose.

I remain
Dear Sir
Ever Yours Sincerely
James Hector

I have carried this out to my camp by mistake and reopen it to say that I doubt if I can be at the Ferry on the 15th as I am off to the head of the Wakatipu Lake. Mr. Sullivan sends his compts. – he informs me that you have just acquired the honour of L.L.D. on which receive my best congratulations.

Dr. Haast.

23: Haast to Hector, 26-4-1863
Te Papa MU000198/001/0031

Molineux
26 April 1863

My dear Sir,

I arrived here a few hours ago & received your letter of the 4th of this month & can not tell you, how sorry I am that we missed again each other. Fearing that I shall not find another opportunity of writing, before I arrive in Christchurch I shall devote the few moments before the postman leaves, to wish you a safe and successful voyage to the Westcoast hoping at the same time, that if you find the opportunity to give me of your news.

As soon as I shall write to Hochstetter, I shall communicate to him your objections, for not sending him a sketch of the Province, and he will, no doubt see, that you are right in being cautious.

We shall not more refer to our different views concerning the glacial theory & shall wait till you have an opportunity to see the old moraine walls round Lake Ohau & principally round Lake Pukaki. Your explanation of the formation of the Manuherikia valley is very interesting & instructive & I fully agree with you, that they have been deposited in a large inland lake as well as those round Lake Wanaka & Hawea. But only one question which comes again before my mind. How came the larger angular blocks amongst these deposits?! Please tell me your ideas, because as I told you before I have no creed in geological matters & liked very much to hear your explanation. It brings me perhaps to take an other view of the whole matter. Mr Sullivan's description was extremely interesting and I hope that you too before leaving will publish a report on the geological features. I took lots of bearings all along Lake Wanaka & Hawea which are to your disposition. You will have seen my geological notes concerning the Westcoast, please tell me what you think of it. But when you

return from the Westcoast we must try to have a long long talk together. I am very sorry, that you will not have your name, where it ought to be. Well we must find another fine river in its neighbourhood for you! I do not know of course if Mt Rayer is Granite, but those which I observed, the highest above 500 feet, are as you will observe in my Report Granites.

I see by perusing once more your letter, that I passed by accident to read two pages of your letter. You answer my question about the blocks of the Wanaka & Hawea Lakes & I am certain, that now we shall agree with each other perfectly. Unfortunately I have no time to enter more fully into the subject, but shall do so from Christchurch. There is only one explanation possible & you were not far enough down the coast, to see what the vegetation is. It is really frightful, where the whole is interlaced with thousands of supplejacks. But you will make the acquaintance of them. I am glad you sent already your plants to Hooker, so that they can be used for the publication of the NZ Flora (handbook). I never found plant higher than about 7500 feet. I see you were luckier.

My kind regards to Mr Sullivan
I remain
dear Sir
ever yours sincerely
Julius Haast

Dr Hector etc.
Dunedin.

24: Hector to Haast, 15-10-1863

ATL MS-Papers-0037-077

Dunedin
15th October 1863

My dear Doctor Haast,

I am only over on the East side of the Island for a few days so that I have not much time for correspondence, otherwise I am sure I could write much to you that would be sure to interest you. For a general account of my exploration I must refer you to a report that will be published in a very few days. You will see that I have found a second great groove running obliquely (N&S) through the Alps, exactly similar to that you discovered last year from the head of the Wanaka Lake, but in this case it leads to assailable Country & will perhaps some day form the outlet of a large interior district of this Province.

By the way do you know how the country is between the N end of your Pass & the Grey Coal Mines. It might be even very useful as a route for bringing the valuable coal into the mining districts of the Province. As there appears to be no useful coal mines on the east side of the Island, while on to West there are no safe shipping ports where it is good, some day the Eastern districts will I have no doubt be supplied overland. I have now quite made up my mind that the period of greatest glaciation in this country was during the epochs of greatest elevation & not of depression, & that it does not measurably involve any climatical

change other than that which necessarily flows from the change in the Physical Geography owing to excessive elevation.

Unless in the extreme south of the province, & on Stewarts Island, there is no true representation of the glacial drift. But I am only writing you a short note to let you know that I will write more when I return about xmas next from the West Coast.

Dear Sir
Ever Yours Sincerely
James Hector

I hear you are married. Receive my best wishes & kind compliments for Mrs Haast for whom I respectfully enclose my card.

25: Hector to Haast, 17-10-1863

ATL MS-Papers-0037-077

Dunedin
17th October 1863

My dear Haast,

Mr. Holmes³⁸ has just called with your letter of the 14th inst.³⁹ I am just leaving town again, but have put him in the hands of my observer Mr. Gore⁴⁰ who will shew all the methods followed here. I regret that I cannot do it my self as it would have been more satisfactory. I had already written you a very hurried note but as I am only here for a very few days & have no lack of bothersome things to attend to I am sure you will forgive my not writing to you at length for the present. A sketchy narrative of my journey is being published but no report will be forthcoming till several months after I return in Decr.

I feel grateful for the honour of being elected a member of your Philosophical, for which I am certain I have to thank your kind exertion for principally.

By mistake the *Carte de visite* I promised was not sent. I now enclose it.

The papers here are very foolish & the wish being father to the thought, have greatly exaggerated the matter of my explanations, of which of course they even now know nothing definite.

Trusting that I may soon make your personal acquaintance I remain
Yours very Sincerely
James Hector

Dr. Haast.

³⁸ Robert Langley Holmes (1833-?) an assistant who worked for Haast.

³⁹ We have been unable to locate a copy of this letter.

⁴⁰ Richard Benjamin Gore (1842-1904), clerk in the Colonial Museum. In today's terms he would be regarded as Hector's office manager.

**Provincial geologists compared: part of an Editorial from *The Press*
Wednesday October 14, 1863**

THE REPORT OF THE PROVINCIAL GEOLOGIST

It is no easy matter to review Dr Haast's report on the "coal measures and ligniferous beds of the River Kowai". We are accustomed to connect coal measures with extortionate payments and would prefer a hair mattress to a ligniferous bed, but we feel that the Provincial Geologist has been subjected, indirectly rather than directly, by implication and by current rumour, rather than by directly personal attack, to a good deal of unfair personal vituperation, and that his services, which have been really very valuable, have not met with sufficient recognition from the community at large.

The general complaint against him appears to amount to this – not that he has mislaid facts, or that his reports are incorrect, not that he knows nothing about stones and weeds and beetles, and all the other great branches of natural history, but that he has found nothing. We are paying, it is said, £1500 a year, and we see no return for our outlay: no gold field, no copper mine, no lead, not even so much as chromate of iron. The Otago people, even before they had a Provincial Geologist, found a payable gold field; yet Canterbury, in spite of her large outlay, cannot even lay her hand on a silver mine. Is this as it should be? It is true Dr Haast has been to the West Coast; but the road is in such a position that it is actually of no service whatever to this province. Why did he not discover a good dray road at the head of the Rakaia? See what Dr Hector has just done. He has travelled in 46 hours of travelling from the Wakatip Lake to the western shore of the island; he has made a new and totally unknown magnificent lake, and created a navigable river. These things are worth paying for. Certainly Dr Hector did not make the Otago gold-fields, but he would have made them if they had not been made before: under the circumstances it may be not untruly said that the goldfields have made him rather than he the gold-fields, but this is nothing. He will make more, and is at present deep in the manufacture of an incalculably prolific mine, half platinum, half quicksilver. In fact, Dr Hector is the man, and Haast is a German delusion, and altogether a snare.

It is not in disparagement to Dr. Hector that we have written down the above rubbish, which we have heard uttered by men who should know better than to give vent to such nonsense. Dr Hector is a very fine fellow, and we have no doubt is well deserving of the encomiums which have been bestowed upon him; but we protest against unfair comparisons, and would urge that no geologist, not even Sir Roderick Murchison, could undertake to make a goldfield, or even a copper mine, for the sum of £1500 per annum without his travelling expenses. Dr Haast has not discovered that which we have no reason to suppose was there to discover: this is all that can be fairly urged against him. We have not heard that his estimate of the comparative quantities of hard and soft rocks in the tunnel is more incorrect than in the nature of things might be reasonably be looked for, and the recent works at the Kowai coalfield cannot be allowed by any unprejudiced mind to impugn the general accuracy of his investigations. For the correctness of his surveys and sketches we can ourselves vouch.

26: Haast to Hector, 28-12-1863

Te Papa MU000198/001/0031

Glückauf, Christchurch
28 Decb 1863

My dear Hector,

Your two letters of the 15 & 17 of October with your photograph came in due time into my possession. For them my best thanks. I was very glad to see in the newspapers that you had arrived safely at the Westcoast. I have read your report with great interest & was not a little astonished to see that your pass is not exactly like mine. You ask now, how the country is between the head of my pass & the Grey coal measures. There is not the least hope to reach them by land notwithstanding there is a great deal of level country near the sea but there is such a great number of large rivers to cross, that it would cost a enormous capital to bridge them. The only way would be if there is a good entrance in your newly discovered harbour to go by ship loads, I mean to say to transport the coal from the Grey by vessel.

But I have not yet given up the hope to find valuable & workable coal seams on the eastern side of the Province of Canterbury. I shall hunt during the course of this summer to see what I can do. The fossils agree closely with those of the carboniferous strata of NSW & I met several small (one or two rich seams) but want more time to look well around me. I sent you a report about the Kowai Coalfields you will have seen that the so called practical man spent the money of the people without doing what I told them to do & the consequence was no result. I am very glad to see your ideas concerning the glaciation of a great part of this Island already when returning from Lake Wanaka & re-examining the Mackenzie Country, I came to the conclusion that my former theory, namely subsidence could not be applied to all phenomena which I observed; one striking fact was that the parallel terraces occurred only at one part & I came to the conclusion that they were formed in enormous glacial lakes, stowed up at one or two sides by stupendous ice masses. There are at least two periods, but I want before I shall state my opinions in writing to go once more over the most interesting part near the sources of the Rangitata & Ashburton. One observation which argued very much against a former subsidence (I mean in glacial or post-pleiocene time) was that I never found any boulders of sedimentary rocks on the flanks of Banks Peninsula. But I hope to have an opportunity to talk all these matters over with you one day, because if you do not find the time to come to see us in Christchurch I shall come over to Dunedin during the New Zealand Exhibition, when I intend to see our local geological Survey represented in a respectable manner.

Since I wrote last I have been over a great part of Banks Peninsula which is highly interesting & I hope to have you one day here to show you all the magnificent sections which it offers in one days ride. The whole is of submarine origin, as I found when examining the highest peak of Mt Herbert 3100! where there are three wonderfull perfect half craters.



It is a most magnificent sight. If the truth of elevation theory was not exploded long ago there were here many proofs to show its incorrectness. Till at present I traced 4 distinct eruptions & all of different rocks; the last eruption on Quail Island being of a basaltic character the others are trachytic – some of them of great beauty. By the way if you have a Museum I shall be most happy to send you specimens for it from our principal rocks.

If you have duplicates of your West coast rocks, I mean the principal granites etc I should like to obtain them & also some shells for our Museum as without doubt your dredging gave you good results.

Our meteorological station is at last in good working order, I had not a little trouble to bring it so far, as the Government was so occupied with other matters, that I could not get them to do any thing towards it; but at last I succeeded, by taking the responsibility, in going ahead with it. Many thanks for the trouble your observer took with Mr Holmes, who was a faithful companion to me & is a earnest & trustworthy man. Mrs Haast⁴¹ thanks for your kind wishes & hopes to see you one day in Christchurch. We can soon expect Dr Hooker's manual I am very anxious to see it. He told me in his last letter, that the first volume would appear end of this year. I expect Hochstetter's work every day, it has been received with great enthusiasm in Germany. I shall start tomorrow, but shall be back for a week in January.

Hoping to hear soon from you, believe me my dear Hector,
yours very sincerely
Julius Haast

Dr Hector.

⁴¹ Julius Haast had married Mary Ann Dobson (1844-1913) at St Mary's in Heathcote Valley on 25 June 1863.

27: Haast to Hector, 4-1-1864

Te Papa MU000198/001/0031

Glückauf
Janr^y. 4th 1864

Dear Hector,

Your letter of the 29th came to hand and I am sorry that I cannot send the Moa cast down but it really would not bear another journey and I should be sorry to lose it for our Museum.⁴² Mr Holmes will tell you that I intend to send with the next steamer all the large European specimens such for instance as the *Ichthyosaurus* &c. if I am able to go to my office in time. At present I am compelled to stay at home having such an inflamed eye that I am not able to read or write, which annoys me still more as another weeks work would have quite finished the work for the Exhibition and have fairly begun with the Essay.

With kind regards from Mrs Haast,
Believe me, dear Hector
Yrs sincerely
Julius Haast.

28: Hector to Haast, 9-1-1864

ATL MS-Papers-0037-078

Dunedin
9th January 1864

My dear Haast,

I was delighted to receive your letter of 12th ult. which reached me today.⁴³ It is now two days since I returned from my West Coast trip and taken again to a Landman's life. There was not much interest about the latter part of my cruise as the weather was worse on the whole than during the winter, and with continual rain, one gets tired even of the most sublime scenery.

I shall send you a continuation of my report as soon as published. I am sorry that they published the first part during my absence as it is full of inaccuracies and deficiencies.

I am glad that we are now of one mind respecting the coincidence in time of the period of greatest elevation of the Mt. Axis with that of the most extensive Glaciation. This is the view I was forced to take of the subject with reference to the Rocky Mountains of North America, and on my first visit to the Mts. of this Province I found that it was the proper explanation of the Pleistocene phenomena of this country also. It is exactly this view that Charpentier⁴⁴ advanced with to explain the former great extension of the Swiss alpine Glaciers, and I perceive that the whole tendency of Sir Char. Lyells last book is to abandon

⁴² We have been unable to locate a copy of this letter.

⁴³ We have been unable to locate a copy of this letter.

⁴⁴ Jean de Charpentier (1786-1855), German-born Swiss geologist and mining engineer.

his previous views of synchronous depression both of temperature & of land, in favour of the opposite & obviously more natural opinion.

I am truly sorry that you can hold out no hope of your Wanaka Lake Pass becoming available for opening a connect between the Coal fields of the Grey & the mining districts of Otago. I firmly believe that the level plateau land along the coast from the Awarua northwards by Jackson Bay must contain a pretty extensive development of your carbonaceous strata. The first appears within this Province immediately to the N of Milford sound, but they form a mere strip composed I suspect of the Upper Members of the series abutting against a steep rocky shore. The conglomerates contain fragments of all the crystalline Igneous rocks on the Coast. If I remember in your report on Nelson you remark the absence from the conglomerates associated with the Buller Coal of fragments of the newer Porphyritic granite. This granite is only developed in this form in Dusky Bay & southwards, but though the recent Plutonic rock of the Country it is of extremely ancient date as indicated by the amount of denudation which has effected its exposure.

I should enjoy a visit to Banks Peninsula very much and will try hard to get north for that purpose, but when I cant say! I shall be most happy to make exchanges of specimens with you of rocks shells &c. but as the Gov. have not provided any place as yet for my laying out & examining specimens, my collections still remain unpacked. I am disappointed on the whole with the result of the dredging on the West Coast. The water is too deep and the shore too rocky & steep to be able to use the dredge successfully, although there is evidence enough of the occurrence of many interesting forms of marine life.

Promising to write again soon
I remain ever yours very sincerely
James Hector.

29: Haast to Hector, 7-2-1864

Te Papa MU000198/001/0031

Christchurch
7 Feb 1864

My dear Hector!

Many thanks for your letter & shall be delighted to receive the continuation of your reports. This winter I will prepare for you a collection of rocks from Banks Peninsula & other interesting localities & I will be most happy to receive specimens of your rocks in return, as well as recent shells & other things desirable for our Museum.

I think I can send you also some sets of our lower carb. (devonian) exuviae of the Fauna & Flora.

The main object of this letter is to send you a copy of a sentence from a letter of Sir R. Murchison, received last mail. As I suppose you do not intend to neglect this illustrious man, I consider it my duty towards you to make you acquainted with his feelings. Of course when writing to him, do not tell him, that I wrote you about it. He says:

“I am greatly surprised & I must add not a little vexed at never having had a single line from my friend Dr Hector who when he was in N. America was so good a correspondent. But I presume that his incipient duties in the field have prevented his reporting to me as President of the Geographical Society. I trust however, that I may hear from him before our Anniversary, when I shall vacate the chair & so be able to do him justice as well as yourself.

So you better at once sit down & write him a long letter. I am off in a few days for a longer trip & shall be back end of April. Perhaps you find the time to come over during next winter; we shall have a little ramble & a good talk. Of course you will come & stay at my house. Mrs Haast will be delighted to see you & we shall try to make you comfortable.

Dr Hooker tells me, that he had the misfortune to lose a little daughter six years of age, that both his mother & a son are laid up with scarlet fever. Let us hope that he will not have another heavy loss. Hooker was delighted with the excellent photographs of sketches you sent him. In case you have another set to spare I should be very thankful to receive it. I shall re-examine some more glacial phenomena before I shall describe them at length.

Hoping to hear soon from you believe my dear Hector ever yours very sincerely
Julius Haast.

By the bye, Mr A Keith Johnstone⁴⁵ says “I see my friend Dr Hector has been over part of our ground this year, if you meet him will you give him my kind regards & say I am rather disappointed in not having heard from him”.

Dr James Hector etc.
Dunedin.

30: Hector to Haast, 20-2-1864
ATL MS-Papers-0037-078

Dunedin
20th February 1864

My dear Haast,

I hope you will find it consistent with your other arrangements to comply with the request in the accompanying letter, although I am well aware that it is making a serious demand on your time.

However it will be a work congenial with your ordinary pursuits and will afford you an opportunity not only of materially advancing the interests of New Zealand but also of publishing in a favourable shape an epitome of your laborious researches in the colony during the last five or six years.

⁴⁵ Alexander Keith Johnston (1804-1871), Scottish geographer and cartographer.

The prospect of these essays is founded on the example found in a volume published in connection with the Victorian Exhibition of 1861, which you have no doubt met with. It is intended however as you will perceive from the prospectus that our work shall be on a more ambitious scale, and it will if necessary be accompanied by woodcuts and illustrative maps.

It is wished that it should be published as soon after the opening of the Exhibition in January next as possible, and therefore as it the work will be printed in Melbourne the manuscript should reach me not later than October.

The length of the essay is left to yourself, but I may tell you as a guide that in my essay on the Geology of Otago I shall classify the formations, giving typical sections to illustrate their arrangement, & describe their geographical distribution, & economic products and then write a geological map on a small scale will I think be quite sufficient and will occupy some 50 or 60 pages of octavo print. I shall avoid all detail Geology that will have interest only to persons resident in the Province.

I trust I shall soon have your favourable answer to the application as there is no time to lose especially if you proposed having wood cut illustrations or maps published, as they require a good deal of time for their preparation.

When the matter is fairly under weigh I shall probably run up to Christchurch for the purpose of consulting with you on the subject as perhaps we may find it more consistent to adopt one system of classification and one scale of Geological map.

I am writing to the Hon. Mr. Crawford⁴⁶ at Wellington, to see whether he can undertake the Geology of the North Island, or if not who can do it? Perhaps you can give me a hint on this subject. As soon as they are agreed upon & have accepted I shall send you a list of the writers of the various essays.

The Exhibition Building is now advancing rapidly & the laying of the foundation stone the other day as you will see from the papers was a great success. I am glad to learn from your letter the other day that your province intends to make a good shew. I only hope that the local committee will fully understand that it is on their exertion that the success of the Exhibition will mainly depend.

I remain, my dear Haast
Yours very Sincerely
James Hector.

⁴⁶ James Couatts Crawford (1817-1889), Scottish-born British Naval officer who first arrived in New Zealand in 1839 and had been appointed Wellington provincial geologist in 1861 and served on the New Zealand Legislative Council from 1859-1867.

31: Haast to Hector, 11-3-1864

Te Papa MU000198/001/0031

Lake Heron
11 March 1864

My dear Hector!

I received just at this moment, when intending to start your two letters for which I thank you most heartily & as the wish of the Commission of the N.Z. Exhibition is one not only honourable to myself, but of importance to Canterbury, I will in haste answer some of the most important questions. So at once I may tell you, that I am willing to write the essay on the Geology & Physical Geography of Nelson & Canterbury & accompanying it with some maps and sections, and am delighted to hear that you will come over to Christchurch, to talk the matter over. I shall return towards the middle of next month, so that when you come towards the 1 of May, you will find me in Christchurch and I shall have had time to have the collections so far ready, that we can go through them and arrange a proper classification.

Concerning the northern Island I fear very much that Mr Crawford can only write on Wellington, but can not give any information on Auckland, and I know no body who could do it in the Northern Island with credit to N.Z. and to himself, so that I shall be obliged to do it myself in a condensed form. I had no time to communicate with our Prov. Government, but I have not the least doubt, that they fully coincide with me, that we ought to be represented as well as possible. Will you allow me to give you a few hints concerning your Programme. For the history of Canterbury you ought to ask, the Hon. Tancred⁴⁷ (you will find the Christian name in the New Zealand Almanac) He is the best man.

For the ornithology the best man is Walter Buller⁴⁸ Esqre FLS in Wellington. For practical mining Mr James Burnett⁴⁹ in Nelson is a very good man. For Botany of the Northern Island Dr Knight⁵⁰ in Auckland, while I suppose I have to give some notes on the Geography of plants in our Alps. By the bye do you know that we have now such an excellent lithographic establishment in Christchurch, that it would be a pity to go to Melbourne for it. The Lyttelton Times have sent for such first rate men to Europe & Melbourne, that they can do it just as well & you ought to encourage such a spirited undertaking.

I myself shall have my geol. maps & sections in chromo-lithographed manner issued from that new establishment. Unfortunately I can not offer you to stay with us end of April or begin of May as just in those days I expect the confinement of my wife, but I shall try to make you comfortable at the Club & where you have to sleep. For the rest of the time I shall lay Embargo upon you.

⁴⁷ Henry John Tancred (1816-1884), Canterbury politician who had formerly served in the Austrian army.

⁴⁸ Sir Walter Lawry Buller (1838-1906), New Zealand lawyer, ornithologist and naturalist.

⁴⁹ James Burnett (1826-1872), English mining engineer who had worked as Haast's topographical assistant in Nelson.

⁵⁰ Charles Knight (c.1808-1891), English physician, public servant and botanist.

Prof Tyndall writes me, that Dr Hooker has shown your photos & sketches to the Philos. Club in London & that they were delighted. Hoping to hear soon from you, believe me my dear Hector

very sincerely yours
Julius Haast.

Excuse my haste

Dr J. Hector etc
Dunedin.

32: Haast to Hector, 10-4-1864

Te Papa MU000198/001/0031

Glückauf
Christchurch
10 April 1864

My dear Hector!

I returned from my last trip and shall now begin to arrange my collections so that when I shall have the pleasure to see you in Christchurch, you can have a easy look over them; I have written to the Government, sending them a copy of the request of the R. Exhibition Commissioner, but not yet received any official answer, although there is no doubt, that they will answer affirmatively. In the case you wish a essay paper on the uses of the *Phormium tenax*, the preparation of its fibre, my friend Travers⁵¹ FLS would willingly write. Do not forget to bring with you my duplicates of shells, minerals, plants etc., which you can spare, have you many duplicates of III fossils, I shall be glad to receive some of them. In return I can offer you whole sets of geol. specimens of different parts of NZ; plants *en masse* carboniferous & devonian fossils (NZ) & many other things, which it would be desirable to possess for your Museum. Hooker writes me, that he has received your & Mr Buchanan⁵²'s splendid collections of Alpine plants & that he was delighted with them. I hope to hear soon from you & being in great haste, I have to conclude.

Believe me my dear Hector
yours very sincerely
Julius Haast.

⁵¹ William Thomas Locke Travers (1819-1903), New Zealand lawyer, politician, explorer and naturalist.

⁵² John Buchanan (1819-1898), New Zealand botanist, draughtsman and artist.

33: Haast to Hector, 14-4-1864

Te Papa MU000198/001/0031

Christchurch
14 April 1864

My dear Hector,

I see it will be impossible to have the collections in order before the middle of May, could you postpone your visit to that period? I should like it very much, as otherwise I would be unable to show you all what I wished. I never have seen the Victoria Exhibition Volume & should be glad, if you could bring it with you or send it to me for a week for inspection. It would perhaps give me a hint, how to treat the subject. I have not yet had an official answer from the Prov. Government but what I have heard privately there is not the least doubt, that the Executive Council will be glad to see the work done by me.

Hoping to hear soon from you
believe me, my dear Hector
Yours very sincerely
Julius Haast.

Dr J. Hector etc.
Dunedin.

34: Hector to Haast, 26-4-1864

ATL MS-Papers-0037-078

Geological Survey Office, Dunedin
26th April 1864

My dear Haast,

Until I received a note this morning from Crawford, I fancied from your last letter that you had gone up country & would not be back for a month or two, so that I was in no hurry to answer it.

I am extremely glad that you are willing to write a short essay embodying the results of your Geological explorations of Nelson & Canterbury.

I dare say you will have had a talk with Crawford about the N. Island Geology which he has undertaken to write upon. I hear that you have got a copy of the Geological parts of Hochstetters work. I wish either as a whole or in abstract it would appear in an English MSS as the original will be almost a sealed book to me.

Many thanks to you for your hints about authors for the essays. If there is any hitch I shall not fail to turn them to account, but the subjects have mainly all been appropriated & accepted.

I cannot say when I shall be able to get away but I must really try & run north to see you next month as there is much that we should plan & talk over concerning the scientific part of the coming Exhibition. I hear you have a splendid collection of fossils, some of them Palaeozoic. What strata are they from? Nothing would be more acceptable or productive of good results to our work than the determination of a horizon line among our older rocks.

I am also anxious to judge of the facilities you have for lithographic work. We have several firms here & could get things done in first rate style, but the expense is the great obstacle. Besides the demand for printing here is so great that it will not pay to allow the types to stand for the time necessary to bring out anything requiring greater care & deliberation than a pamphlet or newspaper article. However there is plenty of time to consider all these things so that I shall not bring it before the commissioners for the present.

Have you seen Dr. Munroe⁵³? I hardly know whether he intended to remain in Christchurch as he passed north the other day. He is going to write the Essay on the Botany of the Middle Island & I expect will draw largely on us for information about the Central & Southern parts of it. We must have division of labour & I shall supply him with all the materials I have acquired & be very glad to have them published.

Crawford seemed to enjoy his visit to Otago & I gave him a message to you that I should like much to have an opportunity of shewing you also, all our Gold fields. You must be sure & come before they are all worked out!! Did Crawford tell you of my watchwords – Segregation, degradation, concentration & assortment as explaining the theory of Gold fields? But this I must refrain from boring you with.

Talking of boring can you tell me anything about the theory of these new wells they have at Christchurch. Are they true artesian wells? i.e. from a water bed overlying clays & if so what member of your Tertiary series does the clay belong to? I will send you a lot of analyses of coals & Building stones in a day or two but the Printers have struck!! There is also a collection[?] being labelled for you. What you want principally I suppose is a set of our West Coast Crystalline rocks, our Metamorphic schists, & a set of our Basalts. You dont care to rob us of Tertiaries, I presume.

With kind regards to Mrs. Haast who has by this time I hope made you happy & proud I remain my dear Haast

Yours very Sincerely
James Hector.

Dr. Haast
XChurch

⁵³ Sir David Monro (1813-1877), Scottish doctor, politician and landowner in Nelson, who later became Hector's father-in-law.

35: Haast to Hector, 9-5-1864

Te Papa MU000198/001/0031

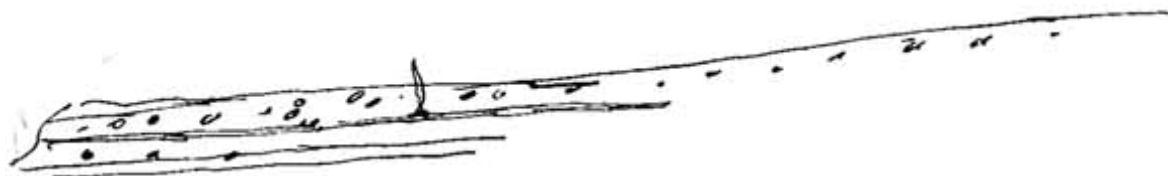
Geological Survey Office
Christchurch
9 May 1864

My dear Hector,

Many thanks for your letter of the 26th of April, with the welcome news that I may expect you here very soon. I heard from second hand that very probably the NZ. exhibition will not take place as soon as anticipated; if this be the case, I should like to know it (privately) as soon as possible, because I should do first some other work before beginning with my Essay. In any case I shall not begin before I have seen you, so that we may talk the matter over. I hope to see you soon here, we shall have some delightful rambles together, which I dare say will highly interest you.

It will take some time before Hochstetter's book will appear because he could not find a publisher, but hope that he may be more successful.

I am very glad that you have found author's for all the essays, but should be truly sorry, if you had overlooked Mr Walter Buller's claims for the Ornithology as he is the only one, who has for years studied the matter & already a large work under the press. Can not the necessary arrangements be made? Because I consider it an injustice to him if he is not asked to write it. Of course I shall be glad to give to Dr Monro all assistance if he will come to Christchurch, where he can consult my collections and notes. The collection of fossils which I have at present are identical or nearly with the Australian fossils, which lie in the Carboniferous or upper Devonian beds & over which so much quarrel has taken place; but the finest & by far the largest part is in Melbourne to be described by McCoy, who is very lazy, to do so & return them to me. Notwithstanding I have so many duplicates, of the fauna & flora, that you will receive a fine collection too, as soon as I find time to put them in order. It would lead me too far to talk in a letter the matter over, but verbally we shall get on much quicker about the age of our different strata. You will receive a fine collection of all our rocks. Many thanks for your promised collection. I should certainly like a small collection of your tertiary fossils to compare with ours, if you have duplicates. I can return them by & bye, when I come to our III regions. Also recent marine shells from your Westcoast would be very acceptable. Have you a Herbarium & do you want plants? I have also some fossils of our oldest rocks, but I can not make any thing of it. Our so called artesian wells are only the result of underground watercourses of our shingle rivers, where they flow over clay beds of marine origin.



[*Marginal note:* The rivers near Christchurch Avon Heathcote etc. have a similar origin.]

They are not properly speaking artesian wells, but notwithstanding highly interesting. But come & look for your self. I shall be delighted to see your Report on your building stones. What a pity that you do not understand German, because Prof. v. Cotta⁵⁴'s new work on mineral veins is really magnificent.

Hooker has been delighted with the collection you sent him.
Hoping to hear soon from you, believe me my dear Hector yours very sincerely
Julius Haast.

Mrs Haast sends her best compliments, I expect her confinement any day.

Dr J. Hector etc.
Dunedin.

36: Haast to Hector, 12-5-1864

Te Papa MU000198/001/0031

Glückauf
12 May 1864

My dear Hector,

Mr Buller sent me the enclosed letter requesting me to ask you to think the matter over. Let me speak openly & tell you once more that it would really be a great injustice, to give the ornithology to a man, who knows nothing or very little about it and to pass over another, who has studied it for years, has written very good papers for the Linnean & Zool. Societies & will give credit to the work undertaken by you. It is as I know your intention to have good scientific essays; in such case you would do good to avail yourself of his offer. He is quite right, that he will not write for Mr Taylor⁵⁵ but directly for your publication. I shall be glad to hear that the matter will be settled as Mr Buller wishes it.

Mrs Haast was confined last night of a very fine boy⁵⁶; mother & child are doing very well & I am very glad indeed, that it is over. Please tell me by return of the mail, when I can expect you, because I intend to do some more field work before the winter sets firmly in.

Believe me dear Hector
yours very sincerely
Julius Haast

Dr James Hector
Dunedin.

⁵⁴ Bernhard von Cotta (1808-1879), German geologist. Cotta's *Lehre von den Erzlagerstätten* was first published in 1855 (revised edition in two volumes 1859-1861), the English translation, *Treatise on Ore Deposits*, was published in 1870.

⁵⁵ Richard Taylor (1805-1873), New Zealand missionary, naturalist and writer, attended the Dunedin exhibition of 1865 and was awarded a silver medal. Note that Buller did write the essay on New Zealand ornithology.

⁵⁶ Heinrich Ferdinand von Haast (1864-1953), New Zealand lawyer who wrote a biography of his father.

37: Haast to Hector, 27-5-1864

Te Papa MU000198/001/0031

Christchurch
27 May 1864

My dear Hector!

Many thanks for your 2 letters of the 15th & 23 from Lyttelton;⁵⁷ although the latter has somewhat disappointed me, as I had every thing ready to ride over at once to see you, had you telegraphed over, to have at least the opportunity to shake hands with you. When you come back, write before hand with what steamer or telegraph over & I shall come with my dogcart, so that we shall have a nice geological drive together. Or if not, go at once to the Christchurch Club, where you will find yourself as an honorary member.

I am glad that the Exhibition will take place. You will be rather interested to see Picton & the Pelorus, I went over the ground hurriedly 5 years ago & was much struck by the character of the rocks, showing themselves at the base of a denuded anticlinal axis. I should certainly have prospected, had not every body told me, that many people had prospected every where, without finding a single speck of gold; the Nelson chief Surveyor⁵⁸ who was my Cicerone laughed at the idea of gold being there. I shall be very glad, if Buller writes the essay on the Ornithology, because he is the only man, who has made it his particular study. Mr Mantell⁵⁹ told me, he had thought it would interfere with his larger work, but I have since heard that both had some personal quarrel. A pity that these matters should interfere with science. Your photographs are really splendid, many thanks for them. Our III beds of the eastern side of the Province are of the same age, as your young III ones. Our Bank Peninsula rocks with the exception of the dykes are trachyt-dolerites (andisites?), the dykes true sanidin trachytes, but the last centre of eruption in the Calderas are basic basalts. But we shall look at every thing together if you come. If you go to see my friend Dr Fischer⁶⁰ in Auckland, he can show you Hochstetter's works both book & atlas & then Crawford's task will be very easy, as he has Hochstetter's map before him. I shall be delighted to hear from you & what you think about Auckland.

Have you seen some proofsheets of Hooker's Handbook, he has sent me some. You cut a nice figure.

Believe me my dear Hector yours very truly

Julius Haast.

⁵⁷ We have been unable to locate copies of these letters.

⁵⁸ Thomas Brunner (1821-1874), Chief Surveyor of Nelson who accompanied Haast to Marlborough in 1859.

⁵⁹ Walter Baldock Durrant Mantell (1820-1895), New Zealand scientist and politician.

⁶⁰ Carl Frank Fischer (d. 1893), German homoeopathic doctor in Auckland who published the first medical journal in New Zealand; translated and published Hochstetter's *Geology of New Zealand* in 1864.

38: Hector to Haast, 18-7-1864

ATL MS-Papers-0037-078

Dunedin
18th July 1864

My dear Haast,

I only write you a few lines to say that I have arrived here & found everything in status quo and to return you my best thanks for your great kindness & hospitality to me. I found a great accumulation of letters & among others a long one from Murchison beseechs me not to be led away by the horrid glacier heresys which are abroad. He says that he fears that I display a leaning towards them & warns me that all the great names in Europe except a few are quite against the notion that Ice can scoop out valleys in hard rock. I have not yet answered him but mean to dab[?] it into him by next mail. He writes me for facts with which to assist his phillippic against the heresy but I doubt if the only facts I can send him will serve his purpose much.

Dont forget to post the Nelson Lecture⁶¹ to Fischer at once so that he can reprint it along with the rest of the text of the Atlas.

I have not yet had time to get any thing done for you but will lose no time about it. They have had most splendid weather for the last 5 weeks here, but it now shows signs of breaking. If it does I shall remain in town for some time till it clears again.

With kind regards to Mrs. Haast
I remain Ever Yours Sincerely
James Hector.

Dr. Haast
Ch. Church

⁶¹ Ferdinand Hochstetter, 'Lecture on the Geology of the Province of Nelson', *The Nelson Examiner*, 1 October 1859, was included in Hochstetter's *Geology of New Zealand*, translated and published by Fischer in 1864.

39: Hector to Haast, 25-7-1864

ATL MS-Papers-0037-078

Dunedin
25th July 1864

My dear Haast,

I have not yet been able to get away from Town, as there is so much to be done after my long absence. By this mail you will receive a second copy of the report as I learn from Mr. Holmes' note to Gore[?] that you have lost the first. I also enclose you a copy of the Discharge of the Clutha River. I am getting the specimen looked out for you but it will be some time before you get them or the Synopsis. I have got the list of West Coast plants from Hooker by the mail. There are only 4 N.S.

In haste but with kind regards to Mrs. Haast
I remain Yours Sincerely
James Hector.

40: Haast to Hector, 28-7-1864

Te Papa MU000198/001/0031

Christchurch
July 28 1864

My dear Hector!

Many thanks for your two notes of the 18 & 25th with the report & table of discharge of rivers which has highly interested me. I should certainly have written more had I not been overwhelmed with official work; my report is nearly finished & in it I shall follow your example & give lists of plants & minerals. I am sorry to hear that no more novelties rewarded your Westcoast journey. Doyne⁶²'s report is not yet out & will be retained with the diagrams till the Council meets in a fortnight; I shall instantly as soon as I get my copies forward some to you. Your rocks will go as soon I can find a moment time to get them together, as I have to go down to the Peninsula for a day to get some characteristic specimens of several of the principal rocks of which I have no duplicates. I was rather disappointed when the mail arrived not to hear any thing about the R.G.S., but nowhere I could see that the anniversary meeting had taken place, so that there is still hope. But I must confess that I consider my chances very small, notwithstanding your assurance of the contrary. Vedremo.

The more I think concerning the glacier origin of most of rock bound basins, the more I am convinced that they can only be explained even on mechanical grounds by the action of glaciers.

⁶² William Thomas Doyne (1823-1877), Irish civil engineer and surveyor in New Zealand and Australia.

I think I can illustrate this theory from N.Z. & as soon as I have time I shall write a paper on the matter but before sending it to London, hand it over to you, to your kind perusal & open criticism. I have not yet begun with my report on the formation of the Canterbury plains, but will do so in a few days when the other report is out of my hands. Mrs Haast sends her kind regards, we had rather an anxious time, our baby having had a very bad attack of Bronchitis, but is now much better.

Needless to say, that I have been greatly delighted of meeting you & offering you the hand of friendship & good fellowship & as both we travel toward the same goal, truth in our cherished Science, there is no doubt, that this bond will strengthen every day.

Ever my dear Hector
yours very sincerely
Julius Haast

Dr Hector etc.
Dunedin.

41: Hector to Haast, 5-8-1864
ATL MS-Papers-0037-078

Dunedin
5th August 1864

My dear Haast,

I have just recd. yours of 28th July. I got no news by last mail about the Geograph. Soc. Neither observed anything in the Athenaeum.

I was disappointed at not receiving a few lines from Owen about the Moa.

Since I returned I have heard of several more of the curious costal appendages having been found.

I now return p. Book Post the plates of the fossils Plants & the descriptive sheets of the fossil shells you lent me – with many thanks. By the way I forgot to get back from Holmes the list of Exhibits I lent him. Could you kindly send it along with the Parcel of Photographs of fossils I left on your Museum Table. I am very anxious to get the latter at once as they are the set with the numbers.

I see your W.C. diggings are going to make a stir at last. Dont forget to be very suspicious of where your Quartziferous Trachytes pierce your Diorite slates. My time has been sadly cut up of late but I hope that I should be able to send you a Synopsis before I leave for the South next week.

Trusting that the little stonebreaker is better & with compts. to Mrs. H.
Ever Yours Sincerely
James Hector.

Dr. Haast.

42: Haast to Hector, 14-8-1864

Te Papa MU000198/001/0031

Christchurch
14th Aug 1864

My dear Hector!

I have received your letter of the 5th & with it the book & plates. With this mail I send the photographs with best thanks.

Since you were here we have received a most valuable gift for the Phil. Inst., namely all the Transactions of the Imp. Geol. State Institute of Austria with the large folio volumes with many hundred plates on the Palaeontology; including the classical works on the Vienna basin by Hoernes,⁶³ on the Carboniferous flora by Ettinghausen⁶⁴ & on the oolitic flora by Zigno.⁶⁵ It is of great assistance for the determination of fossils.

We never made up our minds for the colours of the geol. map, please tell me your opinions as soon as possible. Shall we use the colours of the Victorian Survey, but how distinguish our 1) lower carboniferous 2) *Tentaculites* beds, 3) newer gneissic schists (Kieselschiefer) & 4) foliated schists (Lake Wanaka). Holmes will send the list back himself.

Mrs Haast sends her kind regards and the little Stonebreaker is very jolly.

I have written a short paper on the causes which have led to the excavation of deep lake basins in hard rocks in the Southern Alps of NZ, sent it with a map to Sir R. & told him, that he may give it to the Geological Society. I want to read it before our Phil. Inst. & shall afterwards send you the Paper for perusal. A larger one will follow in the course of time, but I shall first let you read it.

Do not forget to send me the boundary piece, so that we may afterwards fit together.

Yours de coeur
Julius Haast.

⁶³ Moriz Hoernes (1815-1868), Austrian geologist and palaeontologist. The first volume of his *Die fossilen Mollusken des Tertiärbeckens von Wien*, was published in 1856.

⁶⁴ Constantin von Ettingshausen (1826-1897), Austrian geologist, palaeontologist and botanist.

⁶⁵ Achille De Zigno (1813-1892), Italian botanist, geologist and palaeontologist.

43: Haast to Hector, 24-8-1864

Te Papa MU000198/001/0031

Glückauf
Aug 24 1864

My dear Hector,

I have to thank you for the 2 sheets of sections which you have sent me through Mr Gore, which will be of use, although generally speaking I think that sections on a larger vertical scale are clearer to the general public, for which after all we are considered to work here. I hope you had a pleasant trip & I shall soon hear from you about your doings. Shall we adopt the Victoria colours? I am very anxious to know some thing about it, as I want to go on with my map; so do not forget to send me the boundary pieces.

The German Geologists have the intention to place a statue or marble bust of Haidinger⁶⁶ the founder of the Imp Geol. St. Institute of Austria in the great hall of that institution at his 70 birthday & are collecting money for that purpose all over the world.

As I happen to know that you may expect very soon your Diploma as Corresp. member of that body, I think, that I ought not overlook you. Will you perhaps subscribe £1 to it or £2, in which case I can send it with my contribution next mail & when I come to Dunedin you may return it to me.

Mrs Haast sends her kind regards, she sits just near me, making such a nice little frock for the young stonebreaker.

What is the last day when you want my Essay & the sections at? I have not yet finished my Paper on the formation of the Canterbury plains, so that there is very little hope that I can begin before the middle of next month. I suppose that Murchison has sent you too the slips of his address concerning glacial actions. What do you think of it? I shall take the liberty to point out some weak points in his reasoning. I expect with next mail the geol. part of Hochstetter's N.Z. work & shall send you the plates for examination.

Expecting to hear soon from you believe me my dear Hector yours very sincerely
Julius Haast.

Dr Hector
Dunedin.

⁶⁶ Wilhelm Karl von Haidinger (1795-1871), Austrian mineralogist, geologist, physicist, and founding director of the Imperial Austrian Geological Survey in Vienna.

44: Hector to Haast, 29-9-1864

ATL MS-Papers-0037-078

Dunedin
29th September 1864

My dear Haast,

I have just returned from my trip to the South which occupied me for six weeks – considerably longer than I intended or could well afford. I had a whale boat & four men and coasted along entering the various little rivers. As they have all bars like the Sumner, it was risky work & the unusual amount of SE wind kept up such a sea that I was often detained. The whole country from the Clutha southwards to the Mataura appears to be of the same formation preserving the same strike of NW by W.

They consist of Conglomerates of crystalline rocks, followed by Sandstones & shales, containing plants (*Teniopteris*, *Pecopteris*, *Voltzia?* &c. – along with series of good coal – at least as good as most of the West Coast or your Malvern Hill Coal & not a hydrous brown coal. Also indurated marl slates, containing Ironstone & hydraulic limestone and shells, badly preserved – but I can make out in them a strong analogy to those I got along with the Vancouver Island Coal (cretaceous). They are associated with Ammonites. I found the ferns at one place imbedded in a black sandstone very like that you got your Carb. Fossils in. It is curious that on the Mataura river I got the same fossil ferns in a sandstone that overlies a 20 ft seam of what at the surface at least is a very inferior Brown Coal. Yet judging by strike & sequence of rock this B. Coal is in the same formation as that on the coast at a distance of some 20 miles on line of strike. But I shall know more about this when I plot out my notes. The upper part of the formation passes into regular grauwacke slates like the upper beds of the Pelorus. This is very curious.

I only got your note of 17th Augt. on my return.⁶⁷ I dare say you wondered why it was not answered before. You shall have the Junction line of the Province in a few days. About the colours, as we agreed to combine all the work in one map of N.Z. for the Essays, it will not matter much what colour you use in the draft copy that you will send down. You should send it on a pretty good scale so that it can be reduced when put on the stone. I do not intend to put much in mine, but think it will be better that the map shall be a clear & distinct guide to the extent & distribution of the formations. Crawford is coming down here in a week or so, & will bring all his work with him.

That little pamphlet published by Fischer after Hochstetter, gives a capital idea of the Geol. of N. Island. C's work will be very easy.

You mention having sent the Photographs. I dont think they have been received yet, so you had better enquire of Holmes about them. As they have the nos. corresponding to those sent to England for identification I hope they will turn up. Before posting this I shall however make further enquiries in my office.

I am sorry to hear through Gore that your Govt. have foolishly allowed the meteorological observations to lapse. They will rue it some day. Canterbury, having in view

⁶⁷ We have been unable to locate a copy of this letter.

such stupendous engineering works, will have more need than any other Province for accurate statistical information respecting the extreme variation of the elements. Such information can only be obtained by careful observation patiently obtained for a long unbroken period. Allowing the work to lapse for a time is almost equal to throwing away all that has been already spent.

With kind regards to Mrs. Haast, of whom I am glad to have good accounts,
I remain ever Sincerely Yours
James Hector.

In Murchison's adress to Geog. Soc. you got great praise for your Alpine work. The old man is very savage with me because I wont go in for believing that all valleys are cracks or rents or fissures or some indirect or direct result of a great con----. His adress on that subject is however very good.

45: Haast to Hector, 5-10-1864

Te Papa MU000198/001/0031

Glückauf
5 Oct 1864

My dear Hector,

I was expecting day after day to hear from you, concerning the colours of the geol. map & the sections at the boundary, but thought you were not yet returned, but I saw just now Mr Sheath⁶⁸ who told me, that you were returned from your journey & thus I hope to hear soon from you & of the results of your winter campaign.

You will have seen in the newspaper, that I had some smart fighting in our Prov. Council, but placed as I was I could not well avoid it, but I think, that after all, all will be for the best. The real cause was not stated, but I do not like to write about it, but to give you a gentle hint, the contemplated Gen. Gov^t. Survey had some thing to do with it.

If you see the Canterbury newspapers you will see any amount of articles about that question and I hope only, that they will soon cease, because I am quite sick of it.

I am just going in print with two of my reports, one on the plains & a Progress Report, as soon as they are ready, I shall send you copies of them.

Since I wrote last I received the other plates of Hochstetter's new work, with the fossils; I shall try to send them on to you at once, as they will highly interest you; they are most beautifully finished.

McCoy has at last named all my fossils and returned them, but I am not yet in possession of the boxes, as soon as they are unpacked, I shall tell you all about them.

⁶⁸ Isaac Brentnall Sheath, owned land on the Kowai River where coal was found.

Concerning the essay I am very sorry to say, that I have to be very short, as the Government will not give me the necessary time, notwithstanding I think that before the end of the month, I shall be able to send you the sketch map of Canterbury & Nelson & a dozen sections for the same purpose. But it will be impossible for me to send either specimens or come down myself as it is thought that my time is too costly to be spent anywhere else during the Summer season than in the field, it is of no use to explain to them, that a comparison of the different collections etc. is most valuable & then I shall also not be able to act as a juror, except perhaps by pressure from other quarters. Such is life, "*L'homme propose et Dieu dispose*".

Mrs Haast sends her kind regards and is as sorry as I am, that we can not enjoy some weeks with you together in Dunedin.

Hoping to hear soon from you believe me my dear Hector yours very sincerely
Julius Haast

Dr J. Hector
Dunedin.

46: Hector to Haast, 10-10-1864

ATL MS-Papers-0037-078

Dunedin
10th October 1864

My dear Haast,

I am quite aghast at the contents of your note which I received yesterday. Surely you cant be serious in saying that your folks are so foolish as to object to your expending the time necessary to have their Mineral resources properly represented in the Exhibition & to allow of your visiting it & acting as Juror &c. It sounds very funny to me & you may be sure that the public will make a noise about it. I have not seen any newspaper reports about the discussion you allude to but I can fancy from what Sheath told me that they have been using your affairs as an excuse for a political fracas.

I thought I should have been able to send you some notes & a synopsis also the map of the Boundary Line by this mail but I have been occupied with matters for the Council which meets this week. Its a great nuisance to be distracted from regular work & they have put such a lot of commissions & the like on me (or me on them rather) that I never know what to do first.

Never mind though your essay is short if it gives a clear & comprehensive notion of the Geology. I shall make mine as short as I possibly can. The fault I have been making in my attempts as yet is writing too fully. Now my good friend you must not give up the idea of coming down here to the Exhibition & of bringing Mrs. Haast with you. If you dont you will disappoint many besides myself.

I write in haste with kind regards
Ever Yours Sincerely
James Hector.

47: Haast to Hector, 15-10-1864

Te Papa MU000198/001/0031

Christchurch
Oct 15 1864

My dear Hector,

Many thanks for your two letters of the 29th of Sept. & 10 of Oct. I have at once have packed the 1000 trays for specimens, which will go with the next steamer. I paid for them £5 per thousand mixed & I sent you the 3 largest sizes mixed. Not to have any account it will be the best to buy for our Museum for that amount small parcels of gold, so as to show the character of each goldfield.

I sent you back of the photographs of your fossils those which you put aside & it may be possible that there some mistake occurred. The best will be to send them back to you & you return me through Crawford another set complete. By the way I shall send you by the same opportunity; those of the plates of Hochstetter's work "fossils" which will interest you & in order to enable you to avoid any chaos in the names. If you adopt the same names please to write them on your photographs too & I shall adopt them too & in such a way we are going on well. At the same time I sent you a photograph of a large picture painted by our great German landscape painter Prof. Simony⁶⁹ in Vienna after my sketches, faithfully rendered; only the riverbed which is a flat shingle bed has been embellished by him & the glaciers made more steep, but the form & slope of the mountains is copied faithfully. I hope you will find somewhere a small room for it in your study to hang it up.

So you find also some difficulties to disentangle the different formations, but I am certain, that in very few years all will be very clear. Many thanks for your notes; I think a close investigation of the Waipara (*Plesiosaurus australis*) beds which are easy of access will give us a clue to many apparent difficulties. Prof McCoy sent me a part of my fossils back. Those of Mt Arthur Nelson Province are middle Silurian & the Orthide and Trilobites identical with those of Victoria & that I have assigned them their right place. The Amuri beds are Oolitic & the leading & most abundant fossil of the Rangitata beds has been named *Spirigera Novae Zelandiae*. The rest is coming very soon. He has also named several of the fernbearing beds & the leaves of the Grey coal measures, but has not yet decided as to their age, the study of the Fauna not yet having been finished. But the collection of fossils soon begins to look like something. Did you bring some good Ammonites with you & are they identical with the Auckland ones?!

Do not forget to send me the boundary pieces as soon as possible.

The Meteorological Station goes on after all, it was managed that Holmes got some smaller appointments besides, so that the £200 which he had formerly are made up, he receiving only £100 as meteorological officer & he could drop the night observations if he liked. I hope to receive with this mail Sir R. Murchison's adress & to see what he says about us. He sent me with last mail, as I told you, his views on the power of glaciers and I sent through him to the geol. Society a paper on the same subject, together with a copy of the glaciation map which you saw at my office. I give to Crawford the paper in question, have

⁶⁹ Friedrich Simony (1813-1896), Austrian geographer and alpine explorer.

the kindness to peruse it & to tell me what you think of it & to return it, as this is the only copy I have. I was very glad that you wrote me the letter of the 10 Oct concerning the exhibition and I made use of it so far as to show the first sentence to some of my friends, who are members of the Executive. It seems now to me, telling me, that you were perfectly right, that they want me badly to go but wish that I do the first step in requesting them to do so.

I shall do what I think is right & what I owe to the Province & to New Zealand as well as to myself. Depend upon it, nothing will be neglected. I am hard at work at the map & the sections & shall begin to write the essay next week, a pity that I have not the whole synopsis, although the notes we made here together will guide me to use the proper expressions; it is essential that there is an uniformity, otherwise we should make a confusion of it.

I shall first give in a few short sentences notes of the Physical Geography of New Zealand, I mean for Nelson & Canterbury in their relation to the Central axis of the Island & then treat of the formation beginning with the Silurian or better metamorphic rocks & work upwards but short, give also some notes of our great pleistocene glaciations etc. & treat a little more fully of the Grey, Buller & Kowai Coalfields. The great difficulty is to bring so much interesting & important material in a small compass.

It is needless to say that I shall be extremely glad, to spend with Mrs Haast some weeks in Dunedin, although we have plenty of work. One of my official friends when I told to him the sentence of your letter about going to Dunedin as a juror etc., told me, how they could know, that the R. Commissioners wanted me for that purpose & if I had received official communications about that matter. I answered him that this would come in due course of time, but that there ought to be somebody there to represent the interest of the Province. But my letter is already so long & I have still lots to write for the mail & must stop short.

With kind regards of Mrs Haast believe me my dear Hector
ever yours very sincerely
Julius Haast

Dr Hector.

48: Hector to Haast, 22-10-1864

ATL MS-Papers-0037-078

Dunedin
22nd October 1864

My dear Haast,

Many thanks for the trays which have arrived safely. As Crawford goes North soon I shall send the Gold specimens with him, but £5 worth will make a very small show if divided among several samples. I think I will only get two kinds for you viz. the scale gold from River diggings & the rough crystalline Gold from the high hills.

I read your Glacier paper with attention & think it is certain to excite much interest at home. There are several points in your argument however that I cannot subscribe to especially with reference to the eroding of the Lake basins by the rising up of the terminal face or trough[?]-like process of the glacier.

With regard to the causes which led to the previous extensive development of glaciers I must tell you frankly that I consider the views you have adopted to be fully indicated in my West Coast Report when describing the character of the Milford sound Valley. I have pencilled some remarks on the margin – especially refer to the diagram I have drawn of the manner in which a glacier extends & overrides Moraine deposits, as I cannot follow the mechanism of that part of your Theory. The weight of a mass of Ice must always be supported vertically, and its eroding power is only that of friction due to its weight & velocity. If you decrease its weight or bearing on the rocky bed, by partially floating it on water or by making it override Moraine matter you of course diminish – not increase – it friction & therefore its eroding power on the Rock bottom.

The true cause of the existence of rock bound Lake basins in N.Z. as I long ago pointed out in my letters to Hooker & Murchison and also indicated in my Rept. on the W. Coast, is the oscillation or rather unequal subsidence of the Eastern & Western flanks of the Axis of Crystalline rocks, which is most superficial at the S.W. end of the Island. I am sure you will take these remarks in good part as I make them in a spirit of fair criticism. I have no doubt that when you digest your views a little more with the sketches of the criticism they will evolve in London your p--- paper will be the means of leading to a clearer understanding of the whole subject.

I return it with many thanks. Hooker writes me by this mail that he to has abandoned Ramsay's views. That need not affect us however. Murchison was going to bring forward my say in the matter at the Brit. Association in August last. However I only referred incidentally to the Ice matters – it was more a notice of the General Geology.

I am delighted with the Photos of Fossils. I am having them copied & will return them by Wednesday's mail. I trust you will get over the bar to your coming down here to the Exhibition. Jurors are not appointed yet nor will be till the Ex. is open, but there is no doubt that if you were on the spot you would be chosen as one. I am going to write you if I have time before the mail leaves about the map & Essay but close this lest I loose the post altogether.

Ever Sincerely Yours
James Hector.

49: Haast to Hector, 31-10-1864

Te Papa MU000198/001/0031

Geological Survey Office
31 Oct 1864

My dear Hector!

I have received a few days ago your letter by which you returned me the paper on the glaciation of this Island & this morning the fossil plates for both of which my best thanks are due to you. It was my intention to employ the first free moment to answer your first letter at length, but hear that a mail leaves in a few hours, so although your letter & the paper in question is in my house, I shall at once without entering the points under discussion write and thank you for your open criticism. This is the only way to mature the matter.

I am the more glad as it will give me an opportunity, to explain more fully my theory to you and I am certain that in the end just on mechanical reasons you being an excellent mechanician what I am not, you will agree with me. I know perfectly well Forbes⁷⁰'s reasonings, but do not agree with him, as I did not also with his plasticity theory.

But all these questions are at present shelved not having the paper and your letter at hand, but I may at once say, that I felt very grieved to observe that you seem to accuse me of plagiarism in having adopted your theories, as given in your Westcoast report. The greater part of this paper in all its general bearings was written in July 1863 during my honeymoon & then corrected by my wife, but owing to many circumstances I never finished it. I shall tell you to what I plead guilty, namely in having used many of your expressions, partly without knowing it, partly by having yourself explain to me, that my expressions formerly used did not have the English meaning I supposed, as for instance glacier action instead of glacial action etc.

It is true that you, not adopting my submergence theory was one of the reasons, that I examined it more carefully & finally rejected it. But when I shall have the pleasure to see you in Christchurch or in Dunedin, I shall show you from my journals written in Decb. 1862 & by Mr Holmes in English as my right hand from a fall was useless that I then already began to doubt the submergence theory. In a paper read in 1861 or begin 1862 before you came to NZ. in Victoria before the R Society, I already explained my views on the excavating power of glaciers & how from plateau like ranges through glacial action (meaning the action of glaciers) sharp peaks were formed.

Before your excellent Westcoast Report appeared I had already given up the submergence theory but as I stated before, greatly spured by you not accepting it, & I therefore re-examining all my former journals etc.

In my report on the formation of the Canterbury plains I have given the reasons why I abandoned the submergence theory – and of which you will receive a copy in a few weeks. Would it not be unjust if I would accuse you of adopting my theories if as it is natural you have independently of my labours come to the same conclusions? I think there is nobody in NZ. who will render greater justice to your labours, than myself & I hope therefore that if our

⁷⁰ Edward Forbes (1815-1854), British naturalist and former teacher of James Hector.

ideas happen to coincide on the subjects under our considerations, that we may not accuse each other of having adopted, what without doubt has been the result of independent research. It is perhaps possible, that I misunderstood the meaning of your sentence and therefore it is perhaps unnecessary to have alluded to it, but I thought it my duty to clear up at once what might lead to disagreeable after thoughts (*arrière pensées*). The best proof of my sincerity was that I sent you at once the paper for perusal.

Concerning the exhibition the Prov. Government has allowed me the necessary time to prepare the collections for the Exhibition which Mr Holmes will bring down with him, he probably being selected from our local committee to look after our things & to arrange them in our space allowed. So you will have all my collections down, but I think I can not well spare the time to come myself except for a week or so in March. The map progresses & also my sections but I am anxious to hear from you both about map & essay.

Mrs Haast sends her kindest regards. Goodbye my dear Hector
very sincerely yours
Julius Haast.

50: Hector to Haast, 5-11-1864
ATL MS-Papers-0037-078

Dunedin
5th November 1864

My dear Haast,

I enclose a rough tracing of the Geol. of my side of the Boundary line – Also a copy of the general synopsis I propose to adopt for the map. You will observe that I avoid details as we cannot make sure of the minute equivalency of our strata. I think we should not attempt to make the map more than illustration of the Essays.

Crawford has kindly taken charge of some Gold specimens for you. With two exceptions they were obtained by myself so that I am confident of the localities. I enclose a list of them. He also takes back the Photographs of the fossils to you which were omitted from the parcel the other day.

Could you let me have a couple of sketches to illustrate your Essay as I wish to have them Lithographed at once. Also a few sections. Crawford will shew you proofs of his so that you can judge of the style. I forgot to thank you for the beautiful Photograph of your views of the Mt. Cook Glaciers. It is very effective.

I have just received your note of 31st ult. & feel that I quite deserve the "wigging" you give me. However I only meant to point out that I was bound by my own words to agree with certain parts of your Theory but not with others. Your explanation of how you arrived at your views is quite satisfactory. Have you a copy of the Melbourne R.S. paper you refer to. I dont remember seeing it, but would like to if you can spare it.

I write in haste as I have been occupied till close on Post hour.

Ever Yours Very Sincerely
James Hector.

Privately I may tell you that the prospects of the Exhibition are in a critical state as there is a row with the Govt. about getting the Building out of the Contractors hands. We cannot get possession although it is a month past time for naming articles & are therefore leaning on our oars. Its a great shame.

51. Haast to Hector, 20-11-1864

Te Papa MU000198/001/0031

Glückauf
20 Novb 1864

My dear Hector,

I have to thank you for your kind letter of the 5th of Novb & should have answered sooner, had I found the time, but I have been occupied day & night to get the maps sections, collections etc ready for the Exhibition. The Nelson map is ready to be copied, the same with the Canterbury Map, which I hope to be able to send next week. With the essay I shall begin in a few days & hope (am certain) that all will be in your hands before the middle of next month. Before I answer your last letter let me first copy from Mr Keith Johnston's letter what he says about you.

He sends his photograph & says –

“My friend Hector would hardly know me with the “Appendage” which I was induced to continue after having engaged the luxury of freedom from scraping during a tour of 4 months to Syria last year. When you see him, please thank him in my name for his letter and say I hope to write him soon. I have taken a warm interest in all his interesting labours and rejoice that he has accomplished so much. Tell him none of his reports have reached me, except thru' the Geogr. Society. I should like much to have them tho' they would require to be addressed separately. I have no doubt he will send me the next report to which he alludes.

Many thanks for the tracing of your boundary, but I am sorry to say that the piece between Lake Hawea & Wanaka to Lake Ohau does not agree, but I shall now not stop but give you my notes in my report or when I still sent the maps which will be sooner, although I may state at once that at Lake Hawea dioritic sandstones & shaly slates occur, the boundary between the two formations goes across the Lindis Pass to Lake Hawea & across to Lake Wanaka where there is a depression in the boundary chain between the two lakes –, where Lake Hawea bulges so much towards Lake Wanaka; All along. The bold Mts which are the continuation of the View hill are already sandstones.

Many thanks for the Gold, it is really well selected & gives a good idea, of the character of the different fields. Concerning the sketches to illustrate my essay, why not take the photograph, which I sent you of Mt Cook, & have it lithographed, but with the exception of having a large shingle riverbed going up to the glaciers, instead of the deep rocky banks, which is a poetical license of Prof Simony, otherwise his picture is faithful in every detail according to my sketches. I shall see what will best be able to give a good idea of the character & add them to my essay. Unfortunately I have no copy of my paper, sent there

years ago to the R.S. of Victoria, but hope that they will soon print it in their transactions as it seems that they have risen some money for the purpose. I have seen yesterday in the paper that there is hope that the exhibition will open in time, although you would oblige me ever so much, if you would tell me privately, if you think that it is possible, because otherwise I am afraid, I shall not be able to send so much as I hoped, although I am with two draughtsmen at work without interruption. The botanical specimens in the frames look most remarkable & will create some interest, notwithstanding you will there again beat me with your drawings, which as I hear are most admirable.

Mr Holmes will come down as our agent, so that I send everything down with greater confidence, than with anybody else.

I shall now proceed to answer some of your objections concerning my paper.

It is very late & I am tired as a dog, so I shall postpone it to another day, when I shall feel much fresher, the more so as I intend to go at it *con amore*.

I have found a new ally in Doyne for my excavation reasonings, he is just occupied to calculate some data for me concerning this subject. I am only too delighted that you gave me openly your ideas, because it will give me an opportunity to clear up some points when I am not clear enough & I almost think that I shall win your valuable support also for that point.

Mrs Haast lies on the sofa fast asleep, she never will go to bed before I have finished, but in telling her just now that I have done, she tells me to send her kind regards to you.

I shall write at the earliest. Believe me dear Hector
Yours very sincerely
Julius Haast.

52. Haast to Hector, 27-11-1864

Te Papa MU000198/001/0031

Glückauf
27 Novb 1864

My dear Hector

Yours of the 25th came just at hand & I have the pleasure to return you at once the receipt for the £5.⁷¹ Your photographs are capital & I have to thank you very much for them & shall be very thankful, if you will get in due course of time some few more gold for us. Concerning the map I have to state, that the Canterbury Map is just being copied for you as well as the Nelson map & also the sections, which are nearly all finished for the Exhibition.

You will see from the list, which Holmes sent to the R Commissioners, that these were all the things I promised. The plants are in 15 large glass frames & seem to attract general attention; unfortunately they were already named when Dr Hooker's splendid Handbook arrived; he has changed many names, genera as well as species & thus the collection does not entirely present the stand of our present knowledge; there are only very

⁷¹ We have been unable to locate a copy of this letter.

few, which have this defect. By the way you ought not to crow about me; as you very coolly robbed me of all my Mt Brewster plants & even the beautiful *Celmisia hectori* is one of my discoveries. This is tit for tat. But joking apart I was highly amused by that mistake, which I can easily understand; firstly it was the first time that besides the numbers I put on the slip of paper the habitat etc & secondly their papers were written by another hand & arrived at the same time as your own plants.

I must confess I did not expect that the Handbook would be such a capital one, you are quite right to say that it is a great success. I too by next mail shall send to Hooker some corrections about altitude etc. – In talking with some of my friends about a testimonial to Dr Hooker, which idea they found capital, one of them suggested that it would be unfair to do so without offering one at the same time to Hochstetter, who for the last three years has worked continuously to make by his splendid works N.Z. known all over Europe & he meant that the best would be to form during the Otago Exhibition a Hooker-Hochstetter Committee, to work all over the Colony & to collect subscriptions, afterwards to divide it between the two. I think there is some good in that plan, as there are many who do not care a figure for Botany, but who have met Hochstetter & have a liking for Geology, & vice versa. – It is probable that we could get some thing like £1000, which would give us an opportunity to buy for both a piece of plate with a suitable inscription & with say a hundred Guineas & give them from the rest a purse of £400 each. – Do you think that we should succeed.

Concerning the sketches to be published with my essay, I already suggested to give a copy of the Photograph of Mt Cook. As there is no doubt that Mr Gully⁷² of Nelson will send some of his beautiful pictures, executed after my sketches to Otago, you can perhaps select some of them for publication or would you like me to send you some other sketches besides.

What is it about the special session of the Literary & Scientific Association of Dunedin. Is it a hoax? I received the other day a circular, but this was the first and last time I ever heard about such a thing. Who is at the head of such an undertaking? Is it provincial or colonial. Who are the most eminent men of New Zealand, who are reading papers?

Have you anything to do with it, you never told me a word about it.

How long is your report or Crawford's in print? I am just beginning, but fear almost that I shall make it a long winded affair, although I shall try very hard to cut it short. In the course of next week, I shall send the maps & sketches with the necessary notes, but heaven knows, when the essay will come as I shall have 8 days hard work with the tunnel to get all the specimens & the section ready. I have six glass cases of specimens to exhibit. Do write soon & a longer letter. Mrs Haast sends her kind regards & in order that you will not forget her nor the "little Stonebreaker" sends this enclosed Photograph.

Yours very sincerely
Julius Haast

My Plain report is just in the binder's hand & will leave by next mail for your acceptance.

⁷² John Gully (1819-1888), New Zealand draughtsman and landscape painter. He sold all of the watercolours he submitted to the New Zealand Exhibition in Dunedin in 1865 even before it opened and won a silver medal.

53. Haast to Hector, 30-11-1864

Te Papa MU000198/001/0031

Chch 30 Novb 1864

My dear Hector!

Enclosed I send you the beginning of my contributions: Copy of the Geol. Map as far as done of the Province of Canterbury. I have noted when I received reliable information on the tracing & I leave it to your own judgement to fill up if you like. You will see that we do not agree about the formation near Lake Hawea, but I told you, I think already that on its eastern side, felstones & shales, dioritic sandstones etc occur the river which comes from the East is the boundary line between the foliated schists near the Lindis & the country to the north. It is very possible that there are among 14 many more patches of 15 & 13, than I was able to show, but owing to the enormous flexures, repetitions etc of the strata, I have been able only to show the different character, where I stayed longer, & without a thorough detail survey it will be impossible to disentangle this chaos. By the way that I do not forget it, I asked Mr Cass⁷³ our Chief Surveyor to send you a tracing of the new surveys of our Westcoast, so that you may fit it in. I never have been north of the Waipara, have no idea what there may be, the information I got is so contradictory, one man telling me, that there are craters & lots of lava, what others deny; but it is evident that there is a great extent of Great Oolite, which seems to form the corner between the Hurunui & the Waipara.

It is my intention to send you with my essay, the following sections.

- 1) From Banks Peninsula to Westcoast across Mt Cook
- 2) From Lake Ohau to mouth of River Haast Westcoast
- 3) & 4) Detail sections of Malvern Hills, of which I know a great deal.
- 5) Section across the Buller Coalfield, Westcoast
- 6) [Section across the] Grey [Coalfield, Westcoast]

Would you like in addition some sections of Nelson Province. I could copy from Hochstetter's work & my own notes a section across the Massacre Bay goldfields as far as Nelson or better to the east of Dun Mountain & perhaps as you have travelled over the other part in the Marlborough Province you could add it & call the section Hochstetter - Hector across the northern parts of the Nelson & Marlborough Province.

I am at work at the Nelson Map & hope to be able to send it soon. I have numbered the sections as they will follow in my Essay.

Enclosed follows a sheet with No. 3 & 4 Sections of Malvern Hills. Although my Essay will not enter much in detail, I have thought it well, to give some sections, which show some details of the structure of the Country. They are from a set of 4 sections for the exhibition.

In the sketchmap are many more details than you want, but as I had finished it for the exhibition I thought that it would be desirable to have it copied, instead of preparing another altogether. The larger (4 miles to an inch) map is not yet finished & I shall not find the time

⁷³ Thomas Cass (1817-1895), Chief Surveyor in the Province of Canterbury.

to do so for the exhibition, for which I am very sorry. I suppose I shall have a run down in the course of January to have a look at the exhibition & I shall bring with me the Waipara fossils & sections, as I intend to go there as soon the Essay & some little work in Timaru is finished. As I see from the Surveys at our west coast there is also a line of Lakes still existing, showing without doubt the former greater glaciations.

Hooker sends me with last mail his photograph; you were right to tell me that he was no beauty, there is something in his whole head, which is striking & you would say at once, that it is the photograph of a man of eminence.

I send you a piece of my report which was partly printed in the newspapers (I sent you a copy) to show you the analysis of our rocks, they were the last proofsheets of the printer. I expect now every day the new report, with the plates from the binder, the fellow keeps me from one day to the other.

Do you want some more information on the Canterbury map, I shall be most happy to supply it, but I do not see how first, we can fill up the Kaikoras country, I shall not[e] in the Nelson map, all the names of the specimens of rock I met with in the bed of the Awatere which comes from the Kaikoras, but I think it would almost be better to leave blanks than to state things, which in very short time will have to be revoked.

Section 5 & 6 show the general character of the Coalfields of the Grey & Buller, in the Buller Section I have made use of the information I obtained of Mr Burnett, although the general character etc. was described correctly in my Nelson report & the sections I made were born out by the more detailed examination through Burnett. I begin to feel rather seedy, because for the last three months I have not had a moment's rest, grinding away day & night without a geological trip for relaxation. How I shall enjoy it to be off for the hills!

Do write soon, believe me my dear Hector
I am very sincerely
J. Haast

By the bye, The Section No. 6. by a mistake the river Grey is too broad, AI ought to be where A is, please to have the river narrowed to A.

54: Haast to Hector, 4-12-1864

Te Papa MU000198/001/0031

Monday
4 Decb 64

Dear Hector!

Only a few words with this 2 sections, namely that the Nelson Map is in preparation & will go in a few days.

I am just occupied at getting the specimens packed six glass cases. I hope you will soon write.

You will see that I have made some changes. The general section no. 1. I found by another examination that the Mount Cook beds belonging to my Azoic strata, which in consequence please to correct in the map. There is also a similar zone West of Lake Tekapo which in the map I coloured as Tentaculite beds.

Please write soon
Yours in haste
J Haast

Dr J Hector FGS
Dunedin.

55: Hector to Haast, 5-12-1864

ATL MS-Papers-0037-078

Geol. Surv. Office, Dunedin
5th December 1864

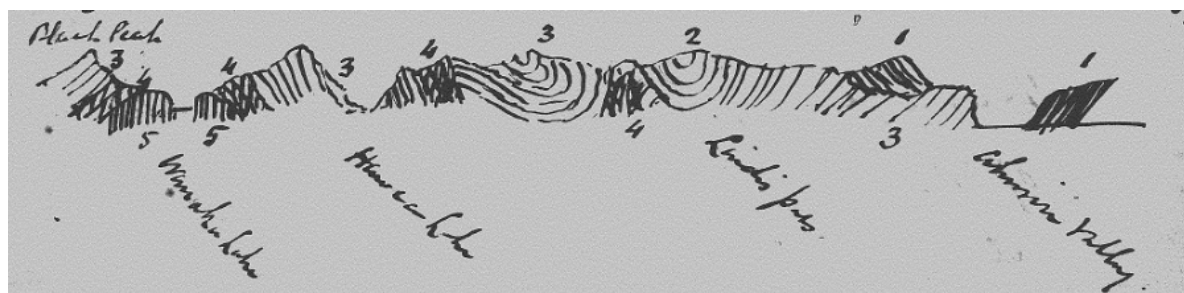
My dear Haast,

I have just received your letters of 27th & 30th Novr. with their welcome enclosures. I have already put your map in hands to be mounted & traced in such a way that I can reduce it to the colours & arrangement used in the other parts of the general map. I find on glancing over your map that this will be a somewhat difficult task as you have introduced so many more subdivisions of the Pleistocene & Volcanic Formations than I intended or indeed will be possible on the small scale map. I enclose you sketch of how the map is to be arranged. Its size is 3ft 6in x 2ft 4in & this will be a sufficient scale to permit of showing all the main geological features of the country. When so much is imperfectly known it is better than a large scale.

I wish you could fill up your Province as for the purpose of illustrating the general & theoretical Geology of the country is hardly worth while having the few blanks that there are now remaining. With your knowledge of your Mts. you could not be far out I am sure & it would not in the least commit you. Blanks on a small map will only tend I fear to confuse

ordinary readers. I shall enclose you a tracing of your part of the map on the scale it is to be published & you can try your hand at filling it up. If you return it at once it will be in time as the Draughtsman has a great deal of lettering to do & also some of the sections.

I have now done all the sections for the map (including the one you suggested) in Nelson which I am glad you have recommended as I was doing it in anticipation of advice from you). The Canterbury Section is the only one not touched. I was going to take it from your sect. as given in Hochstetter, but if I had your promised sect. No. 1 it would probably give better information. I have already filled in the Nelson Geology from the map given in Hochstetters Atlas. That has just the right amount of detail for our purpose. I would strongly recommend you to keep out all details of the Drift formations & if you wish it for the purpose of illustrating any particular part of your essay I would rather make it the subject of a special small scale map like that given by Mantell of the Glacier phenomena of the Alps. I enclose you a copy of your synopsis --- on which I have marked how I shall, with your permission, have to bracket your colours to render the divisions uniform with the rest of the map. I think I sent you a copy of the synopsis previously. I dont observe the discrepancy you allude to in our Geology of the Wanaka Lake District. You have not coloured so far South as to meet my work except with regard to the Drifts, but it struck me that there is a wonderful coincidence in the trend of the Boundaries.



1. Dioritic Shales. 2. Blue Slates. 3. Silicious Slates & Grey Argillaceous Schist. 4. Mica & Clay Slates. 5. Contorted Chloritic & Quartziferous Schist.

4 & 5 are the Auriferous Rocks.

This I think is not far from the section between Lindis & Wanaka Lakes. I take it just as it stands in my note book. There is a marked difference in the strike of the rocks No. 4 & 5 however which can be shown in the section of course.

I suppose you have no objection to my having your coal field sections considerably reduced for publication. I will take care that they clearly express all the details you give.

I note what you say about the sketches & shall probably adopt the Mt. Cook view if I find the Lithographer will undertake to make a respectable job of it.

I know nothing of the Literary Society of Dunedin. Like you I have only received a circular.

You must surely make some mistake about the Mt. Brewster plants. The error Hooker has made is in taking Mt. Brewster for one of my localities – not in having mistaken from where he received the plants. The mistake occurs in four instances.

Celmisia hectori
Celmisia sessiliflora
Raoulia grandiflora
*Haastia sinclaria*⁷⁴

Of the first two of these, besides the plants, Buchanan sent water colour drawings from fresh specimens - & all were sent with nos. attached for which we got corresponding names. I suppose your Mt. Brewster mainly corresponds with our Mt. Alta, only we climbed the range from opposite sides.

I first got the two *Celmisias* (as above in flower together on the top of the Pigeon Hills within 12 miles of Jackson Bay.⁷⁵

In the tracing I send I shall include the Kaikoras as I am really anxious to include them if possible, if you will only fill them up. In the description of the map it is easy to indicate what degree of reliance may be placed on the Geology represented on the different parts of the map.

That is a mere introductory section you gave from Rakaia to Waimakariri. I dont quite understand what age you impute the great hills of volcanic rocks to. Dont you introduce a terrible variety of Quartzose trachytes. Do you mean to indicate a series of successive Volcanic formations each as is usual coming with tufaceous & siliceous elements & closing with doleritic out bursts?

If you refer to the synopsis I sent you will see that I had only anticipated describing the N.Z. Igneous rocks for the mean time into

Siliceous Porphyries (Granite Syenite &c.)
Basic Porphyries (Diorites, Hyperites, D----- &c.)
Felstone Porphyries (Including your Ryolites?)
(Diorite & the Serpentine comes in associated with them)
Older Volcanic (principally submarine Tuff craters (Dolerites & Tuffa rocks) Banks Peninsula)
Recent Volcanic (Your Quail Island? & N. Island)

I write in haste & cannot go into reasons fully, but I think this will be quite a sufficient variety of colour to introduce for our Igneous rocks in the map.

Many thanks to Mrs. Haast for the beautiful photo. of the Little Stonebreaker, I am delighted to see that they are both looking so well.

With kind regards
Ever Yours Sincerely
James Hector.

I have just received a splendid essay on N.Z. Birds [from] Buller. Thanks to you for your kind interest in the matter.

⁷⁴ *Haastia sinclarii*.

⁷⁵ No closing bracket in manuscript letter.

56: Haast to Hector, 10-12-1864

Te Papa MU198/001/0014

Saturday 10 Decb [1864]⁷⁶

My dear Hector!

I write in a great hurry because the mail closes in about an hour & Holmes is already gone over to Port to ship all our good. If you feel as I do, you feel seedy indeed, because for this last three months I have been at it big licks & Heaven knows, when all will be finished.

I have given Holmes a copy of my Report on the formation of the Canterbury plains for your perusal & thank you once more for the important assistance you have given me. Here follows the Nelson map, done in a hurry, but with a great many improvements, as I have added the information obtained by Mr Rochfort⁷⁷ & Burnett.

I just receive your welcome letter of 5th of December, which I can not answer with this mail in toto, but shall try to do my best in giving you at least the desired information on those points which you wish me.

I hope that my Nelson Map, does not come too late, as it will be of great importance to have that part of the Map more fully filled than in Hochstetter's map.

On the Sketchmap of the Geol. of NZ, would it not be more correct to say:

Nelson: Hochstetter, Haast, Burnett, Rochfort
Canterbury: Haast
Otago etc.

I think this would be more clear, as Hochstetter & Burnett have nothing whatsoever done in Canterbury.
Why do you not say:

Marlborough: Hector, Haast.

There are some names in the Nelson map but as it is a tracing of Stanford⁷⁸'s new Nelson Map it will be very easy to get it in order.

I fully agree with you concerning the arrangement of my Canterbury Map, the colours were not put after your wishes, because your table of colours came when the map was already finished. I shall try to fill up the Westcoast of this Province, but I can not do so for Ma[r]lborough, because I know nothing whatsoever about it. All the information I wrote in the map. The Awatere Boulders show that there is a large crystalline or if you like better trappean zone some where about Fayette[?] with volcanic rocks, where to place it, I have not the courage, although a Gentleman who once ascended nearly to the summit of the highest inland Kaikoras assured me, that the rocks were a grey granitic rock, probably lignite or

⁷⁶ The year in brackets is pencilled in on the manuscript letter.

⁷⁷ John Rochfort (1832-1893), explorer and surveyor in Nelson.

⁷⁸ Edward Stanford (1827-1904), London map publisher; *Stanford's Atlas of New Zealand: The Provinces of Nelson and Marlborough with the adjacent parts of Wellington and Canterbury*, was published in 1864.

diorite. Travellers for Nelson to Canterbury over land told me repeatedly, that the principal rocks were sandstones slates & greenish rocks, which they brought me from the upper Wairau & Jollies pass, both were fine grained diabase and diabase slate & ashes.

Do not trouble your head about Mt Brewster & its plants. My Mt Brewster lies near my pass to the Westcoast on the Eastern side.

It caught my eye as I was looking for the *Cilmisia Hectori*, of which Hooker had not sent me a name. I hope you did not take my joke.

It is a great pity, that the N.Z. Flora did not arrive sooner, as I would not have given in the frames wrong names. But I followed Hooker's list & since then he has made great changes. All my collections are now gone.

Monday morning I shall begin with the section of the Tunnel which I hope will be finished end of the week & then I shall end the Essay, so that you will have every thing before the end of the year.

Toward middle of January I shall come over to Dunedin for a few days to have a look at your doings.

The mail is closing; with next mail I shall write more fully.
Yours ever sincerely
Julius Haast

57: Hector to Haast, [10-12-1864]
ATL MS-Papers-0037-078

[Dunedin]
[10th December 1864]⁷⁹

In clearing out some office sh---- I have just stumbled on a bundle of unopened letters which had been received during my absence in the South & were overlooked!! Among them is one from you of date Augt. 24th, which you must have wondered at my never replying to. The only thing that might[?] answer at this late date is the request that I will subscribe to a bust of the Haidinger which I am proud to have an opportunity of complying with & therefore enclose cheque plus exchange for £2. which I hope will not be too late.

[No signature]

⁷⁹ This fragment is undated. Haast replies to Hector's donation in his letter of 21-12-1864, and dates this note as 10-12-1864.

58: Hector to Haast, 15-12-1864

ATL MS-Papers-0037-078

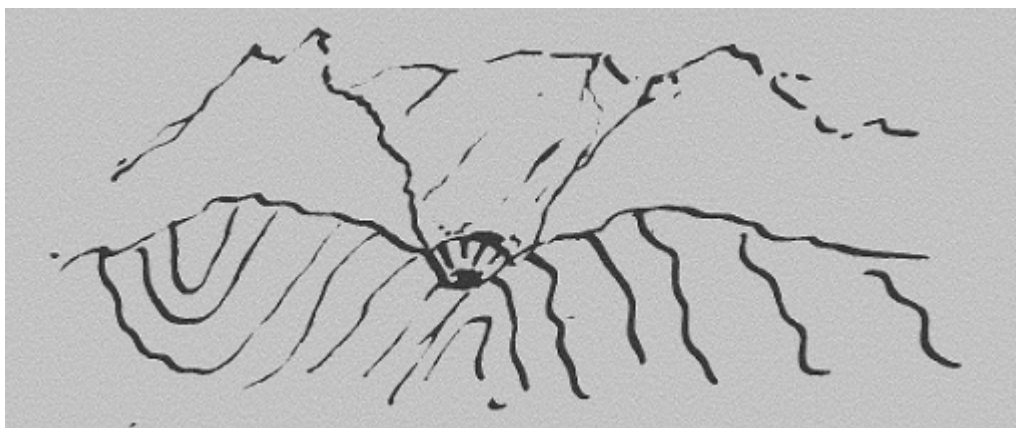
[Dunedin?]
15th December 1864

My dear Haast,

Thanks for the Nelson map & also for the copy of your Report on the Plains which I have just recd. from Holmes but not yet read. I trust Holmes is satisfied with the Canterbury "space". We have a great deal to do yet so you will excuse my writing at length I will only say shortly I have stopped the map for the present till I receive the tracing back from you.

On the proposed scale the differences between your old Nelson map & the new one will hardly be worth observing.

I have modified your section through Mt. Cook & thence all the Mts. above the snow line into the distance so as to make it a combined panoramic view – sect.



like this. It looks very well & I have done all the other sections in the same style where I could get the outlines. I am going to fill up the odd corners with a few of the characteristic fossils. I wish I had figures of your Carbonaceous shells.

I hope you will come down in Janry. but I dont advise you to come till near the end of the month.

Ever my dear Haast
Yours Sincerely
James Hector.

59: Haast to Hector, 21-12-1864

Te Papa MU000198/001/0031

Christchurch
Decb 21 1864

My dear Hector!

I received your two letters of the 10 & 15 Decb with the tracing & the £2 for Haidinger for which I offer my best thanks. I shall write with next mail & change the sum of your subscription from £1 to £2. Namely as I did not receive any answer from you, I thought you had it overlooked, but wishing that your name should not be omitted, I sent £1 for you, having received the same sum from Crawford. I would probably, coming down to Dunedin, make you pay with champagne for that Pound; but then the matter is settled still in a more satisfactory way & I am glad that in such a way all the Geologists of N.Z. have taken part in that nice Vienna Proceeding.

I think too the exhibition will be a success, but after what Holmes (whom I recommend particularly to you, he is really a very nice gentlemanly fellow and a great friend of mine) tells me, there is still much to be done before the exhibition can be opened. You will be astonished to see me sit down to write you a long letter, instead of going on with my essay, but I am just back from the Tunnel & I am too tired to do something else. If I had known what a long winded affair this Tunnel survey would be I would have never begun it so late, but as I have about half done, I shall go on with it. There will be about 150 specimens & two sections each 15 feet long, but it is a very interesting work. I passed from 4 o'clock last Saturday night till Monday morning in the Heathcote side & shall be in it at the Lyttelton side from Saturday morning Christmas eve till the next Monday morning; I am obliged to do so, because the work during the week day near the breakup is impossible from the Powder smoke. I do it as careful as possible & shall plot it 20 feet to the inch. Everywhere I get fresh blocks, I have already now 1500 weight in rough blocks. I am sure you will be interested in it. But with all this my essay goes on very slowly. Please tell me by return, how long is yours or Crawford's in print? I have already written an introduction about 20 pages in print and intend to write 30 more or shall I knock the introduction at the head. Shall I send the pieces, I mean to say if I have about half? What is the last day for the essay? If you want it particularly at once, write and I shall cease with the Tunnel & finish first the Essay. I hope you have changed in the sketch map the Authorities in adding as I wished it Canterbury, Haast. – because it would be unfair to all parties concerned. According to your wish I have prepared some very ideal work, but I wish that it is distinctly stated, that only in order to avoid the blanks, I have undertaken to fill them up in such a way. I have written some notes on an extra sheet for your guidance. The only rocks which I have for guidance were the specimens collected in the lower course of the R. Awatere from the Kaikoras; some specimens brought from overland Nelson to Canterbury some specimens collected at the Westcoast by Messrs. Rochfort & MacKay.⁸⁰

Concerning VIII. I have to observe that according to the information obtained from Mr A. Dobson⁸¹, great quantities of old moraines occur at the Westcoast forming many headlands without doubt former terminal moraines.

⁸⁰ James Mackay (1831-1912), farmer, explorer and politician in Nelson.

⁸¹ Arthur Dudley Dobson (1841-1939), New Zealand engineer, surveyor, geologist and explorer.

I send you also a tracing with all the right names of our Westcoast so that you may add it. Holmes tells me that you begin your work for the General Government in March, I rejoice to hear it, although if I may say so our positions & relations to each other will sometimes be rather anomalous ones. I think with the friendship and our wish to advance our Science & to do good to the country we shall avoid going to fight, the more so as there is plenty of room for us both.

I had a letter of Sir Rod. Murchison about the paper I sent him, I had said not to hurt the feelings of the old man that if he did not agree with me not to lay it before the geol. Society before he had communicated with me. Concerning Finland I fully agree with him, the more so, as it shows what an enormous power glaciers must have the necessary lapse of time allowed, if icebergs can produce such enormous changes, as those observed in Finland etc. I must confess I was highly gratified with that letter and it shows that there is in him the feeling of justice & gentlemanly tact. I am curious to hear what Ramsay etc. will say about it.

24 Decb 1864

I am delighted to receive last night your note of 20 Decb & delighted that you like the things I sent.⁸² Since then I have been busy day & night with the Tunnel, which is really a most interesting while also hard work, I hope to get the sections & specimens ready in time for the opening of the exhibition. You can look over all the fossils & take any thing you like for the illustration of the essay. With next mail I hope I shall be able to send the Catalogues to Holmes, so that you may see what has already been named. It will be too long to go into the question of the Malvern hill Trachytes, the section presents what I have actually seen; there is every moment a change. Was it not a pity that I received Hooker's handbook too late to use it for the Frames, but I intend coming down to Dunedin to change them at least by applying a correction sheet to each from when it is necessary. What are the two other essays you are going to write?

I am delighted that I have more time for the essay, because I intend to do my best. I shall try to come down end of January from Timaru over land.

There are some very interesting rocks in the Tunnel, I am certain you will be very much interested in them. But I must say good bye. I write to Holmes; who as usual takes his business well to hand.

With kind regards from Mrs Haast ever yours very sincerely
Julius Haast.

⁸² We have been unable to locate a copy of this letter.

60: Hector to Haast, 26-1-1865

ATL MS-Papers-0037-079

[Dunedin?]
26/1/65

My dear Haast,

I am glad to learn through Holmes that you intend to come down by next mail. You must remember you promise to be my guest & if you bring Mrs. Haast & if she does not object to being in a batchelor's house we shall be most happy to try our best to make her comfortable also. At all counts I must insist on you putting up with the quarters I can offer you if you come alone.

I have been very busy & have had to let the Essays stand still for some time. Its just as well as if the work had been in the printers' hands the other night the whole map &c. would have been destroyed in the fire. As it is I have lost all the illustrations that were on the stone. By good luck also the map was not in their hands.

I enclose p. Bk post a pamphlet just received[?] from Ramsay for you. Hoping to see you soon I remain my dear Haast

Ever Yours Sincerely
James Hector

Dr. Haast
Ch. Church.

61: Haast to Hector, 21-2-1865

Te Papa MU000198/001/0031

Glückauf
21 Febr. 1865

My dear Hector,

My first duty in arriving home is to write to you & to thank you & friend Foreman⁸³ once more for your kind hospitality. It is needless to say that I enjoyed thoroughly my trip to Dunedin, & thanks to you, to the Goldfields, which was not a little instructive to me. I am glad to say, I found in returning my little wife and baby in excellent health the trip to Pigeon Bay having done them a great deal of good & shall now settle down to write the essay & some other minor things for our Government before I shall start towards the far wet Westcoast.

⁸³ Robert Henry Foreman, R.M., was a resident magistrate in Otago.

Mrs Haast requests me to tell you that she is very thankful to you of having doctored me so well and also that she has been highly delighted with the lace shawl, Mrs Cargill⁸⁴ was kind enough to select for her at my request, which is proof of Mrs Cargill's excellent taste. I have finished the examination of Timaru, concerning the water supply & shall write a report upon it at once. By the bye, do not forget to send me the photographs of your sketches of West coast journey, please to write on the back the localities; plants I hope to receive the specimens I wished for, & shall give you in return from our duplicates, what you do not possess – receipt of preserving birds skins viz. manner.

The synopsis of NZ. formations will reach you soon, as I am already at work to put it together.

Our secretary of public works Mr J Hall⁸⁵ is starting for the exhibition, end of this week, you will oblige me to show him some little attention perhaps in making his Cicerone for a few hours in the building.

I am unable to say if "the patient is still standing", but shall enquire as soon as possible.

Believe me my dear Hector
ever very sincerely yours
Julius Haast.

My kindest regards to friend Foreman.

62: Haast to Hector, 26-2-1865

Te Papa MU000198/001/0031

Christchurch
Feb 26 1865

My dear Hector,

I wrote last week & received yesterday your letter of the 22 with the photographs for which my very best thanks are due to you.⁸⁶ They are very characteristic & give a very faithful idea of the country. I have just finished my report on the Timaru question & shall begin with the Synopsis, which will contain all Hochstetter & my own work. It will perhaps be best, instead of printing it separately to put it as you intended together with yours under our joint 3 Hs.

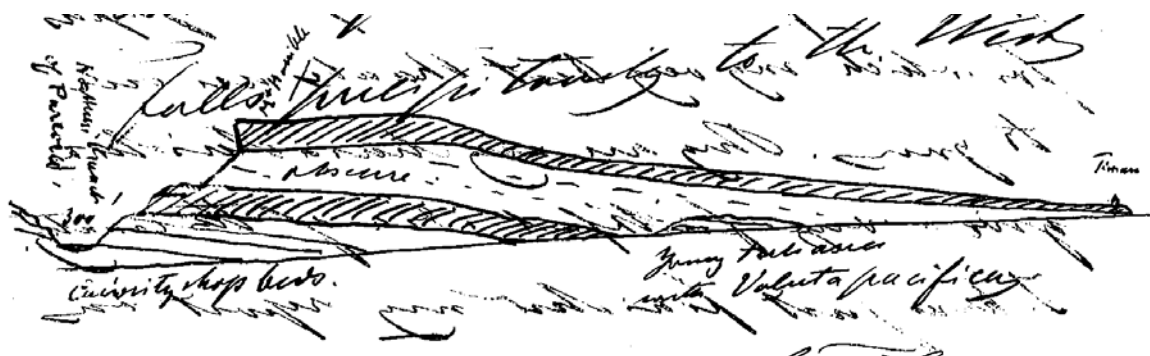
My best compliments to friend Foreman, whom I hope to see in Christchurch before I shall leave for the far west. Can you not send me a copy of the Catalogue with the appendix?!

⁸⁴ Mary Ann Cargill (c. 1790-1871), widow of William Cargill (1784-1860), first Superintendent of Otago Province.

⁸⁵ Sir John Hall (1824-1907), Canterbury politician and 12th Prime Minister of New Zealand.

⁸⁶ We have been unable to locate a copy of this letter.

Timaru lies on a Dolerite plateau, which you can follow for 10 miles to the summit of Mt Horrible 1150 feet which falls precipitously to the West.



I got some magnificent fossils so perfect that the colour is quite clear.

The fossils in our showcases from the Pareora, the large *Turitella* & *Cucullaea* are young tertiary, you will see in the Synopsis.

Bye the by when you see Mr & Mrs Alderson & Mr & Mrs Douglas will you excuse my apparent rudeness that I did not say good bye to them by card or personally, but you know I had every cause to be in a hurry.

Please to remember me kindly to them.
And now goodbye my dear Hector, with kind regards from my wife ever
Yours very sincerely
Julius Haast

Dr Hector
Dunedin.

63: Haast to Hector, 6-3-1865
Te Papa MU000198/001/0031

March 6 1865
Glückauf

My dear Hector!

O dear! this was my exclamation when I sat down, because I have a tremendous boil just in that locality.

But in spite of that boil, the Synopsis has to go. Do not get frightened when you see the bulky affair, but I thought in justice to us all, that the synopsis ought to contain the work of us three. I have followed closely Hochstetter's Synopsis in his work, have avidly corrected & I think if it goes now through your hands & you correct & add again the rest, it will present to the world an exact account of our present knowledge. There are some things in the III which I do not exactly like but it could not be changed & as you have seen a great deal of the Northern Island & moreover having a great collection of fossils from there, it will be an easy task for you to correct some few mistakes. I think it will be the best to add your name to it &

then afterwards to say, that to Hochstetter is due the credit of first having prepared a general synopsis.

You see I send you not to loose any time, the original draft without any copy, because we should loose so much more time. I am now beginning with the essay & hope that as I have all my notes together, that I can send it in about a fortnight & then be off to the Westcoast. I received your letter of the 28 of Febr. & am glad to hear that you have sent the plants, for which my best thanks in return I shall give you from our duplicates all you want to complete your own collections.⁸⁷

I hope to be able to start for the West coast end of this month & shall write to you about it. I think, that it will be overdone & many people will return dissatisfied & disgusted, although there seems to be a great deal of gold.

I wish we could make the trip together! But I suppose before you have done with the exhibition & made your preparations with the general assembly the time will be over, when I shall stay at the Westcoast or as my former travelling companions called it the Wet coast.

Mr Hall is not yet gone to Dunedin, our Prov. Secretary going to the West coast himself, this former Gentleman has to stay here & take charge of both departments.

My kindest regards to friend Foreman & I hope to see him here before I shall go to the Westcoast.

Mrs Haast sends her kindest regards to you.
Believe me my dear Hector yours very sincerely
Julius Haast.

Please to give this Synopsis to friend Gillies⁸⁸ to read as he is so fond of looking through the Essays, but he will be sho[c]ked at my bad English & will find it very dry.

64: Haast to Hector, [3-1865]

Te Papa MU000147/001/0514

Sunday
[March 1865]

Dear Hector!

The essay goes on first rate & will be finished this week I hope. Received the Synopsis all safe? Inclosed a letter for my countryman Mr Frank, will you have the kindness to send it to him. I do not know his adress. I requested him to get some German books for Mrs Haast, as I heard lately that they are to be had in Dunedin. My best wishes for friend Foreman. With kind regards of Mrs Haast

my dear Hector
ever yours very sincerely
Julius Haast.

⁸⁷ We have been unable to locate a copy of this letter.

⁸⁸ Thomas Bannatyne Gillies (1828-1889), farmer, lawyer, politician, judge and naturalist.

65: Haast to Hector, 7-4-1865

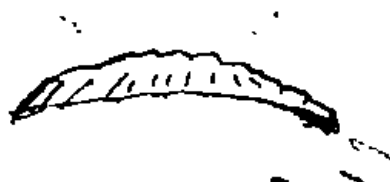
Te Papa MU000198/001/0031

Lake Sumner
7 April 1865

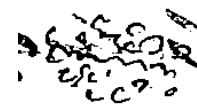
My dear Hector!

I will not cross the central chain without sending you a few lines, at the same time inclosing an Appendix about the Waipara beds. Please to put it in good English and add it to my essay. It is not necessary to tell you, how interested I was. The Waipara beds are the most complete section of our III, seen anywhere by me, as you can follow all changes from the Pleistocene Alluvium to the Brown coal series without leaving the bed of that river.

I got in my hasty visit a few bones fragmentary, but lots of biconcave, convex disks, from an inch to 3 & 4 inches across, we found a few in the Curiosity shop beds.



The concave side smooth, the convex side all over covered with wart like small hillocks. There are thousands & thousands sticking out of the rock. As soon as I come back from my journey next spring I shall at once go back and get some more details & another selection.



What do you think those disks are? They do not belong, I think to fishes, but what are they; I have got a good many, & should you come to Christchurch ask Mr Holmes to open the box which came from Leithfield, they are in there.

Are you coming to the Westcoast & when, please to write me about it to the Hokitika Westcoast Canterbury; & shall make a point to plant you some provisions.

I am in a great hurry, being off in half an hour.

Till here diorites sandstones carbonated shales & Kieselschiefer with diabasic ashes & here & there Amygdaloids. Our Mt Torlesse series. The Hurunui & the Lakes are another beautiful illustration of my glacier theory.

Kind regards to friend Foreman.
Goodbye Dear Hector
ever yours very sincerely
Julius Haast.

What is your new title?!

66: Haast to Hector, 21-7-1865

Te Papa MU000198/001/0031

ChChurch
July 21 1865

My dear Hector!

Safely returned from the Westcoast, made a glorious journey, but was sorry not to have heard from you. Holmes gave me often of your news & told me, that you were extremely busy. I have to thank you for having taken my part in that eventful exploration of a road via Lake Wanaka to the Westcoast, but I suppose we both can not change the world.

I have just written for the bag with the specimens from the Waipara but hope to see you here for a few days before you go to Wellington. Come at once to my house, you will find your room ready and Mrs Haast will be delighted to see you as well as her husband.

I heard just from Vienna that you have been elected a corresp. member of the Imp. Geol. State Institute of Austria; the diploma is in a book case of mine & you have therefore to have patience till it arrives. Holmes told me, that you considered my Essay rather long, but why did you not cut it down? Can you not send me a copy (proof sheets) I should like very much to see, how it looks in print. I saw Mantell in Wellington & heard with great pleasure, that you are going to stay with him he told me that your rooms with the exception of a *pot de chambre* were still unfurnished. This at least is one great comfort for you. They are building already at your Museum. Do not forget to take the 3 Volumes of Hochstetter with you to Wellington to show them to the members of the General Assembly. Mr Weld⁸⁹ promised me a vote for Hochstetter's translation.

Excuse my haste but I have so many more things to do & hope to talk to you soon here for a few days.

My kindest regards to our mutual friends in Dunedin, friend Foreman not to be forgotten.

Mrs Haast wishes to be kindly remembered to you.

Yours very sincerely

Julius Haast.

I went as far down as the Waiau & and went up to Mt Cook.

I do not give you any geological details but leave it till you come here, should you not be able to stay a few days with us then I shall write more fully.

Mr Holmes sends his kind regards.

⁸⁹ Sir Frederick Aloysius Weld (1823-1891), politician and 6th Premier of New Zealand politician.

67: Haast to Hector, 2-8-1865

Te Papa MU000147/002/0060

Christchurch
Aug 2 1865

Dear Hector!

I wrote a few days ago & shall leave again in a few days for the Rakaia pass, to make some altitude & other observations, but shall be back towards the 22 of this month. I tell you, hoping that you will not pass sooner. By the bye, I hope the comission will send some copies to all the literary & scientific Societies all over Europe to make NZ. more known. Shall I send you a list, of people, who deserve a copy? Or can I have some copies gratis? We ought as contributors of the essays get at least some.

You will perhaps have seen in the *Canterbury Standard* a scandalous letter in which I am attacked, amongst other things I am accused to have robbed Doyne of his theory on the formation of the Canterbury plains; which is of course ridiculous. This letter like many others has been written by that unprincipled individual Travers, who since we did not invite him, has become my bitterest enemy & as he is unprincipled he does not fear to tell the most infamous lies. I have not of course answered his anonymous letters, but my friends think, that the latter letter has been written by him to be sent to Europe to harry me there. I had once a great mind to bring an action against him for libel, but on further consideration I have thought it best to take no notice of it. Would you not act the same?! In a few days I shall send you my paper on the Westcoast Gold fields. I have received the journal of the Geol. Society by last mail; your paper is capital; short & exhaustive; & well digested. I wish I could manage it to say so much in such a short space. When shall I see your essay. Can't you send me the proofsheets? I should be delighted to see it.

I am in great hurry; so my dear Hector believe me yours very sincerely
Julius Haast

Mrs Haast wishes to be kindly remembered.

68: Haast to Hector, 15-8-1865

Te Papa MU000198/001/0031

Christchurch
15 Aug 1865

My dear Hector,

It is all very well to chaff me inside of a letter but not outside. I suppose you thought, it was a good fun and I had once great mind to fill a whole sheet with your titles, but I shall be generous, under the condition that you will never again be guilty to call me anything else except Julius Haast. But joking apart please do not change my adress. I am very sorry you lost the package & I have at once sent a new one by this mail; there are 2 Reports for you & 5 others for the Governor. I wish you would look through the Westcoast Reports and tell me

what you think about it. In the case the Governor's parcel should have come to hand, keep the 4 Reports back & give him only the one concerning the Westcoast goldfields which was not in the first parcel.

Will you tell Mr Mantell & Crawford with my kind regards that I am very sorry that I can not send them any at present; they printed so few ones, that I have none left. I hope you will write soon again.

Mrs Haast sends her kindest regards. I am in a great hurry so must say Goodbye.
Yours very sincerely
Julius Haast.

Dr Hector etc.
Wellington.

69: Haast to Hector, 16-8-1865

Te Papa MU000198/001/0031

ChChurch
Aug 16 1865

My dear Hector,

I wrote you yesterday sending you some reports for you & the Governor & received last night your letter of the 14th.⁹⁰

As soon as I have a moment's time I shall send you a list of Continental Societies & the principal leading men in our branch who I think deserve to get a copy of the Reports & Essays.

To day I write you to assist me a little bit in a difficulty. We exhibited in Dunedin some specimens of rocks from Banks Peninsula Thomson's Quarry Porous Trachyte of which our Analysis is in my Progress Report of 1864 page 29, which in case it would not be at hand I copy for you.

Silica	62.80
Alumina	20.62
Protoxyde of Iron	2.00
Lime	7.54
Magnesia	0.87
Water	5.66
	99.49

Ch^{vr} Charles de Hauer.⁹¹

It is a somewhat scaly bluish rock, on the summit of the bridle path, a⁹²

⁹⁰ We have been unable to locate a copy of this letter.

⁹¹ Karl von Hauer (1819-1880), head of the chemical laboratory at the Austrian Imperial Geological Survey.

⁹² Sentence comes to an abrupt end due to loss of text as a result of damage to corner of manuscript letter.

This rock has been selected in England for the pedestal of Godley monument⁹³ & in order to obtain a large block it will be necessary to blast a large piece. Mr Thomson suggested, that it would be good to make a chamber at the end of a deep bore hole, as it has sometimes be done in Limestone by acid, but this rock[?] will not be dissolved or attacked much if at all by ordinary acids, he thinks of fluoric Acid. I suppose he means Hydrofluoric Acid (HF).

What do you think, can you suggest something better? My opinion is that it would be almost better to drive a small gallery & make a chamber at the head of it, then after having placed the powder fill it again & fire it with a battery.

Please answer me at your earliest convenience.

Mrs Haast sends her kindest regards.

Yours very sincerely

Julius Haast.

Dr J Hector.

I suppose it is not now necessary to say in a hurry, because we always are.

70: Haast to Hector, 27-8-1865

Te Papa MU000198/001/0031

Christchurch
27 Aug 1865

My dear Hector,

Many thanks for your letter with the notes about boring, but this was not what I meant.⁹⁴ There is still a better borer now used in Germany to make small chambers namely one with a knee. Mr Thompson told me that latterly in France in Limestone quarries, they had used with great advantage acids for making a chamber; this fact gave him the idea that he could perhaps use also an acid for the trachytic rock of his quarry.

I have not seen the account of forming a large chamber at the end of a borehole, by pouring acids in, but can easily understand it.

So for inst. if fluoric acid would do, what I do not think, a chamber could be formed. Please think the matter over.

I hope you will not publish the geological map without first giving me a chance to put in that part of the country which I have finished since and then another thing; In order to put three names to each Province (I cannot see the reason for it) you have put to the Canterbury Province 2 names to mine, of very worthy young men it is true, but who have not done

⁹³ The Godley Statue is a bronze statue in Cathedral Square, Christchurch, portraying John Robert Godley (1814-1861), an Irish statesman who is commemorated as the 'founder of Canterbury'.

⁹⁴ We have been unable to locate a copy of this letter.

anything at all. Why not put Mr Mantell's & your names! Mr Mantell was the first who gave geological notes on this Province and you have surveyed at least that part in the South West when you crossed to the Westcoast. This would be more correct and more satisfactory to me, besides it would be rather painful to men to see their names on a geol. map without even knowing the rudiments of that science. For Nelson it is quite right to note Mr Burnett's name, who although he not a geologist has done his best to examine the country as a mining surveyor. Please think this matter over and tell me what you have decided.

I am off in a few days for the Rakaia pass & shall not be long. I hope the weather will be favourable.

Mrs Haast sends her kind regards to you and if you see Miss Bathgate⁹⁵ to tell her not to forget her promise if she comes to ChCh to come and stay with us.

By the way Mrs Dobson⁹⁶ was in great perplexity the other day when she saw you at Sumner, as to whether she ought to congratulate you or not on your marriage, until Mrs Haast introduced the young Lady as Miss. You see it is a dangerous thing to travel with young ladies.

I have written about you to Vienna and hope (or better stated am certain) that you will be elected next March at the Imp. Germ etc. Nat. cur. I hope you have no objection.

Tell me before hand before you come, so that I shall be in town and when you want the specimens for the Colonial Museum, but I hope you have dupl. of III fossils & other things, recent shells etc.

I must cut short.

Hoping to hear again from you very soon believe me yours very sincerely
Julius Haast.

In case you have a good man to be employed for excavating Moa bones in Otago, I am quite willing to pay half the expenses of course sharing alike what he gets.

I want a lot for Agassiz⁹⁷ & some other scientific friends in Europe.

71: Haast to Hector, 26-9-1865

Te Papa MU000198/001/0031

Christchurch
26 Sept. 1865

My dear Hector,

I have just received your letter of the 25th & send you by this mail 2 Reports of mine with some Sections.⁹⁸ This is all what has been printed here. But should you like copies of

⁹⁵ Miss Bathgate (sic), most likely one of the daughters of John Bathgate (1809-1886) of Dunedin.

⁹⁶ Haast's mother-in-law, Mary Ann Dobson, nee Lough (1821-1913), the wife of Canterbury Provincial Engineer Edward Dobson (c. 1816/1817-1908).

⁹⁷ Jean Louis Rodolphe Agassiz (1807-1873), Swiss palaeontologist, glaciologist, and geologist.

the Sections which were in the Exhibition, I think I can have them copied for very little money, if you can spend it. I am glad that you are advancing very much & wish I could say the same. All my things are packed in boxes & although I hope that we shall have soon a Museum built, I fear it will take some time, before I can say the same.

Fuller⁹⁹ is going on very nicely, we have nearly 60 birds ready & the whole begins to show up. I had a letter of Dr Eccles¹⁰⁰ & answered it, before your letter arrived. He told me that the essays are in hand. I told him that I am starting next Monday but hope to be back before end of October. I shall go by the Otira (Waimakariri) & come back by the Hokitika & Rakaia, so that I shall have two sections more across the Island. I intend to draw 3 or 4 sections across the Island on one large sheet.

To return to Eccles I told him that I wished to correct the proofsheets myself at my return; if he could not manage it, to let the printer wait to make a note, that I would not correct the proofsheets myself & I suggested some change in the title.

I shall be glad to receive the new synopsis. By printing one colour over the other, Ward & Reeves can produce many.

I send you inclosed a list of Scientific bodies on the Continent which I think should be very thankful to receive a copy of the Essays.

There must be now much fun going on in Wellington, but I suppose all will end in perfect harmony. Mrs Haast I am sorry to say is not at all well; we have been obliged to send her to Sumner for a thorough change of air, as the Dr thought, there would otherwise be danger as he believes her left lung is somewhat affected, but he adding that if properly cared for, there was no immediate danger. You may imagine that I feel very distressed, but hope the best. I intend to leave her 2 to 3 months in Sumner at the seashore, where I took some lodgings, close to her parents. You see that we poor mortals can never have perfect happiness beneath this sun.

Concerning the Synopsis I may say, that I am glad that there is still time to change, as in what I have written some changes have to be introduced, having since seen more of the tertiaries. Concerning the Waipara beds with *Plesiosaurus* we may be pretty safe, as a Gentleman who has a station in the neighbourhood has 2 to 3 inches from the place where the bones in question were collected, collected for me several leading pectens & Waldheimias of our Curiosity Shop beds. The rock is at the same time identical with the beds I examined close to them.

But I have to cease, as it is already very late & I have still other letters to write. I wished you could come & make the journey over the goldfields with me. How jolly it would be. Do write soon again.

Yours very sincerely
Julius Haast.

Dr Hector.

⁹⁸ We have been unable to locate a copy of this letter.

⁹⁹ Frederick Richardson Fuller (c. 1830-1876), taxidermist at Canterbury Museum.

¹⁰⁰ Dr Alfred Eccles, Honorary Secretary of Royal Commissioners of New Zealand Exhibition (Dunedin 1865).

[List attached]

*K. K. Geologische Reichsanstalt Vienna Austria.
*Deutsche Geologische Gesellschaft Berlin Prussia
*Imp. R. Geographical Society Vienna
*Imp. R. Zool. & Botanical Society Vienna
Imp. Academy of Science Vienna
*d^o Munich
*d^o Berlin
Senckenbergische Gesellschaft für Naturwissenschaften Frankfurt a/M
Geographical Society d^o
*Freies Deutsches Hochstift Frankfurt a/M
*Naturforschender Verein für Rheinland & Westphalen Bonn Rhenish Prussia
*Academia caesarea Leopoldina-Carolina Breslau
Imp. Academy of Naturalists Moscow, Russia
Imp. Academy of Science, St. Petersburg
Society geologique de France, Paris
[Society] géographique, Paris
*Royal Society of Victoria Melbourne
Dr Ed Fenzl,¹⁰¹ Director of the Imp. Botanical Gardens Vienna
Dr L. Agassiz Cambridge Massachusetts
Prof. C. F. Naumann,¹⁰² Leipzig, Saxony
*Imp Geogr. Society St. Petersburg
Vicomte B. d'Archiac,¹⁰³ 3 rue Casimir Perier Paris
N. Malte Brun¹⁰⁴ 16 Rue Jacob, Paris
Ch. Maunoir¹⁰⁵ 14 Rue de l'Odeon, Paris
Geographical Society Leipzig
Geol. Society Milano, Italy
Istituto di Scienze d^o, Italy
Geograph. Society Berlin
Dr Aug. Petermann, Gotha
Direction de l'école de Mines, Paris
Léonce Elie de Beaumont, Secrétaire perpétuel de l'Institut de France Paris¹⁰⁶
Mr Joachim Barrande¹⁰⁷ Prag (Bohemia)
Baron Justus Liebig¹⁰⁸ Munich (Bavaria)
Prof. Gust. Bischof¹⁰⁹ Bonn
Prof. Dr Noeggerath¹¹⁰ [Bonn]
Pr. Dr Ferd von Hochstetter Polytechnisches Institut Vienna
Dr von Dechen¹¹¹ Bonn (Rhenish Prussia)
Wilh. Ritter von Haidinger Vienna.

¹⁰¹ Eduard Fenzl (1808-1878), Austrian botanist and director of the Imperial Botanical Gardens in Vienna.

¹⁰² Carl Friedrich Naumann (1797-1873), German geologist and mineralogist.

¹⁰³ Adolphe d'Archiac (1802-1868), French geologist.

¹⁰⁴ Victor Adolphe Malte-Brun (1816-1889), French geographer and cartographer.

¹⁰⁵ Charles Jean Maunoir (1830-1901), Secretary of the Geographical Society of Paris 1867-1896.

¹⁰⁶ Jean-Baptiste Elie de Beaumont (1798-1874), French geologist.

¹⁰⁷ Joachim Barrande (1799-1883), French geologist, palaeontologist and engineer.

¹⁰⁸ Justus von Liebig (1803-1873) German chemist.

¹⁰⁹ Karl Gustav Bischof (1792-1870), geologist and chemist in Bonn.

¹¹⁰ Johann Jacob Nöggerath (1788-1877), German mineralogist and geologist.

¹¹¹ Ernst Heinrich von Dechen (1800-1889), German geologist.

This list is rather long, but you may choose. Those with a cross are Societies of which I am a member or corresp or hon. member. I added also some names of big Continental guns who do me the honour to correspond with me. I think if you have copies enough, that this will do us a great deal of good to make New Zealand known.

72: Haast to Hector, 14-11-1865

Te Papa MU000198/001/0031

Sumner
Novb 14 1865

My dear Hector!

I arrived here some 5 days ago returning from Hokitika by Brownings pass (4600) with any amount of snow on it and am happy to say that I found Mrs Haast, who sends her kind regards to you, much better. I hope and there is every reason to hope that this time she will safely pull through and that the state of her lungs will also improve. I had the pleasure to find here four letters of yours which I shall at once answer,¹¹² so as not to come too far back with my correspondence.

What became of the plans I sent you I do not know, as I am certain, that they went, because I posted them myself, but I shall send you another set. They were cut from my reports. But I shall send another set. You say you have finished your Chem¹ Report! Is this in connection with the exhibition? Your map arrived safely in Christchurch & I shall be very glad to see that nothing will be neglected. Of course I should like to make some few changes at the Westcoast only to indicate more closely the character. And we could leave the rest for as you say another map to be published later. Only I wish that you would change the name in the map & put only those, who really have done something. I think as a rule it would be best to give only the names of professional or scientific men, who have examined into the Geology of New Zealand. Except Mantell at the eastern side, you in the South Western, no body as much I know, has done any thing here in this Province, except give erroneous statements. Therefore I wish you would substitute, or let me do so, yours & Mantell's name. The same can be said in almost every Province.

A propos Museum; I always told the people here to build a cheap wooden building and put something in it. If we have over large collections, then afterwards we can build a larger building. And I am glad to see, that your example has done some good in this respect. I have read in this with amusement Pyke¹¹³'s report and I really wish you would write a few lines, to show, what a set of miserable fellows they are. Pyke's faults are all of omission. Had he in the first instance simply stated, that this pass had been discovered by me, that he followed my track, as indicated clearly in my own report and in the map published here in Christchurch, he would at once have righted himself with the public. But instead of this, what does he do? He gives a paraphrase of my report (read for instance what he says about Backwaters & Altitudes etc) & he tries to throw now & then some casts upon me, for having

¹¹² We have been unable to find copies of these letters.

¹¹³ Vincent Pyke (1827-1894), administrator, politician, journalist and writer.

selected the wrong road etc. He never sees one of my camps, but those of diggers, who followed my track six months after me with my report in their possession. Further he sees some marks in trees, oblongs etc. & concludes that they are at least 8 years old, whilst they were cut by one of my men, Chs Hering¹¹⁴, who amused himself with it. This is very dirty. But his ear is also very good. He say's "The main object of the expedition – namely to find a practicable and easy route to the Westcoast, I consider to have been fully accomplished" – But this was not accomplished by them, but by me & my companions. I must confess, that I have never seen such a barefaced impudence, knowing as he must do, that you & Holmes have written upon the same subject. The report is always so worded, that people in Europe or Australia who do not know, all the ins and outs will be deceived, and think that Pyke is the discoverer. Were not even Christchurch papers deceived?! They really thought this eminent explorer had discovered a new pass! As you are in connexion with the papers, would you do me the favour to write a few lines, showing what I have here advanced, namely the bad faith & scandalism of that man!

I shall soon write again. As soon as I have finished some of my most pressing work for the Council I shall go and have a look at the Waipara.

Yours very sincerely
Julius Haast.

PS. I see in the Geologist of August a letter of yours to Sir Rod. Murchison on Lake Basins. I am very glad of it, because it gives me an opportunity to explain more fully my ideas & I think I am able to offer such proofs, that any unbiassed Geologist will give the whole matter his most earnest consideration. But I shall not find the time to write with this mail & shall keep a copy for you so that you may see what I have to say. The more I see, the more I am convinced that the present configuration of Continents and Islands owes much more to glacier action, than is generally dreamt of. But let me talk business to you!

You will know, that the Govt. has voted £525 for 500 copies of Hochstetter's book, but I am sorry to say, that with last mail I received a letter of Hochstetter, in which he tells me, that owing to the impossibility of finding any purchaser in England or America for 500 more copies (this was Cotta¹¹⁵'s plan), the publisher does not intend to publish the English translation. Hochstetter thinks that it would be an easy matter for him to sell those 500 copies, had already the translation made & he of course is much put out. The translation costs him out of his pocket £40 & in order not to lose altogether the money, he has made up his mind to send it at once to New Zealand to me. He thinks that it is perhaps possible to get it published in New Zealand so that he may receive the £40 for the translation back, which he paid out of his own pocket.

Will you therefore have the kindness to see the Ministry & to ascertain, if a N.Z. publisher will undertake to print the work, if they will take a number of copies from him and pay him the sum voted by the Assembly. I have spoken already here with Ward & Reeves & I think, they would undertake the work and furnish it with many lithographed plates (copies

¹¹⁴ Charles Hering. See Hering's letter to the editor, *Lyttelton Times*, vol. XX, no. 1177, 31 December 1863, p.5. H. F. von Haast uses the spelling "Häring" in *The Life and Times of Sir Julius von Haast*, p. 276, where he describes Hering as a retired sailor.

¹¹⁵ Johann Georg Freiherr von Cotta (1796-1863) of the Cotta Verlag in Stuttgart, had planned the publication of Hochstetter's *Neu-Seeland* (1863) over several years, but did not live to see the project completed.

from the original), so that it would give credit to the Colony – of course I am willing to give every assistance in my power. Have the kindness to see what can be done. I should be very sorry to see, that the book would not be published in English and that Hochstetter would lose the money.

Please send me my copies back, which were in the Exhibition. There are 3 volumes in all!

---- more goodbye yours de coeur
Julius Haast.

73: Haast to Hector, 23-11-1865

Te Papa MU000198/001/0031

23 Novb 1865

Dear Hector!

I wrote you some 8 days ago about Hochstetter's book & send today only the 4 sections. I shall have some other copies for you & the Govt. is willing to allow me the expenses with the condition that you send me some for our own Museum from your work. Do you agree to that!

I send you annexed a copy of an extract from my last Report, which by the bye will appear in print. Do you think, I was right, to give him one over his knuckles, Mrs Haast is much better & sends kind regards.

Yours very sincerely
Julius Haast.

Extract from a Report to the Provincial Government.

I shall begin with the low pass, which I discovered in 1860, leading from Lake Wanaka to the Westcoast (1716 feet) which has been easily found & traversed by several parties of diggers following my blazed tracks and being guided by the printed account I gave of it. Lately an expedition sent out at considerable cost by the Otago Government, accompanied by Maori Jack has fortunately rediscovered* that pass, but unfortunately without adding anything to our knowledge of that part of this Province.

* The main object of this expedition, namely to find a practicable and easy route to the Westcoast I consider to have been fully accomplished. Mr Vincent Pyke's off. Report Otago Daily Times Nov. 2.

74: Hector to Haast, 24-12-1865

ATL MS-Papers-0037-079

Kowrarika, Bay of Islands
24th December 1865

My dear Haast,

I arrived here yesterday & found two notes from you of 23 ult. & 6 inst.¹¹⁶ I think your answer to Pyke is just the thing, just & high toned & dignified. A much better course than arguing the matter. The newspapers you refer to have not been forwarded to me. I have now been in the bush for 5 weeks, & am feeling all right again. I have not been well for a long while. This is a splendid country but cursed by these rascally Maories. However they are fast becoming extinct. The map will be all wrong for this district which is most interesting Geologically. Great development of which I believe will prove to be the same as your West Coast Coal Fields.

I shall see the Govr. at Kawau & will explain about the 2nd Vol. of Hoch.'s Book. Before that I shall have visited the N. Cape for which I start in a few days after I have done with this district.

Buchanan is with me but as yet has got little new in the way of plants. I am sending lots of cases of the Northern plants south for propagation.

I write in haste as a vessel leaves shortly for Auckland & the chance are few & I have much writing to do. I saw the Fischer's in Auckland. They were asking for you.

Kind regards to your self & Mrs. Haast & a merry Xmas. I am glad to hear she has recovered.

Ever Yours Sincerely,
James Hector.

¹¹⁶ We have been unable to find a copy of Haast's letter dated 6/12/1865. Haast's letter of 23/11/1865 is extant.

75: Haast to Hector, 16-1-1866

Te Papa MU000147/001/0101

Christchurch
Jan 16 1866

My dear Hector!

Many thanks for your letter of 24 Decb. dated Korirarika. Let me return you our best wishes at the beginning of the new year. I rejoice that you are very interested in the Northern Geology and that once we shall hear all about it, because till at present I never was able from the different reports to make out what it was like. I hope you will find in connection with the coalbeds some marine strata with clear fossils. I have such a fine lot of plants from Grey & Pakawau that it will be possible to make a fine publication of them. About 15 miles from the mouth of the Grey to the north, there are some splendid Limestone cliffs, in which a rich harvest of fossils can be made. They belong to the Grey Coal field measures & you ought either go down yourself one day or send a good collector down.

I hope you will write soon again and tell me some thing more about those coalfields. I had a letter from the Office of the Col. Secretary, he says cooly, as no money was voted for Dr Hochstetter's translation, he can't give any. Confound the beggars! I hope Mr Buchanan collects lots of Duplicates, because I want some for our own collections in exchange of Alpine plants. And remember Mrs Haast has a collection of ferns & should be very thankful, if you could give her some fine North Island specimens, so as to complete her collections! Mind, keep up your friendship with your friends' wives, principally when their husbands are somewhat henpecked! Mrs Haast goes on very nicely, her stay in Sumner has done her a great deal of good. Our Council has voted £1000 for the beginning of a Museum and I have at last made new arrangements with the Government so that they will pay me in future £800 a year! of course paying my expenses.

I once more request you to make some arrangements about the references in the geol. map, because I consider it monstrous to put so many names on it when only a few people have done the work. As I told you before, substitute yours & Mantell's names instead of the two others, who have really done nothing whatever in Canterbury if you want three names everywhere. And why put Mr Thomson's name in Otago?!

It is still time to change if you write by return.

In a few days I shall start for the Waipara to settle that point for good and after my return I shall go to the headwaters of the Rakaia, but be back before end of March.

Ever yours very sincerely
Julius Haast.

76: Haast to Hector, 23-02-1866

Te Papa MU000147/001/0251

Glückauf
23 Febr 1866

My dear Hector,

I wrote you a few weeks ago, have since been up the Waipara, would have started a fortnight ago, if Mrs Haast had from the consequences of an accident not have been confined at 6½ months. The little baby a strong boy died after a few hours & my poor wife has been for a week in a most precarious state & is still very very weak. In consequence I shall not start for another week or ten days, till she is better. Little Heinrich at the same time was very ill with fever, but is now much better and I have sent him to Sumner before I go, I shall write again & tell you, how my poor wife is going on. I sent you the package received from Dir von Haidinger.

Concerning the Waipara, I have been at the original spot, where the bones of *Plesiosaurus austr.* have been found; they lie in our middle III series & are found in large nodules of a bluish limestone which are found in a bluish clay marl. There is not the least doubt. There is a magnificent uninterrupted section from the lowest brown coal series to the present time I shall work that section out in detail one day. At a rough calculation it is 7-8000 feet thick.

Hochstetter is delighted about the medal, which he will receive. I hope to hear soon about your doings. Do you not print reports? And have you collected much? Mr Mantell was kind enough to write to me & telling me, that you are sending lots of them up to Wellington, so that we shall be able to exchange.

But blackguard Tr.¹¹⁷ has read the news paper with his infamous anonymous letter to all my friends in Europe, but it will fall back upon him alone. I had a very interesting letter of Darwin by last mail. Did you hear of Hooker? I am in a great hurry.

Yours my dear Hector very sincerely
Julius Haast.

Dr Hector FGS etc
Wellington.

¹¹⁷ Travers.

77: Haast to Hector, 19-5-1866

Te Papa MU000147/001/0163

[ChCh
19 May 1866]

Dear Hector!

I saw your return in the papers. Why do you not write? I hear the Governor is coming down & I hope you will come down with him we can do some exchanging business together. I have lots of things & you can bring some with you. We are just building a Museum some 3 weeks ago I returned from the sources of the Rakaia; glorious scenery! I am just writing my Report, with sections & sketches. Mrs Haast has been very poorly indeed, but begins to be a little stronger, although it seems that her left lung has suffered. We shall go & live in Governor's Bay near the sea, as this suits her constitution better; it is about 8 miles from town but I do not care for the ride to & fro.

Mr Chevalier¹¹⁸ returned from his West coast trip & brought a mass of magnificent sketches. I wish you could see them. He has also a large portfolio of your Otago Lakes. I have not yet seen them. I hope you will write soon & tell me some thing about your doings.

Do you want a collection of Alpine plants? I made a very large collection. Tell me so at once because I am just beginning to divide them in separate collections.

I hope you will do every thing in your power for Hochstetter & trust that you will not say like Mantell "I do not believe in Hochstetter." Does he understand German?! or is it only a personal dislike? I am unable to understand it & am very sorry that a man like Mantell of such high standing as a Geologist as well as a Politician should have taken such a dislike to our friend.

Yours very sincerely
Julius Haast

Dr Hector FRS etc.
Wellington

Chch 19 May 1866.

¹¹⁸ Nicholas Chevalier (1828-1902), Australian artist.

78: Haast to Hector, 4-6-1866

Te Papa MU000147/001/0167

Glückauf
June 4 1866

My dear Hector,

I just received your letter of the 2nd inst. & am very sorry that you can not come down to Christchurch because there are many things which I liked to talk over with you.¹¹⁹ Concerning Hochstetter I have made up my mind to come down to Wellington beginning of next month, to push on the translation business myself & I have no doubt that we shall put it all straight. The book in question which has been translated is the volume in 8¹²⁰ with the many engravings, the popular one; I shall explain every thing to Stafford¹²¹ by this mail. Concerning the herbarium, I shall bring as complete a collection of our Alpine plants with me as we possess & I dare say, you will be satisfied. I shall select fine specimens, so that if you intend to have some mounted in frames as mine in the Exhibition, that they deserve it. I should like to have not only a complete collection of all the N. I. plants but also duplicates of all the common ones near Wellington, as I have promised collections in return for others which I expect or have already received.

At the same time I shall bring with me my first exchange specimens, geol & pal. as well as other things of interest to you.

Unfortunately all the boxes of the exhibition are still unpacked as I have no room to put them but I shall try to bring as many fossil plants of Grey & Pakawau with me as I can.

What are your desiderata in birds? As soon as possible I shall send you some drawings as you desire. Many thanks for the seeds.

Mrs Haast sends her kind regards, she is somewhat better, but I fear that the sad intelligence of the probable loss of her brother George Dobson¹²² at the Westcoast will do her a great deal of harm.

Write me soon a few lines and you may expect me in the first week of July. How delighted I shall be to take you again by the hand.

I shall not speak of the missing of G. Dobson, as you will see all by the papers, what we know ourselves. I have very little hope myself.

Ever yours very sincerely
Julius Haast.

Hochstetter's book appears with all the same illustrations & maps & binding as the German original.

Now just beginning to build a Museum.

¹¹⁹ We have been unable to locate a copy of this letter.

¹²⁰ A reference to the octavo format of the book.

¹²¹ Edward William Stafford (1819-1901), New Zealand politician and runholder.

¹²² George Dobson (1840-1866), Haast's brother-in-law who was murdered by the Maungatapu murderers.

79: Haast to Hector, 5-6-1866

Te Papa MU000147/001/0168

Geol. Survey Department
Christchurch N.Z.
June 5th 1866

Sir,

I am given to understand that a fossil fish which was found by Mr Leith¹²³ was forwarded to you by Mr Travers for examination. It has since been presented to the Canterbury Museum by Mr Leith. I shall therefore feel much obliged to you if when you are done with it you will send it to me by the first opportunity.

I am Sir
Yours obediently
Julius Haast
Prov. Geologist

J. Hector Esq. F.G.S. &c.
Director of Geol. Survey N.Z.
Wellington.

80: Hector to Haast, 8-6-1866

ATL MS-Papers-0037-079, letter 3

Colonial Museum
8th June 1866

My dear Haast,

I received your letter (official) asking for a fossil Fish deposited by Travers. I dont remember ever hearing of it before, but if it turns up I will of course forward it to you after having had a peek[?] at it. It may be on its way home. Mantell knows nothing of it, so it did not come during my absence.

I am so glad that you intend to come up here about the Book yourself. It will be the best way. When you come you must stay with me, by that time I shall be able to offer you a room & then we can have no end of talking between ourselves greatly.

I shall let you choose your exchanges yourself as you are coming up so soon, besides I really have no time just now.

¹²³ John Leith, a former sea captain and settler after whom Leithfield is named.

I am sorry to hear that Mrs. Haast is not quite recovd. I have not seen anything in the papers about Young Dobson, but will keep a look out for it.

Can you send me any return of the gold from the W. Coast during the past year? Being so long in the N. I have lost the line of it. If you any old suggestions with the returns I will be only too glad to get them. I am just going across Cooks Straits with Sheath & Balfour¹²⁴ so I write in haste.

Ever Yours Sincerely
James Hector.

Dr. Haast

81: Haast to Hector, 29-6-1866

Te Papa MU000147/001/0182

Glückauf
29 June 1866

My dear Hector,

Many thanks for your letter of the 8th. In the meantime I have tried to obtain all the necessary information about the Canterbury Goldfields & shall bring it with me. Your kind invitation to stay with you I shall accept with great pleasure in case it does not involve any discomfort to you. I intend to come in about 8 days, but cannot tell you the exact day as I am just putting the last hand to my Report on the Rakaia headwaters, which will be accompanied by many sections and sketches lithographed by Ward & Reeves. I have already begun to get your specimens together & I trust you will not be dissatisfied with the first lot; but hope that you too have a good many duplicates. I look forward with delight to pass a few days with you & to talk some important matter over with you; also I hope to see Sir George,¹²⁵ whom I had never the pleasure to meet before. Yesterday Mr Stafford's answer came about Hochstetter's book, he tells me that he wants to place £500 instead of £525 for 500 copies on the estimates. Is this not a mistake, or does he want Hochstetter to lose those £25 out of his pocket. Could you not find an opportunity to see him & to point it out to him? or shall we wait, till I come to Wellington?

I shall bring some of the seeds, birds with me, & talk about many other matters concerning collection & Museum.

About Travers I shall tell you more. The owner of the specimen is in a great rage, that Travers out of spite, wants now to keep the fossil under the pretence that Mr Leith, who in the mean time died gave it to his son as a present. I think he will bring at once an action against Travers; I have declined to have any thing to do with the matter.

¹²⁴ James Melville Balfour (1831-1869), Scottish engineer and surveyor in New Zealand.

¹²⁵ Sir George Grey (1812-1898), Governor and Premier of New Zealand.

Mrs Haast sends her kindest regards to you & is very sorry that you did not come over; she is much stronger & I feel much more hopeful. You see that we have given up all hope about poor George Dobson.

Ever yours very sincerely
Julius Haast

Dr Hector FRS etc.

82: Hector to Haast, 13-7-1866

Te Papa MU000147/001/0188

Christchurch
July 13 1866

My dear Hector!

Many thanks for the drawing of the fossil fish. I shall start for Wellington with the steamer leaving Lyttelton on the 26th instant. In looking over the collections I find that I cannot give you my duplicates without opening my boxes of the Otago Exhibition, because I am afraid to send my typical specimens. I hope to have soon a Museum, so that I can open the boxes. I had already about 100 put aside from those which I left here, but in looking at my notes, I cannot find if they were all represented in the exhibition. In every case I bring the Herbarium & we shall leave the rest for another occasion, perhaps you come to see us next Spring, when we shall go at them together. Returning Wednesday night from the Westcoast, when we buried poor George Dobson, I am just writing my European letters, so have to be short.

I need not say how delighted I shall be to see you & pass a few days with you.
Yours very sincerely
Julius Haast.

Dr Hector FGS etc.
Director of G.S.N.Z.
Wellington.

Many thanks about your good offices in respect to Hochstetter's book.

83: Hector to Haast, 25-7-1866

ATL MS-Papers-0037-079

[*No place*]
25th July 1866

My dear Haast,

I am sorry you should think I would forget my promise to let you know anything definite whenever I have it to tell. As for being able to guess what will be done when the political questions are set at rest I dont think that any one can do that and being on the spot is all the worse for the Governor.

If you advance a thing as a favour to any politician in their present frame of mind they will of course presume[?] anything it will support their cause – if otherwise they would sacrifice their grandmothers I believe.

It is no use forming the question just now till one party or other gets the upper hand, so I am working away quietly to bring the results of our work prominently forward so this session will make a mark that will outlive the matter.

The Govr. is to give the Inaugural adress at the Institute which will make it the fashion and we have meetings & lectures &c.

As soon as I can say one way or other I will do so as I quite understand how uncomfortable must be the state of suspense. I sent Rolleston¹²⁶ on to Stafford the other day. They are both anxious to do something, but they are now on opposite sides. If S. is pressured he will only say officially that Govt. see no profit of extending expenditure or even maintaining it perhaps.

I write to you all about Agassiz offer & also Petersons. Holmes is helping me with some back work & I find him very useful. I must try to get him on as Secretary to the Institute if I can so as to do the work of editing the Proceedings &c. & leave my hands free for Geology.

The Museum is in good order – I have your Moas, skeletons & Photo.'s in a prominent place beside my own.

Hoping soon to be able to send you some good news & with kind regards to Mrs. Haast.

Yours Ever
James Hector.

¹²⁶ William Rolleston (1831-1903), Canterbury politician, administrator and educationalist.

84: Haast to Hector, 6-8-1866

Te Papa MU000147/001/0203

Christchurch
6 Aug 1866

My dear Hector,

The bearer of these lines is my countryman Mr F Carmen of whom I spoke to you & who intends to stay in Wellington. Should you wish to take German or French lessons this Gentleman will be an excellent teacher for you. With many compliments,

yours very sincerely
Julius Haast.

Dr J Hector.

85: Haast to Hector, 6-8-1866

Te Papa MU000147/001/0204

Christchurch
Aug 6 1866

My dear Hector,

Arrived here safely, I at once gave instructions to get your tunnel specimens together which I hope to send as soon as possible. I send today by the mail 9 pamphlets of Haidinger on meteorites, which will perhaps interest you. It would not be uninteresting would you publish a paper, with all the details about the meteorite, the first one as much as I know found in New Zealand, with a view of it from different sides, specific gravity, chem. analysis & sections. You will consider me rude that I am already on the second page, without having thanked you once more for your kind hospitality, I fear I rather incommadated you, as you had to give up your own comfortable room.

I found Mrs Haast in very good health, she sends her kindest regards to you. I am just busy to get again in working order.

I shall soon write again.
With best compliments to Signor Bilio, ever my dear Hector
yours sincerely
Julius Haast.

86: Haast to Hector, 20-8-1866

Te Papa MU000147/001/0208

Christchurch
20 Aug 1866

My dear Hector,

I have set to work to get you all the tunnel specimens, which are all complete with the exception of the minerals filling fissures etc., but which are still in the boxes, stored away. I added also some of the most remarkable specimens of our other volcanic zones, which will not be without interest to you. In my Report of Aug 2 1864 you will find some of these Rocks analysed & if I can count upon you having made in future the analyses of the rocks from this Province, I shall send them to you instead to the Vienna Institute.

Soon I shall again continue with the Tunnel Survey & will send after wards the Continuation.

I hope to hear soon from you.
Mrs Haast sends her kind regards.
Ever my dear Hector
yours sincerely
Julius Haast.

Private

Do not forget to send us soon a collection of fossils etc as promised. What about palaeontological publications!

87: Haast to Hector, 5-9-1866

Te Papa MU000147/001/0217

ChCh
Sept 5 1866

My dear Hector,

Many thanks for having procured for us the two fine Huias, but before I send you an official acknowledgement, I wish to know if according to my wish to buy a pair for us, you have done so & then I shall refund you the Money, or if it is a private present of yours or an exchange of your Museum.

Although my draughtsman is very busy with my maps nevertheless I have set him at once to work to make your tracings of the tunnel sections, which I hope to send by next mail. Unfortunately I left your last letter at home, so that I do not know if I have forgotten any thing, in every case I shall write again soon.

I think the two Huia skins are capital.

Allow me to congratulate you on your election as FRS. I was truly glad to see it. With united kind regards ever yours very sincerely

Julius Haast.

88: Haast to Hector, 12-9-1866

Te Papa MU000147/001/0222

Christchurch Museum
Sept 12 1866

My dear Hector!

Here are the tracings of the tunnel, as far as surveyed. You will find a few mistakes in the written list which happened by dictating in a hurry; there are some mistakes in it, for which I can not account. In consequence put the list aside all together & use only the tracing which gives you all the characteristic features & the true position of each specimen. Of course the specimens of the Agglomerate Beds very often do not present altogether the true character of them, as often only pieces of the enclosed fragments, to which some ashes etc. adhere are sent, but nevertheless it will give you a true insight. As soon as possible I shall continue with the Survey & send you another set of specimens.

I hope to hear soon from you. The Huias are already set up & look very well. I should have made my draughtsman make you a copy of the section on paper, but I am so much in need of him for my own work, that I could not spare him for longer.

Can you not send me a better piece of your Aeriolite? In having it cut, it would show to advantage the particular features of the flat surface.

Mrs Haast sends her kind regards.
Yours very truly,

Julius Haast.

89: Haast to Hector, 12-9-1866

Te Papa MU000147/001/0223

Christchurch
Sept 12 1866

My dear Hector!

I see by the papers that the money for Hochstetter's book has been voted & in order to get the work as soon as possible out, will you see Stafford or one of the other Ministers to obtain from him the necessary arrangements that the money is sent to England to obtain the 500 copies. Or shall I write directly to Stafford & request him to make at once the necessary arrangements, as Cotta's & Hochstetter's agent I can sign for the money, but it would be more simple to instruct the English agent as soon as he receives the notice of Cotta, that he has sent the 500 copies, to remit to him the money.

Will you give my kindest regards to Sir George & tell him that I have not forgotten to send him some living alpine plants *Ranunculus lyalli* included, but I think it best to wait a little longer till the cuttings are a little more advanced. The roots of *Ranunculus* & some *Celmisia*'s I can send any day.

I hope to hear soon from you. With kind regards to Mrs Hector . . . inspei (this is one of Mrs Haast's guoques[jokes]) believe me my dear Hector

ever yours

Julius Haast.

90: Haast to Hector, 25-9-1866

Te Papa MU000147/001/0231

Christchurch
Sept. 25 1866

My dear Hector!

Many thanks for your three last letters, which arrived by the same mail.¹²⁷ I have written a letter to Mr Sale¹²⁸ in Hokitika giving him due notice about the Platinum & transcribing part of your letter, with some additional notes. There were no grains of Platinum in your letter, but as I liked to send some to Sale, I have taken a few grains from my own collection (Ural) & sent it. According to your wish I shall write to Stafford directly & I think you are quite right, because all misunderstandings will then be avoided. I shall write a few lines to Hall & request him to do some thing in the matter.

Many thanks for the Huias, they are very good birds indeed & will make a fine show, when once we can put our collections together. I am very glad to hear about your journey to the West coast coalfields. You will find principally the Buller Coal field very interesting & I should be very grateful to you if you would also collect some specimens of the different rocks in the region for me. You may imagine, that I could not get them with me, as we had to make the whole way on foot but I think that now that you can travel with pack horses all over the Papahaua range, it is very easy to collect & bring at the same time the specimens to Westport. Please do not forget me. Concerning the Grey Coalfields I should like very much if you had time to go up the coast from the Grey about 15 to 20 miles north. There are some fine limestones replete with fossils along the beach & much alike those our tertiaries but I could not stop for want of Kaikai but as you can take Provisions on pack horses all the way, it will be of the highest importance to examine them thoroughly. I think that they will offer the key to our Geology. And you must return via Christchurch by the Otira road & select fine weather. You will not regret it & we can have a long long talk. Do not forget the analysis of my tunnel specimens, it will be a fine thing to come to certain conclusions, about the relations of the different dykes to each other as well as to the lavastreams. In every case you must write to me what you find & what are your impressions.

¹²⁷ We have been unable to locate copies of these letters.

¹²⁸ George Samuel Sale (1831-1922), surveyor, held position of Warden and Commissioner of the West Canterbury Gold Fields (West Coast) at this time, later became Commissioner of Crown Lands for Westland.

About 200 yards below the coalseam at the Grey on the Nelson side there are micaceous clay marls in which you will find shells. I just unpacked a magnificent collection of Landshells from Vienna, there are some very rare & valuable ones amongst them as f. inst. some fine *Achatina*'s from the interior of Madagascar. *Bulinus* from central Africa & Brazil. This is only an instalment. You see my German friends do not altogether forsake me.

I just am called of for some other work so I must say Goodbye. Wishing you a pleasant journey.

Yours very sincerely
Julius Haast.

91: Haast to Hector, 20-10-1866

Te Papa MU000147/001/0247

Christchurch
Oct 20 1866

My dear Hector,

I was rather disappointed today, when I heard that you had not left for the Westcoast, because I had not had any news from you. As the Government has decided to send the Tunnel section to Paris I shall begin at once to continue the survey of the tunnel & wish to know if when I send at once the specimens, which I consider desirable to have analysed I can have the analysis soon. At the same time I wish to know if those specimens I forwarded some time ago were taken into hand. What I intend is to note your Analyses with your name attached on the Section, so that they see that it is done by you. There are principally on the Lyttelton side some dykes & a few Lavastreams & beds which I consider to be of an interesting nature. One of those beds I called Tachylite (This is the name given by Gustav Rose¹²⁹ to similar beds from the old crater wall of Vesuvius). The others seem to be more of a trachytic than doleritic nature. I need no names as from their composition I can easily bring them into the nomenclature now adopted on the Continent taking as guidance the amount of Silica & some other characteristics. In the case you would be absent could your assistant not do these & send them to me? Please to tell me by return of post, because if not, I shall make at once arrangements in Paris to have the necessary Analyses made, but you will easily understand that it would be nice, could we send the whole from here. It will offer a very interesting comparison with the Mt Cenis tunnel of which also a Section & specimens will be in Paris. What about the earthquake near Mt Edgecombe?

I hear with great pleasure that you have given some work to Hacket¹³⁰ & I am also glad to hear that now all about the translation of Hochstetter's book has been settled.

Dr Mueller writes to me that under my last plants (of which I gave a set to you) there was *Rostkovia glaulis*; new to N.Z. I think you will find it amongst the Antarctic plants. I have no books of reference. Perhaps you can find it out for me. Please write soon. With Mrs Haast's kind regards ever my dear Hector yours very sincerely
Julius Haast.

¹²⁹ Gustav Rose (1798-1873), German mineralogist.

¹³⁰ Thomas Ridge Hacket (1827-1884), English mining engineer, formerly manager at Dun Mountain Company.

92: Haast to Hector, 10-11-1866

Te Papa MU000147/001/0266

Christchurch
Novb. 10 1866

My dear Hector,

I am in possession of your two last letters, as well as of an official communication, that you have received the cases of tunnel specimens & other rocks for examination, (it ought to have been for exchange).¹³¹ The principal object of requesting you to have some of the rocks analysed was to know the amount of Silica of the intermediate rocks which stand between trachytes & dolerites. I do not want any Analysis of the other rocks of the Province, which mostly have all been analysed in Vienna & the character of which is entirely well known to me, but of course shall be glad to see them in your publications. I sent them simply in exchange & with the view to give you value for the collection of III shells and N.Z. volcanic rocks, which I am still expecting. I am very much obliged to you for the trouble you have taken in renaming my tunnel specimens, although I think it would have been much better to stick to my old names, which have been given partly not only upon chemical analyses but also in consideration of the position from which they have been derived.

Thus for instance you call a Trachyte Dolerite (a clay stone porphyry!) and the upper beds of compact doleritic rocks with Crystals of Labradorite, which give to them a porphyritic structure. "Crystals of Sanidine in a dioritic paste!" You will therefore oblige me not to cancel my nomenclature, till you can show me from chemical analysis or study of the lava streams that they have to be changed as being erroneous.

If you look at the Analysis in my Report Aug. 1864 you will observe that the black compact Dolerites & the porphyritic dolerite lavas have nearly the same constituents besides the change from one into the other is clearly discernible in 100% of instances & only their different structure is caused by different conditions under which both have cooled.

I think I owe it to myself, that I make these few observations, so that no misunderstandings may occur on that subject. You certainly would not like me, to send you new names for a collection of rocks you might send me in exchange without sufficient reason & I dare say I know something about volcanic rocks amongst which I have been born & bred. I am delighted to hear that you intend coming over to Christchurch, your little room will be ready and we shall have many a long talk. Do not fix your plans concerning your journeys in this Province if you should intend to do so, before you have seen me, because I want to talk some important matters over with you, which might perhaps change your plans & to which I do not like to allude in a letter. What did you find in Taranaki. I hope you will write me some thing about it. You will find that there are two coal formations in Pakawau resp. West Wanganui, as I was there only 2 days I had no time to go more thoroughly into the matter, but as you have time and plenty of assistance, I have no doubt that you will soon find the key to our Westcoast coal formation.

¹³¹ We have been unable to locate copies of these letters.

I am rather astonished that you did not pay yourself a visit to the Kaikoras, that unknown geological field & without doubt of very great interest & importance to understand the geology of this Island but must suppose that the materially (I mean £ / . & d) more valuable Westcoast coalfields are of greater attraction to the General Government. I shall have no time to send any new specimens to your laboratory at present because my collections for the Paris Exhibition will leave already in a few days, but I shall write to my old friend D'Archiac to have those new rocks analysed, which he considers of sufficient importance. Many thanks for the Coal Report, which gives in a condensed form all the great features. Can I not have a few more copies to send on to friends on the Continent? Speaking of coal I can not tell you how grateful I am to you to have sent me the Prospectus of the Grey Coal Mining company Nelson; at first I could not at all understand what it meant, because I have never directly or indirectly given such an Analysis. I believe that the promoters have been deceived by some body, who had used my name in such an unwarrantable way, but I have at once written to the papers, as well as to Ballarat protesting & want it cancelled & cleared up. You will be interesting in looking over our collection of birds which becomes more complete every day.

Mrs Haast is not very well, but I hope she will improve every day more & more. I need not tell you that I am very busy and must therefore be short, if it is possible to be short after so long an epistle as the present one.

Hoping to hear soon from you, I am yours very sincerely
Julius Haast

Considering the anomalous position we stand to each other, we ought to try instead of creating difficulties to smooth those over which may turn up. This is the reason that I have spoken openly my mind to you & I hope you will do the same.

93: Hector to Haast, 17-12-1866

ATL MS-Papers-0037-079

Collingwood
17th December 1866

My dear Haast,

I have just retd. from W. Whanganui & recd. your note of 10th inst. (it must have been Nov. you meant). I am sorry that you should fancy I wished to alter your names for the Tunnel specimens. They will of course be entered in the Museum as you sent them. I only thought you might like to see the notes I made in going over them & therefore sent a copy to you. Surely the letter acklg. receipt of them stated that they were as exchanges. The III Fossils are all set aside for you but I am not satisfied with the names yet & had not time to look over them before I left. But I suppose there is no hurry till you get the Museum up.

I do not quite understand you about not fixing my plans about the examination of the West Coast of Canterbury till I see you. I will be down there before I go to Ch.Ch. But you must know that though I chose my own field & work to a certain extent, still I have to do as I am bid - & I am bid to go down the West Coast & will do it.

I am not quite done yet with Pakawau, but have seen West Whanganui & down to the Awarito[?] River on the Coast. Your Cretaceous formation is as I suppose you must have known for some time the Oamuaru or Curiosity shop beds & full of all the Ch. Fossil & especially the Bryozoa (cup shaped things) which are so com. at the Waipara.

They are unconformable on the Carb. Formation, the upper part of which is shingle in beds which you can hardly distinguish from the older Shingle beds of your Plains.

I see no difficulty in the whole district - & though of course the local details take time, especially when practical questions depend on them, I assure you that the theory of the country can be read off very easily.

The strata both Carb. & Limestone, not and Granite & Slate Islands. I have seen no disturbance by the Granite yet. Nor any marked dislocation except the Aorere Fault. I am going to Whangapeka & then on to the Buller & Grey next, but have lost a horrid lot of time with wet weather. I expect to be in Nelson in a week or so & will let you know what I do next.

Ever Yours Sincerely
James Hector.

94: Haast to Hector, 15-1-1867

Te Papa MU000147/001/0319

Christchurch
Jan 15 1867

Dear Hector,

Your letter of the 17th of Decb. came to hand and I was delighted to hear that you are going on so well in the field. Your explanations concerning the tunnel specimens quite satisfies me; had you written the official letter yourself, the mistake would not have been made. Concerning your Westcoast journey I had to hear a great deal from our Government people, who firstly thought that it was a slight upon me and secondly that your expenses would be charged against this Province, which they considered an injustice. This was the reason why I wished to have seen you before you began your work. Since then I have seen Mr Hall and talked the matter over with him. He told me simply that the General Government wished to have a report on the Westcoast goldfields from one of their own officers, so as to be able to know for what period of time a fair revenue could be expected & secondly that it never had been intended to charge your expenses against us & thus this matter is set at rest. I never doubted you a moment & knew that you never intended to limit me in my provincial position in the least, because hitherto we have kept good fellowship and the short time I shall remain in Provincial service will not interfere with you in the least. I knew of course already for 5 years that my cretaceous rocks are tertiaries, but Hochstetter wrote when just arrived in Europe & telling me, to call them so as by an examination of the fossils of the older (now III) series it appeared to Europ. Palaeontologists that they had a cretaceous facies, which opinion he abandoned very soon afterwards. I am glad to hear what you say about the position of the Pakawau beds. There is a capital section north of the West wanganui harbour, where you can follow coalbearing strata (which I considered identical with the Pakawau beds) to the true III

beds at the coast with Pecten & Waldheimia. But when obtaining 2 years ago a large collection of plant impressions from Pakawau, I found at once that they were identical with those of the Buller & Grey, which are overlaid unconformably by III beds as I stated long ago in my Reports. In every case, please do not judge me too hardly & bear in mind that I did the work in West Wanganui and Pakawau in 2 days, halfstarved & foot sore & coming from a 8 months journey. Besides when writing my Report in Nelson I had neither books of reference nor specimens for comparison.

When you come over to Christchurch we can compare our sections and other material from our journeys over the same ground.

I shall start down the Westcoast in about 2 months, so I hope we shall meet somewhere in Hokitika as I intend to go down to Bruce bay.

I made a capital haul of Moa bones sometime ago, I have complete skeletons of *Dinornis giganteus* (but only one) *elephantopus*, *crassus* or *curtus* & some others & also some for you if you want them. I shall set them up.

There was a great fight in our Prov. Council about Geol Survey, which some people thought, the Province could not afford, but as the Superintendent would not accept my resignation, it has ultimately been arranged that I have to finish in 18 months & arrange the collections to which I agreed. In the mean time a stone building (£2500) will be erected for a Museum. The Government wanted £1000 only for a wooden Building but the Council declared the collections were too valuable for being placed in a wooden building.

I can not tell you how delighted I shall be to get rid of the many masters, of whom the greater portion knows as much of Science & its aims as the pig knows of Spanish (a German saying).

Your paper on Moa bones of which I got a copy sent (many thanks) is very useful, as it offers on one page material for comparison.

I think we can do something with them (I mean with my new lot of bones). Lately I got some fine collections from abroad among them a good lot of NA.¹³² Silurian fossils & can expect still more shortly. Will the Essays be printed? Had I known that their fate would be such I certainly would not have lost my time with writing it, but I suppose when you come back from your trip you will set to work to get them printed.

Mrs Haast is not at all well but I trust that she will safely pass this time & present me in about 6 weeks with another boy. She sends her kindest regards to you. Sir George came yesterday & went to day to the races, I spoke only a few words to him in Lyttelton at his arrival, but suppose shall see something more of him. He has been received like a King. Hoping that you will drop me a few lines from the Buller, believe me dear Hector

ever yours very sincerely
Julius Haast

Dr J Hector

¹³² North American.

FRS etc.
95: Haast to Hector, 10-4-1867
Te Papa MU000147/001/0364

Christchurch
April 10 1867

My dear Hector!

I hear from Mr Holmes that you wrote to me, but as by a mistake he sent this letter up country it will be another week before I shall receive it. As I shall start again next Wednesday morning for several weeks; I shall leave with Holmes a route of my journey, as I am going over some very interesting country, where perhaps you should like to join me. In every case if you should start by next Tuesday 16 of April by the overland coach to Christchurch please to telegraph me next Monday & I shall stay a day longer in order to see you at your arrival. I should be only too delighted to have a long long talk with you. I hope you enjoyed your trip to the South & that your shoulder is all right again.

Mrs Haast sends her kindest regards.
Believe me my dear Hector yours very sincerely
Julius Haast

Dr J Hector FRS etc.
Hokitika.

96: Haast to Hector, 16-4-1867
Te Papa MU000147/001/0368

ChCh
April 16 1867

My dear Hector,

I received your letter last Saturday evening¹³³ & your Telegram this morning & am very sorry indeed that you do not come sooner, because I can not wait any longer, as I have still a great deal of work to do before the winter sets in. Particularly I regret that you do not come at present, as I am very anxious for you visiting the Waipara (*Plesiosaurus* beds) with me, where I shall pass in about 3 or 4 days. In every case I shall keep Holmes *au courant*, where I am, perhaps you will ride up to me & we can go together to them. I should be very sorry to miss you altogether. In passing by the Westcoast road, have a good look at the Parapet rocks, you will see on the map, where they are situated, before you come to the Broken river. The road leads over them. There is another interesting locality on your road; when you have descended Porter's Pass, you have to cross several times the Kowai creek, at the third crossing, the river flows close under the rocks on left Bank (Some few *Fagus* trees stand on the Grass flats. Go as far as you can easily about 10 yards along the rocks. There are

¹³³ We have been unable to locate a copy of this letter.

indurated shales, somewhat calcareous, a slaty shale full of the pal. fossil, allied to Serpulites(?). This is the only spot where it, as far as I know, exists (if I except the Gorge of the Waimakariri). Look at the tiny volc. system behind Mr Cray's Accomodation house, where you enter the Canterbury plains. Do write a few lines, when you think you will be in Canterbury. I am in a great hurry, therefore I have to stop. Many kind regards of Mrs Haast,

Every Yours very sincerely
Julius Haast.

97. Haast to Hector, 14-5-1867

MU000147/001/0379

Christchurch 14 May 1867

My dear Hector!

I hope you have safely arrived in Picton, although the South Easter caught you during your trip & I am very anxious to hear from you about it. Enclosed I send you Darwin's queries about Expression, in case he should not have sent it direct to you. I also send a list of plants, which Mr Buchanen gave me, but could not give me the names, as they were just gone to Hooker; they are all from the Bay of Islands & that neighbourhood. Please to return me the list, with the names filled in, which without doubt you have received in the meantime from Hooker.

If you have a list prepared for me what plants are missing in your Herbarium from this Island, I shall be very glad to complete it.

I expect a long letter from you & heard already about your great coal discoveries, so at least I was told in town today; I suppose people mean the lignite or Brown coal in Bobie's [Bobby's] Creek & many similar localities.

You never went to see Mr Moore¹³⁴ at Glenmark, because I asked him about it & he told me, you had not called.

The specimen's from Milford Sound have arrived; there are some very fine pieces of Marble & Lignite amongst them.

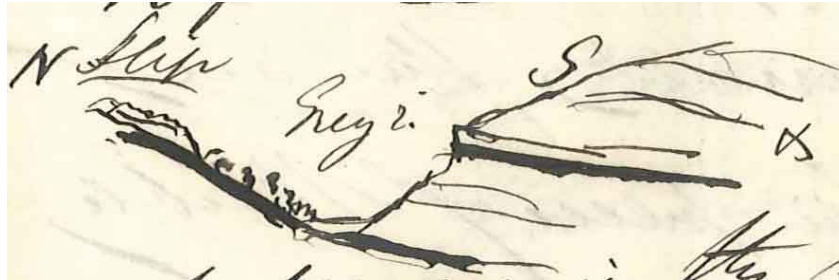
Mrs Haast, sends her best regards. –
Believe me, my dear Hector
I am yours sincerely
Julius Haast.

¹³⁴ George Henry Moore (1812-1905) runholder of Glenmark Station, after whom Haast's Eagle (*Harpagornis moorei*) is named.

[continues on next page]

NB

I am certain that you are under a mistake about the Grey coal measures, because even a fault would be impossible as opposite the so called slip, the upper main seam lies 50 feet above the river & there is no break what so ever in the strata.



Look at my Nelson Report. If you had the rubbish cleared away on the slip, you would have found a seam of coal of quite a different nature, than the seam which they now work.

I should be very sorry if we should have a fight about that question, which to my mind is perfectly clear & it is not easily conceivable to me, how you could come to any other conclusion.

98: Hector to Haast, 24-5-1867

ATL MS-Papers-0037-080

Wellington
24th May 1867

My dear Haast,

Got back at last, having been 7 months from home (?) this time !! I have just recd. your note of 14th inst. with the questions for Darwin which I will attend to in course.

Your Analysis of the Tunnel specimens will be completed in 10 days or so. The long time that the Laboratory took to build caused for the delay.

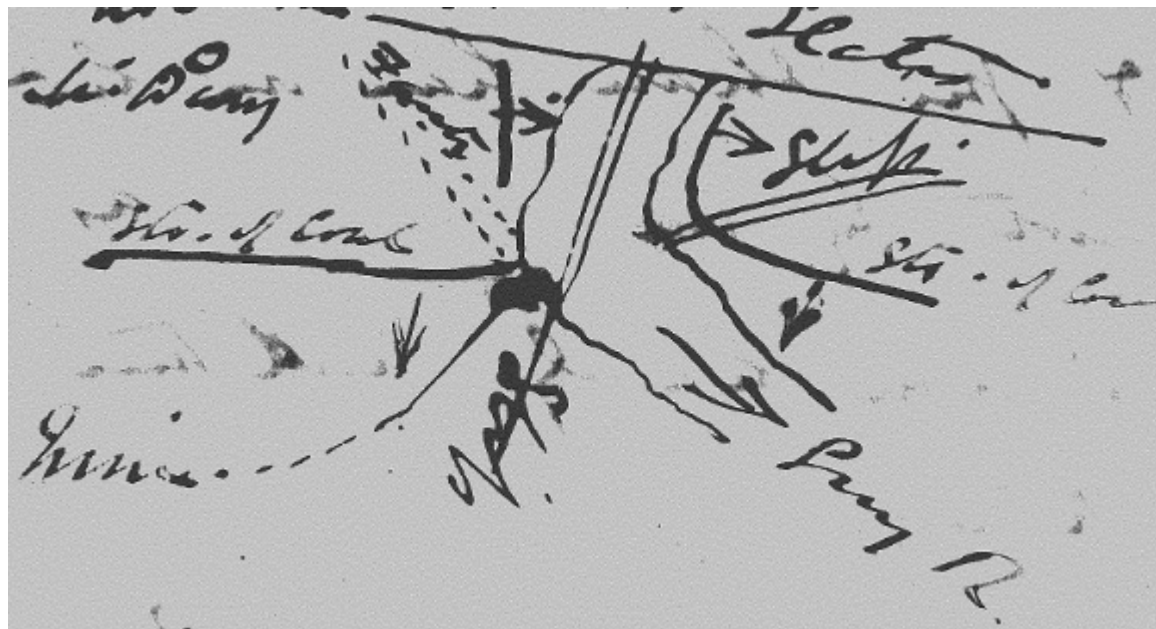
Buchanan will try to give you the names of the Auckland Plants, but he says Hooker has --- named or made any use of the collection. There was only one very distinct[?] & now one --- ----.

You expect a large letter from me you say & you shall have one but not by this steamer as I have barely had time to look round yet.

I found the Reptile Bones up Boobys Cr. There are three distinct breaks in the conformity of the strata there.

I cannot see the Brunner coal mine in the light you do[?].

The slip is on the N. side not the South.



of this more anon.

I will send you the Altitudes of the Waiau & Wairoa passes as soon as I can.

In haste,
Yours Sincerely,
James Hector

99: Haast to Hector, 30-5-1867

Te Papa MU000147/001/0379

Christchurch
May 30 1867

Dear Hector,

I received yours of the 24th of May & hope that you will soon make your home a home. Now concerning the strata in Bowby's [Bobby's] Creek (Waipara) you speak of three distinct breaks in the strata there. I suppose you mean local ones, because there is not the least doubt in my mind that the strata in question are overlying the Oamaru limestone series & underlying the yellow cragg which forms the crest of the hills & are therefore III! At least I speak from the strata between the mouth of the creek & where the timber track leads up to Mr Bishop's house & where the bones described by Owen have been found. I should like very much to hear some thing more from you about it.

Now concerning the Grey Coal measures, I can not deny that there are slips, but what I affirm is that they have not at all interfered as you think with the position of the seams. If you follow the strata from the large seam (now worked on the Nelson side) & which nobody before me had ever seen (this in parenthesis) to the slip in the bend, you will find that the rocks are all conformable & that consequently we can not speak of a fault; the semi-quaquaversal dip is quite regular. I once more look over my fieldbooks & can not conceive how such a slip could have slipped through my fingers, the more so as I have noted every bed & its strike & dip on the spot. There must consequently be a mistake somewhere.

The boxes with the splendid specimens from Milford Sound arrived but there was not a single piece of Greenstone amongst them. Mr Barff¹³⁵ told me that he had given you several fine pieces for me & I trust therefore you will at least give us one nice specimen as I do not possess a single one. Then I have still another wish. By putting our different skeletons together, I found to my great satisfaction that we shall have very nearly complete skeletons & as I intend to have them photographed & our skeleton of *D. giganteus* having only a very fragmentary skull, you would oblige me, if you would lend me for a fortnight or so a large skull of yours; so as to complete the huge skeleton for the photographer. If sent by the post it will safely arrive & of course I shall take great care of it.

The tunnel is at last through & it is capital to be now able to go through in about 25 minutes even on foot, but in two months we shall go on rail; in the mean time I shall complete the sections & send you your share. Forgive my hurry but I do not know how it happens we are always more or less in a hurry in a Colony.

When are you coming to Canterbury, in every case you must come for the opening of the tunnel. Mrs Haast sends her kindest regards.

Ever Yours de coeur
Julius Haast.

¹³⁵ Edmund Barff had accompanied Hector on the West Coast. Barff was a Member of Parliament representing the Westland South electorate from 1868 to 1870 and Hokitika electorate from 1876-1879.

100: Haast to Hector, 5-6-1867

Te Papa MU000147/001/0391

Christchurch
June 5 1867

My dear Hector!

I forgot to ask you if the bones you found are the same which I spotted some time ago, namely those in a large flattish boulder, opposite Bawby's creek half submerged with a bone about 15 inches long; Another boulder near the little waterfall with some vertebrae? (not clear) & another a little lower down sticking on the left hand side still in the sand. As I am tired of town I am going up next Friday to work those bones out, perhaps that I am so lucky to come accross yours. In every case I shall tell you when I return what I got.

By next mail I hope to hear from you.
In great haste but very sincerely yours

J Haast.

101: Haast to Hector, 27-6-1867

Te Papa MU000147/001/0397

Christchurch
June 27 1867

My dear Hector,

Many thanks for your two welcome letters of the 10 & 25 of June.¹³⁶ The list although so scanty was nevertheless welcome & I must now try to find the rest out as well as I can. Concerning a herbarium, I am quite willing to send you anything you may want from our Alps, provided you let me have from your Duplicates what is missing in our collection as for inst. Kaikouras plants & Northern Island ones.

Many thanks for the R.S. list, which has interested me very much. I return it inclosed. With the same mail I had a letter from Hooker which brought me the welcome news that I am one of the 15 selected by the Council, so that my election as he says is certain. Hooker says amongst other things there were upwards of 60 candidates the largest number ever known & I have been given to understand that the Council were unanimous with regard to 14 of the 15 – a most wonderful unanimity. I need not add that yours was not the 15th name.

I had most frightful weather up the Waipara & Bawby's Creek was so swollen that I could get only three bones close to the hut & could not get up to the little waterfall. We shall talk one day over the geological relations of that interesting portion of our Geology.

¹³⁶ We have been unable to locate copies of these letters.

Concerning the specimens of the Tunnel I am glad that the Analysis is so far; the best will be to send the rest up to you, as soon as I can come into the tunnel to finish. How would it be to publish it with a small section together. Namely I giving the fieldwork & the lithological character etc. of the lavastreams & you the chemical portion with your inferences. I think it would not be without interest. Tell me what you think about it.

We have now six species articulated namely *Dinornis giganteus, robustus, elephantopus, crassus, casuarinus & didiformis*. There are a few more species with which we shall occupy ourselves by & bye. Can you let me have a large skull for a few weeks?! I shall send you afterwards photographs of them all. It is a splendid sight.

Bristow¹³⁷ is I suppose a Geologist belonging to the Geol. Survey of Great Britain, but who is Mr Brayley¹³⁸ another of my proposers? Have I to write to them all & thank them? What is the correct thing.

I have now all the Memoirs of Owen concerning *Dinornis* & I have gone to the trouble to have them bound together & to make a catalogue to them, so that I could easily refer to each species. There are some very curious mistakes & slips in his descriptions, although generally speaking it is remarkable how very correct he is. I shall show them to you when you are again coming to Canterbury.

And now I have to say Adieu.
With united kind regards, ever my dear Hector
yours very sincerely
Julius Haast.

Will there be great fighting in the Assembly & separation?

102: Haast to Hector, 11-7-1867

Te Papa MU000147/001/0415

Glückauf
11/7/67

My dear Hector,

I received last night your note of the 5th & thought I had told you for what I wanted the loan of a skull of *Din. giganteus*; namely to have our skeleton photographed, but as I neither got it or an answer we searched the pieces together & got a tolerably nice skull. Over moa I repeat what I told you in one of my letters, that I am quite willing to let you have from my duplicates of Moa bones, what you want. All what I wish is to see our colonial collections, may they be made by A or B as complete and instructive as possible. I have now a complete set of Owen's papers & I went to the trouble to have them all bound together & to catalogue text (I mean letterpress) & plates. This was the only way to get done. You have overlooked to send me the promised fossils from the Northern Island. Please to remember it.

¹³⁷ Henry William Bristow (1817-1889), English geologist and naturalist with the British Geological Survey.

¹³⁸ Edward William Brayley (1801-1870), English geographer, librarian and science author.

I need scarcely tell you, how thoroughly disheartened I am that after all the P. Council has not voted the money to build me a Museum. I shall now try to arrange our collections in 3 rooms in the Government Buildings as well as the space will allow it. Also there is no money to print my topographical map of the Southern Alps or the geological map of the Province. I can have both printed at once in Germany, but think that it would be wrong to send them there before all means to have them printed in New Zealand or in England are exhausted. What do you think? Both are on a scale of 4 miles to one inch. I intended to have them printed in sheets of the same size as those of the Geol Survey of Victoria.

Concerning the tunnel section I am glad that my idea to publish our work together pleases you. The following would be a good plan:

- first, a small geol. map of the Peninsula, in which all the different craters, formations etc are shown.
- 2) Perhaps a few outlines of the Peninsula as seen from different points of view, so as for inst. the outlines of Mt Etna by Sartorius von Waltershausen.¹³⁹ They can easily be taken by photograph.
- 3) a short description of the peculiar features of the beds & lavastreams their age etc, by which the general character of the system of Banks Peninsula can be pointed out.
- 4) a few sections in different directions to show the nature, direction & dip of the beds.
- 5) The chemical part; the last by yourself, whilst some of the former can be our joint production.

This would no doubt form a most interesting work & would give no discredit to us in N.Z. – only the great question is; where shall the money come from for such a publication as the Prov. Chest is empty? Have you funds for such publication in your Department; the printing could be done in the Govt. press in Wellington I suppose, but the illustrations would cost a good deal.

I had yesterday a long letter of Colenso,¹⁴⁰ who is very anxious about his Exhibition Maori Essay, I mean to say to see it printed. When will you let those unfortunate Essays be printed?!

Mrs Haast who generally has a look at your letters, is rather angry with you, because. . . you have not sent her your kind regards for such a long time, in fact forgotten her existence. You may therefore look out for squalls when you are coming again to Christchurch.

I suppose your busy time is now coming, although you will not be able to do much actual work with the Assembly sitting. I am just preparing another set of specimens of the tunnel for you, which you have not yet got & send them by first opportunity, but perhaps I shall wait till I have done the last piece in the centre, which will be done in about a fortnight & send the lot together. There are some interesting rocks in the centre.

¹³⁹ Wolfgang Sartorius von Waltershausen (1809-1876), German geologist; *Atlas des Ätna* (1858-1861)

¹⁴⁰ William Colenso (1811-1899), Cornish printer, botanist, explorer, politician and missionary in New Zealand

I shall afterwards go once more over the whole section with the Magnesia light lamp so that no mistakes are possible. You have no idea how very interesting my European friends find this section. I have lots of details about dykes etc. Did I send you a set of all other rocks of the Peninsula? Now take the time if possible & answer my questions & give your ideas about my suggestions.

Ever my dear Hector
yours very sincerely
Julius Haast
Dr Hector FRS

PS

Mr Th. Triphook¹⁴¹ came to ask me if there was any chance of employment in your Dept., either in the Laboratory or in the field; as he intended to offer his services to you. As he is a trustworthy & industrious man, I think you would not regret to give him employ. He assisted me sometimes very materially in the examination of minerals & has done sometimes geological work at home. Hitherto he has been an Assistant Surveyor of this Govt. but as the Survey Dept. has been considerably been curtailed he is now out of employ.

Yours, JH.

103: Hector to Haast, 23-7-1867

ATL MS-Papers-0037-080

Geological Survey Office and Colonial Museum, Wellington
23rd July 1867

My dear Haast,

I think your plan of the Memoir on the Tunnel is very good & will lose no time in sending you Skey¹⁴²'s share & my own.

There is no doubt from the general results of the Analyses so far as I have gone into them that the rocks are all Marine volcanic formations – though perhaps not submarine. They belong to two distinct groups, basic & silicious alkaline Trachytes. However of this more fully hereafter.

I have been very busy with the Fossils from both E. & W. Coasts. The systems are much more complicated than I anticipated & certain groups of fossils appear to be very constantly associated in distant localities.

I am remembering you in sorting out the collections. I shall have 5 to 7 duplicate sets of most.

Do send up any tunnel rocks that are decidedly different at once as I will include them.

¹⁴¹ Thomas Dawson Triphook (1829-1899), Irish civil engineer and surveyor who worked for provincial surveys of Wellington and Hawke's Bay, before moving to Christchurch, and finally retiring to the Bay of Islands.

¹⁴² William Skey (1835-1900), Chemist who worked for Hector at the Geological Survey.

I fear there is not much chance for Mr. Triphook. Extension[?] is not the order of the day.

Do plead with Mrs. Haast for me – some other ladies have been sulky to me & I will get quite low spirited if I get out of her good graces.

With kind regards & in a great hurry,
Yours Sincerely
James Hector.

104: Haast to Hector, 26-7-1867

Te Papa MU000147/001/0418

Christchurch
July 26 1867

My dear Hector,

Two hours ago, I had written the beginning of my letter, when my wife called upon me to come & sing a song. This is now happily done and I won't go to bed before I have written to you and answered your letters & thanking for the various interesting papers you sent me by last two mails. Capt. Hutton¹⁴³'s paper is very interesting & I have looked over his map with great profit as part of the country is unknown to me & the III was rather confused in my mind. I see with great pleasure how immensely the colonial Museum has augmented & hope soon to hear that they have put a new building up for you. I have about 60 specimens of the tunnel, some of them very interesting & instructive which will come with the rest in about 3 weeks (some 30 more) so that you may, before you go to generalisations, have them all examined. You overlooked to answer my question about the publication of that Memoir. You told me that you will send me your shares, but I have here unfortunately at least not at present any means to publish it. Thus if you can not publish it as a General Govt. paper, please to tell me at your earliest convenience because I shall then write my paper in German at once & translate yours & Skey's share & have it published in the Transactions of the Imp German Academy or in Vienna with the Imp Geol Institute. I shall be glad if you will tell me in your next what are your ideas about it.

I observe you had some valuable assistance in naming your N.Z. recent shells. If I send you those I do not know, will you have them named for me from your own collections?

Cheer up Jam, you have been forgiven and the usual smiles will welcome you, when you come again to see us. I am going tomorrow to Glenmark to a Moa hunting expedition so must be brief.

With united kind regards ever my dear Hector
yours very sincerely
Julius Haast

When will your & mine & various other Exhibition Essays be printed?! If they are like mine they ought to have wonderfully improved!

¹⁴³ Frederick Wollaston Hutton (1836-1905), English soldier, geologist and museum curator in New Zealand.

105: Haast to Hector, 10-8-1867

Te Papa MU000147/001/0436

Christchurch
10 Aug 1867

My dear Hector,

Thanks for your letter of yesterday. I am glad to hear that you think you can manage about the Tunnel & other sections etc. & shall write at length as soon as I have done the whole (in about a fortnight). Therefore wait for generalisations till you have the whole material. What I can not manage about the recent shells I shall send up to you.

If you want another fine section of our tertiaries, send Mr Travers jnr.¹⁴⁴ to the Broken river & let him collect fossils from behind Mr Enys'¹⁴⁵ station to the beginning of the palaeozoic rocks down the river, although I can send you a complete set of the principal ones. I have been a week in Glenmark, where the tremendous Southerly gale caught me & consequently where I could do very little work; Mr Moore, with whom I had a long talk about you will be delighted to see you & to give you every assistance in his power. In order to get a good collection you ought to go yourself for reasons which I can best explain verbally.

It is a great pity that you have no time to come down for a few days to have a look at my articulated six or if we include our Emeu 7 skeletons, not only should I like to hear your opinion about them before I have them photographed but also before I shall send our duplicates away. There are about 60 pairs of legs of *Dinornis* & belonging to different species ready for your inspection. There are curious blendings from one species into the other & many other points of the highest interest to you & worth the journey before the bones are dispersed.

Why not come with one steamer & go back with the next? if your time is at present so very much taken up.

Concerning the skeleton of *Apteryx* about which I wrote to Buller, thinking that he was the right man to do so, I should very much like to have a good look at it. It travels very easily by putting it in a case & pouring bran round it; in such manner skeletons are sent from Germany to all parts of the world without disarticulating them & without any damage done.

I wish you would write a few notes on the Maori ovens with Moa bones in Otago & add some photographs of flint knives & bones as split open etc; or if you have not the time have a few flint knives & bones photographed for me (of course at my expense). It would form a very valuable Appendix or if you like Introduction to my Moa paper or if you come down to here bring a few knives & split bones with you, that I may have them photographed or figured here. Carus,¹⁴⁶ the president of the Leopoldina writes me that he will publish my paper with all the plates done by the best artists at his command.

¹⁴⁴ Henry Hammersley Travers (1844-1928), New Zealand naturalist, collector and taxidermist.

¹⁴⁵ John Davies Enys (1837-1912), Canterbury runholder and naturalist who accompanied Haast on expeditions.

¹⁴⁶ Carl Gustav Carus (1789-1869), German naturalist, physiologist and painter. Carus was elected as the 13th president of the Leopoldina in 1862.

I shall be delighted to receive the tertiary fossils & as I am just beginning to arrange our provincial collections I shall put aside all duplicates so that you may look through them & take what you want when you come here.

I look forward with great interest towards your N American map as that country is entirely unknown to me.

If you want any information or assistance from me, you know that I am only too glad to work for you.

Ever my dear Hector,
yours sincerely
Julius Haast.

I had a letter of Prof Owen about Moa bones & I may here add, that I possess now all his (10) papers.

106: Hector to Haast, 23-8-1867

ATL MS-Papers-0037-080

Geological Survey Office and Colonial Museum, Wellington
23rd August 1867

My dear Haast,

Thanks for the hint about Broken River. I have directed Travers accordingly.

Your Tert. Fossils are packed but I wish to look over the names & to add a few more before they go.

Dr. Knox¹⁴⁷ wont hear of the Kiwis making a voyage & he set it up. It is not an articulated but a natural skeleton so that the slightest displacement would be irreparable. It is quite a different thing to build up a skeleton & to get one so prepared as to tell its own tale.

What are you going to write a Moa paper about? Have you any new specimens & do you feel game to go in for description? or is it a little popular notice of the bones you have found. My flakes are all figured & embodied in the notes on the Moa Chick & Egg, so it would be no use making a twice told tale of that.

I shall send you some flakes with the fossils however as I have lots. I got a great cash of bones from the Govr. the other day which he collected at Mantells old locality near Patea & among them some new forms of flakes of very simple type.

I will try to take a run down in a fortnight or so as I am anxious to have a look at some of the Tunnel rocks in situ.

¹⁴⁷ Frederick John Knox (1794-1873), Scottish surgeon and naturalist who worked at the Colonial Museum.

With kind regards to Mrs. Haast
Yours Sincerely
James Hector.

107: Haast to Hector, 27-8-1867

Te Papa MU000147/001/0435

Christchurch
27 Aug 1867

Dear Hector,

Your letter of the 23rd of Aug is at hand. I am delighted to hear that there is some prospect that we shall see you here. Come straight to Glückauf; we shall be delighted to see you. I do not want the *Apteryx* skeleton as I am getting one from Hokitika. I hope that my tunnel section will be ready when you arrive here & that we can talk it over on the spot. If you have duplicates of Northern Island shells, land & sea, I shall be glad to exchange with you with European ones of which I have some fine duplicates.

I hope you are bringing the III fossils & in return I will put aside of all my III & other fossils to make your collections as complete as possible.

As I shall see you so soon, it is not necessary to tell you that I intend doing with my Moa notes & photographs, because I like to talk the matter over with you & be guided by your advice, what & how much I shall publish.

Perhaps it is the best, I write the whole in English & send the manuscript with drawings & photographs to Owen.

I feel game to do something. When did you publish your paper about the Moa eggs & Chick? I never heard any thing about it. Can you spare me another copy of Capt. Hutton's paper? I sent the copy I had to Hochstetter by last mail, as I thought he would be much interested in it.

Some time ago you adressed a letter to Dr Eccles at my office but he never came. And what about my Essay?! I named all the recent shells we have, that is to say threw them in genera & a few in species where my books of reference would let me.

We made lately a very interesting find at Glenmark. A pelvis, femur & tibia of a *Din. giganteus* which beats any thing I have seen before. The tibia is 39 ½ inches long & of a thickness quite wonderful, the femur 18 ½ inches.

But you will see by yourself so come old fellow & we shall have Geology in the day & music in the evening.

Ever my dear Hector
yours sincerely
Julius Haast.

108: Haast to Hector, [16-9-1867]

Te Papa MU000147/001/0452

[Received. 16 Sept 1867]

Dear Hector,

I just heard from Mr Cas Todhunter¹⁴⁸ that you had the cabinet of N.Z. woods for Dr Hooker, of which we spoke nearly two years ago, made. You never told me what was my share. Please to do so because I do not like to be in debt. I hear also that you intend to go north to look at those blessed Auckland Goldfields, but trust that you will find the time to run down here with the steamer for tunnel & other purposes, which will certainly not take you a week, as there are always steamers to & fro. The Moabones alone are worth your inspection before they are dispersed & I think that such an important scientific fact ought to be worth your while.

In every case write a telegraph when I may expect you & you will see some wonderful things. Mrs Haast send her kind regards.

Ever my dear Hector
yours most sincerely
Julius Haast.

PS I have 15 or perhaps 17 distinct species, probably some of them male & female & of each often 6 to 8 specimens & many very curious bones.

109: Haast to Hector, 12-10-1867

Te Papa MU000147/001/0472

Glückauf
12 Oct 1867

Dear Hector,

Your letter of the 5th & the Reports reached me in due time.¹⁴⁹ Many thanks for both. I see with great pleasure, that you intend to publish soon some of your field work & that also the unfortunate Essays & the geol. map will be taken in hand. Concerning my share in the Geological Map I wish as you intend to make alterations, to do so also, in order to bring it up to date. I shall soon finish my tunnel Survey & ship off the specimens for you, unless you pay me a visit, when you can take them with you & any other of our duplicates you should like. I have just begun arranging our collections to the best according to the rooms allotted to me & hope to have finished in about 3 weeks.

¹⁴⁸ Charles Franklin Todhunter (1838-1916), who married Caroline Dobson, the sister of Mary von Haast.

¹⁴⁹ We have been unable to locate a copy of this letter.

I shall start middle of next month South, so that you ought to come before. I enclose a cheque for £3.3/ for Hooker's Cabinet. Do you want any more subscriptions? I dare say I can get a few Pounds from some other people.

I have according to your wish canvassed for the NZ. Society & have already about 10 members enrolled & shall send the money by the next steamer, so as to be in time before end of Oct.

I trust that this time the NZ. Society will not go to roost again & I will, to the best of my abilities, assist in keeping it alive.

I am expecting the III fossils & shall put aside some of all our duplicate fossils for you.

Sartorius von Waltershausen's work on the climate of the geol. periods etc is highly interesting .What a pity that you do not understand German so well, that you can read it easily. I have already 24 sections of the Province ready, & also my map is advancing towards completion. Hochstetter wrote me in July that his book was nearly ready to be issued so that by next mail we may hear that it has been shipped for NZ.

So I am expecting you by one of the next steamers; come straight to us; your little room will be ready.

Mrs Haast sends her kindest regards. I suppose you feel fully that the Politics & Politicians have left you now in peace. What next?!

Yours my dear Hector
most sincerely
Julius Haast

Dr J Hector
FRS etc.

110: Haast to Hector, 17-11-1867

Te Papa MU000147/001/0494

Glückauf
17 Novb 1867

Dear Hector!

I do not know if you will receive this letter by any opportunity but in every case I wish to write & to thank you for the capital rock analyses of the Tunnel specimens as well as for the fossils. There were no names attached to them, namely whence they are derived. I suppose the newest tertiaries, detached fossils are from Wanganui; but the locality of the shell limestone specimens is unknown to me & you will oblige me, by telling me from where they came.

I had just finished my arrangement of our III fossils & you will no doubt be interested by the series, I was able to place side by side. The photographs of my Moas will go to you by one of the next steamers with a few notes.

I hope & trust you will have a pleasant trip & that you will find time to send me a few lines.

I shall start South in about a fortnight & shall be back to Christchurch beginning of January & to leave again end of the month for the Westcoast. Will it be possible for you to run down in January for a few days? I have completed the tunnel section, but have not yet found time to get the specimens ready, but which I hope will leave in the course of a fortnight, so that you will have the whole specimens complete. The analyses have interested me very much & I shall send you some notes about them, principally in comparing your results with those of Rammelsberg,¹⁵⁰ Bunsen¹⁵¹ Schrötter¹⁵² & Hauer¹⁵³ of either identical or similar rocks. We can then also have a korero about the nomenclature.

Mrs Haast sends her kindest regards
Ever my dear Hector
yours most sincerely
Julius Haast

PS 12 Decb 1867

I am glad to see by the newspaper that you are safely back & I hasten to send the photograph at once & hope to hear soon from you. Two defects in the skeleton ought to be told at once; namely that we used for *Dinornis giganteus* for the uppermost cervical vertebra & the epistropheus larger ones, belonging to a different bird, probably to Owen's *Din. maximus*. Then we had no sternum for *Din. robustus*, so I took one of *Din. elephantopus*. I am starting in a few hours.

Yours sincerely
JH

I am in regular communication with town, so I hope to hear from you.

¹⁵⁰ Rammelsberg is a historic mining area in the Harz Region of Lower Saxony.

¹⁵¹ Robert Wilhelm Eberhard Bunsen (1811-1899), German chemist.

¹⁵² Anton Schrötter von Kristelli (1802-1875), Austrian chemist and mineralogist.

¹⁵³ Carl von Hauer (1819-1880), director of the chemical laboratory at the Imperial Austrian Geological Survey.

111: Haast to Hector, 10-12-1867

Te Papa MU000147/001/0504

Glückauf
10 Decb 1867

My dear Hector!

By this mail I send you some large photographs of our Moas, which I trust will not be without interest to you. I heard with great pleasure that you have succeeded in reaching Tongariro & I have no doubt that at last we shall hear some thing definite about those N.Z. volcanos. I am off in a few days & shall be back end of January & I suppose I shall see you in course of that month when you come over with the Prince.

I have no other news to give; the tunnel specimens will go in course of next month & hitherto I have not yet had the time to get the last lot ready & I want to send them all together, what still remains.

Mrs Haast & the children are well & the former sends her kindest regards. I am going South to go over the country between the MaKenzie Country & the East coast north of the Waitaki.

There are some defects in the skeletons, of which I am well aware & concerning which I have written some notes, which as ever as I have time I shall copy for you. I think I shall be back towards the 20th of January.

I hope you will find time to write me something about your interesting journey, I wish I could have been with you.

Ever my dear Hector
yours most sincerely
Julius Haast.

Dr Hector FRS
Wellington.

[*Line crossed out*]

I began to write German to you!

In the General View I have introduced a Kiwi skeleton (*Apt Owenii*) & a specimen of Homo (sapiens?) in the form of Fuller for comparison of size.

112: Haast to Hector, 25-12-1867

Te Papa MU000147/001/0508

Orari Gorge
Christmas day 1867

My dear Hector,

I just received here your letter of the 15th & am glad to hear that the photographs are of interest to you & shall not fail to send you some notes for the N.Z. Society upon the subject, although I fear it will not be before next autumn, as I shall be in the field until to end of April (with now & then a few days in Christchurch).¹⁵⁴ But in every case I shall try to send you next month the remainder of the tunnel specimens, which have only to be packed. The analyses are highly interesting & suggestive but it will be necessary that we talk some of them over, or that I show you over the ground. Some of them are only pieces of rocks or boulders in volcanic agglomerate.

It was really a great pity that you could not come & have a look over our Moa bones before they were dispersed or secure for yourself, sets of all we could spare. I left them more than a month, thinking you would come. I worked the matter up very much & I would have been only too glad, to see if my deductions were correct. I have of course very extensive notes about every thing & will send lists of measurements etc. when I return. There was only one specimen of *Palapteryx ingens* amongst the whole lot, but you will find all in the notes. Fuller is still at work at Glenmark & I hope he will get me further material. I hope you will write soon again & I am only very sorry that I cannot write more fully as the man going down to the station is waiting but I may say here, that all the subdivision of *Dinornis* to which *Din. elephantopus* & *crassus* belongs have all a hallux; we have lots of back phalanges, claws etc, & I believe that even some of the others are also four toed birds.

I shall write soon again.

With a happy New Year my dear Hector

ever yours most sincerely

Julius Haast

Dr J Hector FRS etc

Wellington

Is Ruapehu still active?! Do tell me something about your journey!

¹⁵⁴ We have been unable to locate a copy of this letter.

113: Haast to Hector, 20-2-1868

Te Papa MU000147/002/0016

ChCh
Febr. 20 1868

My dear Hector,

I just returned to town for a day or two & shall be off at once for the Westcoast, where I want to go inland from Bruce bay etc to the heads of several of the different rivers coming from the Central Chain. Many thanks for your last report, which looks very interesting, but I have not yet time to look into it.

When I return from the Westcoast, I shall at once get the rest of the tunnel specimens ready for you.

When will you come over, I have now a nearly complete collection of our III fossils, which before I classify them & not to clash with your nomenclature, I wish you would look over with me. There is no doubt much what you have not seen before but I have plenty of duplicates. I hear that the so called Selwyn Copper Mining Company has sent you some specimens. They for several years showed greenstone rocks (Diabasic) with Iron pyrites for Copper ore & abused me, because I would not believe them. Where they got all the specimens from, heaven knows. I suppose they intend to use your answer against me & to get some shareholders. If you have time write to me Hokitika.

I trust you will pay us soon a visit, I shall be back middle of April.
Mrs Haast sends her kindest regards.
Ever my dear Hector
Yours very sincerely
Julius Haast

I shall when I return send you a paper on the *Dinornis* measurements for the NZ Society, which I would have done sooner but I do not like to lose the fine weather.

114: Haast to Hector, 27-2-1868

Te Papa MU000147/002/0018

Christchurch
Febr. 27 1868

My dear Hector,

After all I did not get away, as I received in the last moment before starting a telegram, telling me that the Steamer *Bruce* had broken her shaft & thus I have to wait a few weeks longer. According to your wish I forward by this mail the list of measurements, with a few notes, which you will lay before the NZ. Society. I shall be glad if you will compare it with the bones in the Colonial Museum & tell me, how far the Otago & Northern Island

species resp. varieties agree with my measurements. I have brought these measurements up to the last date of our excavations & I fear very much that we have the cream out of the swamp. With our work I think the claim is nearly worked out.

By the way who is your agent in England? There will be shortly a parcel for you from Germany, to whom can it be sent? Please tell me by return of the mail.

What is the NZ Society doing? Are you contributing to it & what & when can I see about its proceedings.

Mrs Haast is still in Governor's Bay.

I have finished Banks Peninsula & have some very interesting rocks for you, the sections will be rather new to you, but I fear I shall not find the time to make the specimens before I shall go to the West coast, unless it will leave me time to stay a few weeks longer in town.

I hope you will soon write & tell me some thing about Tongariro & Ruapehu.
Ever my dear Hector
Yours most sincerely

Julius Haast.

115: Hector to Haast, 1-3-1868

ATL MS-Papers-0037-080

[No place]
1st March 1868

My dear Haast,

Allow me to have the pleasure of introducing to you Mons. Morange, Belgian Consul General who is travelling through the Colonies and will be I am sure be[sic] delighted to see your collections & especially the wonderful collection of Moa skeletons.

Believe me,
Sincerely Yours
James Hector

Julius Haast F.R.S.
&c. &c.

116: Haast to Hector, 27-4-1868

Te Papa MU000147/002/0028

Christchurch
April 27 1868

Dear Hector,

Mantell told me, when speaking about Museums in general, that Mr Buchanan had complained that I would not let him see the Moas. I am quite at a loss how such a statement can have been made, because I have never seen Mr Buchanan since I left Wellington.

But in order to right me also with you, I asked Mr Holmes about it, & I enclose his letter. It may at the same time be possible that Mr B. may have seen Fuller, who is not in town at present & that it was during the time, when I had given instruction not to let the public come into the room in which we were just occupied with articulating the Moas. Of course I should never have dreamed that Fuller would not let Mr Buchanan enter. As soon as Fuller returns I shall ask him about it. I hope when this letter arrives that you are back from the North & will soon come to see us.

Ever my dear Hector,
yours most sincerely
Julius Haast

Dr Hector FRS.

117: Haast to Hector, 5-1868

Te Papa MU000147/002/0036

[May 1868]

Dear Hector,

Many thanks for the 2 copies of Hochstetter's *New Zealand* through which I looked last night with great pleasure & also for the plant specimens, which were very welcome.

I gave the 2nd copy to my father in law, which as I thought was well entitled to a copy. I have only time to write these few lines, as I am in a great muddle with tunnel specimens over my whole office. Your lot lies ready. Shall I send them on, or will you wait till you come here, when perhaps many other things will wander with them northwards. Excuse my hurry.

Yours most sincerely
Julius Haast

Dr Hector
FRS etc Wellington.

118: Haast to Hector & Eccles, 5-1868

Te Papa MU000147/002/0342

[Three letters filed together]

Dunedin
14 May 1868

My dear Hector,

Enclosed is a letter from Dr Haast who was down here this week for a couple of days.

I have not submitted the letter to the Commissioners as I think it best to first refer it to you.

Personally I should like to see the Exhibition work completed by the Essays being printed if that becomes feasible.

In gr. haste
yours faithfully
A Eccles

Dr Hector F.R.S.

Glückauf
15 May 1868

My dear Hector!

Your letter of the 12th came yesterday in my possession on my arrival from Dunedin, where I had unfortunately to go to give evidence in a case of forging my signature under a cheque & I have to go there again on or before the 30 of June, so that if you intend to run down, do so before or after that time, because I hope to return in 8 days after that date. Your tunnel specimens will be ready, also some more very interesting ones from the West coast & Banks Peninsula. I am very anxious myself to have you looking over our collections & to hear your suggestions to make them more perfect. I have tried to arrange them as well as the means at my command would allow me; there will be many mistakes, but they will be corrected in course of time. Concerning the NZ. otter! I am expecting the remains every day & hope to show them to you when you come, with a full & particular account of its capture.

The Dunedin folks talk at last of having a Museum & they intend to arrange your former collections in some beautiful rooms in the new Post office. I had a long talk with Eccles, where I spent one of the two evenings I was in Dunedin & I requested him in writing to return me my illfated Essay as now out of date.

I shall be delighted to see you as I want to have a long talk with you about many important matters.

Mrs Haast who sends her kindest regards, expects her confinement very soon, she is remarkably strong & we are, as usual, as jolly as the day is long.

I am very hard at work, so you must not expect long letters from me. I enjoyed Mantell's company very much & was much gratified to meet his approval for what I have done.

Ever my dear Hector
yours de coeur
Julius Haast.

Dr Hector FRS.

Dunedin
12 May 1868

Dear Sir!

When I was requested in the beginning of 1865 to write an essay on the Geology of Nelson & Canterbury for the Royal Commission of the N.Z. Exhibition, I was very much prepared to complete it at once, so that it might be printed without delay. In order to comply with that request I did so at once with great inconvenience to myself & to the public service of the Province of Canterbury, as my services were required at the Westcoast.

It is now more than three years ago, that I handed over that Essay to the Royal Commissioners & although I reminded them repeatedly, I never have heard any thing more of it. Owing to the rapid advance of Scientific exploration of the Country, I consider that the Essay in question is now rather out of date, except that I be allowed to review it & make such changes as I deem necessary.

You will therefore oblige me to return it to me at your earliest convenience & to communicate to me at the same time if the Royal Commissioners wish me to make the necessary alterations & will undertake to print it at once after I shall hand over the revised manuscript. Otherwise I wish to retire it altogether.

I am dear Sir
yours most truly
Julius Haast.

Dr Eccles
Hon Secretary
Royal Commission
NZ. Exhibition
Dunedin.

119: Haast to Hector, 30-5-1868

Te Papa MU000147/002/0038

Christchurch
May 30 1868

Dear Hector,

I do not remember if I have sent you some of the stereo's of our Moas. Therefore I hasten to enclose them to you. Don't you think they give a good idea of them.

Monday next I am obliged to go to Dunedin but shall be back towards Saturday 6 June & there remain in Christchurch & I hope that you will come down afterwards very soon, because I long to have a good yarn with you & to show you what I have done. Your tunnel specimens are ready.

Ever my dear Hector
Yours very sincerely
Julius Haast.

I have got the complete wing bones of a Moa closely allied to *Cnemiornis* (Owen).

120: Haast to Hector, 7-6-1868

Te Papa MU000147/002/0041

Otago Club, Dunedin
7 June 1868

My dear Hector,

I received your letter & the parcel of Manuscript last Monday the 1st of June & intended to answer it from here as I was on the point of going on board the Steamer.¹⁵⁵ Unfortunately we had such a protracted passage that we only arrived here this morning. Twice we were driven back by horrid weather to Akaroa, whence we could only start yesterday Saturday Morning. Concerning the unfortunate manuscript, I shall talk the matter over with you, when we meet. I only am grieved to have lost so much valuable time for writing it.

You did not tell me that the second copy was for the Philos. Institute. You only said; here are two copies of Hochstetter's work. I shall read some more by & bye. I therefore thought the 2 copies were intended for me & that is the reason that I gave one to Mr Dobson. However it does not matter. I shall hand the other copy over to the Phil Institute, the more so as I expect a book parcel from Cotta in which there will be doubtless a presentation copy for me.

¹⁵⁵ We have been unable to locate a copy of this letter.

Enclosed the 2 receipts. I am very sorry that you are not coming so soon to Christchurch; at my return, I shall write you at length about some important matter.

I shall return by the *Ahuriri* which leaves Tuesday.
Ever my dear Hector
yours most sincerely
Julius Haast

Dr J Hector FRS
Wellington.

121: Haast to Hector, 22-6-1868

Te Papa MU000147/002/0045

Christchurch
June 22 1868

Dear Hector,

I trust you have returned safely home & I write only these few lines to tell you that I have sent the Newspaper in question by the mail. Take enclosed letters to Sir George Grey. The books are in a case which was sent by the Austrian Government end of last year. Perhaps you are kind enough to inquire, if that box has arrived & what became of it. If you should not be able to get hold of my portion, please to forward the enclosed letter to the Ex-Proconsul, now living in his Tusculum.¹⁵⁶

I am very busy of giving the last finish to our Collections & shall then finish the maps. Your two Moas go on slowly but surely, we had today a long hunt for ribs, but I fear we shall be very deficient in that respect. I think they will be ready to go end of the month; the box of specimens will go at the same time.

I have been thinking about the proposed change, and come to the conclusion that it would be better to call me simply "Custos of the Colonial Museum" & nothing else with the understanding that during your absence, I am your representative & am actually the Assistant Director. Would this not simplify matters? I have been told that every thing is so very dear in Wellington, so that I ought to be so placed that I can at least live respectably. But as I told you before I leave all these matters in your hands. We shall have tomorrow night a meeting of the Council of the Phil. Institute to prepare the necessary matters for the general meeting. I do not doubt one moment, that we shall have 25 members & the necessary funds & that we shall request incorporation without any objection. Mrs Haast & the baby are going on well, the former sends her kindest regards.

Ever Yours most sincerely
Julius Haast

Dr J Hector FRS
Wellington.

¹⁵⁶ Ruined Roman city.

122: Haast to Hector, 26-6-1868

Te Papa MU000147/002/0048

ChCh
26 June 1868

Dear Hector,

Enclosed I send Holmes's translations,¹⁵⁷ through which I went very carefully with him, making the necessary corrections, so that I can now vouch for its correctness. At the same time I have added a few notes of introduction. You may curtail, or add to them what you think is right. [*Marginal note:* The Translation goes in a parcel] By last mail I had a most gratifying letter of Prof Agassiz, requesting me to know what I want principally. As he requests me to send him many things from NZ, which however you can well manage from Wellington, I wish to know what is your opinion about returns for the Colonial Museum, well understood that the Canterbury Museum will receive its fair share for former things sent from here.

Might I suggest, that we ought to ask for as complete a collection of American fossils as well as a good collection of recent shells & their duplicates for Europe etc. A collection of type fishes, echinoids & Asteroids. Will you have some show things? as a large crocodile, snakes, quadrupeds. A good block of Connect. sandstone with tracks of birds. All what he wants, we shall find amongst your duplicates or can get it very easy without any expense! We shall have a fine share of the Amazon collections.¹⁵⁸ My old friend is a brick!

Of course this is all private matter between us at present, but I hope, it will be all right.

Your Moas are being packed today & will go with the geol specimens by next Steamer I shall write about it more fully & officially.

Mrs Haast sends kindest regards.

Yours de coeur
Julius Haast.

I send you my only copy of Buller Essay to facilitate the understanding of the translation, please send me another. Thanks for the paper of *Halleria*¹⁵⁹. It is very interesting.

Answer at once, so that I can write by next Panama mail.

¹⁵⁷ This is most likely Otto Finsch, 'Notes on Mr. Walter Buller's "Essay on the Ornithology of New Zealand."', *Transactions and Proceedings of the New Zealand Institute*, vol. 1, 1868, pp. 112-125.

¹⁵⁸ Agassiz travelled to Brazil in 1865-66.

¹⁵⁹ It is possible that this should be *Hatteria* – in reference to Albert Günther, 'Contribution to the Anatomy of *Hatteria* (Rhynchocephalus, Owen)', *Philosophical Transactions of the Royal Society of London*, vol. 157, 1867, pp. 595-629.

123: Haast to Hector, 6-1868

Te Papa MU000147/001/0513

[June 1868]

Dear Hector,

I shall to show you what we may expect, translate it you as verbally as I can from Agassiz's letter.

“I have already put up for you a collection of North American birds, but I should like to know from you, in what classes you would especially like to have specimens. I shall make for you an American collection as comprehensive as I can, but should like to have some hints from you as to the selection as there may be some special directions in which you wish to extend or complete your collections.

You see there is already one good chance to have some fair things. Should the mail not be in time here, so that I can answer by the Panama mail, send me a telegram telling me in a few words what you think is the best to get, so as not to lose any time”.

Yours most sincerely
J Haast

Dr J Hector FRS

124: Haast to Hector, 29-6-1868

Te Papa MU000147/002/0050

Geol. Survey Canterbury, Christchurch,
June 29 1868

Sir!

I have the honour to inform you that according to my promise, two skeletons of different species of *Dinornis* & as perfect, as the bones in our possession would allow me, have been articulated and sent to you, through the care of Messrs Heywood & Co.

They are of the Species *Din. didiformis* No. 4 & *Dinornis casuarinus* No. 2 of my list. Each of them consist of three separate pieces, which easily can be put together. The necessary wires are in them, besides these a few minor portions are packed separately.

Dinornis didiformis

All the vertebrae complete, except epistropheus. The atlas is in a small box separate. The skull has been restored from the best of the material at command. There are no caudal vertebrae. I could only add fragmentary ribs, but it will be easy to restore them. For this reason they have not been articulated, to the Pelvis and dorsal vertebrae. The necessary intercostals bones are added. The phalanges are complete.

Dinornis casuarinus

All the vertebra complete with the exception of the Epistropheus & Atlas.

Skull. The upper mandible has been prepared artificially and can easily be removed, should one be found, during future excavations. One tympanic bone is also artificial. Phalanges complete. Caudal vertebrae missing, but they could easily be made artificially from fragments of bones and plaster of Paris.

In another case you will find the rest of the Tunnel specimens & some geol. & pal. specimens from Canterbury & Westland; also a large specimen of *Raoulia mammillaris*, brought down by me from near the summit of Mt Torlesse.

Will you be good enough to prepare in return for the Canterbury Museum a collection of N.Z. shells, named as far as possible & as complete as it is in your power, also the few northern Island bird skins, so as to complete our Collections. More over I enclose a list of our Desiderata in this respect.

Any pal. specimens, rocks peculiar to the Northern Island, such as Rhyolites & other volcanic rocks, specimens from the Thames Goldfields will be gladly received.

I have the honour to be Sir,
Your most obedient servant,
Julius Haast,
Prov. Geologist.

I enclose a list of our Desiderata of the N.Z. Avifauna.¹⁶⁰
I have paid £1 for cases & work to the carpenter. – Bill enclosed.

The Director of the Geol. Survey of New Zealand.

125: Haast to Hector, 2-7-1868

Te Papa MU000147/002/0050

Geol Survey of Canterbury, Christchurch
July 2. 1868

Sir!

As there was a great deal of room in the case in which the two articulated skeletons of *Dinornis* were packed, I have added as further exchanges the following Moa bones for the Colonial Museum.

1) Left leg of *Dinornis elephantopus*, same size as mounted specimen in the Canterbury Museum.

¹⁶⁰ Haast's manuscript list is headed "List of Desiderata – Canterbury Museum", dated and signed "Christchurch, 2 July 1868, Julius Haast, Prov. Geol." and was presumably sent together with the letter of that date.

- 2) [Left leg] of *Din. casuarinus* No. 1 of my list.
- 3) [Left leg of *Din.*] *struthioides*.
- 4) Odd leg bones [of *Din.*] *didiformis* jun.?
- 5) 3 leg bones [of *Din.*] *casuarinus* No. 1 jun.?
- 6) right leg of [*Din.*] *crassus*? No. 16 of my list.
- 7) 2 leg bones [of *Din.*] No. 17 of my list.
- 8) 1 pair of fibulae [of] *Din robustus*
- 9) 1 [pair of fibulae of *Din.*] *elephantopus*
- 10) 17 phalanges [of *Din elephantopus*]
- 11) 10 [phalanges of *Din.*] *crassus*
- 12) 4 fragm. bones [of] *Cnemiornis* species
- 13) 6 fragm. ribs [of] *Din. giganteus*.
- 14) Cranium & portion of lower mandibles of *Dinornis gracilis*

I have the honor to be Sir,
Your most obedient servant,

Julius Haast
Prov. Geol.

The Director of the Geol. Survey of New Zealand

126: Haast to Hector, 2-7-1868

Te Papa MU000147/002/0049

Christchurch
July 2 1868

Dear Hector,

I hope that the 2 cases which are going with the *Beautiful Star* are reaching you safely & it would perhaps be good to send some body on board to see the case with the skeletons on shore. As there was room in it, I have added besides your parcels, 11 parcels of Moa bones for Captn Hutton. Excuse my hurry. I hope to hear soon from you.

Yours most sincerely
Julius Haast

I have some more specimens for Captn Hutton here which I shall bye & bye.

The Gen. meeting of the Phil Inst. has last night unanimously decided to join the NZ. Institute, so that this matter is also satisfactorily settled. I should write the necessary letters as soon as 25 have paid in, which will, be in the course of a week or so.

127: Hector to Haast, 4-7-1868

ATL MS-Papers-0037-080

[No place]
4th July 1868

My dear Haast,

I fear very much that it will not be possible to make any definite arrangement as to your future engagement on the Geol. Surv. before the session. Ministers seem favourable to your being employed but they have been cutting down all the Depts. so freely that they dont like to propose any additions that will appear in the Estimates. I have shown your letters to them all but have not forwarded it officially as we dont want to get any but a favourable answer, and there is no object in getting the matter officially shelved.

I am very sorry for this as I would like to have been able to put the business on a clear understanding at once.

I will write again as the mail is now closing & Govt. House people[?] are just coming in to bother me.

Sincerely Yours
J. Hector.

128: Haast to Hector, 9-7-1868

Te Papa MU000147/002/0053

ChCh.
July 9 1868

My dear Hector,

Although there is a mail arrived which probably will have a letter for me from you, I will write a few lines to enclose the bill of the carpenter for the boxes £1 which I paid & which you may refund to me when you have an opportunity. I also add a newspaper of tonight in which the leader will rather amuse you.

Your telegram concerning the collections to obtain from Agassiz arrived unfortunately too late to write by last Panama mail, I shall follow your advice, but as I have a right to expect a great deal more from him; I shall add if you think that it will be a useful addition to the Colonial Museum –

- 1) also a collection of older fossils from America & of their European duplicates.
- 2) A collection of named recent shells
- 3) *Eozoon canadense*
- 4) & A block of Connecticut sandstones with *Ornithichnites*.
- 5) A few Indian skulls.
- 6) A type collection of corals echinoids & starfishes.

I shall explain to you verbally why I can expect a great deal more, than you wanted me to ask for. Moreover as the Cambridge Museum is only a zoological one, he will have some trouble to procure the coal & minerals. I think a good block of Connecticut Sandstone & the cast of the *Aepyornis* egg, which I expect very soon will be an interesting addition to our Moa collections. I need scarcely tell you, that I was very much disappointed to see from your letter of the 4th, that after all the matter in question does not go off so smoothly as we both expected, nevertheless, I am in hopes that all will be all right, the more so as you really want somebody to assist you. If you think that I ought to come up to Wellington I shall be willing to do so, as soon as I have done with the Canterbury Government which will be towards the end of this month. Holmes was just in my office when I opened your letter & I told him the contents. He has made up his mind that there will be nothing for him under the circumstances. He intends to go to the Fidjis, in case he is not wanted; as he is an unmarried man he does not take it so very much to heart. Perhaps that this mail brings him good news. Many thanks for the Analyses, which are of the highest interest. The other specimen (Toomath) is so far as I can make out from the Acheron & of which I spoke in my Rakaia Report page bottom of 9 to 10. – please look at it. It will be of great interest indeed to collect specimens from each foot of thickness. There are also certain seams in the Malverns, which have assumed this anthracitic character but not by direct contact; there have been secondary causes at work, all what I hope to show you very soon.

I had a very kind letter from Mr Hall; I wrote to him a few lines on the subject. I shall finish this letter tomorrow in my office.

10 July

No letters by mail, so I must suppose you are too busy, but I am curious to know if the 2 *Din* skeletons arrived safely. To return to Agassiz I shall of course request him to send before anything the mineralogical specimens. There is here a good deal to be done, namely to get all the Duplicates for you, but I can not do it before I have finished my work for the Prov. Govt. & it will be time to correspond about it before that is done. There are also Duplicates of recent foreign shells & foreign fossils. Shall I put these also aside for the Colonial Museum?! Also a large material of *Dinornis* bones, which I will not touch before I have seen what you have in Wellington, so as to complete your collections. About the Kanohi. I have compared the remnant of skin very carefully & find that it is quite different from any Australian skin. I have written to Mantell about it.

Last night in walking home, I met one of my friends with a paper parcel in his hand, by accident he told me he was carrying his next breakfast home, namely some NZ quails just received from the Westcoast. You may imagine that I pounced upon them & secured them. The cannibale! Send me also a list of your desiderata in birds.

Mrs Haast sends her kindest regards. She is very well indeed, but our two eldest boys have the hooping cough very badly.

Don't be too gay!
Ever my dear Hector
yours most sincerely
Julius Haast.

129: Haast to Hector, 24-7-1868

Te Papa MU000147/002/0058

ChCh.
24 July 1868

My dear Hector,

I was rather disappointed when last night the Mail arrived, that there were no letters of yours, which I regret the more as I was very anxious to receive your answers upon many of my questions. Or should your letter to me have somehow gone astray?, because Holmes tells me, that “however you have of course received full particulars from the Dr. himself”, which I take for his understanding that you have written. –

However as a steamer goes in a few hours I write hastily these few lines & hope that you will find time to send me an answer at your earliest convenience.

What I want to know, is what you on the spot can of course well see; Is there any fair chance, that after the Assembly our plan can be executed? Or do you think you can in the course of next month or so, when all the great political questions such as change of Ministry or not are settled, tell me decidedly if you think that it can be arranged or not. The reason for this must be obvious to you. From the end of last month, I did not more receive any Salary & as I shall have delivered the maps over to the Govt. in a few days, I am free, consequently if there is not certainty one way or the other I must look out for some thing else, (grow cabbages etc or go home!). On the other hand I am quite willing to wait, until some decisions can be arrived at. In the mean time I shall go on with my work, collecting, drawing the sections looking out the duplicates & corresponding for exchanges & gifts, because it will always be of some benefit, if not to me personally at least to the Canterbury or to the Colonial Museum of which Holmes gives such a splendid account that I quite long to see it.

You have not written to me since your return except a weeks back & the telegram & of course I am anxious to hear what you say to my proposals & I want to get my letter away by the Panama Mail to Agassiz. There are some more matters for exchanges of very fair importance, which I like to talk over with you, but I like first to hear from you what you say to my proposals already sent to you. You may easily imagine that I am very anxious to hear from you, because it is a matter of vital importance to me & from your verbal communications it seemed to me that all was all right.

I have now time & if you wish me to do some work for you or the geol Survey I shall have now leisure to devote to it.

I trust that next mail will bring me some news. Mrs Haast sends her kindest regards; the children are very bad with hooping cough. Such is life.

Yours most sincerely
Julius Haast.

By this mail I had news from Prof von Siebold,¹⁶¹ who tells me that they are occupied to look out the palaeoz. duplicates; of the unique specimens of Solenhofen, they will send faithful casts. So the jurassic period will be well represented.

Friday morning

Dear Hector

When my letter was posted I remembered that Holmes had asked me about the Phil. Institute. As soon as 25 members have paid up we shall send the necessary papers. In a few days we shall have another meeting & elect 9 new members, so that we shall then at least get the necessary members.

The old members/beggars won't pay.

I shall go & see the Secretary. You may depend upon that I am doing all what I can towards it.

Yours de coeur
JH.

130: Hector to Hooker, 31-7-1868
ATL MS-Papers-0037-080

[No place]
31st July 1868

My dear Haast,

We did justice to your Moa bones the other evening and got some good remarks out of Mantell.

I had all the bones ranged out so as to give interest to the subject.

The meeting was in the Maori house & went off well.

Tuesday next is the great field day.

I send you t---- to show what we are about.

On the intervening[?] nights I am to give lectures on Geology of N.Z. so that I have enough to do. I have just done with the tunnel specimens & have handed over three of them bar one requiring analyses to Skey.

Sincerely Yours
James Hector.

¹⁶¹ Karl Theodor Ernst von Siebold (1804-1885), German physiologist and zoologist.

131: Haast to Hector, 12-7-1868

Te Papa MU000147/002/0059

Christchurch
July 12 1868

My dear Hector,

After I had posted my letter yesterday, I looked over some boxes & found to my great pleasure another mining compass, which I have given to Rolleston for you. It is a German one, having besides the division of 360°, that of our mining scale 24 horæ,¹⁶² but it is a very handy one. The copper ring is loose, so that it will be necessary to have it mended. I trust it will be of use to you. I forgot to tell you that a few days ago a Mr Petersen, a Norwegian came to see me; he receives regularly vessels direct from Christiania with Norway timber. He wants to send with the next vessel (which will leave in about 3 to 4 months for NZ) after her discharge some Moa bones, birdskins etc to the Christiania Museum & wanted from me to know, what I wished in return so that it could be placed on board before the vessel leaves Europe. I told him I would give him an answer before the Panama Mail left.

I think we can safely promise him 50 birdskins (some skins of *Apteryx* included as I have a good many) a collection of Moa bones; some fishes in spirits of wine & a collection of shells.

What shall I ask for? Let us not loose this opportunity as we get the things soon & free of expense.

How would it be, if we ask for as good & complete a collections of minerals & ores of the Norway mines with rocks, as can be obtained? Also collection of recent & fossil shells. Or will you go in for Zool. collection of higher order? Please tell me as soon as possible what you think about it, that we do not loose this good opportunity.

Ever my dear Hector
yours most faithfully
Julius Haast

Dr Hector FRS

Can you not send me some carts for the Analyses to write on for the Coals?

¹⁶² The mining scale is divided into 24 hours.

132: Haast to Hector, 6-8-1868

Te Papa MU000147/002/0062

Glückauf ChCh.

Aug 6 1868

My dear Hector,

I received last night, all your letters, for which my very warmest thanks; although I knew before hand, that owing to the present state of politics it would be impossible, to hear any thing definite, I was nevertheless glad to see that the matter of so much importance to me, is not shelved. I was much interested in your last meeting of the Phil. Society & I shall write you a letter which please to lay before it at its next meeting. It is to show that I did not as Mantell thinks, get all the specimens in a heap together; it is true there were many, but the principal skeletons, thus for inst. our *casuarinus*, *elephantopus*, *crassus* were found each separately, lying by themselves & the bones marked on the spot by me, as belonging together.

Again the leg bones of the large *elephantopus* with Pelvis, one complete leg of *giganteus* & some others which I shall give the details were found together & they bore out in almost every instance Prof Owen's reconstructions. I do not go into the Crania question. You see I got credit for more courage than I really deserve. But I shall write about it more fully. I shall see Mr Petersen & tell him, but can you not at least aproximately tell me, what you can send, for inst. of Birdskins, so that I can make up the case. I see you did not enter into my offer to get 4 or 5 dozen of skins here. The few pounds I wanted was for powder & shot, arsenical soap & travelling expenses to Banks Peninsula (Little River) & Oxford (Coaches etc) for Fuller. In every case I must try to get them somehow. In every case tell me as soon as convenient what you have to send. I did not receive your letter concerning Agassiz, but have written to him & asked besides what were your desiderata, what I considered of value.

Have you any odd leg bones of *Dinornis giganteus* & *robustus*. I should be very glad to receive them & give you others for them of equal value. It is to make up an exchange collection for Europe.

By the way. If you should like to see my illustrations to my lectures (or for use) or look at the lectures, I will send you the whole lot over. Last Monday I handed over the maps to the Govt., I must confess I felt rather queer (we Germans are a sensitive nature). Tuesday morning I took as far as I know the first holiday in New Zealand: I went to the Domain & Acclimatisation gardens & after lunch had a walk with Mrs Haast. Yesterday morning I set to work again beginning with the sections & I intend to stick to them & collecting & getting the fossils in order (I mean the duplicates). In a few weeks I shall go up to Glenmark, Moa bone digging & going into III detail work.

17 members paid the 2 guineas & I hope that in a very few days we shall have the rest in, as I have now little more time, I shall go round & see those, who have not paid. I am delighted about Holmes' prospects. He is a first rate fellow, you can trust him in every respect as he is very conscientious. When he left, I felt that I had lost a true friend.

Yours de coeur
Julius Haast
(a Gentleman at large)

Mrs Haast sends her kindest regards

Dr Hector FRS

Travers & Rolleston, who are both members of the Phil Institute of Canterbury (the latter being at the same time Patron) have not yet paid. Can you not gently hint?!

133: Haast to Hector, 17-8-1868

Te Papa MU000147/002/0065

Christchurch
Aug 17 1868

My dear Hector,

I received in due time your letter of the 8th & am sorry to see that you are now yourself doubtful.¹⁶³ I can say only, that if a country like NZ. cannot from its large income spend a few thousand Pounds on scientific pursuits which at the same time will advance its material surface, it will be a great pity & that then I shall prepare myself to leave.

But I shall wait till the Assembly has come to some results in their political arrangement & in the mean time go on quietly with my work, of which I shall speak to you by & bye.

I have only 2 papers from our Phil. Institute, a long paper by Dr Earle on Fever¹⁶⁴, & my paper on *Strigops*;¹⁶⁵ which are at your service. The first I shall send you privately that you may look at it, (the author has views of his own) & return it, if you do not want it. I would not like to offend the old & worthy man.

Slowly we get some more members & I trust that in a few days we shall have all the members & money necessary. As I told you before if I can be of any assistance to you (officially or unofficially) I am your Moses as I have some more time, although I am hard at my sections.

I send a newspaper about the earthquake sea wave. We had at 4 minutes to 10 this morning (Monday) a slight earthquake. 2 horizontal shakes coming & going twice from South to North. The bells in the house rang. The barometer high, no cloud. What is it about your scientific prophecy?!

I shall write fuller when I have heard from you.

Mrs Haast sends her kindest regards.

Ever my dear Hector

Yours most sincerely

Julius Haast

Dr Hector FRS

¹⁶³ We have been unable to locate a copy of this letter.

¹⁶⁴ J. W. Earle, *Fever: or, Life and Death: Three Lectures delivered at the Mechanics' Institute, Christchurch, Canterbury, New Zealand, on the 5th, 9th & 12th November, 1864*, Christchurch: Press Office, 1864.

¹⁶⁵ The Kakapo, *Strigops habroptila* (Gray).

Many thanks for the Governor's speech; it was first rate. I do not send any reply concerning the articulation of Moa bones. It would be too long & I had afterwards to repeat myself when in my paper I shall go in details.

134: Haast to Hector, 28-8-1868

Te Papa MU000147/002/0069

Christchurch
Aug 28 1868

My dear Hector,

I send you enclosed a list of ferns of which I am very desirous of obtaining specimens, perhaps that you can get Mr Buchanan to look them out for me from your duplicates.

Some of them I may have but I am not certain of them; others are not found in this Island. [*Marginal note:* Perhaps that you can get some of my desiderata of Travers.] As soon as I shall get your second lot of Tunnel specimens Analysis, I shall at once set to work. You know I have four complete sets of specimens. How would it be, if we prepare a joint paper on that interesting subject, I the geological, you the chemical portion & send it with a copy of the section & the specimens to London.

It would be a unique contribution. Or we can arrange the paper in any way you may suggest. Of course it would be highly desirable that you go with me over at least a portion of the actual section, which I have done with great care, that you might judge by yourself. As soon as I have the whole lot I shall compare them with the German analyses of similar rocks & translate for you, what I consider interesting with nomenclature etc.

Some weeks ago, I had a talk about our plans with an influential member; he thought that your influence was so unbounded, that it would not be difficult for you to carry any thing you thought was necessary for the proper advancement of the Survey, & even if you liked, he thought that you could get your Ests revised & augmented by the members. Well we shall see; moreover there will be only 9 months of this year & therefore the expense will not be so great.

As soon as the weather gets fine I shall begin with the duplicates & put them all so, that they are as easily accessible as the specimens in the Museum. Afterwards I intend going to Glenmark, Moa bones hunting & doing some detail III Geology. We are just at work to prepare a skeleton of the Sea Leopard (*leptonyx*). It is a very good specimen. I hope that I shall tell you by this mail about our Phil Inst; Honorary Secretary & Treasurer are lazy.

Ever my dear Hector
yours most sincerely
Julius Haast

Kindest regards of Mrs Haast.

135: Haast to Hector, 1-9-1868

Te Papa MU000147/002/0070

Christchurch
Sept 1 1868

My dear Hector,

I wrote you a few days ago & received yesterday yours of the 25th.¹⁶⁶ I am truly sorry to see, that you seem to have altogether given up the hope, that our project should be realised, but I still hope, against hope & wait only what the estimates are like or if no political changes will be favourable to us. I see that one of the Wellington papers reprinted my letter¹⁶⁷ & gave some more accounts about the Simoda Earthquake¹⁶⁸ giving a different time for the travelling of the waves. My authority is Naumann, who is generally very correct & considered on the Continent as the greatest authority we have. I could have given much more details, but thought not to be too long. I read with great interest your excellent lecture about the same subject and you will perhaps laugh at me, but not think me envious, when I tell you, that I felt afterwards very down hearted. There I had been racking my brains for the last fortnight collecting facts & drawing inferences & making generalisations & getting a paper up, when you with a few master strokes say all & much better & shut me up completely. I have put my paper entirely aside & trust that you will send all the necessary information to England. Strange that we both should alight & publish at the same time Lyell's essayage about the Samoa volcanic eruption. What a glorious lecture that of Fitzgerald¹⁶⁹ is?! I should have given much to hear it, there is at least life & animation in Wellington, whilst here I have the greatest trouble to keep our Phil Institute alive.

At last I can answer that 25 members have paid & that therefore the £50 are in hand, by next mail all the necessary papers will be sent up to you to ask for affiliation with the NZ. Institute. There has been still an underhand opposition going on all the time here about it, but I talked like a book to them. Also the few papers we have got will be sent up.

I alone got 20 people to join & all the old members induced two. I think we shall have when all have paid up more than 50 members. I enclose to you a very interesting account of the German Polar Expedition on a small scale. Petermann sent me two copies, so that you can keep this one. From the enclosed map you will see that he thinks the new discovered arctic land north of Siberia, is a continuation of Greenland. Holmes will tell you all the principal points which might interest you.

Concerning the disturbance in the sea, you use the expression "tidal wave"; Is this expression not used for some thing else? There is no doubt in my mind that these waves as experienced on our coasts are caused by an earthquake or volcanic submarine eruption & that therefore they cannot be called tidal; as far as I can remember Lyell & Mallet¹⁷⁰ never use

¹⁶⁶ We have been unable to locate a copy of this letter.

¹⁶⁷ See 'Earthquake Wave', *The Press*, vol. XIII, issue 1714, 18 August 1868, p. 2; 'Earthquake Waves on the Pacific', *Wellington Independent*, vol. XXIII, issue 2721, 20 August 1868, p. 5.

¹⁶⁸ Reference to the tsunami that hit the harbour of Shimoda, Japan, 23 December 1854. Note that Haast's spelling of Shimoda, as "Simoda", was also used in the New Zealand newspapers.

¹⁶⁹ J E Fitzgerald presented a lecture at the second meeting of the New Zealand Institute on 18 August 1868. See 'Mr. Fitzgerald on Art', *Wellington Independent*, vol. XXIII, issue 2722, 22 August 1868, p. 6.

¹⁷⁰ Robert Mallet (1810-1881), Irish geophysicist, civil engineer and researcher of seismology.

that expression. Also there is doubtless a connection between the two phenomena, so far at least that they started from the same focus of disturbance.

I got from the Westcoast another skin of the little Bittern which I bought. Shall I keep it back for you?!

Shall we get some return collections soon? Have you seen Agassiz's book. It is excellent & full of suggestive matter.

You never told me if you had forwarded my letter about the *Novara* publications to Sir George Grey. I hope I shall not lose the books, or do you think that I ought to write once more.

Mrs Haast sends her kindest regards. Your little godchild goes on favourably, he ought to become a good geologist.

Ever yours most sincerely,
Julius Haast.

136: Haast to Hector, 10-9-1868

Te Papa MU000147/002/0071

Christchurch
Sept 10 1868

My dear Hector,

As I am going to morrow for a few days to Lake Ellsmere with Fuller & have still many things to do before, I write a few lines to tell you that after all I have finished my Earthquakes paper & read it last night before our Institute.¹⁷¹ I thought that after all, I ought, to contribute my share & in order to keep our ChCh Society alive. As soon as it is printed I shall send you a copy & am curious what you say about it. I misunderstood our treasurer about the paying up of the £50 or 25 members; there are still a few unpaid, it is really provoking, but I have no doubt that in a few days we shall have the money together.

With kindest regards of Mrs Haast ever yours most sincerely

Julius Haast.

¹⁷¹ Julius Haast, 'On the recent Earthquakes on Land and Sea', *Transactions and Proceedings of the New Zealand Institute*, vol. 1, 1868, pp. 196-202.

137: Hector to Haast, 17-9-1868

ATL MS-Papers-0037-080

[*No place*]

17th September 1868

My dear Haast,

I enclose the cards for the coal specimens you asked for some time ago. The delay in sending them has arrived from our requiring to have more printed. I have the Norway collections ready & they will be sent by the first chance.

You seem to have had a very successful meeting of your society and I feel anxious to see your discourse on the Earthquake waves. I see that W.B. Clarke of Sydney gave a very long lecture on the subject but very little of it was about our waves.

Everything is out of gear here though the delay of the work of the session by this long continual political struggle so that I can still send you no news, as to plans for the future.

We have every thing now for the first vol. of the Institute Transactions but the papers from your Society & your rules & list of members.

It will be a most formidable volume as far as bulk is concerned.

We had a good meeting the other evening & tomorrow Mantells lecture on the Moa comes off. I dont know how he is going to deal with the subject but it is sure to be interesting.

I feel very weary & wish I was in the bush again & hard at work at what I like.

With kind regards to Mrs. Haast

Ever Sincerely Yours

James Hector.

138: Haast to Hector, 26-9-1868

Te Papa MU000147/002/0080

Christchurch

21 Sept 1868

My dear Hector,

I wrote you by last mail, but have not heard from you for a long time, in answer to my different questions. So I must suppose that you are at present too busy.

Having waited so long to hear the one or the other about our plans, I have thought the matter well over & I have now come to the conclusion, that I shall not go to Wellington, even if it could be arranged. Will you therefore return me my official letter or in case you can not

do so, without I write to you officially about it, please to tell me & I shall write you an official letter in order to retire my offer.

When I shall have the pleasure of seeing you in ChCh, we can talk some matters over, because I need scarcely assure you, that I shall always be delighted to assist you & the Geological Survey to the best of my ability. Do not forget to send the due returns for the exchanges received from the Canterbury Museum. There is a French saying – *Les bons comptes font les bons amis*. I hear occasionally from Holmes, who seems very happy in his present occupation. He can not tell me sufficiently what a tremendously hard worker you are.

When the talkers have done in Wellington, I shall pay you perhaps a flying visit to look at your Museum.

Ever my dear Hector
yours most sincerely
Julius Haast

Have you soon done with my books? I should like to have them back, as I am beginning to go once more over the N.Z. fossils in the Museum & my duplicates for exchange. You have also a volume of Liebig & a small geol. textbook from me & Meteor papers of Haidinger.

139: Haast to Hector, 25-9-1868

Te Papa MU000147/002/0074

ChCh
Sept 25 1868

Dear Hector,

Just received your letter; many thanks. Have only a few minutes time before mail closes.

The number of members & the money of the Phil Inst. are all right. By next mail for certain all the necessary paper will come. I have only one paper worth sending, as all the others have already been printed & that some time ago. Perhaps my earthquake paper is welcome.

In great hurry
ever yours most truly
Julius Haast.

140: Haast to Hector, 1-10-1868

Te Papa MU000147/002/0086

Christchurch
Oct 1 1868

My dear Hector,

Here at last are the necessary papers for our entrance into the New Zealand Institute as well as the two papers we have & with which you may do what you like.

My Earthquake paper will follow by next Saturday's mail, as to that day it will be printed in the *Lyttelton Times* together with my short address delivered last night. I feel rather seedy having had our dinner last night & must therefore be short. We are going on first rate, we have about 20 candidates for our next election, so that we shall get plenty of money. I shall write more fully by next mail, but would not miss this one going out.

Ever my dear Hector
yours most sincerely
Julius Haast.

141: Haast to Hector, 3-10-1868

Te Papa MU000147/002/0083

Christchurch
Oct 3 1868

My dear Hector,

I received by last mail a list of your case for Norway but no letter & the mail just arriving has also not brought any thing from you.

Please to tell me what you want in return. According to our former agreement I shall make your collection more complete & the whole returns will be for the Colonial Museum with the condition that you sent me some other things besides those I have to expect in exchange for the Moa skeletons etc. I shall add

- 1) a Herbarium of about 350 species half of them alpine plants
- 2) 50 geol specimens of Banks Peninsula & Tunnel
- 3) a collection of Moa bones
- 4) some fossils
- 5) a small collection of bird skins including some *Apteryx* skins.

Consequently it will be a very fair collection.

I want in return for my share some larger leg Moa bones, of *giganteus* & *robustus*, of which you have as you told me a great many add bones & which I want to complete some exchange collections, including a good tibia of *Din. robustus*.

Some Maori skulls & some Northern Island bird skins such as Huia etc.

But before I shall add my share please to send me the things, so that our accounts in that respect are clear & there are no misunderstandings at a future day about it.

You never returned me my letter as I requested you to do. Enclosed my earthquake paper which you may print in the volume if you like & I hope you tell me openly what defects there are. I have tried my best & the reason is, that I want our phil. Institute to go ahead & so I ought not to keep back with the little information I could give & the deductions I hazarded to make.

Where the mss is * I had the following sentence –

“Although as before stated the focus of the volcanic disturbance seems to be situated north of the Chatham Islands, it is very possible that further news will show us, that it was situated more distant as for inst. in the Sandwich Islands or even on the West Coast of America.”

but some of my friends correcting for me the manuscript chaffed me so much about it, that I left it out altogether. Of course there is no certainty that the disturbance of our seas can be associated with it or it can come from an other centre nearer to us, although a rough calculation which I made gives 3 7/10 miles per minute, what agrees well with the former observations.

Now try to find the time to tell me some thing about it & what you think.

Mrs Haast & the children are well.

Yours very sincerely

Julius Haast.

Dr Hector FRS

Wellington

142: Hector to Haast, 15-10-1868

ATL MS-Papers-0037-080

[*No place*]

15th October 1868

My dear Haast,

Only time for a few words to tell you that I am going to be married to Miss Monro.¹⁷²

Rolleston is better I am going to make a further attempt to arrange matters.

Potts¹⁷³ will take all your Books[?] &c. The session is at last over & what has been done I will defy any one to say.

I will not forget the specimens but have been making up a duplicate type set for England & did not like to proceed with the other till that was done. I have no large Moa bones, only small ones of *crassus* &c.

In haste with kind regards to Mrs. Haast
Ever Yours
James Hector.

143: Haast to Hector, 27-10-1868

Te Papa MU000147/002/0092

Christchurch

Oct 27 1868

My dear Hector,

After my letter was closed, I received yours of the 22 sent by Mundy,¹⁷⁴ which he had kept so long in his pocket. The parcel of books has safely arrived; many thanks. I am glad to hear that you are preparing some returns. I am going to Glenmark & afterwards to the Upper Waimakariri country to do some detail work, collect largely plants & fossils & of course in the former place if I succeed some more Moa bones. I told Holmes, that should the Governors wish to publish my paper on earthquakes or as I may add the Moa measurements sent to the Wellington Society, that I shall be glad but only without cutting either of them down. I do not believe in extracts & have done the same with papers sent to England, better to leave them out altogether.

In haste
yours very sincerely
Julius Haast

¹⁷² Georgiana Maria Hector, nee Monro (1849-1930) married Hector in Nelson on 30 December 1868.

¹⁷³ Thomas Henry Potts (1824-1888), New Zealand naturalist and explorer.

¹⁷⁴ Daniel Louis Mundy (1826-1881), English photographer who took a series of photographs of moa skeletons at Canterbury Museum and completed extensive tours of New Zealand including the Pink and White Terraces.

144: Haast to Hector, 10-11-1868

Te Papa MU000147/002/0098

ChCh
Novb 10 1868

My dear Hector,

Thanks for the description of the Moa's egg sent by last mail, it is very interesting & I hope to see the original one day in your Museum. Thanks for the recent shells also, I have not yet got the box, which probably is somewhere in the store in Lyttelton. I shall try to hunt it up tomorrow. Rolleston whom I saw yesterday is much better & is going up country in a few days, he & Mrs Rolleston can not speak gratefully enough of your care.

I enclose a map which Jules Marcou¹⁷⁵ has sent me to be filled up for his second edition of the Geol Map of the World.

I have no draughtsman otherwise I would have had a copy made & put all the rivers etc correctly in, but suppose that you can have it done for Otago etc & I shall do afterwards the same for Canterbury & Nelson as far as I know the latter better than you. After you have filled what you know please return it to me & I shall send him back after I have filled up the rest. I shall tell him for his title what has been your share or if you like, I will state simply "Geol Survey of New Zealand – Director Dr Hector"

This is perhaps the most simple, otherwise I can give your share and mine, if you consider it best. The divisions are –

- | | |
|----------------------------------|------------|
| 1 Quaternary & recent – | one colour |
| 2 Tertiary – | “ |
| 3 Cretaceous – | “ |
| 4 Jurassic – | “ |
| 5 Trias. & Dias. – | “ |
| 6 Carboniferous – | “ |
| 7 Devonian & Silurian – | “ |
| 8 Metamorphic & plutonic rocks – | “ |
| 9 Volcanic – | “ |

I have found the Saurian remains at another locality, quite in an other direction from the Waipara they also there underlie the III or are in fact the lowest beds with the big concretions. That I do not forget it. I was told by a very good authority, that close to the summit of Tekoa ascending it from the South, masses of whitish rocks are full of fossils. They are certainly not tertiaries judging from the altitude where they are found & consequently could if well worked out give us a key to our palaeozoic rocks.

Therefore keep it well in mind. Tell me as soon as possible when I can expect the enclosed map, so that I can soon return it.

Perhaps that I shall come this month to Wellington as delegate for our Phil Inst.

¹⁷⁵ Jules Marcou (1824-1898), Swiss-American geologist.

Mrs Haast wishes me to tell you with her kindest regards to Miss Monro & to yourself, that she expects her photograph from you.

Ever my dear Hector
yours most sincerely
Julius Haast.

145: Haast to Hector, 26-11-1868

Te Papa MU000147/002/0101

ChCh
Novb 26 1868

My dear Hector,

I am glad to hear that you will soon send the Geological Map & I shall fill up the rest. You never sent me the Geol. Map you speak of. There was once a question to send over to Petermann to have it printed in the *Geogr. Mitteilungen* & get a lot of copies out for us, but we never accomplished that object. The only thing you sent me, was the Otago boundary line geol. coloured. I still think we ought to get such a map printed. I shall tell Marcou what share is yours. I am delighted to hear that you are going to pay a visit to the Kaikoras & Spencer Mountains, so that also that neglected portion of New Zealand Geology is a little attended to & we shall be very glad to see you with us. You ought to stay as a Bachelor with us for the last time & bring us afterwards Mrs Hector. The reason why I thought that I had to come to Wellington was that according to the statutes of the NZ. Institute the delegates of the Societies have to elect the 3 Governors in Novb, as at least I understood it. Concerning my earthquake paper you will easily understand my objections of having it cut up, but as your reasons are quite correct, you may take from it what you like, only state what was the general purport of my views. The Prov Govt are making another attempt to have a Museum built, this time of wood, but I fear they will not succeed as there is unfortunately so much opposition. Many people consider Museums or any kind of scientific enquiry luxury. Well we shall see. I hope you will find time to write a few lines from Wellington if Miss Monro will let you. I should rather like to see you both, I suppose all your philosophy does not prevent you, of being thoroughly . . . in love, I wanted to say another word, but got frightened, unless some body else might see it. Tell me when you expect to be in Christchurch, so that I do not miss you.

Ever my dear Hector
yours most sincerely
Julius Haast.

146: Haast to Hector, 11-12-1868

Te Papa MU000147/002/0103

Christchurch
Decb 11 1868

My dear Hector,

I received your letter dated Nelson a few days ago & hasten to answer at once.¹⁷⁶ I shall write to the Colonial Secretary about Hochstetter's works and see what he says. The plans went by one of the --- steamers, at least I think I posted them myself, I have since sent a new parcel with the same lot, 4 plans to your address in Wellington. Concerning Hochstetter's book it is all right, Holmes packed the 8 volumes in one of the boxes, but I wish to receive the two quarto volumes back. Concerning the second volume I can tell you that the box containing them left Europe in July. The copy in the exhibition was incomplete & contained only those plates which were ready & the text which was already in type. The volume was made up expressly for the NZ Exhibition. Will you have the kindness to explain this to Sir George Grey in one of your letters.

Concerning Pyke I send you a newspaper with a letter of one of my men a leader & my Report upon my last journey. I was under the impression that Hering had cut these marks, but both Holmes & Warner¹⁷⁷ assured me, that it was the latter. I am curious if the Otago papers will take any notice of it.

Mrs Haast sends her kind regards, she is much improved & will come to town in about a fortnight. My best compliments to friend Fischer & Mrs Fischer.

I am as usual in a hurry occupied for the council, so I have to be short.
Ever yours very sincerely
Julius Haast.

147: Haast to Hector, 13-12-1868

Te Papa MU000147/002/0105

Glückauf
Decb 13 1868

My dear Hector,

Yours of the 27th Novb came to hand with the coloured map,¹⁷⁸ I shall forward it by next mail to Marcou & give the desired explanations.

I am more than ever convinced that the base of our so called III are much older than tertiary, putting aside the *Plesiosaurus* question. I dont know any place where I shall get more details & sooner a clue than in the Waimakariri basin, where I intend to go for a

¹⁷⁶ We have been unable to locate a copy of this letter.

¹⁷⁷ William Francis Warner (1836-1896), accompanied Haast on an expedition to West Coast in 1863.

¹⁷⁸ We have been unable to locate a copy of this letter.

fortnight after Christmas. Since I wrote last I had a letter from Petermann, he resp. Perthes¹⁷⁹ are quite willing to publish a geol. map of New Zealand, but before he can say what will be the price for 500 or 1000 copies, he wishes to see it. Of course as he intends publishing it in the *Mitteilungen* the price will be much less, in fact only nominal. If you have time (during or after your honeymoon) to go at it, it would be capital & if you send me the size of the map, I shall put in the whole Canterbury Province according to the last of my researches.*
[*Marginal note*: * I think the Exhibition Map will do for size, but Petermann intends to publish it smaller size, but he wants it larger.] As I have made arrangements with our Prov. Govt. to stay for another year at least, I shall be able to give you a helping hand in case you should want it. I suppose you are not eager to go in for fieldwork so soon; therefore if you want me to do six weeks or two months fieldwork for you in this Island & in some interesting locality, where detail work is wanted, I think, I shall get leave of absence for that time & if you have not the means in your budget to pay me a honorarium for it, I am quite willing to do it gratis, of course my expenses paid. This would give you a holiday & the work would not be stopped. I wanted to tell you this when you came here, but Holmes tells me in his last letter, that you were again for a few days in Wellington & that you were to be married on the 29th of this month.

I can do this the more readily as the Museum which will be taken in hand immediately is to be built of stone, the necessary money having been voted by the Provincial Council. Rolleston who I am happy to say has wonderfully improved, in fact he is all right again, took the matter in hand like a brick & he will do his best that the Building is at once undertaken. But it will naturally take some time before that building is dry enough to move the collections. I am glad you sent a numbered collection of recent shells to London for the names, but from those you sent me, there are many from Lyttelton harbour etc which do not occur in the Northern Island, or did you not send me of all what you had? I suppose no duplicates to spare.

And now goodbye my dear friend. Should I not write again before the happy event comes off, please to accept once more our united warmest congratulations to your self & Miss Monro. May kind providence send you both plenty of sunshine & little shade on your united paths of life.

Ever yours most sincerely
Julius Haast

Dr J Hector
FRS.

¹⁷⁹ Justus Perthes Verlag was a prominent German cartographic publishing house in Gotha.

148: Hector to Haast, 26-12-1868

ATL MS-Papers-0037-080

Newstead, Nelson
26th December 1868

My dear Haast,

I have your note of 13th inst. and quite agree about your plan of having the Geol. map published.

I am glad – very glad indeed – to hear that you are still at work & on pay. As you say Rolleston is a brick.

I will try when I return to Wellington to see how much I can glean from out of the Field Vote as I would gladly put as much as I can at your disposal.

Hutton has a share of it but I have no definite plan for the rest. I have only time to write a few words in the hope that they will reach you via Hokitika.

I suppose you have heard from Hooker son coming out. He wants you to look after him in Lyttelton & send him on to me in Wellington. I have written to Hooker by this mail & answered him that we will take every care of his son.

In haste
Sincerely Yours
James Hector.

149: Haast to Hector, 11-1-1869

Te Papa MU000147/002/0122

Christchurch
Jan 11th 1869

My dear Hector,

I returned last night from the North after an absence of more than 6 weeks & found your telegram of the 4th of Napier, but which just missed me in Cheviot hill station whereto it had been repeated. I am truly glad, that you are so much interested in what I was doing & I dare say the whole result will not be quite unsatisfactory. I left off telling you that I was going up again the Conway to finish that section more thoroughly & as I was very anxious not to omit a single detail I was two days more over it. The result was that I found the section, more than 2 miles long to agree closely with the Amuri bluff. In the Claymarls overlying them that which apparently are conform to them. I obtained some good fossils. One other principal one is an *Arca* or better *Solenella* (I speak from recollection) & a small *Natica*, also a tooth of *Hybodus*. However it is no use giving you all these details without adding sections. I now crossed the ranges in different directions, could not find any *Monotis* beds. I must not forget to say, that although the Conway beds are very poor in fossils in the corresponding

beds with the Amuri I found also the Amuri belemnite Advancing towards South between the Conway & Waiau, the so called Weka pass & Deansbeds make first their appearance. I found this juncture so interesting that I stuck 3 days to it, but I am sorry to say without having the evidence, that the so called Wekypass beds were or are not the representatives of the Amuri beds.

In every case the juncture is not conformable. I then followed the Wekypass beds over the Waiau to the Hurunui & then into Canterbury. I got here again some splendid sections, resembling partly the Amuri, partly the Waipara sections, but without any fossils whatsoever in the Lower beds (I have complete specimens) except Saurian remains of which more by & bye.

I may here add, that there is a repetition of the Lower Conway Jurassic beds in lithological character near the juncture with the Wekypass beds (I call so the limestone sharing that peculiar lithological character) but the upper most strata of these former beds contain only *Lamna* teeth & Saurian remains, but not a single shell or belemnite

[*Copy terminates*]

150: Haast to Hector, 12-1-1869

Te Papa MU000147/002/0123

Glückauf
Jan 12th 1869

Dear Hector,

I received only yesterday your letter of the 26th of Decb. & have since seen in the papers, that the 30th was the happy day, when you became a Benedict. Once more many many congratulations. I am delighted to hear that you agree with me concerning the publication of the Geol Map by Perthes (resp Petermann) & I only wish to say that I am quite willing during February & March to do some work for the Geol Survey either in Canterbury, (detail work) or perhaps better in some other portion of this Island where you had as yet no time to go. Thus you will be enabled to complete the map much more, than otherwise would be possible.

All what I wanted, that you send me a map to be filled up & in order that we do not lose time by writing about some other matters, I write only to say, that I shall send to you directly all the collections I shall be able to make both geological & paleontological, but that I shall try to have also some duplicate Specimens for us, which I shall also forward to you, so that you can have the whole under your examination. I mean to say that besides the necessary specimens for the Colonial Museum, I shall go to the extra trouble to get some more for ourselves.

I say this at once that you know what I intend to do, there are the Kaikoras, Spencer Mountains & I suppose some portions of Otago & South Cant which have as yet not intensely been looked at. Select & I shall try to go & do what I can.

I am in a hurry, therefore goodbye. Ever my dear Hector with our united kindest regards to Mrs Hector

yours most sincerely
Julius Haast.

[*Marginal note:* I had this morning the Governor for an hour in the Museum.]

151: Haast to Hector 1-3-1869

Te Papa MU000147-002-0160

Christchurch
March 1. 1869

Sir

I had the honour to receive your letter of the 26th of February in which you inform me that after receiving the authority of the Colonial Secretary you wish to assist to defray the expenses of my expedition to the Mt Cook district, to the extent of £60 on account of the Geol. Survey Department on the understanding that I furnish a complete suite of the geological specimens which I collect in the course of my journey, to the Colonial Museum together with such an explanatory report, as will enable you to incorporate the results of my work with the General Geological Survey of the Colony.

In reply I beg to state that I accept this offer with the proviso stated above & that I shall do my best, to procure for the Colonial Museum as complete a suite of specimens as possible, which in due time I shall forward to you together with the necessary maps, sections & explanations.

I have the honour to be

Sir
your most obedient servant,

Julius Haast

Dr J. Hector FRS
Director of the Geol Survey of New Zealand
Wellington.

152: Haast to Hector, 9-3-1869

Te Papa MU000147/002/0144

Christchurch
March 9¹⁸⁰ 1869
Evening

My dear Hector,

Before replying officially to your letter of the 26th of Febr.,¹⁸¹ with the contents of which I fully agree, I wish to say that up to this moment I have not received any communications from the Colonial Secretary & that I am starting tomorrow morning by the coach, my men & horses having already left last Wednesday. In every case I shall however collect as much as I can for you to meet your wishes.

I have left instructions in ChCh. to forward me any letter in respect to that matter & shall write then officially accepting your offer. We were very pleased to receive your photographs many many thanks.

With united kind regards to Mrs Hector & yourself
ever yours most sincerely
Julius Haast

Do write in time when we can expect you in Christchurch, I shall be back towards the end of the month.

153: Haast to Gore, 1-4-1869

Te Papa MU000147/002/0160

Christchurch
April 1 1869

My dear Mr Gore,

I received your telegram from the 9th sent after me, as I had already left. I returned a few days ago & went yesterday to the Subtreasurer in Christchurch to obtain the £60. He then advised me, not to take them as an advance, as this would entail no end of red tape for me, but to enclose to you the enclosed form, which if passed through your office would simplify very much the matter. Knowing that Dr Hector has not yet returned, I write to you requesting you to do what is necessary in the matter & to see the enclosed through the different stages. Will you give my best compliments to friend Holmes & tell him that I shall write very soon.

Believe me my dear Mr Gore
yours very truly
Julius Haast

RB Gore Esq
Wellington.

¹⁸⁰ It is possible that the date may be 5 March rather than 9 March

¹⁸¹ We have been unable to locate a copy of this letter.

154: Haast to Hector, 6-4-1869

Te Papa MU000147-002-0160

Christchurch
April 6th 1869

Sir

I have the honour to inform you, that I returned a few days ago from my journey to the Central portion of the New Zealand Alps, during which I visited the slopes of Mt Cook, the Moorhouse Range, the Bengough Range, Mt Sealy all situated in or close to the Central chain devoting several weeks to their examination, and all the ranges lying on or near the line of road between the township of Arawhenua and the Tasman river.

According to the agreement entered into with you on behalf of the Geological Survey of New Zealand, I have collected a suite of Geological specimens in illustration of the structure of those regions and am now preparing a report accompanied with the necessary sections, which I shall forward to you in due course of time.

The specimens being so heavy, that I could not bring them on with me on horseback, will be forwarded to me, when in the course of a few weeks a dray will start from the confluence of the River Jollie with the river Tasman.

I shall not fail to forward them with the necessary notes, as soon as they arrive.

I have the honour to be

Sir

Your most obedient servant,

Julius Haast

Dr J. Hector FRS
Director of the Geological Survey
of New Zealand
Wellington.

155: Haast to Hector, 8-5-1869

Te Papa MU000147/002/0173

Glückauf
May 8th 1869

My dear Hector,

I hope Mrs Hector & yourself returned safely & in good health to your own home & that at your next visit you will stay longer in Christchurch. I send herewith the letter in question, but I think I have already written a similar letter when I arrived, if so destroy it.

I just received a letter from Timaru that the specimens have safely arrived & will be forwarded by first steamer, so that you may expect them very soon. Mr Hood¹⁸² was very sorry that he was not at home when you were at ChCh, I measured & made drawings of the principal bones whilst Tripphook made for me a large sketch (natural size) of the heads & coloured as it is in nature. He just finished yesterday, when Mr Hood packed them to go next week to England. Unfortunately I have not material enough to classify all, although as far as I can see, there are at least 5 different species belonging to 3 genera. The Crocodylians predominating.

It is my intention to go next week to the Peninsula for looking at the old sedimentary rocks in order to ascertain if there are any auriferous indications. I have put a *Nestor notabilis* aside for you.

After I have been at the Waipara I intend going to the Amuri, as there I suspect I shall see some thing more about our younger sedimentary rocks, the beginning of which in this Province is always well defined. I intend to devote all my spare time in the future years for that object & hope that somehow we can manage that I obtain some assistance from the Geol. Survey resp. NZ Institute towards it. However we can talk this over by & bye.

When do you wish me to come to Wellington & on what subject do you think it best that I should give some lecture or paper?

- 1) Banks' Peninsula – with illustrations.
- 2) Moa excavations & influences.
- 3) glacial formation in NZ.

or what do you else suggest?

I should like to know it in time so as to be prepared, the more so as I intend to make during the winter a short trip to Australia (if possible) for Museum purposes.

With united kind regards to Mrs Hector & yourself
Ever yours most sincerely
Julius Haast

Dr Hector FRS

¹⁸² Thomas H Cockburn-Hood (1820-1889), Fellow of the London Geological Society, who made a collection of saurian remains in the Waipara. See Julius Haast, 'Notes on a Collection of Saurian Remains from the Waipara River, Canterbury, in the possession of T. H. Cockburn Hood, Esq.', *Transactions and Proceedings of the New Zealand Institute*, vol. 2, 1869, pp. 186-189.

156 Haast to Hector, 22-5-1869

Te Papa MU000147/002/0181

Christchurch
May 22 1869

Sir

I have the honour to inform you that I have addressed to you through Messrs Heywood & Co of this city a case, containing the geol. specimens collected during my last journey to the Central Alps for the geological Survey of New Zealand.

I beg to enclose a list of them and request you that you will be good enough to tell me if the names attached to them (mostly translated from the German) meet your views or if you wish to have another nomenclature introduced.

As there is a set of duplicate specimens in the Canterbury Museum, numbered in the same manner, both could then be considered type specimens. There are some specimens, where, as you will observe an analysis would be highly desirable before the final name ought to be attached as for inst. No. 10, 22, 25, 28, 37, 62, 63, 66, 69 etc.

As soon as I shall be in possession of your notes, I shall not fail to read my notes before our Phil. Institute and have them together with map & sections forwarded to you at once.

I also added the specimen No. 72, containing a vein mineral, which will not agree with any blowpipe or other mineral tests, with which I am acquainted. I could bring it neither under the Talcose, chlorite or asbestos series. You will therefore oblige me if you will have it examined in the Colonial Laboratory.

I have the honour to be
Sir
your most obedient servant,

Julius Haast

[List of 72 geological specimens attached – not transcribed]

Dr J. Hector FRS
Director of the Geol.
Survey of New Zealand,
Wellington.

157: Haast to Hector, 24-5-1869

Te Papa MU000147/002/0182

Christchurch
May 24 1869

My dear Hector,

I was much pleased to see Holmes here and to receive your letter of the 19th.¹⁸³ As much as I know Homewood has done nothing, as he does not wish to see the specimens go out of the Province. I have therefore told Holmes to take a good stonemason from here, with tent etc, because I have heard complaints from certain quarters of having so many visitors. Holmes is there independent. I shall lend him all he wants & what I have & shall go up with him to give him as much assistance as I can. But the Phil. Institute people will not at all like it, the more so as they have written to you to obtain funds for the very same thing.

I believe Holmes would make a good field assistant, but not to work independently at present, principally in such a very difficult section.

I shall be glad to get all the flint flakes. I keep the timber etc, till I have more time; perhaps you can send me specimens of N.Z. timber in exchange. I hope you will find time to write me soon answer about the nomenclature of the specimens.

The Museum endowment has been thrown out quite unexpectedly, not against the thing itself, but because the runholders had worked themselves up against the system. I am now more than ever unsettled & should like to know, if I could not make some arrangement with you for a certain amount of field work for a certain sum, as you told me you intended to re-arrange your Department. It would then be possible to work perhaps both, the Canterbury Museum & your work together. I know you will not be able to tell me before the estimates are brought forward, but at least you know my willingness & I should know it before our Prov. Council meets again. You know that if I can be of any assistance to you I shall be most happy.

Jules Marcou wishes me to thank you very heartily for the sketchmap, he tells me he knows all about your American work.

Triphook who was collecting for Hochstetter in Hawkes Bay writes to me the enclosed letter. I know he promised him a copy for his assistance rendered. Could you not manage to get one for him, he certainly deserved it.

I hope the specimens will make a good addition to your geol. collections. We had wretched weather today, but I hope it will not interfere with the Waipara business.

With united kind regards to Mrs Hector & yourself
Yours de coeur
Julius Haast.

¹⁸³ We have been unable to locate a copy of this letter.

As I have very little money for the current expenses of the Museum could we not set up some of your birds here for you, paying us so much? This would perhaps be cheaper for you & assist us. Think it over. I want very badly some platinum wire, platinum forceps & some platinum nozzles for blowpipe use. Can you buy some for me in Wellington or let me have some in paying the Geol Survey for it.

158: Hector to Haast, 31-5-1869

ATL MS-Papers-0037-081

[*No place*]
31st May 1869

My dear Haast,

Thanks for your kind assistance given to Holmes.

How angry you must have felt when the stupid people tried to make science a Provincial matter & talked about not liking the fossils to go out of the Province. Poor chance for your Museum if that rule is to be carried out. Why dont they bring in a Prov. Ord. to prevent certain formations extending beyond the Prov. or better still why did they not vote that reserve block of 5,000 acres & take it out at the Waipara & make the whole bone bed & contents into a natural museum minus the History which could be supplied at any time when convenient.

I wish you had gone up before you went to Mt. Cook as we would then have had Hood's specimens in the Colony. However it doesnt matter. If I can get away I mean to run down & see after Holmes' work & to make out the section.

The Rocks have arrived. By next steamer I send you a complete set of the N.Z. woods all named & tested for strain &c.

In haste
Yours Sincerely
James Hector.

159: Haast to Hector, 31-5-1869

Te Papa MU000147/002/0188

Christchurch
May 31 1869

Dear Hector,

As I do not know how we have to follow the red tape line concerning the fishing Reports & as you are also one of the Commissioners or Chairman, I better send you the documents. We have left room to sign your name to it if it should be necessary. For various reasons I have not yet been able to go up to the Waipara, where Holmes has fortunately splendid weather, but shall do so next Thursday.

In haste yours most sincerely
Julius Haast

Rolleston has some great political fight before him. Look if you have time at the ChCh papers.

160: Haast to Hector, [6-6-1869]

Te Papa MU000147/002/0192

Glückauf
Sunday Evening
[6 June 1869]

My dear Hector,

I have received your letter & was rather amused with its contents. You did the same as I did, however do you not think that it is a good sign that the people care for the fossils. Let us try to keep them so. However they were under a misunderstanding, namely the Council of our Institute had instructed our Secretary to write to you as Manager of the NZ Institute & to request you to obtain for us a grant of money to go up the Waipara for collecting the Saurian remains in question. Instead of your answer Holmes arrived, so that they thought you had receiving that letter sent Holmes at once off to get them before us. However Fraser¹⁸⁴ never wrote the letter & we had a good laugh at them.

When I just was starting up the Waipara Holmes returned, but not so successful as I thought, he would be, however he has done his best & I shall try my fortune at another locality by & bye. I am going tomorrow to Banks Peninsula to look at those rocks in question & shall write you when I return.

I suppose you will see all in the newspapers about our earthquake of yesterday morning; there was no mistake about that. I shall send you the *Lyttelton Times*. I hope soon to hear from you about the Mt Cook specimens & the Institute lecture.

With united kind regards to Mrs Hector & yourself
yours most sincerely
Julius Haast

¹⁸⁴ Rev. Charles Fraser (1823-1886), founding member and honorary secretary of Philosophical Institute of Canterbury.

161: Haast to Hector, 12-6-1869

Te Papa MU000147/002/0195

Christchurch
June 12 1869

My dear Hector,

I return herewith a letter for Holmes, which Mr Homewood brought me back. I have had a conversation with 2 of the leaders of our Provincial Council, Jollie¹⁸⁵ & Montgomery¹⁸⁶ about our Museum, the result of which was that there will be no little difficulty in getting the Prov. Council members to vote the necessary money for its maintenance in future. I therefore proposed to them the following plan, which they both considered a good one if it were possible to get it done. In case namely that Timaru should be made a county, could you not get the Government to propose to hand our Museum over to the Genl. Government or better to the New Zealand Institute with a certain yearly amount of money from the income of both portions of the old Province of Canterbury for its maintenance. In such a way we could work the whole nicely together. It would then be regarded as part of the Colonial Museum, of course I do not know what Rolleston will say to such a plan, but I think he would not object as the principal object to secure the future maintenance & advancement of the Museum here would be permanently secured. Please to think the matter over & if you agree with me as to the desirability of such a step, do not lose sight of it. Travers wanted to go up the Waipara, but the weather is so wretched, that he had to give it up, otherwise I would have gone with him. However the first spell of fine weather I shall go & then finish my paper upon the Waipara section for our Institute with the necessary sections; after having read it I shall send it up to you. The reason why I want to go is to get a set of duplicate specimens of the whole section both for Wellington & here.

I went over to the pal Rocks in Gov. Bay, but the weather was so wretched that I had to return without doing anything, but shall go again. I am collecting all the earthquake information with map for our next volume.

With united kind regards to Mrs Hector & yourself
ever yours de coeur

Julius Haast.

¹⁸⁵ Edward Jollie (1825-1894), New Zealand land surveyor and Member of Parliament for Cheviot

¹⁸⁶ William John Alexander Montgomery (c. 1821-1914), merchant and politician in Canterbury.

162: Haast to Hector, 18-6-1869

Te Papa MU000147/002/0198

Christchurch
18 June 1869

My dear Hector,

Many thanks for the Collection of timber, which is very welcome & will be valuable to us.

I shall send by & bye specimens of all our alpine timbers, as far as we have got them & should like similar pieces of N. Island timber, which does not grow here. I enclose receipt for the two last lots I have received.

Concerning the earthquake I have collected a great deal of statistics about it & am preparing a map of its area, which will be not without interest. I do not think that the artesian wells had any thing to do with the vehemence of the earthquake from various reasons which I shall give in my paper. It is too long to do so in a letter, although I must confess that at first sight it seemed to me likewise so. The report of my paper on Saurian remains was a very short & unsatisfactory one, as I did not want to have the whole paper printed before hand. The reporters told me they could not catch all the technical names & so on. However I shall bring it with me to Wellington together with the large drawing, which I am sorry to say, is not so good as I should wish it. However we shall be able to get it all right.

Travers wanted to go up the Waipara, I told him I would go with him, but he did then not find the time, so I showed him all my sections in my fieldbooks & the large ones I prepared already, so that he might be able to explain them to you.

I hear just now that a few days ago he went there after all & I hope that the information I gave him will be of some use to him.

I sent you this morning a news paper with a review of the NZ. Institute Transactions. You never told me what subject I should select for my lecture? If you want me to come please do tell me in time, that I have a proper paper ready. What would it be if I would give a paper on the Southern Alps, Physical Geography Geology Fauna & Flora? I think it could be treated in such a manner that it would be interesting to the great public.

As soon as I shall get your names I shall go on with my Mt Cook paper.
Yours ever most sincerely
Julius Haast.

Dr Hector FRS

As the weather has settled, I shall start again tomorrow morning for the Peninsula.

163: Haast to Hector, 18-6-1869

Te Papa MU000147/002/0200

ChCh
June 18th 1869

Dear Hector,

I just received, after having posted my letter to you, the parcel of Reports, you so kindly forward. Many thanks. However I am sorry to see that it is my opinion, that the whole Series of the Waipara was miocene tertiary. I think you must have misunderstood me entirely as I have come after having examined our III during the last few years to totally different conclusions & if I remember rightly I drew you some sections to show how in different places (amongst other in the Waimakariri basin) the lower so called III strata underlie unconformably the Wekapass beds.

If you like I shall send you a copy of section & map with specimens, but for which I intend to go once more for a week to the Waipara to get the whole measured carefully.

Yours de couer
J Haast.

164: Haast to Hector, 25-6-1869

Te Papa MU000147/002/0202

ChCh
25 June 1869

Dear Hector,

I came back last night from the little trip to Banks Peninsula, but unfortunately without success. Although I hunted over carefully all the ground, I was not able to find the least sign of any Quartz reef or any thing approaching the character of such a deposit.

But I found some very interesting rocks & that region gains every day more in interest. I shall prepare some sections about it & publish them if possible in our next volume or perhaps as Survey work? All of which we can talk over. I have about 20 specimens of that region for you, because I thought I ought now never to lose an opportunity to get you the specimens. As soon as I have time I shall prepare & send them. The same with quartzose Trachytes resp. Porphyries & even those which are found in the Malvern hills, also some true Rhyolites.

Hoping to hear soon from you ever yours most sincerely
Julius Haast

Dr Hector FRS

The idea just struck me to send you my paper on the Waipara fossils such as it is. I suppose you have more material in Wellington than I have here. I want to polish that paper a little more. Please return it to me. I wrote you already about the drawing, it wants to be a little more corrected for which I have the material. When do you send me the list of rocks?

In your capital progress report page x fourth line from bottom you say *pleisosaurus*; ought it not to be *plesiosaurus*?

165: Haast to Hector, 7-7-1869

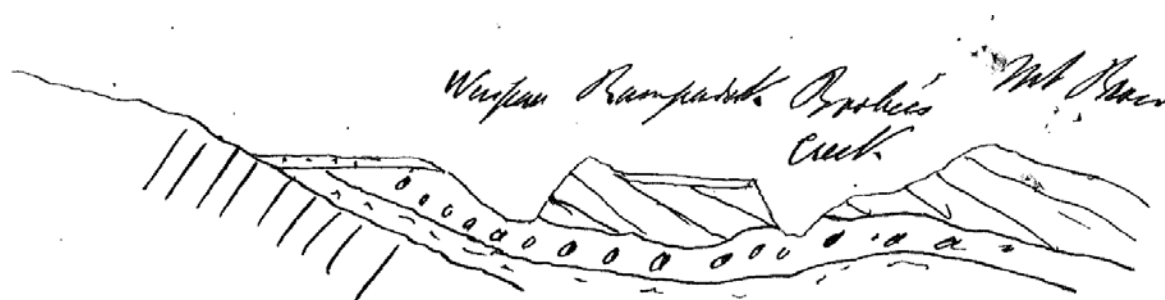
Te Papa MU000147/002/0212

ChCh

July 7 1869

My dear Hector,

I have received your two letters by last mail & since then you have doubtless received my paper, which will have shown to you what I think about the matter. According to Hochstetter & Zittel,¹⁸⁷ who both stuck out for old III's, I divided the Waipara rocks in 3 sub divisions, colouring them each distinctly in my sections. I do not remember to have spoken of an unbroken series but what I have said & still maintain is, that apparently all the rocks belonging to these 3 divisions & principally the older & middle series lie conformably upon each other, but as I have shown in my sections & told you also (making you amongst others a section of the Waimakariri basin) the older shales & greensands etc, to which the Saurian beds belong crop up in many localities underlying unconformably the Wekapass series. This is, if I understood you rightly you pointed out to me, as occurring in the Waipara upon which I re examined & found it to be correct & consequently as I pointed out in my paper, you were the first to settle this important point. I first thought that the Saurian beds had been situated between the Wekapass beds & the Mt Brown series, whilst after a careful examination I found that they were the oldest (III?) beds cropping out again the middle ones. The following rough section will convey you my meaning.



If you had not suggested to me that we ought not to give any information to Wood, but ought to wait till Owen came to inquire from us, I would have given him my section & descriptions & consequently there would have been no misunderstanding about it. Of course I had to come to the conclusion, that according to the evidence the saurian beds must at least be cretaceous, if not older, although except the Saurian bones we have as yet no other fossils, to

¹⁸⁷ Karl Alfred von Zittel (1839-1904), German palaeontologist who described New Zealand fossils collected by Hochstetter.

settle the point, but which I think will be settled very shortly as I know several places where fossils occur with us even below the large *Ostrea* beds.

Had I not become convinced that the concretionary nodules had been formed *in situ* & had I not found them in several localities in the same position, I would, till other evidence had been offered to us, called them lower tertiaries, as we both have done hitherto.

I found a Moa hunter encampment near the mouth of the Rakaia & shall go next week to make some more excavations.

Mrs Haast sends her kindest regards to yourself & Mrs Hector & wishes me to say, that she is very much obliged for your kind intentions; however she would not have been able to leave the children. Concerning my coming to Wellington I should rather prefer to stay here & to go on with my work, unless you wish me to come & give the lecture in question. In that case do not trouble yourself about me, I shall find quarters somewhere. We are very sorry to see that Mrs Hector has lost a brother & condole with her most sincerely

Ever yours most sincerely
Julius Haast

Dr Hector FRS
Wellington.

166: Haast to Hector, 11-7-1869

Te Papa MU000147/002/0216

Christchurch
11 of July 1869

My dear Hector,

I am sending you two newspapers about the finding of a quartz reef near the locality, where I was hunting for them & which I missed only accidentally, although passing close to it. But it was then near sundown & I hurried on to find quarters. Of course I cannot say if there is any gold in it, although it has a good look. In any case the whole has created great excitement & I shall go there very soon & bring a good collection away. I have already some 20 specimens from that zone for you, as I collected every thing in Duplicates. It is a very interesting region & shall have another good look at it, so as to complete the sections.

13 July

I left my letter open in order to add any matter & have just received your letter returning me my paper. I must confess, that it has greatly vexed me to say the least. You accuse me very coolly of altering my paper. That is a very unwarrantable suggestion & I had expected it least from you. Fortunately there are all the members who have heard me read it & to whom I could at last resource go to claim them as witnesses. You have no right to make such an accusation & I hope & trust that you will explain it to my satisfaction. There are my larger sections in the hands of the Government, in which I show the position of the beds & it is not necessary for me to point out, that a study of the remains of Hood must have compelled me to come to such a conclusion. I simply fetched the paper out of the room of the Phil. Institute & put it in the envelope.

The paper would have been at once printed *in extenso*, had I found the time to have it looked over for bad English & had it copied. I could as well have accused you to have prevented me of giving Hood my sections & description of the Waipara in order to substitute your own, more imperfect ones.

Ever yours
Julius Haast.

167: Haast to Hector, 13-7-1869

Te Papa MU000147/001/0401

13 July 1869

PS Mr Norttidge¹⁸⁸ just comes in & I have appealed to him as he was present when the paper was read before the Institute on the 2^d of June.

He gives me authority to state that he recollects perfectly well the clauses marked by you & supposed by you to have been added since, concerning the age (at least cretaceous) of the strata in which the Saurian remains are found in the Waipara.

JH.

168: Hector to Haast, 20-7-1869

ATL MS-Papers-0037-081

Wellington
20th July 1869

My dear Haast,

I am sorry that there should be any difference between us about the Waipara beds, but when I stated in my report that I believed you inclined to the opinion that they were all Miocene Tertiary I did so because I really believed from what you told me yourself & from what Travers & Holmes subsequently told me, that it really was so - & I considered I was only doing the just thing to you so speak with diffidence on the subject. My views were formed long ago after very hurried inspection, and since then you have repeatedly demurred to my conclusions. I was quite prepared to find you come out right in your ideas on the subject. I therefore not unnaturally rather hastily jumped to the conclusion that you had cleared your mind on the subject after ----- that I had expressed the views I did & had written in your paper accordingly, especially as the appearance of the paper indicated that it was in two distinct parts. I must ask your forgiveness for having been so hasty, but at the same time must say that it has made me uncomfortable to have misstated your views & I wish I had not done so – only if I had said nothing at all I think you might have felt hurt with some reason as outsiders might have fancied I ignored your opinion on matters of Canterbury Geology. I have waited without publishing my sections for long enough I am sure as I understood you had so much better ones.

Sincerely Yours
James Hector.

¹⁸⁸ T. Nottidge was a member of the council and later vice-president of the Philosophical Institute of Canterbury in 1869.

169: Haast to Hector 6-8-1869

Te Papa MU000147/002/0233

Christchurch

Aug 6, 1869

My dear Hector

In answer to your letter of 20th of July, I am glad to see that you are sorry for the way you have written to me, and you yourself must agree with me how horrible it is to be accused of such an act as you have done. It will take me a long time to get over it. I am now 45 years of age and such a thing has never happened to me and I trust will never happen again.

Although I ought to consider it beneath me to speak another word about it, I will simply say that the cause of the different sizes and colour of the paper is that I had written the whole in my office intending to copy it at home, but not finding time I only copied there that portion which was so much interlined and corrected that it would have been impossible for me to read it properly before the meeting, and as I have different fullscap paper at home, from that at my office, the whole seemed to consist of two portions.

The reason that I did not have a good copy made was that I never intended the paper for publication, not knowing sufficient of the subject and presuming that Prof. Owen would publish the whole in his masterly way. Consequently it would have been foolish for me to do so here. But in order to keep our society alive of what was going on and in case the collections should be lost, I thought it worth the trouble to write the paper in question.

The point of issue was if the beds were lying above or below the Weka Pass beds. I thought the first to be correct after my first hasty visit, but, at the contrary I recollect perfectly well that more than once I told you afterwards distinctly that the Saurian beds in Boobies Creek were underlying unconformably to the Weka Pass beds, having come to a different conclusion long ago & I even sent you a section from the Waimakariri basin where this is very clear for elucidation.

I come now to Travers and Holmes. I can not conceive what is your object in always quoting them. My sections are there & if one day you look at them they will show you just the contrary from what they seem to have told you.

I can not understand how Travers could not have seen at once what there really is in my sections. Holmes knows too little about Geology and I really cannot conceive how you can bring him forward.

And as I once start to speak out my mind about the whole matter & make a clean breast of it, I shall do so by reversing our positions. –

Supposing that I were Colonial Geologist and you still in Dunedin & the Govt. of Otago did or could not find the means to publish your work, I actually would have done everything in my power to do so. Not out of friendship for you, not out of professional courtesy but as a matter of simple justice to you. I would not have sent your former clerk, who knows very little about fieldwork geology, to report upon a section, of which I knew you had bestowed a great deal of attention, but I would at once have asked you to give me your section for publication with the necessary notes. If I had disagreed with you I would have

published what I had to say, but I would not have published simply a statement as coming from you without first asking you distinctly about it.

Well this is what you have done to me, and I ask you, setting friendship and professional courtesy aside, if you have acted towards me as you in your position ought to have done?! It would be ridiculous for me to entertain for a moment the thought, that you intended to ignore my work because you can well afford to be just and give credit where credit is due & to have my work published of portions of NZ which I have examined more fully than you.

Now let us see what I did. In order not to interfere with your future work, I have abstained from publishing any geological details, I have not sent any sections or fossils or rocks to Europe to have them described & published although I have often been pressed to do so.

I could have all our fossils described & published long ago, together with sections and better synopses had I not thought to do so in conjunction with or at least through you. Of course if you go your own way, I shall do so the same and shall then have at least the satisfaction, to see my work published as soon as I like. You know I have a perfect right to do so and only my wish not to interfere with the Geol. Survey of New Zealand and to work with you harmoniously, made me abstain from it.

I know that Science has such a precarious and difficult position in a new colony that I tried to strengthen your hands and any quarrel of scientific men before the world would do Science great harm & even should I leave New Zealand, what is very probable it would not benefit you, because a healthy emulation before the public is always of great advantage.

There is another point concerning my work which I wish to point out. Should you publish a Geological Map of the whole colony, I am quite willing to fill up my portion up to date. You are at liberty to give my name as authority or to leave it altogether away, but I must protest most strongly, & shall if necessary do so publicly here and at home to have any other name added to mine (as far at least as Canterbury & Westland is concerned) as nobody else did an inch of my work and it would be a strange attempt, to give credit where credit is neither due nor expected.

Now concerning the Waipara sections. I have written a memorandum on the whole subject with 2 sections going into detail and showing how the whole matter stands and I offer you to send it up to you for publication amongst your Geol. Survey Reports, if you should like, but then of course it has to be published at once.

In my paper on Saurian remains I looked at the matter only from a paleontological point of view comparing them with European fossil genera and consequently I was compelled to conclude that they are at least of cretaceous age, but & this is the principal point I hope I shall prove convincingly that according to their stratigraphical position and from a geological point of view they must be tertiary.

If you do not intend to print it I shall send it home at once to have it published with the section & the fossils.

In any case I intend to read the paper at next meeting of our Phil Institute. As I have truly the interests of Science at heart, I shall try to forget what has happened and remember only what is pleasant to remember.

Ever yours
Julius Haast

170: Haast to Hector, 20-8-1869

Te Papa MU000147/002/0254

[No place]
20 Aug 1869

My dear Hector,

I just received your note of the 18th & although I leave in a few hours for the South for a week or so, I will not do so without answering your letter & to do so as I hope finally. It seems to me that we are somewhat playing at cross purposes. First about my paper. This was as you could see more the groundwork on which I hung my observations & when explaining the sections I then stated that I marked them lower tertiary & that as they could see the fossil evidence was contrary to that & pointed to quite another direction. I really am sorry that I wasn't clearer, but as the paper was never destined for publication the other explanations made up the apparent want of uniformity.

The point at issue was secondly if the beds were miocene or our middle tertiary or even older III, & of course I always thought that you were referring to my first thoughts about them. You take a rise out of me, about changing my views about geol. matters, as if such a thing had never happened to you.

If I shall see you in ChCh I shall show you the sections & I will place your letter near them & then ask you yourself if they correspond with the explanations of Travers & Holmes. I did not say that there was any discourtesy in sending Holmes, but meant that I thought it odd & do still so, to publish his ideas about the occurrence of the concretions, when you would have had those based upon a far greater knowledge of the country, if only you had asked for them.

I shall read the paper next meeting (1 of Sept) & will send it afterwards to you. If you will publish it well & good & if you wish me to make some changes in the way of expressing myself note it aside & I shall endeavour to do so. About the Geol. Map we can have a talk. I will pull together with you & you know or ought to know me well enough that my principal object is to advance our Science & instruct NZ.

I had a letter from Hauer¹⁸⁹ by last mail, he tells me, that at last the director of the Aust. Geol. Survey has decided to let me have a complete set of their duplicates, consisting of fossils, ores minerals & rocks. It will be a magnificent collection & my only fear is that if I shall not remain in NZ, that I shall not be able to send them sufficient duplicates. Consequently in this case I should hand them if you like over to you, because if I leave

¹⁸⁹ Franz von Hauer (1822-1899), Austrian geologist.

Canterbury, our Museum will not be able to take such a position, that such things would be of much use.

I have been shown your estimates & I have seen with pleasure that you have made proviso for an Geol. assistant, but have still a Curator etc extra; I thought you wanted to remodel your department & obtain such funds through it that you could offer a larger amount for such a position, however I suppose this is the first step towards it.

Ever yours sincerely
Julius Haast.

I shall write about rock specimens when I return. I see you have dropped the expression dioritic sandstone, which I adopted in deference to you & for which I have been sometimes chaffed by German Geologists. I thought you had adopted it from the results of chemical Analysis.

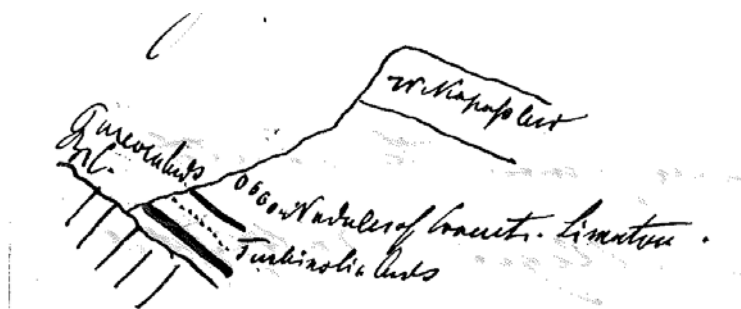
171: Haast to Hector, 3-9-1869

Te Papa MU000147/002/0261

Christchurch
Sept. 3 1869

My dear Hector,

A few days ago I came back from the South, where I had to look at some alleged Goldfields, which as I expected were duffers, read my paper, & of which I sent you a short resumé in the *Press*. This short extract gave you pretty well my views, but as I have not yet had time to finish the sections, I cannot send today the paper, as I wish to send the whole together. I shall also add an Appendix, which as you will see will contain some very important additions. You will remember, what I call the Pareora beds & which amongst others contain the large *Cucullaea*, *Pectunculus* & some other leading shells. This bed occurs in the Pareora & Waipara above the Wekapass beds. In the latter locality it underlies the Mt Brown coral rag & is pretty high up. In the Kakahu however I was rather startled to find these Pareora beds in the very same place where in the Waipara etc the *Ostrea* beds are situated & above them the identical nodules of limestone but the only enclosures as far as I could examine them, my time being limited were fossil wood.



There are the same greensands & other sands above the brown coal. In the upper beds the same fossils occur as in the Waipara (Wekapass beds). I fear almost I shall not be clear enough, but you will find it all at length in my notes.

In the Waiho at the other hand, the Waipara *Ostrea* is together with Pareora fossils above the lignite. You may imagine, I was not a little startled & this would consequently show, that there were Colonies returning, when the physical conditions were favourable.

I hope you will find time to run down to have a good look at the Waipara, Malvern hills & perhaps run down to the Waiho & Kakatu. You can do it all in less than 3 weeks & if I can manage it, I shall gladly accompany you in some of those trips.

This will give you an opportunity either to refute or confirm my views & then we shall have made a great step toward the foundation of our younger NZ Geology.

Ever Yours most sincerely
Julius Haast

Dr Hector FRS

172: Haast to Hector, 2-10-1869

Te Papa MU000147/002/0283

[No place]
2/10/69

My dear Hector,

Your 2 letters, official & private have come to hand. I am truly glad that I shall thus be enabled to do the Amuri district & expect your Instructions. I should also like two maps one rough for the field & another to copy the fieldwork in. You ask me about the plants in the Waipara. I have not found hitherto any in Boobie Creek or the Main river, but in the Malvern hills, where the lignite beds are overlaid by the same *Ostrea* beds, & I think that I can safely assume that under the circumstances both beds are of the same age.

It is in the Malvern hills from Jebson's & other coal places that I obtained *Fagus ninnisiana* & other leaves identical with the Auckland ones.

Since I saw you I have spent nearly a week in the Waipara. As I wanted to have my sections to my paper as complete as possible, I wanted good altitudes, besides I found when I looked at all the details of my different fieldbooks, that there were some things which would in the younger portion of the beds not fit in, I therefore have gone carefully over the ground of these younger beds & got some very curious & instructive sections. Instead of the two sections I intend now to add at least 10 with a little map of the district.

What I want to ask you now is this. Shall I first finish the Mt Cook paper or sections or do the Waipara paper first. I should prefer the latter, as every thing is now facts[?] & I can get it ready in a fortnight or so, after the 8th of Oct. I shall send you the paper & sections & wish that you would look over them. There is no fault but denudation in a remarkable way. I enjoyed my trip greatly indeed. The paper is not of a controversial nature, but simply an attempt to contribute my share towards the advancement of the geol Survey. What shall I call

- 1) the Wekapass limestone.
- 2) “ Calcareous sandy strata foraminiferous overlying it, sometimes unconformably.
- 3) The Deans beds (or Mt Brown beds).
- 4) the younger strata overlying them.

And what colours shall I give to the whole series, beginning with the palaeozoic (or secondary) beds. It will save trouble in the future. I got also some specimens for you. When do the Thames specimens come you so kindly promised?

I have urged once more Fraser about the proceedings & got him some assistance to copy & write all out, but I do not think that he will set to work before the 8th of October our anniversary dinner, for which I have to prepare a speech.

Mrs Haast sends her kindest regards to Mrs Hector with her best wishes. Ever yours most sincerely

Julius Haast.

173: Haast to Hector, 9-10-1869

Te Papa MU000147/002/0291

ChCh
Saturday
9 Oct 1869

My dear Hector,

I have only time to enclose you a *Press* with my address.¹⁹⁰ I hope you agree with me what I was saying. Received your letter with interesting enclosures many thanks, shall write at length.

Ever yours most sincerely
Julius Haast.

Finsch¹⁹¹ sends by last mail most interesting notes on my NZ. skins. He sends about 400 birdskins both European & Tropical, not a bad beginning.

¹⁹⁰ ‘Philosophical Institute’, *The Press*, 9 October 1869, p. 2.

¹⁹¹ Otto Finsch (1839-1817), German ornithologist, ethnographer, naturalist and explorer.

174: Haast to Hector, 16-10-1869

Te Papa MU000147/002/0241

ChCh
Oct 16 1869

My dear Hector,

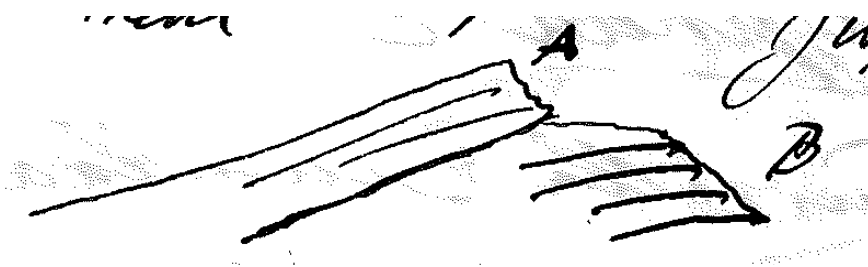
I have received as I told you by my last hurried note the maps & Memorandum & I shall do my best to act up to your instructions. I think I shall start middle of next month & be 4 or 5 weeks absent. Rather disappointed at the maps. Could you not get a map of the 1 inch scale from the Nelson Govt.? because it is almost impossible to do proper work on the 5 miles scale to 1 inch. In every case I shall take a chain or tape with me & where there are important points, survey it again. I am also glad to hear that you intend to go over the ground yourself afterwards & I shall take good care to have all the important places well marked.

I need scarcely say, that I am very obliged to you to have given me that very interesting subject to unravel. I shall not leave it until I am quite certain of the whole matter, if such certainty can at all be obtained.

I knew all along that the Black Oyster from the Selwyn & from the Waipara was not the *O. ingens* because I described it in my Waipara paper as quite distinct from any other.

It is also distinct from the large whitish Oyster which occurs in the southern portion of this Province together with a *Gryphaea* & the large *Turitella* & *Cucullaea* & which in many localities forms as it appears the base of our tertiaries.

I told you that in the Kakahu there was no doubt, that the *Cucullaea* beds were at the base of the whole series, which followed in the same way as in the Waipara also in mineralogical character up to what I considered the equivalents of the Wekapass limestones. However last week when looking over some of my journals I found the following section & note appended to it & as seen from a hill near the Opihi. I copy it as it is there.



A are the Wekapass beds as I consider them. "Under A the Wekapass beds appear rocks of similar character but having another strike & dip apparently. Is it a slip or fault; or are here older rocks of similar character? Go & examine." This was written in 1866.

I hope I shall have some of the £60 left, when I come back from the Amuri & to go to that spot between the Kakahu & Opihi & go into it.

It would be really very interesting to find, that after the deposition of the Wekapass beds & after they had been denuded to Islands, exactly the same series (I speak here from a mineralogical point of view) had been once more deposited beginning with brown coal overlaid by the *Cucullaea* beds Greensands etc. & finishing with calcareous beds like the

Wekapass beds & having nearly identical fossils to them, which at first sight have been taken for identical with them by me.

Consequently I must run down & have a good look at the whole once more & go to the rag locality of junction.

I did not find any fragments of Pitchstone in the tuffaceous Conglomerates, which lie on the eastern side of Mt Misery (I suppose you mean by Quartz Porphyry, what I call Quartzose porphyritic Trachytes), but they enclose only pebbles of that rock & remains of plants as lignite.

I shall soon write again & am hard at work at my Waipara sections of which 4 are nearly finished. As I have no draftsman to copy them, I suppose I can send them as they are & in being reduced, the writing etc can be put in shape?!

Ever yours most sincerely
Julius Haast

Your analysis of 72 Sealey Creek answer well that of the typical Schaalstones of Nassau (Devonian). Many thanks for the three.

175: Hector to Haast, 19-10-1869

ATL MS-Papers-0037-081

[No place]
19th October 1869

My dear Haast,

I read your adress with great interest – it is a good word in time to put natural Hist. science in its right place. It will fit well among the other adresses in the Vol. II.

I hope that Mr. Fraser will soon send up the papers &c. as we are getting on.

I dont quite follow what you say about the Opihi beds – perhaps from not knowing the localities. I gather however that you are not very clear on the subject of the Tertiary beds yet.

Anyhow there is no doubt that from the beds under Harts¹⁹² Coal & from the place marked P----- above the Church section & from the sandstone W. of Tilsons Mine I have got the so called *Polypodium hochstetteri* of Waikato Heads – which is no *Polypodium* but a *Pecopteris*. Also ---- beds like those at Mosley Creek. I dont think I can get you better maps of the Amuri than that of Stanfords I will have any bit you like enlarged, but I doubt if the surveys are sufficiently correct to make it worth while. Buchanan says not.

Ever Sincerely Yours
James Hector.

¹⁹² Michael Brannon Hart (1814-1878), plumber and publican, elected member of city council in 1869 and served as mayor of Christchurch in 1873. Hart owned land at Malvern Hills and promoted exploitation of coal.

176: Haast to Hector, 25-10-1869

Te Papa MU000147/002/0306

[ChCh
25/10/69]

My dear Hector,

I am glad you like my address & I also thought that it would do no harm to work in that direction. Also here the people liked it & I believe it will do some good. I have spoken repeatedly to Fraser about getting the proceedings ready but of no avail (at least as far as I know) moreover I have spoken with Mr Purnell¹⁹³ who has nothing to do at present & who is willing to assist him; the best is you send Fraser a telegraphic message asking him when the Proceedings etc can be expected in Wellington, that will stir him up. I am very curious to see your *Polypodium* or as you say *Pecopteris hochstetteri* from the Malvern hills. But as there also are the identical fossil leaves from Papakura etc occur *Fagus ninnisiana* etc. it would then seem that the Waikato head beds & those of the Brown coal near Auckland are of the same age.

We cannot escape this reasoning. As I was writing to Gully about some other matter, I have asked him if they had any larger scale of the Amuri district in which case I should like a tracing, I am expecting his answer soon. In every case I shall survey interesting localities so as to be quite certain. When will the 3 Governors be chosen & how?! I shall be off toward the middle of next month.

Ever yours de couer
Julius Haast

ChCh
25/10/69

177: Haast to Hector, 1-11-1869

Te Papa MU000147/002/0315

[No place
1 November 1869]

My dear Hector,

Rolleston who saw me yesterday showed me your telegram & I am truly glad that the matter has been settled so satisfactorily. I got the Government to grant me the necessary money to get the map reduced & for the writing; the colouring I shall do myself. Now concerning the size, you say 12 miles to the inch. If it could be 10 miles to the inch it would save a great deal of work as we have in the Survey office a 10 inch map.

However you will tell me how you wish it to be done & it shall be done.

¹⁹³ C W Purnell was a member of the Canterbury Philosophical Society.

Please to send me a list of the subdivisions & colours, you wish me to employ & I intend to colour first the 10 inch map & afterwards put it on the 12 inch in every case please send me instructions as soon as possible. I went yesterday to see Fraser, he promised me to send the things almost immediately & I shall do the same with my Waipara paper & 2 others, which have been printed, but in which there are some printer's errors.

I got a very interesting letter from Dr Finsch with notes on a collection of NZ bird skins. He says amongst other things that *Podiceps hectori* is the common *P. cristatus* of Europe; that Buller says that yours has brown[?] wings without any other colour but that the specimen the Canterb. Museum sent has white feathers & he asks if there is another species in NZ without the white. All our specimens have white on the wing. But Fuller believes that some of your West coast specimens were different.

I gave some of the notes to Potts concerning the *Sterna* genus.

Poor Buller comes badly off, as all his new species as far as I could send them are not new. So for instance his *Anas gracilis* is *Querquedula gibberifrons* (Miller) from Australia. N Caledonia, Celebes. He has specimens from Timor.

I hope to hear soon good news from you.
Ever yours
Julius Haast.

Please colour the tints you wish to be employed in the map.

178: Haast to Hector, 13-11-1869

Te Papa MU000147/002/0328

ChCh
13 Novb 1869

My dear Hector,

Our warmest congratulations to the birth of your little son. May he prosper and follow in the footsteps of his father!

I have been laid up nearly the whole week & kept to the house, consequently could not send the map, but it will come next Monday with my Waipara paper, map & sections. I will write at length by that mail.

Ever yours most sincerely
Julius Haast.

179: Haast to Hector, 13-11-1869

Te Papa MU000147/002/0329

[No place
13 November 1869]

Dear Hector,

I wrote you a few lines this morning, but as I felt so much better I went to town & finding an opportunity I send the map off at once & shall write at length by next mail when the Waipara paper will follow.

Ever yours de coeur
Julius Haast

Saturday afternoon.

180: Haast to Hector, 15-11-1869

Te Papa MU000147/002/0330

Christchurch
15 Novb. 1869

My dear Hector,

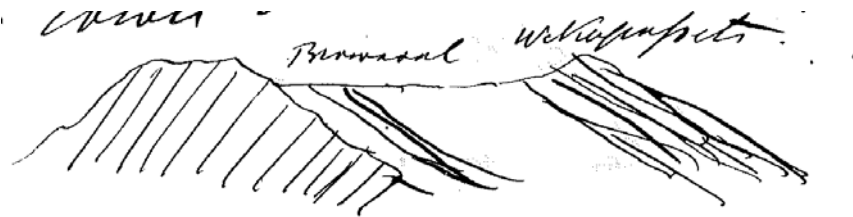
Here is at last the Waipara paper & the sections & map. Do with it & them what you like. If you think it of sufficient interest publish them in the *Transactions* or otherwise. I have not touched the paper except in the central portion when I speak of the beds No. 11 Pareora beds. & where I have made reference to you, to which I hope you have no objection. I had once the intention to add a foot note stating that according to your communication you had found the *Polypodium hochstetteri* at the Malvern hills (if I understood you rightly at Jebson's mine) but I thought it would be better if you think it worth while to add some proscript in which you have your say in what you agree or disagree with me. The other day I examined once more very carefully the Nephelic rocks from the Acheron & which lie immediately over the Brown coal series & I find them identical with german ones, where they occur in almost the same position – (but the Brown coal there are lower miocene). I found yesterday, Sunday, that one of the Sections was not enlarged enough to show all the peculiarities & consequently I drew a new one as also one which shows the interesting occurrence of the Coral rag overlying immediately the Wekapass beds below Mt Brown. As I had no colours at home, I had to use the children's colour box. If you think them of interest please substitute & add them for or to the others.

Datumline In order to show more clearly what the results of my work have been, I have drawn the sections to sea level but added a datumline. I think it would be quite sufficient to publish them only to that datumline as they show clear enough the whole structure of the country. I have not finished the detail in the sections, because this can easily been done when they come on the stone, as I have no draftsman at my service & had to do every thing myself, except the writing for which I employed one.

Geological Map

You will observe that I have made only two divisions in the III namely lower & upper. Under lower I understood formerly to the *Cucullaea* beds inclusive, but I am now convinced, that you are quite right, that the Wekapass beds close an important epoch & that consequently your divisions in 3 are quite correct. Consequently if it is possible from the size of the map I shall colour them differently, namely as lower, middle & younger III – of course as I am starting in about 8 to 10 days for the Amuri, it may be very possible, that after that I shall be convinced that I had erroneous views, however I do not expect it. In every case I shall write to you as soon as I am there & I have got the Belemnite beds in order.

What I suspect is that the Amuri beds are co-eval with the limestones in the Waimakariri basin, against which the lower brown coal beds repose



There is no copy of my map existing & consequently you will be kind enough to return it whenever you have done with it.

If you put the map in sheets, I suppose that you will make them square & consequently you have to put in some parts of Nelson, & Otago, so that my work in the Amuri, will be just in time. I shall also devote some time to the older rocks & hunt these for fossils. You never enclosed the plan of the sheets as you tell me in your last letter.

It is a capital idea & I think the map is big enough to show all what you want. Besides we have always the *Transactions* to put in some interesting parts on a larger scale, such for instance as the Waipara beds.

Concerning my paper, if there should be any bad English, or some wrong expression please to correct it or to cut out what you think is superfluous. I gave to Fraser both my address & the Whale-notes. The latter I think is almost not worth to put in.

My map will give you all the Alps as correctly as a compass survey can do it; but I am certain none of the great features have been forgotten or overlooked. Look also at the Hector glacier west of Mt Cook, you cannot complain of the company!

I think I have not overlooked any thing in this letter.
Ever yours most sincerely
Julius Haast.

Mrs Haast wishes to be kindly remembered to Mrs Hector.

181: Haast to Hector, 22-11-1869

Te Papa MU000147/002/0336

[No place
22/11/69]

My dear Hector,

I do not know what has become of my paper as it was posted in an extra large envelope the same time as the sections & hope only that it has not miscarried; if it should not be in your possession when this letter arrives, telegraph & I shall stir up the post people about it. I just went once more & asked the porter at the Govt Buildings & he tells me, that all the papers & parcels I brought were at once forwarded.

I have sent my voting paper signed to Crawford requesting him to fill it up, because he will know better, who is desirable & who wishes for the honour, so that I gladly leave it to others.

Moreover I think that the Presidents of the aff. Societies ought to be Governors and that there ought to be Governors in all the other Provinces, so that the whole is not a Wellington affair. This *entre nous* but it would strengthen your hands.

Will you make a little change in my paper. Namely I said when speaking of the Pareora beds about my change of opinion – as first suggested to me by Dr Hector – it ought to be, “as first pointed out to me by Dr Hector.”

Mrs Haast who has been very poorly is now in Governors Bay & improving; she will be delighted to hear such good news of Mrs Hector & the baby.

I am writing at once to Fraser, we really must make some change.

I wrote to Gully he sent me some tracings of the scale 1 inch to 1 mile of the country in question, consequently it saves me some trouble.

I shall be off next Monday.

Ever yours most sincerely

Julius Haast.

22/11/69

182: Haast to Hector, 28-11-1869

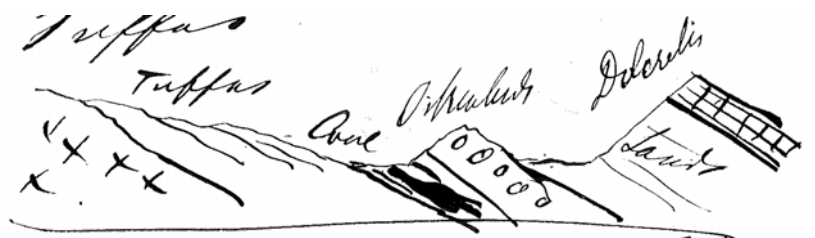
Te Papa MU000147/003/0002

Christchurch
Sunday night
28 N

My dear Hector,

Starting tomorrow morning. I went just now to the Postoffice & found your letter of the 27 Novb & I am very glad that I thus am able to send you an answer at once. Concerning the paper I may say, that it was read with the exception of the centre (about *Cucullaea* beds) to our Phil Institute, but you may publish it, as a Report in which case all reference to the reading has to be taken out, what Holmes or yourself, if you should find the time may do. Of course reduce the sections & put them to datum line if necessary, colouring, the map, put numbers to the formations; any thing you like, as long as it does not interfere with the text of my paper. Should you have material enough for the Volume of Transactions leave it out & publish it as a Report, or do not publish it as yet, if you think it is better. I leave the whole matter safely in your hands. How about the Statement that the Putataka beds are cretaceous. It may be wrong, but I quoted from your own notes you sent me kindly when I received Dr Hutton's paper on the Waikato beds. Here they are – of course we all are obliged to change our opinions as we obtain more information. Consequently please to change the sentence in my paper having reference to it, so that it agrees with your present convictions concerning the matter.

I can not go into the other matter not having the time, but as to the Coal of Jebson's mine in the Selwyn, it undoubtedly underlies the *Ostrea* beds (if I have understood the section). Above the Trachytes come Tuffas.



I think that the other rocks higher up may be of greater age than the Trachytes. I do not know, what rock you have had analysed but in the Malvern hill rocks there is any amount of quartz in free state. Here is Hauer's analysis & it should be strange that men like Hauer, Hochstetter & Zirkel¹⁹⁴ should take a Porphyry for a Trachyte. It shows me that I can not be too careful & that after all their testimony, you may nevertheless be quite right. There is a true Trachyte on Mokoia Island in Lake Rotorua (NI) which is also a ternary granitoid compound, although a true Trachyte.

More I shall write by & bye.
Goodbye, ever yours most sincerely.
Julius Haast.

[Notes by Hector and table of Analysis of rocks from Malvern Hills by Charles de Hauer attached – not transcribed]

¹⁹⁴ Ferdinand Zirkel (1838-1912), German geologist and petrographer.

183: Haast to Hector, 12-12-1869

Te Papa MU000147/003/0237

Amuri Bluff
Decb 12 1869

My dear Hector,

I have now been here at work for about 8 days & as I think you will be interested in my doings & hear of some of their results, I shall write you a few lines by this mail. There are two formations at the Bluff, one a older one, termed by you or Buchanan Marlstone & a younger which lies unconformably on both sides of it. This Marlstone is very curious & I have seen nothing similar to it in NZ., it contains small seams of coal or nests & the sandstones are full of harder concretions of all sizes mostly as round as Canonballs, but nothing in them. I have broken several of them without success & hunted for fossils in the rocks but without success, but I intend to devote another day to it. The newer formation overlying the former unconformably has very much the appearance of the Waipara beds in the sequence of the beds. There are carbonaceous shales; greensands, then follow sands mostly rusty & with efflorescence of Sulphur, divided by 3 layers of calc. shell sandstone, after which dark Greensands make their appearance which upwards become again like the beginning of the beds & with large *Septaria* Concretions & full of Saurian remains. The Concretions are mostly of gigantic dimensions & consequently difficult to handle, without proper tools & workmen, but I may at once state that Saurian remains occur also in the Sandstone beds lower down; these beds are succeeded by a yellowish marly limestone also with Saurian remains & then comes the great Amuri bluff Limestone formation. The whole is apparently the same formation to which I can only assign a jurassic age. Besides the Belemnites, it contains *Trigonia inoceramus*, *Cucullaea*, *Perna* or *Gewillia Pecten* a small *Mytilus astarte* & a shell almost identical with *Dosinia greyi*. In vain I searched Ammonites. I obtained a small shell in the beginning, which I prized very much as an Ammonite but after getting some more I found that it was not one, but one of the rolled up *Serpulae*, which are so common to our White Jura in Germany. So far all the shells are truly jurassic, but what gives to the whole a still greater character is the great mass of fish teeth, mostly *Hybodus*, *Lamna*? and *Strophodas*. Also scales like *Lepidotus*. Altogether one thinks to be in Germany in the heart of the Jurassic beds. There are also vertebrae of fishes, teeth of Saurians & bones. As I wanted to make such collections that they would represent fairly the whole beds, I have neither spared time nor money. I took here another man besides the one I brought with me from ChCh to assist with the sledge hammer & wedges. The consequence is that I have already brought a good collection together & sent already 3 cases off to Lyttelton (another large case is still here).

Saurian remains you will be glad to hear that notwithstanding the bad tools at my command, I have made a good collection, including the larger part of a skull although in fragments, but showing both jaws with teeth etc, as that there will be no difficulty to identify the species. The specimens are generally much larger than those of the Waipara & seem to belong to different species. Some of the vertebrae of *Icht[h]yosaurus* are really bigger, than I remember to have seen them before. They will form an ornament of your Museum.

Limestone In the limestone which is unfortunately very poor in fossils, I obtained some *Hybodus* teeth, stems of *Pentacrinites*, vertebrae of fish, but I intend to devote 2 whole days more to hunt it over inch by inch to see if I can not get a more fossiliferous layer. The

western side of the Amuri beds which I shall examine tomorrow etc, seem to be also very interesting as they contain numerous silicified trees, very beautiful specimens of which I saw at the beach. I hope that amongst that part I shall get some more fossils.

Now comes the moral. First when I saw the nature & succession of the beds, I said to myself that there could be no question as to the identity of both beds Amuri & Waipara considering their lithological character but when I examined them & was not able to find a single fossil identical I got re-assured. However I consider the question not at all settled & shall go on to seek if I can not trace the relations of both to each other.

But it seems to me & this is very important that the islands of limestone in the Waimakariri basin which is nearly identical with that of the Amuri are of the same age. How in the Waimakariri the big black *Ostrea* occurs also, & the lower lignite overlies unconformably those older limestone Islands. Should I be so fortunate to find some more fossils in the Amuri limestone, I have no doubt, that the same may be found in the Waimakariri. My next is now to go up to the Kaikora Peninsula & to examine it also carefully measuring the sections as I have done here, then proceed to Hawkswood by the Kahutara & Conway, examine Mt Caverhill where you marked *Monotis* beds in the Map. I shall perhaps devote 3 days to it searching the range in all directions & then go to Cheviot hills & trace the formation over the Hurunui visiting old Ground in Canterbury, so if it is possible to settle the question I shall do so one way or the other.

Some ten years ago I received from ~~your father-in-law~~ [*Superscript {by recipient?}*]: Sir David Monro] a box of fossils in limestone, which he told me he had collected in the Amuri; I sent them to Prof MCoy, but besides telling me they were jurassic I never heard anything more about them. Now those fossils are as far as I can remember specifically distinct from those I have found.

I have written Jollie to enquire of Sir David where he got them (I unfortunately always missed him) & to telegraph to me to the Kaikora so I can visit that locality too.

Now concerning the collections. I shall keep my set of rock specimens in ChCh, as I made two sets of specimens, but shall send you all the fossils without exception, leaving it to you to make afterwards a fair division of the duplicates amongst us. Unfortunately of some of the best & most characteristic such as *Trigonia* I got only single specimens but hope to be more successful in future. The younger III which fill all the valleys are our *Cucullaea* Clay marls, but would it be not better to call them in future the *Struthiolaria* beds, because this species are never missing & begin only in them, whilst *Cucullaea* is of different ages.

If you write to me care of Mr J. Caverhill¹⁹⁵ Hawkswood Amuri District your letter will safely reach me till end of the year.

Ever yours most sincerely
Julius Haast.

Can you send me some of the little black teeth got in the Waipara for comparison, I have got none.

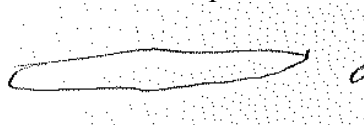
¹⁹⁵ John Scott Caverhill (1820-1897), owner of Hawkswood Station in the Amuri District.

184: Haast to Hector, [14-12-1869]

Te Papa MU000147/003/0257

Tuesday night
[14/12/1869]

The last two days I have devoted to examine the Western wing of the Amuri formation. It is exactly the same with the exception that the Sandstone layers are not so well defined & form



only cakes otherwise the formation can not be distinguished. However there is one little difference in the fossil. Owing to the more baylike character of the country there appear now a great many Gastropods, which are very scarce in the Amuri bluff. Unfortunately they are mostly casts; however a few are so far intact that they can be recognised, such as *Fusus* & *Rostellaria*. No sign of *Ostrea* beds, although I hunted all over the ranges. I hope to be Thursday night at Kaikora Peninsula.

Ever yours
J Haast.

185: Haast to Hector, 21-12-1869

Te Papa MU000147/003/0010

Conway River
21 Decb 1869

My dear Hector,

I wrote you a week or so ago giving you a more detailed account of my doings at the Amuri bluff & since then have been at Kaikora Peninsula, the examination of which has brought us a step towards the solution of the problem.

There the same jurassic formation occurs, only that all the lower beds are more calcareous, than at the Amuri. There is no doubt, that the Marlstones belong to the same series, as the whole series follows each other conformably & without the least interruption, but what makes this point so very interesting is the fact that above the limestone & unconformably above them lie Greensands which were only deposited after the limestones had been denudated to a great extent, although they appear mostly to be conform, from the preservation of the limestones. In these strata of a much younger age are fossils, but they are mostly only fragments. I obtained however one good shell, a *Scalaria* identical with the Wekapass bed one & also a tooth of *Lamna* also of the same species if I am not mistaken as that in the same beds in Canterbury. It would thus appear that long after the Amuri beds were deposited & denudated, the greensands were only formed. This at least brings us a step forward, but it will of course not decide the question as yet, of what age the Waipara beds are. I must confess when I look at them I am very wavering, & think that you will be right, because the *Hybodus* teeth at the Waipara are if I am not mistaken identical with those of the

Amuri. But then again is it not strange that the *Ostrea* beds below the Saurian beds should be quite different & that there should not be a fossil in common amongst them. The more I look at the limestones, the more I am convinced that in the Waimakariri the limestone Islands in that basin are of the same age & I think I shall get the same fossils in them; here is a section.



- A Sandstone & Slates
 B Isolated limestone hill
 1. Shales with lignite
 2. *Ostrea* beds
 3. Wekapass beds.

The same beds (Amuri beds) occur also in the Conway & although I was there yesterday the whole afternoon working at them, I shall return again tomorrow for the whole day, as there are some very interesting junctions first between the older & jurassic beds & then some greensands above the Amuri limestones & after wards the *Struthiolaria* beds again above them. There are also some very interesting folds, strata missing on one side of the Gorge which are fully developed on the other, so that I want some more details & some more fossil hunting. I also think I can now trace Marlstone beds in Canterbury in the ranges; altogether I am highly delighted with my trip and with its results, but hope to get still more information.

In Kaikora where there is a telegraph station I requested the manager to hear if you were in Wellington, because I intended to send you a telegram giving you a short resumé of what I had found, but I was told you were somewhere in Hawkes bay, poor fellow, I know what it is to leave wife & child so soon & although you English people are not so demonstrative as we Germans, you fully feel it as much as we do.

Ever yours most sincerely
 Julius Haast.

Is it not strange that I never shall have found any Ammonites & that all the Belemnites are different from the caniculate species of the Northern Island? I believe the Amuri beds are older perhaps Lias?

[*Marginal note*: I made careful sections at the Kaikora P. & also suite of specimens & fossils.]

186: Hector to Haast, 4-1-1870 [Telegram]
ATL MS-Papers-0037-081, letter 4

4th January 1870

Haast,

Just received your letter very interesting do not spare expense up to £150 & I will get authority.

Hector
Govt. Geologist

Will Mr Mason repeat this on to C.S. as a memo as Mr Haast is staying there at present.

187: Haast to Hector, 12-1-1870
Te Papa MU000147/003/0023

[No place]
12 Jan 70

My dear Hector,

I add the Whale notes as Potts tells me, they are still wanted. Holmes will perhaps be good enough to change the Dr H & he in I. so that it reads as I delivered it. The *Lyttelton Times* made the change so as to make it appear as reported by one of their staff. If there any gramatical changes to be made, I shall be very grateful if it is done.

Tomorrow I am beginning to unpack the specimens to ticket them so that they are soon ready to forward to you, although it is perhaps best I keep the whole till I come back from the Waipara etc & have all the specimens together for comparison & work & can forward the whole complete.

Tell me what you wish. As I had the evening before me I have just put the notes in order, so that Holmes has easier work. Have you a larger work on *Ic[h]t[h]yosaurus* & *Plesiosaurus* please if you can let me have it for a few weeks. Don't forget to ask Sir D Monro about the Amuri

Ever Yours
JH

In the last case of books received from England there is a copy of Bigsby's¹⁹⁶ *Thesaurus Siluricus* presented by the Royal Society to the New Zealand Survey – is this for you or only badly addressed. I shall keep the volume at your disposal.

¹⁹⁶ John Jeremiah Bigsby (1792-1881), English physician who published *Thesaurus Siluricus* in 1868.

188: Haast to Hector, 18-1-1870

Te Papa MU000147/003/0026

Canterbury Museum
ChCh 18 Jan 1870

Dear Hector,

I wrote you a few days ago & forgot to thank you for the *Hybodus* teeth sent me by Mr Gore, & which arrived in good order.

My object to day is to tell you, that I have bought from a collector of the Westcoast, who intends leaving, his collections consisting of Skins of *Apt. owenii* & *australis*, skeletons of the same as well as eggs, there will be about 4 or 5 of each & consequently it is too much for us, as I have only a small amount to spend & I therefore have to depend on what we can collect ourselves for exchanges.

Consequently if you want some of the specimens please to tell me, otherwise I shall send them over to Sydney for sale.

Skins of *Apt. owenii* 15/-
“ “*australis* £1-
very large ones £1.5.
Skeletons of *A. owenii* 15/-
“ “*australis* £1-
Eggs of *owenii* £1
“ “*australis* 1.5
all warranted in good condition.

In addition there will be about 1/ a piece for freight. I expect the whole in about a fortnight.

Ever yours most sincerely
Julius Haast.

189: Haast to Hector, 22-1-1870

Te Papa MU000147/003/0027

ChCh
22 Jan 70

Dear Hector,

Just received your letters with map & will do what is necessary for the map.¹⁹⁷ I shall send you with the fossils some sections, but do you not wish me to give you a full Report with Sections for publication amongst your Survey Reports?

Concerning my Waipara paper do what you think is best. If you have sufficient material for the *Transactions* leave it, till I have finished the whole work & I can then incorporate the whole in one paper.

You do not say if you agree with my proposal to go up to the Waipara & follow the beds up to the Amuri again. In any case the expenses will not be above £150. I want to search carefully once more, inch by inch as it were, the Waipara beds below the Wekapass stones & see if I cannot find any fossils in the *Ostrea* beds identical with the Amuri – then follow them up. Did you ask Sir David about his Amuri fossils? In every case I shall start, if you agree immediately after the opening of the exhibition say 10 of Febr. In going to Southland can you not stop a few days here, or at least as long as the steamer stops to go with me over the fossils or do you not go so early? In any case I want to name them as well as I can before I sent them up & make my notes.

I do not understand the voucher concern. Do the £40 per month include 2 horses feed & man, his food, the bills on the way & the extra labour I took. As I have no clerk to keep accounts, I generally pay all out of hand. Consequently I did not take any receipts what I paid for coaches (I went to the Amuri & back per coach) nor did I take receipts for cases being brought to ChCh, Railway to here & to bring them to my office, which however I can all hunt up, at least I hope so. How I can get an account for extra labour paid, at the Amuri bluff, I do not know, as I do not know, how to write to the man, it was £2.10.

Can I charge so much per week for 2 horses shoeing etc, so much per week for keeping a man? I shall not send a voucher before you answer me these queries.

It will take a great deal of work before the collections are ready for transmission & you can not count that I shall be able to send them before the 6 or 8 of February, but I shall do my best. I have 4 cases at hand the others will come soon. Your account of Hawke's Bay series is very interesting.

I am sorry to hear that Hutton left you. I hope you will not forget me. If we could combine my present position with our former idea it would be a capital thing. I shall send you Bigby's book as it belongs clearly to you. I suppose it was put in the wrong parcel.

Ever yours most sincerely
Julius Haast.

¹⁹⁷ We have been unable to locate a copy of this letter.

I also do not know where to begin first, so much work is before me. It is of course impossible for me to write upon the Amuri sections without having first compared carefully all the specimens collected in the different localities.

190: Haast to Hector, 23-1-1870

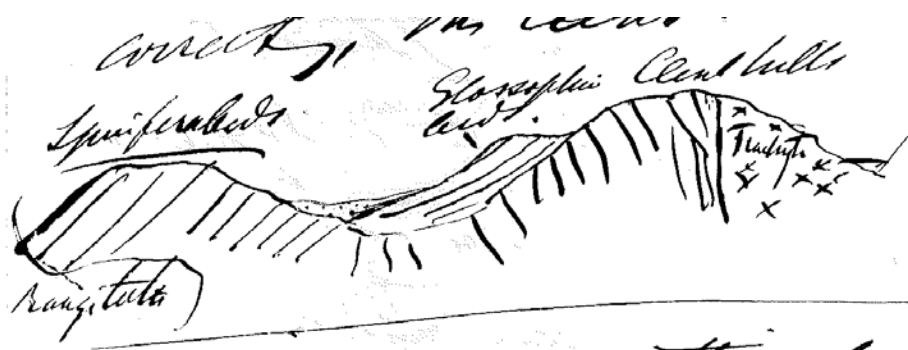
Te Papa MU000147/003/0028

[No place]
Sunday 23 Jan 1870

My dear Hector,

I wrote you yesterday a few hurried lines, & will to day add what I overlooked. You say in one of your letters "I enclose a copy of the Groundwork of the Geol. Map", but there was nothing in it, but I suppose you meant the blank proof of the geol. Map, you sent in another letter. Shall I add also if you want the Amuri work sketched in, the coalfields of Canterbury, as there are several localities which are worked for coal or which could easily be worked. I miss in your map, the Marlstone formation, which is in some respects intimately associated with the Amuri beds & consequently will be middle mezozoic. You never sent me a copy of your Northern Auckland map & consequently I am unable to give the details as you wish me to do. Have you not one of those maps with notes in explanation to spare?

When do you want the map back with the Amuri details, because I want first to compare the fossils. I have been searching all over our collections for a specimen of *Scalaria*, which I got some years ago, in the beds which overlie unconformably the Wekapass beds in the Waipara & which as I think is identical with that from the beds overlying unconformably the Amuri beds in Kaikora Peninsula. If I could get it (it was unfortunately not a good specimen & I have to look in the Duplicate Boxes) & it would prove identical one step further would be done. I have already begun to draw out the large sections to fill in details & to number the beds, so that when I send the specimens you have at once a clear insight into the whole & that you can assist me, because I have no doubt, many fossils which I found for the first time, have been found by you or other associates before. The Canterbury section in your Map is not quite correct, the Clent hills are thus



You never told me any thing about the Trachyte analysis of Hauer etc from the Malvern hills.

If you should like that I come up myself with the fossils I should like to do so with great pleasure although I fear I shall not be able to manage it at present for want of time. Buchanan's work is very good indeed as far as boundaries etc are concerned & I can easily understand how he was fairly puzzled with the different beds.

If I tell you, that the *Struthiolaria* beds, which occur in close connection with the Amuri beds are identical or almost identical in lithological character with the upper portion of the Amuri beds, the age of which I at present am as yet unable to say, you will easily understand that the difficulties are very great indeed.

I really think it is better to retain the Waipara paper, till I have done the whole, which will be end of next month & towards end of March I hope to have maps & sections ready, as I will not undertake any other work except Museum duties, untill all is in your hands. Do you mean to say that I have to send a voucher of 2/ etc paid to a carrier, viz. that he has to write me a receipt or bill for those 2/.

I give those details only in Canterbury without such vouchers are necessary. I hope you will write soon.

Ever yours most sincerely
Julius Haast.

Pray excuse blot.

191: Haast to Hector, 3-2-1870

Te Papa MU000147/003/0199

3 Febr. 70

My dear Hector,

I have not had time to write before, being day & night occupied with the Art Exhibition & getting sections & specimens in order for you. The 4 last cases are not yet arrived & I can not do any thing to forward those in hand until I have got the 4th Amuri case, which waits for the steamer, but I think the whole will come in a week or two. The rainy weather has retarded so much the shearing & consequently people did not get their wool ready for shipment. It is necessary for me to have the whole together, otherwise I fear that I might make some errors, concerning the vouchers etc I have written officially; you can strike out what you like. I shall send the map next week. I shall prepare according to your suggestions all observed facts with sections & forward them as soon as I have returned from the Western trip along Waipara etc, so as to connect both. Your idea about Cret.-Tert is very good & at present the right thing. Prof McCoy called the fossils I sent him 10 years ago from the Amuri Jurassic. Of course when I wrote you that the Amuri bluff beds etc were jurassic, I judged from first impressions in the field & I think that you will be right in believing them Cretaceous or Wealden, which a comparison & close study will set clear. If so, then are the jurassic beds of McCoy which I am going to examine older, what I hope to settle during this month. If this is the case, we can then account for the Waimakariri basin limestones; however

this is all premature, because first the Amuri sections have to be finished. Has your map time till I come back from there end of the month or beginning of March? I can give you then much more. Excuse my haste but I do not know what to do first & I fear to miss the mail.

Ever yours most sincerely
Julius Haast.

Our exhibition will be a success. The Monrad¹⁹⁸ collection looks well all framed.

[*Note from Gore attached*]

Dr Hector,

I see Dr Haast says that the Monrad collections in the Exhb. are all framed, would it not be a good thing to get the frames up when they are here with ---- for the Museum here. Perhaps they wd. be glad to dispose of them cheaply.

RB Gore
9.2.70

[*Hector's hand:*] File with Report on Amuri.

192: Haast to Hector, 3-2-1870

Te Papa MU000147/003/0039

Canterbury Museum
Christchurch
3 Febr. 1870

Sir

I have the honour to enclose vouchers for my last journey, trusting that this time I have fulfilled all the necessary conditions of the Colonial Treasury. As I do not know if the Treasury voucher is wanted in duplicate, I have signed another in blanco, which you will kindly have filled up if necessary. The charge for 2 horses in the field, I have changed according to my arrangement with the Canterbury Government, during the progress of the Geological Survey of this Province, which considered that the simplest way to avoid keeping horses during the whole year. Should this or any other item however not be in order please to strike it out all together.

I have the honour to be Sir
your most obedient servant
Julius Haast

Dr J Haast FRS
Director Geol. Survey
Wellington

¹⁹⁸ Ditlev Gothard Monrad (1811-1887), Danish Prime Minister, bishop of the Lutheran church and art collector.

193: Haast to Hector, 18-2-1870¹⁹⁹

Te Papa MU000147/003/0051

Tuesday evening
[Received 18/2/1870]

My dear Hector,

I did not hear from you by the mail which has just come in & as this is the only time, when I can get away & the 2 last cases (one of the Amuri) have not yet arrived I shall be off tomorrow morning & be back beginning of March.

Consequently you will get the whole collections together. What I have received I have unpacked & already ticketed more clearly, so that there will be no delay when I come back, when I hope the cases will have arrived the weather being not so favourable for shearing.

I shall get you a complete collection of Handspecimens from the Waipara section for comparison, shall hunt over the fossiliferous strata as carefully as I can, if I can not get another set of fossils or any of them identical with Amuri forms.

I shall then follow the beds along the base of the hills to the Hurunui & across by Mc Ilraith etc to the Waiau-ua & farther on to connect the Conway Section; as soon as I shall have returned I shall send sections & notes with the specimens, leaving the rest for further publications.

Excuse my hurry
Ever yours most sincerely
Julius Haast

Man & horses started this morning as far as Homewood, I shall follow by the Coach tomorrow.

[*Hector's hand:*] This letter seems to have crossed with of 17th ---- Feby. Answer it & instruct Dr Haast. JH.

[*The following fragment is filed with the above document – see footnote*]

of the Amuri & Conway [*superscript:* to here]. It is most perplexing. In the Cheviot hill section, Gore Bay the same *Scalaria* occurs, as in the Kaikora Peninsula & lying exactly in the same manner, but here again without minute sections as I made them, it is impossible to go into details. With one word I have hitherto failed to show that the Amuri beds are different from the Waipara but also failed to prove that they are identical.

In the Jed near Cheviot house I found in the ferrug. or sulph. clays, not in concretions, the remains of a Saurian (*Icht[h]yosaurus?*) – They were lying in the Clays so that by aid of a small pickaxe & chisel etc towards night, I had worked out with my man: the two scapulae about 15 inches long & the right humerus with ulna, radius & 14 other bones belonging to it. The Humerus is 14 inches long & 9 inches broad at its lower portion; the whole a splendid sight. As it began to be dark & rain set in & I had no means to get the whole away, I put the

¹⁹⁹ There appears to have been a filing error with this letter. As Hector has annotated it as such, we have left the transcription in the state that it appears in the archive.

two scapulae, which were in many pieces although perfect with exception of the frontages back on the top of the coracoid bone on which we were excavating, some 4 feet above the river, but would not leave the paddle behind, so I managed to get the whole safely down the sea side, where I was staying. The enclosed sketch shows you our first & second days works.

The rain which was only slight, changed into a deluge. It rained 2 days without intermission, the creek rose tremendously & when the fourth day we were able to come to it again, the whole had been swept away, the top fallen in. Half of the 2 coracoid had gone too, which we left excavated on the first day & the rest was shattered to 100 pieces. However in clearing the river we found some large pieces from the coracoid, which from A to B was 2 feet 9 inches across. I went on working the next whole day, took out the pieces of the end of the Coracoid bones, but was not able to find any vertebrae or other bones & had also not the necessary tools to continue. In the sands overlying the clays, I found also loose & quite perfect a vertebrae & a spinous process belonging to it.

Now concerning the species or genus, I must confess I am very much puzzled [*Superscript*: to here] not having books of reference of the specimens at hand. My first idea was that as I told you, they were parts of an *Icht[h]yosaurus*, namely

- a, a. Scapulae
- b. clavicle
- c, c. Coracoid bones
- d. right forearm

The edges of a, a were destroyed, so that I could not see exactly the form & I did not make any sketches, having the bones, as I thought secure.

The paddle as I consider is intermediate between *Icht[h]yosaurus* & *Plesiosaurus*, the Ulna & Radius are more like *Icht[h]yosaurus* but the phalanges are like *Plesiosaurus*.

Where in cc. you find the O there was no bone; consequently there was either a hollow or the bone was so thin that it did not return its form & went altogether.

The only book I have here at home is Buckland. In vol II page 31 there is the compound sternal costal ---- of *Ples. dolichodeirus*. Thus the 2 upper portions would be cc.

the lower portions aa, but I do not know what to do with b & I must wait till the cases from Cheviot hills come up (in a few days) to go into the matter.

Mr Robinson,²⁰⁰ on whose land the specimens were found, wishes, if he has a voice in the matter, that the specimens should remain in the Canterbury Museum, however I told him, that as I am paid by the G.G., you ought to be consulted. We better talk the matter over. The thing is certain that there must be more, but which only can got by taking down the banks or driving.

However if ever we should fail to find pal. evidence in fossils that Amuri & Waipara are identical the Saurian remains from both localities & Cheviot hills ought to give us a clue & I therefore am exceedingly anxious, that both are compared with each other. In every case I

²⁰⁰ William Robinson (1814-1889), runholder and member of the New Zealand Legislative Council.

shall send you all the specimens from Cheviot hills to Wellington, after having looked into the matter. But I do not consider that my task is accomplished & I think therefore that I now ought to work up from the Waipara to the Waia-au & Conway western side, so as to connect both & to collect as carefully all along, running[?] the sections. This I could do in about a fortnight, sticking to it from early till late. [*Superscript: to here*] If you agree with me, I shall start immediately after the opening of our exhibition, because after the end of February, I can not more leave.

In this case I shall see, if in looking so carefully over the specimens of Waipara etc no fossils can be detected which are identical & when you have the whole result of my work, sections & specimens before you, you will be more able to judge & assist me. I am exceedingly anxious that you look over the sections, before we publish the results & I think if you intend to go now, it would be best to go to the Kaikora Peninsula by steamer, I could send you my man Ben with a pack horse & riding horse there to await your arrival, you could do it in a day, then over the ranges to Amuri bluff, then looking at Conway sections go to the Waiau & Cheviot hills sections. You could do it all in 10 days, as Ben, who is a very intelligent fellow, knows all the road & all the particular spots, which I am very anxious you ought to see. However one thing is certain, without the other sections from Waipara up is done, it is better to wait. Consequently I would advise you to go first south & do it, when you come back & I have all the specimens & sections ready for your examination.

You know very well, that my love for our Science guides me but I was nevertheless glad to see, that you will obtain a larger honorarium for me, which owing to the greater expenses I have been put to, is very welcome, besides my journey via Waipara to Conway will also be included in the amount you intend to place at my disposal. Consequently I enclose a paper signed, as Mr Hamilton²⁰¹ our sub treasurer told me, I left the sum open to be filled up by you, please to pass it through the official channel.

Concerning the collections made by me I repeat what I told you in my first letter, namely that I shall send all the fossils to you, so that you may keep what you like, because I think this is the only satisfactory way to work for your Department. When I do work for the General Govt all the specimens belong to it, of course expecting of the Duplicates my share. Please to ask Sir D. Monro where he obtained the jurassic fossils which I sent to Melbourne about 10 years ago. I understand they came from his run at the Waiau (he told me from the Amuri) but that is the name of the district & I am working up to that point from the Waipara.

I have already 4 cases of specimens here, all from the Amuri & I expect in a few days those from the Conway & Cheviot hills, whilst the box from the Kaikora has to wait for an opportunity to ChCh.

Shall I send the specimens up at once or wait till the whole is together? My letter is longer than I intended, but it can't be helped.

Ever yours most sincerely
Julius Haast

Best wishes & compliments of the season from Prov to Prov.

²⁰¹ J W Hamilton was a collector of customs and sub-treasurer to the Receiver of Land Revenue in Canterbury.

194: Haast to Hector, 9-3-1870

Te Papa MU000147/003/0060

[No place]
9 March 1870

My dear Hector,

I returned last night from the north & found your letter of the 14th of last month;²⁰² I am glad to say I found all the boxes safely arrived & shall now at once proceed to get the whole underweigh together with the Kiwi skeletons etc, which have arrived in the meantime. Before I report upon my last trip let us finish our previous one.

Mt Cook trip I shall at once prepare some notes about it & forward them.

Vouchers

You give me a blowing up about exceeding in my vouchers the original amount of £60, of which I can tell you, I was not a little surprised, but let me now state the case & then let us see who deserves the blowing up. You telegraphed to me on my journey

“Do not spare expenses up to £150 & I will get authority”

As I had not spared expenses & time, I of course had to conclude that you had done so at once, so as to be in order you know very well it was never contemplated that I should make such a long journey & only the interesting features & my wish to collect as extensively as possible made me act as I did & as I considered quite with your concurrence.

I also wrote to you that in order to complete that portion of the country I would go up again for a few weeks & that the £150 would cover the whole expense of both trips & you seemed quite satisfied I did it for the best. Under these circumstances do I deserve to be blown up?!

You know very well I was very glad to go & if only my expenses had been barely paid, but was very happy to make a few Pounds extra, owing to my small Salary & I thought that I could conclude from your letter, that besides my travelling expenses you intended to pay me a small Honorarium.

Under the circumstances I shall not send any vouchers for my last trip until I hear from you & I prefer to pay all the expenses of the trip, because I do not want to be thought grasping. Your Deptmt. will have the results just the same.

Concerning the list of fossils you gave me I think you will be able to add many species. The character of the Dosinia struck me also very much.

²⁰² We have been unable to locate a copy of this letter.

I do not keep the Geol. Magazine & should be very much obliged to have the loan of it from you to look through. Perhaps you can send me the last two years numbers for a month to look at through book post. I want very badly to see Scrope²⁰³'s paper.

I hope to send your map by next Saturday's mail, as I shall go at it tomorrow morning as soon as I have cleared off some other official work.

The Monrad could only be framed, by taking out all the plants, maps & sections in the Museum from their frames. Consequently you can't have them either for "love or money". What a pity that they can not remain where they are the whole looks very well.

I wish you had sent me proof sheets of my paper to look through & in future I request you to give instructions that it is done. Otherwise the great advantage to have the things printed here is almost lost, because in looking over a printed copy you see so much easier what is to be done about slight corrections, which escaped you in the manuscript.

I shall send up as soon as the specimens are gone, maps sections & notes of my two trips but nevertheless I shall not try to put them into to my best (sic) English, it will take time away to the mass of material. Now to the result of my last trip. You will be greatly interested in it, as I have advanced our Waipara business one step further. It would take too long resp. it is not possible to give you the results in a few sheets, but the principal results I may just allude to.

For 3 days I worked with Sledgehammer amongst the fossiliferous Waipara beds. I got a large collection of them, amongst which a *Trigonia*, an *Arca* or *Cucullaea* & some large fish (*Lamna?* *Otodus?*) teeth, which will bear comparison with the Amuri & thus bring us a step nearer.

In the Greensands overlying the Saurian beds, I got after a patient search of two days some -----, which are either *Hipparites* or *Rudiolites*, & therefore of great importance. I also devoted some time to examine once more carefully the so called Wekapass beds & got some fine fossils. I then crossed by the Waipara upper portion to the Hurunui & followed the strata to the Conway (Upper). There I found McCoy's Jurassic beds.

Mostly marbles with coulees of Basalt & Tufas often matrix of Calcareous spar, between them. They go accross to the Clarence & West of there near the sources of the Hanmer lies a large (volcanic?) crater, from which steams 8 to 10 miles long radiate. I did not visit it from want of time. The bottom beds of these jurassic beds are

dark sandy clays, decomposing bluish white at the surface
white coarse quartz sand
greensand

at one place above them calcareous foss. sandstones. After which marbles alternating 2 or 3 times with coulees of basalt. Upon them repose unconformably the *Cucullaea* (Pareora or Deans) strata.

²⁰³ George Julius Poulett Scrope (1797-1876), English geologist and political economist.

All the fossils are different either from the Waipara or the Amuri bluff. The older rocks are traversed by numerous dykes of a Dioritic porphyry.

In the N. Eastern corner near the Mandamus, but not crossing into the Canterbury Province across a splendid zone of Eruptive rocks which looks very much like a Syenite; it shows here in my magnificent sections, how it has broken through the Dioritic Sandstones etc, how large tuffaceous Deposits often as Breccia often as Conglomerate repose upon it. These beds are the lowest beds of the Jurassic series (McCoy); the whole sandstones, older trappeau or eruptiv rocks etc are broken through by sometimes a network of basaltic dykes. Small seams of Coal are associated with the Conglomerates. You will be very much interested in the whole.

It is one of the most interesting & instructive zones I have seen in New Zealand.

In the Waipara I found two large blocks containing good portions of a skeleton, which of course is yours as I worked for you. You better have a look at them if you will spend the money to get them out. It wants stone masons work they are small animals but the blocks are enormous. They are in such a position that they are quite safe. I hope you will set at once Skey to work with the trappeau resp. volcanic rocks so that I do not give them any other name, you wish to introduce in our nomenclature.

In every case send me a list of names, you wish to have adopted, I shall give my own in the labels provisionally.

Ever Yours
Julius Haast.

You must have some patience with me, because I have so many things to attend to at once.

The Wekapass beds proper cease at the Hurunui bridge on the East of the basin & 5 miles South of the Hurunui on the Western side. Nothing of them visible on the northern. More of it in my Report.

195: Haast to Hector, 11-3-1870

Te Papa MU000147/003/0062

ChCh
11/3/70

My dear Hector,

When you were last here, you spoke to me about getting a set of Mr Sealy²⁰⁴'s NZ. Alps Photographs for the Colonial Museum, but I then told you that he did not intend to sell any. Mr Sealy is now about starting upon another photographic Expedition to the Southern Alps (Great Godley Glacier, Hector Range etc) & as he is incurring considerable expense for that object, he will be willing to furnish you with a set of his views (say 50 in number) provided you are in a position to contribute £20 towards the expenses of his trip.

Please to tell me by next mail whether you consent to this arrangement.
Ever yours most sincerely
Julius Haast.

196: Haast to Hector, 11-3-1870

Te Papa MU000147/003/0063

ChCh
11/3/70

Dear Hector,

Here is the Map. I have put in the portion surveyed with as little detail as possible. I also have added some few details of Canterbury. If you send over my map of Canterbury I shall put in the whole Province for you, but then give me your colours, so that it is done at once. As you think a division good between the Cretaceo-Tertiary & the tertiary proper, it would be good to send me also for that purpose my geol. Map, so as to indicate in it, with more distinct colours that important division. Sealy leaves tomorrow I wrote you inclosed what he wished me to say & you have thus a chance to get a fine set of his photographs. I told him I would send your answer after him to Lake Tekapo, where he has to send for provisions during his trip. I am working hard at packing the specimens, took an extra hand on to assist me, the ticketing takes such a long time.

Ever yours most sincerely
Julius Haast.

²⁰⁴ Edward Percy Sealy (1839-1903), Canterbury surveyor, mountaineer, naturalist and photographer.

197: Haast to Hector, 22-3-1870

Te Papa MU000147/003/0072

ChCh
March 22 1870

My dear Hector,

Enclosed account for the share of my *Apteryx* purchases; they will go tomorrow with the other cases of specimens. As unfortunately 2 of the eggs were broken, I could send you only one of them. There were 5 in all some of the skins were spoilt, so I could only let you have two families of *Apt. australis* male, female & young one.

Stick to at least one of them, because we shall never be able to get them so cheap again. As I do not know to whom to address the account, I have it left open to be filled up by you as well as the voucher. I hope you will be satisfied with your purchase. The skeletons are all complete.

Ever yours
Julius Haast.

Dr Hector FRS

I shall write more fully tonight. If there is too much of the lot for you, please send it back, I can get rid of it at once in Australia.

I can let you have also some skins of *Apteryx owenii* if you like them at 15/-

198: Haast to Hector, 23-3-1870

Te Papa MU000147/003/0074

[No place]
March 23 1870

My dear Hector,

Here at last is the list of specimens & the cases in the same steamer. I wish I could be with you when you open them.

Concerning Sealy – When I gave you those photographs of Sealy's you asked me if you could not obtain a series for love or money for the Colonial Museum. Sealy met a few months ago Sir David in Kaiapoi; the latter wished very much to get a set of his photographs for the same purpose, but Sealy would not sell any. Consequently he thought that his offer was a very fair one. However you know best, in every case please tell Sir David of Sealy's offer. As much as I could gather from Sealy your father in law wanted them to present them to the Colonial Museum.

I have altered the Canterbury Section because I have a much better one of which I shall send you a copy by next mail, but I have not changed my mind concerning the age of these Ashburton beds. They are certainly different from any others in the Province, position,

mineralogical character. I have not abolished Miocene strata altogether but I could not find any unless the *Scalaria* beds have to be so called, making the division line with the so called Deans *Struthiolaria* or *Cucullaea* strata beds, as III I put the rest as Cretaceo Tertiary. However you have now the fossils & can judge by yourself.

Should you like me to come to Wellington for a few days I shall do so at once, in the course of next week, afterwards I can not leave; as Hood's collections are lost, I could bring the sketch of the skull & the other sketches I have with me, the former without the necessary alterations is valueless, but I possess the material to do it. I also sketched all the principal bones, so that we have at least saved some thing, which under Buchanan's hand would become valuable material. I would also bring up the Waipara Saurian remains the Canterbury Museum possesses.

I think I have treated of all what was necessary in my official letter. If you wish me to come please telegraph a few lines, we could settle many Amuri & other questions in very few hours.

I am sorry you have not published my Waipara paper with all the Sections, because I went to some expense & trouble to get them up all properly & I thought it would teach people some of our detail geology. However I should have liked as I told you to retain the paper altogether, because it would have been easier to treat the whole question Waipara & Amuri in our paper together with all the sections & it will give me only additional work to repeat & correct what could be done at once. I am not ashamed to confess that I have in some respects to change my mind, but it would have simplified the whole matter. Therefore I once more repeat, if possible keep the whole paper back till I can work the whole in one publication. I suppose one has a right to do so, when it is not yet too late.

Ever yours most sincerely
Julius Haast

Dr Hector FRS.

[*Hector's hand:*]

When the specimens arrive they are carefully to be compared with Dr Haast's list and put in separate drawers. Buchanan will go over them & pick out any that require to be figured & write what he thinks then to me in Auckland.

J Hector 27.3.70

199: Haast to Hector, 4-5-1870

Te Papa MU000147/003/0094

ChCh
May 4th 1870

My dear Hector,

Many thanks for the volume, it is very creditable I think to the NZ. Institute. About Owen's pamphlet[?] *Plesiosaurus* I shall write to you by next mail more fully. It also amused me.

Will you tell me if you found time to compare the Waipara fossils with those of the Amuri Bluff. I had no time to do so & no space, as I packed them away as fast I opened the boxes. I suppose you are anxious to get my Report, but I wait till I receive your letter, because I am anxious to use the nomenclature of the Geol. Survey. Did you also compare the Saurian remains of the Waipara with those of the Amuri Bluff? I have no doubt that those from the Jed are identical with those of the Waipara.

Let me soon hear from you
Ever yours most sincerely
Julius Haast

Dont forget to send me the money or paper voucher for £18.10 *Apteryx* skins & skeletons.

200: Hector to Haast, 7-5-1870

ATL MS-Papers-0037-081, letter 5

Wellington
7th May 1870

My dear Haast,

I enclose a cheque for £18-10/- for the Kiwis &c. I have not had time to unpack them yet.

The egg is marked *A. australis* but it is too small surely & must belong to *A. owenii*. It is not more than half the size of some I have had.

I am highly delighted with your Amuri collections. You must have worked hard[?] besides having good luck to get so many good things. I have managed to go over & arrange all but the Bones which I have not touched yet. At first I tried to follow your list but found it very confusing, so I separated them by the eye into the different varieties of matrix & then found them to agree with your list. I have taken great care to preserve your distinctive marks. However as you say in one of your letters till you can send me the sections – however rough & the notes I will not be able to understand the relation of the different beds.

In reply to your question – I find that in the Amuri Bluff collection you have obtained 63 species (Buchanan got only 23 of them & a few that you have not got) out of this large number there is only one shell *Trigonia* & one shark tooth, that is common to the Bobys creek shell conglomerate.

The chief shell in the latter beds is a winged *Struthiolaria* (like *Aporrhais*) which gives them a very recent Tertiary look – but the *Trigonia* is identical, but I would not like to form any opinion till you send me a little

[*Copy terminates*]

201: Haast to Hector, 15-5-1870

Te Papa MU000147/003/0100

ChCh
May 15th 1870

My dear Hector,

I received your letter of the 7th of May with the cheque of £18.10 for the Kiwis. Many thanks. The egg was labelled wrongly by mistake. In my notes it is marked *Apt. owenii*. There were 2 of *australis*, but of which one unfortunately got broken.

I am truly gratified that you are satisfied with the specimens & I can say that I did not spare any time or trouble to obtain as large a collection as I could & sections sufficient to clear up the points at issue. Concerning the shells I think that the *Dosinia* is also identical in both Amuri & Waipara. Concerning the winged *Struthiolaria* I thought it to be a *Rostellaria*. However as I had no time to go into the matter at greater length I shall of course bow to your division, however *Aporrhais* & *Rostellaria* are so closely allied that it is generally considered difficult to draw a line. It would be highly suggestive to find a young secondary fossil, intermediate between *Aporrhais* & *Struthiolaria*. What I consider the most conclusive of both beds being not contemporaneous or at least deposited under different circumstances (I speak of Amuri Bluff & Waipara) is the absence of that curious Gastropod, described by McCoy, which is so frequent at the Waipara, forming even sometimes a conglomerate mass in the interior of the limestone concretions.

I cannot remember the name at present, but you know what I mean. [*Marginal note: Conchityra parasitica*²⁰⁵]. Concerning my paper I am really sorry that I did not find the time to get them sooner done. The Mt Cook paper & Sections will go by next mail. It wants only copying. And I am hard at work at the sections of the Amuri district 8 large ones & 6 small ones are already ready. Tell me when do you want them & my short Report; give me the latest date & they will go & if I have to work through the night. Or shall I send the sections on as I finish them, so that they can be taken in hand at once? As I have no draftsman, I can not have the writing done properly here. I suppose it is sufficient if I write legibly the titles & you have the printing done there. The more I go into the matter, the more I think that the beds

²⁰⁵ *Concothyra parasitica*.

are after all different. The collection of Saurian remains will however decide the question, if it can be proved that they are identical in Amuri & Waipara.

As far as I can judge those of the Jed & of the Waipara are identical. But as you have all the material you will soon settle the question. If you see the Nelson papers you will observe one of the results of my last journey, a short paper on the Hanmer plains springs. The Bishop of Nelson²⁰⁶ who was very anxious to get it wrote & telegraphed repeatedly to me about it. Excuse my haste, but I have been interrupted half a dozen times. I hope to get the work man out of the Museum in a fortnight. I can get 2 dozen of good skins of *Apt. owenii* at 10/ a piece, if I take the lot together; but it is too much for me; will you have a share?

Ever yours most sincerely
Julius Haast.

Dr Hector FRS

The Naturwissenschaftliche Verein in Bremen Hon. Secretary Prof Dr Buchenau²⁰⁷ writes to me for the exchange of the NZ Institute *Transactions*. They publish a very valuable volume & are willing to send it.

202: Haast to Hector, 19-5-1870

Te Papa MU000147/003/0105

Christchurch
May 19 1870

My dear Hector,

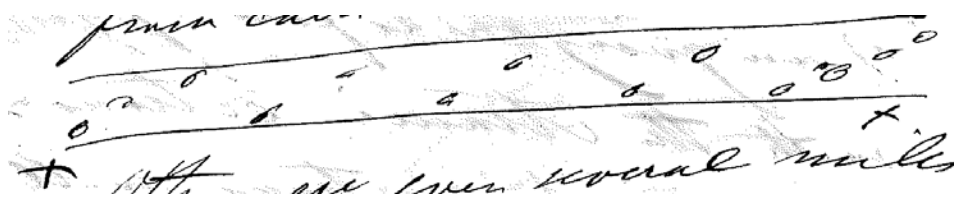
I received last night the copies of my private letter written to you during my progress in the Amuri. Many thanks, I am sorry, you should have gone to all the trouble to have them copied, as I have my fieldbooks & consequently had no need of them. However it is rather interesting to see how in continuing the work my views were modified in many respects. Do you consider private letters written during such surveys to be official? I ask the question because in the Continental Surveys it is different. All letters written to the Director & addressed to him in a friendly way are considered private and only those addressed in an official format from the field are filed or used for publications.

The reason is that otherwise it would interfere with the free and unrestrained intercourse & every body would wait till he could give final results. It would at the same time be ungenerous to pin people down to first impressions before they had seen more or to theories or age of beds etc before they had access to books of reference or specimens for comparison. I suppose the same view is taken in England and in our N.Z. Survey?

²⁰⁶ Rt. Rev. Andrew Burn Suter (1830-1895), the second Anglican Bishop of Nelson.

²⁰⁷ Franz Georg Philipp Buchenau (1831-1906), German botanist and phytogeographer.

I am truly glad that you have found time to examine also the Saurian remains. The portions of skeletons of the Amuri bluff are however from different localities, some of same a quarter of a mile distant from each other.



Others are even several miles distant but they are marked on the labels resp. Catalogue.

Enclosed my Mt Cook paper with 2 sections. If you think it too long, you may cut it down. Do you want an official letter to accompany it?

I also add a tracing of one of my sections that you may see how the plant beds on the western side of the Clent hills are situated. I send these in order to show the difference of my section with that in the geol map.

I am going on as fast as possible with the Amuri Sections & Reports. The sections will go I hope during beginning of next week & the Reports shall soon follow.

What do you think of the *Hipporites*? of the Waipara greensands?

I shall be delighted to receive your type collection of NZ. fossils, but are you certain that you have every thing represented I have got, for inst. the lower carboniferous or upper devonian beds of the Rangitata?

Ever yours sincerely
Julius Haast.

203: Haast to Hector, 27-5-1870

Te Papa MU000147/003/0112

ChCh
May 27 1870

My dear Hector,

Yours of the 24th of May came to hand.²⁰⁸ As I told you, if you think my Mt Cook paper of sufficient interest, print it with the sections. You may cut it shorter if you like if you should think it too long.

Many thanks concerning your answer in regard to my letters. Although I was sure before hand that you would give me that answer I thought to enquire being very anxious to avoid any thing which might in future form a cloud over our friendly relations. I hope that

²⁰⁸ We have been unable to locate a copy of this letter.

you will understand my feelings. The copy was very interesting to me & of some assistance. There are 6 places whence I sent Saurian remains.

- 1) Amuri bluff Eastern side. Skull & a good many vertebrae. 1 humerus etc
- 2) Amuri bluff Western side (1 vertebra)
- 3) 1 mile South of Amuri Bluff – Sea shore. Humerus & Vertebra. They are cracked with the Septaria & cemented by Carbonate of Lime.
- 4) Conway – Part of a bone in Conglomerate.
- 5) Mt Caverhill Western side near junction of Eden with Waiiau-ua Conglomerate with Saurian bones 78.
- 6) Jed river. This is a small creek which runs past Cheviot hill house into Gore Bay. Paddle etc.

Concerning the Amuri bluff species I have not seen much of a resemblance between them & the Waipara bones, as far as I can remember.

There is much more resemblance between the Jed (Cheviot hill) bones & the Waipara. We possess a few metacarpal & carpal bones in the Canterbury Museum which are of the same size & form as those of the Jed & which I will send up, as soon as I come to them, when unpacking the specimens.

Of the Jed are only 1 vertebra with spinous process not two as you say.

You can easily make it out, by being still covered with sand there is one vertebra from the Western side of Amuri bluff which is equally covered with sand, which I got in a gully. Speaking of the Jed you speak of a half of the other humerus. I consider that this was half of a clavicle. It has quite a different form than the Humerus with which it was. Look at my sketch sent from here. It is B sticking out by A the paddle from the cliff. I fear almost that some errors have been made either by me in packing them or by being unpacked in Wellington, although I was very careful here. I am delighted to hear that Mantell is restoring the bones. I looked at *Aporrhais* & I am more bewildered than ever. Chenu²⁰⁹ knocks it at the head & calls it *Chenopus* page 262 1 vol. I do not remember if the shell I got has the expanded outer lip reflected like *Struthiolaria*. How shall I call it?

I suppose you have some publications on the subject which I do not possess. Bronn²¹⁰ - Quenstedt²¹¹ are just as confusing.

The *Conchothyra parasitica* is the curious whorled Gastropod? found only in the Waipara & in Boobies Creek. It is a thick shell looks like a water rolled *Trochus* (has often the form of a ball of string). Unfortunately I can not get at it, because I sent you every thing & owing to the carpenters keeping me waiting, I can not get to the boxes in which the fossils are. I do not know if it is a Gastropod. I first got it at the Selwyn with the big *Ostrea*. It takes various forms. You can not mistake it.

[*Marginal note:* McCoy sent me 1 specimen back with that name attached, but nothing of particulars.]

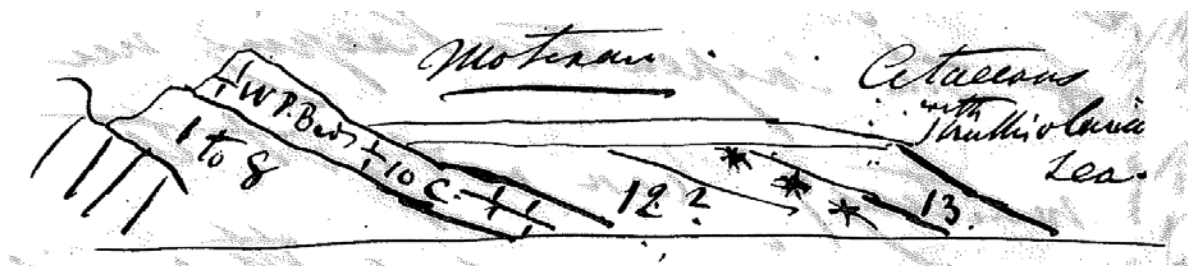
²⁰⁹ Jean Charles Chenu (1808-1879), French physician and naturalist.

²¹⁰ Heinrich Georg Bronn (1800-1862), German geologist and palaeontologist.

²¹¹ Friedrich August von Quenstedt (1809-1889), German geologist and palaeontologist.

I did not visit the locality where the Crustaceans are, I left it for the last & was then pressed for time, but I intend to run up another day.

The Motunau cretaceans are in III beds like the Deans. here is a section.



They are in 13 of my table of colours. There are some calcareous beds which also contain a *Modiola* & *Mytilus*. They occur where I made the stars in the section, immediately below bed 13. They look also exactly like the limestones of which in many instances the Saurian *Septaria* are composed.

You may depend upon it.

Here are at last the Sections 28 in number. They will I trust facilitate to you to get a clear view of the relations of the different beds.

I had not the printing done here, because it would have retained them still longer here. Perhaps you will be kind enough to have it done there. I gave you as much information upon them as I could. The paper will come as soon as possible, but not before 8 or ten days.

I had to colour at them sometimes at night time, so that they are not so clear as I should like them.

In order not to confuse the matter, I have given to the Jur. beds of McCoy, other signs in the colours. Or do you think it would be good to colour them altogether different from the Amuri bluff & Kaikora Peninsula beds, of which in many respects as I shall show, they are different in many important points?! What a pity that we can not have a few hours talk over the whole geology of that district.

Ever yours most sincerely
Julius Haast.

The sections go by Bookpost. In the Section printed to the Waipara map is a curious mistake for which I cannot account there stands

- f. *Cucullaea* beds
It ought to be
- f. *Scalaria* beds
or Calcareous sands etc.
- g. *Cucullaea* beds
etc.

How the error originated I can at present not say.

204: Haast to Hector, 7-6-1870

Te Papa MU000147/003/0120

Christchurch

7 June 1870

My dear Hector,

The Report is going on & will I hope go end of the week. It was not possible for me to send it sooner, because I am at work in the Museum from early till late & am generally at night so very tired from the continual running up & down & carrying things, that I am in the evening not fit for work. I hope you have received the sections & that they have supplied you with the necessary information. I write to ask you, when you will be able to send me the collections of NZ. fossils arranged systematically, which you so kindly promised me, as well as the share of the Amuri fossils (duplicates) for our Museum? I ask the question because I am beginning in about 8 days to arrange New Zealand's geol. & pal specimens in the New Museum; (hitherto we have done a part of the Zoology) & should like to have them before or at least to know, when I may expect them, in which case I shall leave the Palaeontology for the last. It will very much simplify my work, as otherwise I shall have to shift a great deal again. In the Proceedings Buller pitches into me for having given Finsch a wrong name for *Gerygone assimilis*, stating at the same time that that species does not occur in this Island. However I have it in his own handwriting for a specimen I sent him. I have written to him to correct his statement. I am expecting as you know a large collection from Vienna & also one from Munich; as both will contain without doubt a great many fossils in duplicates or which we have already; they will all be, I mean the duplicates, at your service. Perhaps you would like to complete you foreign paleontological collections. I had a letter by last mail from Weld,²¹² who wishes very much that I come over for six months or so to give him a general idea of the Geology of Western Australia. After a consultation with Rolleston, who in his kind & thoughtful way promised me leave of absence for that period, I have accepted Weld's proposal if he can wait till next March, stipulating at the same time, that all the collections geol; min; bot & zoological have to be divided between Western Australia & New Zealand. I shall look out to get you some of every thing & shall not forget you. Have you any publications on Western Australia or do you know if any exist? I send you by the post a paper containing a short notice on the occurrence of the Jura stone in New Zealand.

Ever yours most sincerely

Julius Haast.

In case I am going to W. Australia can you let me have a set of Meteorological Instruments as a loan or for money? because I think it advisable to make a regular set of observations during my trip & I am not certain that I might get the instruments in time from home.

JH.

²¹² Sir Frederick Aloysius Weld (1823-1891), Governor of Western Australia.

205: Haast to Hector, 10-6-1870

Te Papa MU000147/003/0123

[*No place*]
June 10 1870

My dear Hector,

I wrote to you several times in the last fortnight, sending you the sections and referring to some other matters.

Today I am glad that I am able to send you the first part of my Report, which I trust will come in time. The rest will follow next week. This is about half. If it is too long, cut it down. I thought however that I ought to be clear about many points & had therefore to go into details.

I have also as you will see written a letter to my Report which you may print or not, as you think fit.

As I had no opportunity to study the fossils, you have to add a list of those obtained in the different beds, in order to complete it.

Will there be any meeting of the Governors of the New Zealand Institute during this Session & when?

Ever yours most sincerely
Julius Haast.

Dr Hector FRS

206: Haast to Hector, 20-6-1870

Te Papa MU000147/003/0128

Christchurch
20 June 1870

My dear Hector,

When I received your letter of the 4th on Friday last²¹³ I telegraphed at once to you, that the rest of my paper would go by tomorrow's steamer, because it seemed to me from what you say that you thought my paper was complete, although I told you it was only half of it.

Here is the rest & I trust it will come in time to be printed with the first part. It is a great pity that you can not manage to publish the sections with the paper, because the latter will be more or less incomprehensible without them. Can't you keep it back, till the sections are printed? so that they can be added before the Report is issued. It sounds rather absurd that I always refer to the sections which are not to be found.

In any case it is very tiresome. I shall be very glad if you can send me some of the geographical papers concerning Western Australia. I have the *Transactions* of the Geol Society (Journal) & can look up Gregory²¹⁴'s paper. My reason for asking about the meetings of the NZ Institute was that the Council of our Phil. Inst. thought, that the elected Governors were expected to meet at least once a year with the other Governors to arrange all the business; they did not think it were only a honorary office.

They also talked of putting some money aside for the expenses of the journey etc. Of course if there is nothing to do, it is useless to go up.

Will you kindly answer my question with a few words when I can expect my share of the Amuri fossils and the pal. collection you spoke of, because of your answer depends, where I shall begin first with the arrangement of the collections, so that should they soon come, I have not to do some of the cases over again. Or perhaps you can tell me, how much space the collections of NZ. fossils will take. If you have any thing more to send from the North Isd. please do so. *Pogonornis cincta* & some other NZ birds are great desiderata.

Ever yours most sincerely
Julius Haast.

As I shall not have an opportunity to see the proofsheets, I hope you will do so for me & I shall be very grateful to you for any alteration which may suggest itself to you. Sometimes I have given several generic names, where one was sufficient. Please put your pen through those, which are unnecessary or incorrect. You never told me, if the sections assisted you to follow me better, than you could from my letters & the specimens alone.

²¹³ We have been unable to locate a copy of this letter.

²¹⁴ Sir Augustus Charles Gregory (1819-1905), English-born Australian explorer, surveyor and geologist, who explored Western Australia together with his brother Francis Thomas Gregory (1821-1888).

207: Haast to Hector, [26/6/1870]

Te Papa MU000147/003/0256

Sunday night [26/6/1870]

My dear Hector,

I hasten to answer at once your welcome letter of the 22nd, which I received yesterday and am glad to see that the rest of my paper arrived in time and that you will kindly see it through the Press. I shall be very grateful to you if you will make any changes where I am not clear enough, or made mistakes in construction or nomenclature or to strike out any thing which you consider superfluous. Thanks about your prompt answer about my enquiry concerning the fossils. Do not send any thing before it is named and you have done with the whole collection. I can manage to keep the necessary space open. I shall also gladly receive as large a collection of NZ. rocks, minerals & ores you can spare me, because it will greatly enhance the value of our Museum, if the whole of New Zealand is well represented. It will also make the Colonial Geol. Survey generally more useful to the inhabitants of the Provinces if well named NZ. collections are in those Museums, which are under scientific care and are thus accessible to the public for study & comparison.

As soon as the fossils are in my possession, I shall go carefully over our own collections and shall send you for description all novelties you have not got, so that the whole will be more complete. I shall also add all other duplicates from Canterbury, which may be of any value to you or which you might not yet possess as well as duplicates from our foreign collections.

I was truly glad to see that you intend to begin with the special Surveys and that you wish to offer me that of the Malvern Hills. Before however giving you a definite answer I wish to talk the whole matter over with you. You know, I was very glad to do the Amuri work and would, in order to assist you and to advance our knowledge of NZ. Geology have done it willingly, had my travelling expenses only been paid. The whole work has cost about £140 of which I received some £80 & which left me after paying my expenses a little over £50. For that sum I was more than 2 months in the field and only by sticking to my work I was enabled to accomplish what I intended to do. Afterwards for 3 months directly & indirectly I have been occupied to bring the results of that journey in proper shape, working early & late at night & every holiday & Sunday & for which I did not receive a farthing. Of course I do not say this to complain, but wish to point out to you, that I shall not be able to work in the future upon the same basis. Under the circumstances I should prefer to have some permanent and well recognised position in your Department. As there was no difficulty with the appointment of Hutton, who as I understood from you threw it up soon afterwards, I do not see what difficulty there should be, to be appointed Assistant Director or Geologist to the Colonial Survey with residence in Christchurch. I observed from the Otago papers and learnt from private means (by members passing) that the Otago people are very much dissatisfied and complain that they have been neglected by the Geol. Survey, consequently the wind would be taken from their sails by such an appointment in the South Island. You would strengthen your own position and enhance the value of the usefulness of the Geol. Survey in the eyes of the inhabitants of this Island. I do not see that my present position would clash with such an arrangement, which as past experience has shown us, might perfectly well be made to the mutual advantage of the Geol. Survey & of the Canterbury Museum. I could do 3 to 4 months fieldwork every year & after wards the closet work in ChCh & this would not

interfere with my ChCh Museum work & giving every winter a regular series of lectures at our Museum, of course it would give me no time to spare. I have written upon the same subject to Rolleston, without whose consent I could of course do nothing. Talk the matter over with him and tell me afterwards what you think about it.

I am truly sorry to see from your letter, that you are not well and have no doubt, that it is from overwork and worry; in fact you want badly assistance & I could come every year before the session for a few weeks to Wellington & give you a hand with every thing.

We have an old German saying, that offered services are seldom accepted, but I thought to do the best to tell you what I felt about the whole matter.

Ever yours sincerely
Julius Haast.

208: Haast to Hector, 29-6-1870
Te Papa MU000147/003/0131

ChCh
June 29 1870

My dear Hector,

I wrote to you a few days ago, and after seeing in this morning's paper, the financial statements, containing the really splendid policy of the Government, which if properly carried out, can not fail to advance New Zealand wonderfully, I wish to return once more to the subject of my last letter.

There is an intention to build Railways North & South and there should be made no provision to know exactly if along or near those future lines Coals, Building stones & lime are to be got?! From my personal knowledge of Bohemia, where the Engines on the Railways are so constructed that they can use the Browncoal of the Country for fuel, I am certain that our Browncoals are just as good. It thus would save a great deal of money, assist native industry if our Brown coal basins were properly surveyed, so that we know exactly on what we can rely. Surely it is not expected that you can do all the work yourself over both Islands and at the same time direct your whole Department, Museum, Publications and all your other offices? It would be simply impossible.

Good detail Surveys are now more necessary than ever and done by men, on whose work the country can rely, who can only be obtained when they are not treated niggardly.

In fact if NZ. wants to go ahead, Science ought not to be neglected.
Ever yours most sincerely
Julius Haast.

209: Haast to Hector, 3-7-1870

Te Papa MU000147/003/0136

Glückauf
3 July 1870

My dear Hector,

When speaking of the saurian bones found in the Jed (about page 40 of my manuscript) I observe that they are of the same species as some carpal etc bones from the Waipara. When I made this statement the Waipara bones were not accessible to me, but a few days ago I unpacked them, and my views were so far confirmed, that they appear to belong to the same or a nearly species as that of the Jed, but of smaller dimensions.

Have therefore the kindness to correct in my manuscript & say instead

“belonging to the same species as those found in the Jed –
belonging, although of smaller dimensions, to the same or a nearly allied species, than those found in the Jed”

I am sorry to give you additional trouble

Ever yours most sincerely

Julius Haast.

210: Hector to Haast, 5-7-1870

ATL MS-Papers-0037-081, letter 6

[No place]
5th July 1870

My dear Haast,

I recd. your two notes but must refrain from answering them till I can think the matter over & consult with others.

At first glance it appears quite incompatible that you should hold two independent appointments one for the Provl. & one for the Genl. Govt. It would soon become uncomfortable for you.

But I suppose the Provl. Govt. as they do not give you a large remuneration would not object to your supplementing it by job work for the General Survey. In other words your field work would be paid for by the piece[?] by Genl. Govt. [*Marginal note: the Provl. giving as their quota their claim on your time.*] I would of course make as liberal terms as I could & hitherto I dont see that it has been hard on you. However you may be assured that I will do all I fairly can for you without endangering the whole service. Hutton's place has been filled up

since May by Davis²¹⁵ a fine young fellow from the Jermyn St. school & who has been out in Portugal & Central America. He is well up & is both F.G.S. & F.C.S. & a first rate chemist. Skye is up at the Thames just now. I will write again – at present I am full of comts. & lectures.

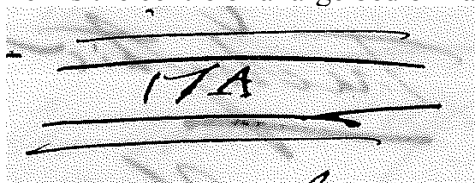
Sincerely Yours
James Hector.

211: Haast to Hector, 7-7-1870
Te Papa MU000147/003/0139

ChCh
7 July 1870

My dear Hector,

Mr Mountfort²¹⁶ came to me with a letter of Rolleston concerning Pozzolana. He wished to see your Report & after looking over the Analyses I came to the conclusion that you mean 51A (Bole) but which is the centre of a large bed of Laterite [17A],



burnt red on both sides.

Of course if this rock should do for Pozzolana, there could be found localities, where between 2 lavastreams, it could be got out, but only the red variety (Laterite) but I doubt if it will be easy to get sufficient quantities. I happen to know the quarries where the Pozzolana is got, as well as the Tufs on the Rhine & the Pausilipo tufa of Naples; but surely they are quite different from our Laterites of Banks Peninsula, being Trachytic & pumicious Tufas. However there are plenty of these Tufas in the Northern Island. I have seen some of them at Taranaki in the Cliffs near Maketa & in the Upper Waikato, which are exactly like the Tufas deposits of the Rhine and of the neighbourhood of Naples.

I would not overlook to have a good trial of them, because a large industry could be created in the North Island. There are also some Tufas near Mt Somers & in the Malvern Hills in connection with our trachytic Porphyries (I suppose we have to call them now with such a name) which probably would offer a good material for hydraulic lime. As soon as the geol specimens are unpacked (in the course of next week) I shall not fail to look over them. Some of the Northern Island tufas struck me at once as being capital material for hydraulic lime.

Ever yours
Julius Haast.

²¹⁵ Edward Heydelbach Davis (1845-1871), geologist. See Mike Johnston, *Mettle and Mines: the life and times of a colonial geologist Edward Heydelbach Davis (1845-71)*, Nelson: Nikau Press, 2007.

²¹⁶ Benjamin Woolfield Mountfort (1825-1898), Canterbury architect and photographer.

212: Haast to Hector, 12-7-1870

Te Papa MU000147/003/0141

ChCh
12/7/70

My dear Hector,

Many thanks for your letter. I had no idea that you had obtained such a good assistant & consequently one portion of my arguments has already been sufficiently answered. I thought that you would continually be obliged to go up to Auckland knowing that the Northern people will well look out for them selves.

But nevertheless a great deal of my arguments remains still the same. You will see that the Otago people will make a great stir in re Geol. Survey. Besides if the great scheme will be executed as proposed by the Ministry, the source our economic resources in Coal, Limestones etc are thoroughly known, the better for the Colony and the sooner will the Govt. be able to raise money in the home market.

My position as Director of a Provincial Museum ought not to interfere, because Science does not know political boundaries.

I consider that the Canterbury Museum will be in the course of time just as valuable a colonial Institution as the Colonial Museum, although kept up by a Provincial Govt. However you know my wishes and feelings in the matter & I trust in your friendship, that you will do what is best & thus I leave the whole matter in your hands.

There were in the few last days some instances before me which showed that some assistance ought to be given to this Island. A coal seam in the Clent hills has been opened up by a heavy fresh in one of the Creeks. It is in the jurassic beds of McCoy (with the NSW Coalplants) & where I searched repeatedly for coal. The discoverers wanted me to come up, to know if it would be worth to open the seam up, but I told them I had no funds at my command & advised them strongly to write to you about it, as the proper person.

However they would not do so, because they thought it was of no use. Some other Gentleman (a member of our Executive) had some Coal opened near Timaru & he also is very anxious to get advise. But it is scarcely necessary to allude to such facts, as they will not be unknown to you.

Therefore I think if it is possible go with the times & as you have now an establishment in Auckland get one here for the South Island & the Otago people can not more complain.

Besides if a new House will be elected, I am sure the question will also be moved in this Province.

Ever yours sincerely
Julius Haast.

213: Hector to Haast, 14-7-1870
ATL MS-Papers-0037-081, letter 7

[*No place*]
14th July 1870

My dear Haast,

I have three letters of yours this time. 1st as to the Pozzolana. You are quite right. I did not mean that the rock at Lyttleton was the same but sufficiently near in composition to be worth trying as a substitute.

2. I will make the change you suggest in the Amuri paper no proofs of it have yet come over. Hansard &c. take up all the time of the printers.

3rd. I quite agree with your views as to the necessity for pushing the local Geol. Surveys a little more, & I must have assistants.

I have more now on my hands than I can get through. But I see great objection to your holding two permanent appointments under different Govts. There would be distrust & bother in a very short time. Better to have one appointment as I propose a ---- for the Provl. Govt. & job work in the Province for the Gen. Govt. I will make most liberal terms & all that is required is to increase my vote for Field expenses. I wish to have more time to work up those at present & also to get up course of lectures for instruction & not amusement.

Sincerely Yours
James Hector.

214: Haast to Hector, 24-7-1870
Te Papa MU000147/003/0147

ChCh
July 24 1870

My dear Hector,

In answer to your letter of the 14th I am quite willing as I told you before, that the whole matter rests in your hands & I therefore am quite ready to start beginning of Sept. for the Malvern hills & to go on with the work till it is finished. It will be necessary for you to tell me on what scale you wish the map prepared & also the general & detail sections, so that they can be finished at once ready for the printer.

I shall also draw up a list of formations which occur, so that you may give me the colours which you wish to be used. Of course this would only be provisionally because it is very possible, that new subdivisions have to be introduced, when once we go into details.

I ask all these questions so early in order that our Landoffice may prepare the necessary maps, which perhaps have to be reduced to your scale. I suppose you want also as complete a series of rocks, minerals & fossils, as I shall be able to get. Please to tell if I can expect the fossils & other NZ. specimens before the end of next month; I have left a showcase for them unoccupied, which, if it is inconvenient for you to send them so soon, I shall fill with other collections. If not too much trouble send me a few words per Telegraph, yes or no. [*Note by Hector: Telegraphed on 29.7.70*] Of course I do not wish to put you to any inconvenience or to hurry you, only I wish to know, how to use the room at my disposal.

Ever yours sincerely
Julius Haast.

215: Haast to Hector, 29-7-1870

Te Papa MU000147/003/0150

ChCh
July 29 1870

My dear Hector

Many thanks for your telegram which I received this morning. According to your wish I return you the copy of my letters, which were really of great assistance to me. Can't you come down for the opening of our Museum?!

I left the necessary space for the kindly promised collections & shall send you all what is not represented.

Ever yours
Julius Haast.

216: Haast to Hector, 31-7-1870

Te Papa MU000147/003/0153

[No place]
31/7/70

Dear Hector,

Have you not sent a copy of our 1st volume of the *Transactions* to Hochstetter? In his last letter he tells me that he is exceedingly anxious to see it. We (the Phil Institute) shall send a copy of the second volume both to him & to the Imp. Geol. Institute of Austria & as I am just sending some cases with birdskins to Germany, would you be good enough to send me 2 copies of the first volume to add to them.

The cases will go towards the end of next month by the Railway so that the volumes will come in time, if you will have them added to the specimens which as I am truly glad to hear, I may expect according to your Telegram before the opening day of our Museum.

In fact I should be very glad if you could spare us half a dozen copies of the first volume to add to the second, which we intend to send with exchange collections & which will bring good returns in foreign publications.

Ever yours sincerely
Julius Haast.

Can you also spare me your Survey Reports for the last three years? They will be extremely welcome in Vienna & elsewhere on the Continent, if you could send me half a dozen of Copies, I would add them & show the continental Geologists that you have not been idle. I have not a single spare copy of any of them, because if you did send me a duplicate I have always forwarded it, either to Gotha (Petermann) Paris or Vienna.

[*Note by Hector: Sent 2 copies of Vol. I & two Vols of Reports.*]

217: Haast to Hector, 9-8-1870

Te Papa MU000147/003/0162

Canterbury Museum
9 Aug 1870

My dear Hector,

It seems there is no end of notes of mine; but as I just saw Mr McIlraith²¹⁷, who told me that you could not see any Millstone material near his house, I write to say, that this variety of finely cellular Dolerite is much used in Germany for Millstone. It is true the flour is not so white as with the french Burrstone but is still saleable. At Timaru where there are

²¹⁷ Hugh McIlraith, who later represented the Cheviot electorate in Canterbury as a Member of Parliament.

similar Dolerites, people have already begun to use them. I saw a few weeks ago in a Timaru paper, that a stone mason has had several orders one of them for Oamaru.

Ever yours
Julius Haast

PS

I may add that the stones in Germany are mostly used for Rye, a kind of bread very much eaten in N. Germany (Pumpernickel) there is a word for you!

218: Haast to Hector, 9-8-1870

Te Papa MU000147/003/0163

[No place]
9/8/70

My dear Hector,

If you have done with the geol. map of this Province which I forwarded you some time ago, please to return it to me, as I wish to place it on the wall of the new Museum Building previous to its opening, which will be first of next month. You see our Phil Institute has enlarged upon its previous plan (lectureships in connection with the Museum) & works towards a School of Mines & Agriculture. As you so strongly approved of our previous plan, I trust you will give us your assistance in carrying the more enlarged one.

Please tell me if I can expect the geological map before I shall open the Museum
Ever yours
Julius Haast.

219: Haast to Hector, 19-8-1870

Te Papa MU000147/003/0169

[No place]
19/8/70

My dear Hector,

I have two letters of yours to answer both of the 12th.²¹⁸ Concerning Hochstetter I am rather astonished that he should not have received Vol I of the *Transactions* because I posted, as I remember now, you reminding me of it, a copy to him. I shall be very glad to get a few copies of that volume as I wish to send it to the Geol Inst. of Austria & some German Museums, which behave well towards us. They will not be given away but we get more than their value. Concerning the maps of the Malvern Hills, I inquired from Jollie, who tells me, that this map is 6 inches to the mile, which of course can easily be reduced to 1 mile to 1

²¹⁸ We have been unable to locate copies of these letters.

inch. On my question if the Prov. Govt. could furnish me with the map, he told me that the Govt. will place the map at your resp. my disposal, to make any copies which are necessary, but that he has nobody to spare in the office who can do it. Shall I employ somebody to do it? I think I shall have a mounted tracing made of the ½ inch & the reduced inch map, so that I can fill up when necessary also the larger scale. It was always my intention to take chain etc with me, as well as an Aneroid, which for rough levelling is quite sufficient. Concerning the sections I fully agree with you; however I shall naturally make them as I go along for future publications; if you should think fit to do so by & bye.

Your observations concerning my Amuri Report has a little surprised me. I thought judging from your letter of the 22 June that the Sections were done long ago, as you say there “I should not wonder if Buchanan gets the lithograph Sections done yet before the letter press of the Reports is all out, of course I never would issue the one without the other, but only meant that the printing shall be gone on with.”

It was quite a different thing with the Waipara Report, where all the different sections illustrated the same thing, but if that Report on the Amuri is worth printing, it ought not to be crippled & made totally incomprehensible to the public. You yourself had some difficulty to understand the letterpress without the sections. The sections could have been reduced very much & I only made them so large to put so much information for you in them. The whole report is more or less only explaining the sections. Under the circumstances if you have not the means to print it with the sections or at least with the principal ones, I think it would be the best to print it not at all, or at least to send it back to me, that I can change the letter press according to the sections which you intend to print.

You yourself told me to illustrate it copiously, so as to make it clear & after it had been done, & the letter press written the whole has to be changed again. I do not wish to create any difficulty, on the contrary, I know you have enough on your hands, but what I want is only fair and reasonable.

I am delighted to hear that the collections for the Museum are coming soon, all is ready for them. You do not tell me if you return me also the Geol. Map of the Province, which I should like to hang with all the other sections etc on the walls.

I suppose you are highly delighted that the session is soon over & get to breathe again.

Ever sincerely yours
Julius Haast

PS

I open my letter to tell you, that I have received your letter of the 16th & that I shall be very glad to receive the Geol. Map in good time, together with the specimens.²¹⁹ I suppose we shall have a very quiet opening.

JH.

²¹⁹ We have been unable to locate a copy of this letter.

220: Haast to Hector, 5-9-1870

Te Papa MU000147/003/0176

Glückauf
Sept 5 1870

My dear Hector,

I see in the papers that a mail leaves in a few hours for Wellington, I therefore shall write a few lines to thank you for your different letters, books & collections, sent by last steamer. I have not yet unpacked the specimens but shall do so today, by next steamer I shall write more fully. I only wish to say to day that I expect the geol. map by next steamer or perhaps you can send it through one of the members by the steamer which leaves next Friday or Saturday but do not send it any later. I shall return it to you as soon as you are ready for it, but am most anxious that it should be on its place when I open the Museum (middle of next week).

Excuse my hurry, I shall write at length by next steamer.
Ever yours sincerely
Julius Haast.

221: Haast to Hector, 11-9-1870

Te Papa MU000147/003/0180

Christchurch
11/9/1870

My dear Hector,

The Millstone rock in Germany which I mean is not a Trachyte but a Dolerite, almost identical with that of the Malvern Hills.

I speak of course only of one kind used & I am well aware, that also some hard quartzose Trachytes are used for the same purpose. However as some Millstones have been dressed in Timaru from that former rock we shall soon hear if it answers or not. It is natural that surface stone will not be so hard as those beds which can only be obtained by quarrying.

Concerning Trass for hydraulic purposes I may say that in Banks Peninsula there exists a large bed somewhat similar to that rock, easy of access and nearly 100 feet of thickness. It is however of greater specific gravity, than the Rhenish or Italian stones.

I shall send you a specimen for analysis; perhaps it might answer the purpose.

You do not say any thing when I shall receive the rest of the fossils, I hope they will come before we both take the field.

I shall be able to start in the first half of next month for the Malvern Hills & shall be glad to hear from you what you propose.

I have looked through your Museum Catalogue with great interest. However if you allow me I should like to observe that there are some mistakes which ought to be corrected. If you send me another copy I shall do so concerning my own work & what I know to be erroneous.

Thus for instance you place a good portion of my Amuri (Nelson) specimens as coming from Canterbury. You also place the Malvern Hill & lower Waipara beds, the fossils of which are identical in 2 different periods.

In both the *Conchotyra parasitica* (with the big black Oyster) is the leading fossil, McCoy described & named it from the Malvern Hills. Have you visited the isolated little Hill opposite to Church Gully which consists almost entirely of both these shells & where a good long research will doubtless reveal many more treasures?!

Perhaps that I shall see you before I leave for the Malvern Hills as I hear you intend to go South very soon. I suppose you are glad the session is over.

Ever yours
Julius Haast.

222: Haast to Hector, 14-9-1870
Te Papa MU000147/003/0182

[No place]
14/9/70

Dear Hector,

Look at Cotta's Rocks page 141 at the end of the page. You will find a notice about the Millstone rock of Niedermendig now described as a Basaltic (Nepheline) Lava, formerly it was called a Dolerite. It resembles much our Dolerites of the Malvern Hills.

Ever yours most sincerely
Julius Haast.

I sent you a Newspaper yesterday of Potts, with the notes on the little Bittern.

223: Haast to Hector, 16-9-1870

Te Papa MU000147/003/0186

Christchurch
Sept 16 1870

My dear Hector,

I am glad to hear that you have managed to get the Amuri Sections lithographed. It was not, as I told you, that I cared for the Report being printed, considering it far from satisfactory, but it would have been still more unsatisfactory if the Sections in explanation would have been missing. If the sections are clear it is quite sufficient, I never thought, they would be printed according to the size they were originally drawn.

I am truly delighted to hear that the stones of the Geol. Map are so far & I hope I shall soon get a copy for the Museum. It will do much good in the Provinces & show people that you have done an enormous deal of work.

In the Museum Catalogue you call the eruptive rocks of the Leslie Hills & of the Mandamus Syenites, instead of Diorite as we hitherto have both done. The Leslie Hill rock from its mineralogical constituents & its habitus seems to me to be a true Diorite. The Mandamus rock however had the character of a Syenite in some respects. Had you the rocks analysed?

Please change the nomenclature in the sections & my Report.

At last we got hold of a true Laughing Jackass of Colonists killed in the act of laughing. It is the big Owl, *albifacies*. Potts will write a paper about it.

I am sorry to see that through Enys's explanations you have been misled about the Waimakariri basin; you have put fossils together which belong to different beds. Why did you not write to me to send them to you? I had heaps of duplicates & could have sent you the sections belonging to them. You know I am always ready to help you officially & unofficially whenever you want me.

I had a very long & important letter of Finsch's by last (Suez) mail. I shall write to you about it when I can find some spare moments.

I shall soon open.

Ever yours sincerely
Julius Haast.

224: Haast to Hector, 20-9-1870

Te Papa MU000147/003/0188

[*No place*]
20/9/70

My dear Hector,

I have seen Mr Robinson; he told me that he was quite willing to leave the specimens in question in the Colonial Museum; consequently that matter is settled, but don't forget to let me have a cast.

Excuse my haste,
Ever yours
Julius Haast.

225: Haast to Hector, 1-10-1870

Te Papa MU000147/003/0197

Canterbury Museum
1/10/70

My dear Hector,

I have two letters of yours to answer one of the 16th of Sept & a second of the 28th.²²⁰ Many thanks for the sections & for having them coloured for me. I had no idea that they would be so well & so soon executed. Although I have very little time to write to day, I must manage to answer your letters by this mail.

I shall not fail to make the necessary corrections in the Catalogue & I fully agree with you that a first edition of so much & as you say unworked-up matter is attended with great difficulty.

I do not quite understand what you mean by your observations of the Waipara & Selwyn beds. I always maintained that the shellbeds in both localities were identical; about the browncoal beds which overlie them, that may be a mistaken hypothesis of mine, that they belong to the same series. However this question I hope will soon be settled. I see from your letter, that "in re fossils" Honesty was not the best policy. However you are quite right to keep all what you want, but I thought that of a great part of the fossils I had collected so many duplicates that you could well have spared me some, of which I did not get a single one. Thus for instance, of the fish teeth not a single tooth has been returned to me. I shall be glad therefore if you can spare me some of them, so that I may be able to compare them, should I get some in the Malvern hills.

²²⁰ We have been unable to locate copies of these letters.

I shall send to Owen as soon I find the time, some notes & drawings of the bones lost in the *Motuaka*,²²¹ which fortunately I made.

I fully agree with you about Moore's Paper & I wanted to tell you the very same thing.

I see in the Proceedings that 2 meetings of the Governors were held this year; I never received any notice of them to attend, or have only the Governors resident in & near Wellington the right to attend? For what use are the elected Governors? I suppose only ornamental. It is famous to bring out the proceedings so soon, it shows that you are not idle.

Enys, who is a great friend of mine tell me that you misunderstood his notes. However he is now sorry that he did not show me first what he said.

My map & sections of the same locality were at your disposal, had you only written for them. I do not know if I have any fossils you have not got but think that I have a good many. There are several formations which appear to me to be unrepresented as for inst. the Clent hill beds, which are far older than the Grey river Coal measures & I think that also the Lower Carboniferous or Upper Devonian beds of the Upper Rangitata are not properly represented. However it is perhaps best that I run one day up to Wellington to look over your collections & bring the principal things with me or I wait till you can trust me with the drawings of the fossils before publication that I can see what is missing. It will be difficult to send any thing at present, without knowing what you really want.

I can leave in about 3 weeks for the Malvern hills & intend to do always 2 to 3 weeks fieldwork & to come for a week back to Christchurch to attend my own work at the Museum. As I told you I leave the whole matter in your hands. What I want is a man & 2 horses; I have all what is necessary for camping, as I shall very often, for better doing my work, not stay at any house. The best would be that I get my own horses & that you pay me so much a day when I am in the field of which I should keep account & that for preparing afterwards the map & report & the sections (the latter for or not for publication according to your own judgement) some thing should be allowed to me. I mean to say that I find the horses & the man myself. However I do not know, if this is according or against the rules of your Department & I shall be satisfied with what you think is the right thing. I shall collect as I did in the Amuri & the whole will of course go again to your Department. You remember that some time ago I got a fine crocodilian tooth from the Malvern hills, so that there is a chance for us. I think I can make arrangements with a man & also borrow 2 horses. Do you wish to have the work done between the Waimakariri & Rakaia say from the Acheron to Porter Pass & to the Eastern slopes of Mt Torlesse? I hope you will soon write me so that I can be off as soon I can get away.

223 persons visited the Museum today, not a bad beginning.

Ever yours most sincerely
Julius Haast.

I leave the whole money matter of the Malvern hills Survey entirely in your hands & I shall be satisfied what you think is right & fair.

²²¹ *Motuaka* (sic), this is in reference to the sailing ship *Matoaka* that was lost at sea.

226: Haast to Hector, 13-10-1870

Te Papa MU000147/003/0203

[No place]

13/10/70

My dear Hector,

In answer to your letter I hasten to write & to tell you that I consider the sum you proposed upon the Malvern Hill Survey quite sufficient.²²² I forgot to tell you that Weld could not wait till next March & so he availed himself of the services of one of the former geol. staff of Victoria. He was very sorry, but it could not be helped. I am really glad that there I need not go, although I should have liked it very much, but it would have been for such a very long time & I cannot well spare it.

I think the work ought to be done in about 2 to 3 months, say 2 months & a half. Now I should propose that you allow me to charge £2.2 per day when I am in the field, horses & man included, in which case I would buy two horses & sell them again when I have done. When the work is done, I shall do all the mapping report & section for which something should be allowed to me say £25 or £30. I think that proposal is not unfair, because the Provincial Govt. pay 2 Guineas to Engineers etc.

I should work about 3 weeks each time & come then for 8 days or so to town to keep my own work in the Museum going, forward the specimens to you in order not to have too great a accumulation. However as I told you before I leave the whole in your hands & am quite ready to accept what you think is fair.

In order to go with more accuracy to work it would perhaps be best to have for a fortnight a Surveyor with me, to fix some important points, not covered by the present Surveys, this would facilitate much my work & not take me from the fieldwork. I think that as many Surveyors are at present out of work I could get one very cheap for a short time. This would be to intersect the Malvern hills with one or two lines from North to South, from which I could afterwards chain to the different points with more accuracy. I can be off in about a fortnight.

Many thanks for the Reports. Your notes on the Malvern hills are excellent; they confirm what I said about many points in others you correct my views however we shall have the whole soon on the paper. I see from a Nelson paper that your temperatures of the Hanmer plains springs are in many respects different from those I obtained. I measured the temperatures with a very good Maximum Thermometer of Negretti & Zambra which I compared with the standard thermometer in the met. Station here; it was 0.20° too high, for which I allowed. It appears therefore that either yours was too low, or that there is a difference of temperature in different seasons of the year or that my instrument had suffered by some cause or other what however I do not think. Please tell me what you think about it because it looks so very foolish that we should differ so much from each other.

With this I send you a specimen of tufa, which possibly might do for Trass, although its specific gravity is greater. It is from the road leading to Gebbie²²³'s house, western side of

²²² We have been unable to locate a copy of Hector's letter.

²²³ John Campbell Crier Gebbie (1840-1888), Canterbury prospector and farmer.

Gebbie's pass. There is any amount of it. There are 2 more localities in the Peninsula, which I shall visit.

Yours most sincerely
Julius Haast.

227: Haast to Hector, 21-10-1870

Te Papa MU000147/003/0210

Canterbury Museum
Oct 21 1870

My dear Hector,

I wrote you a few days ago, concerning the Malvern Hill Survey & have since then received your letter of the 17 Oct together with the case of Casts.²²⁴ Many thanks. The casts are very well done & answer all the purpose of the originals, when they are once coloured. I hope you will send also the smaller paddle bones so that I can put it together. The fish teeth were very welcome & sufficient for my purpose together with the tracing.

59 is evidently a Saurian tooth!

I shall send receipt when the whole of the casts is in my hands.

Will you assure Mr Buchanan that I did not receive any teeth before, I unpacked the boxes myself there was only on a piece of Rock with *Dosinia*, a broken tooth; What you tell me about the N American Palaeontology is very interesting & I fully agree with you that our first duty is to go into the stratigraphical features of the NZ formations, although I am not sorry, that I tried to go into the former. I have learnt a great deal by it & without it you would probably not have paid so much attention to the question. I do not care if I am right or wrong, as long as our knowledge will be advanced & I can draw out the experience and knowledge of others for the information of all. Mr Tripp²²⁵ to whom the large Browncoal seam belongs, which is worked in the Ashburton district has written to this Governmt. to get his district included in the survey. The Govt. referred the matter to me & I have answered, that no doubt, the coalfield in question is an extensive one & that I am willing when the Malvern hill work is done & I am instructed by you to do that portion of the country, to continue in that direction.

By the way. Can I not get an advance? say £50 or 60? I have to buy some horses & have some other expenses & it would be very handy to me to get it; the rest can then stand over till I have finished the whole job. Would you like a complete set of the Moa bones & other food of the Moa hunting Encampment? I mean of all the different species, showing the peculiar way how the bones have been broken etc. I hear from Potts, that you intend to pay us a flying visit & I hope you will try to do so before I leave. You know we shall be delighted to have you with us.

Ever yours most sincerely
Julius Haast.

²²⁴ We have been unable to locate a copy of this letter.

²²⁵ Charles George Tripp (1826-1897), runholder and farmer at Orari Gorge Station in South Canterbury.

228: Haast to Hector, 28-10-1870

Te Papa MU000147/003/0214

[No place]
28/10/70

My dear Hector,

I am not a great hand at writing official letters, but hope that the enclosed letter is all what you require. I shall begin at Hills & follow that basin over to Mc Ilraith so that the whole portion of the Country, forming the Malvern hills proper will be included & I shall keep you well informed as I am going on. I think the sum is quite sufficient. Please send me if possible 25 copies of your Geol. Reports of this year as I wish to send them away. I hear that in about 8 days an excursion steamer starts for Lyttelton during the Raceweek. It would be very jolly if we could have you with us for a few days before I start. Let me know if you intend to come down, because Potts told me you had written to him to that effect.

Concerning your footnote page 11 Waipara Rept. I may say that I have found the reason why the Saurian remains are sometimes close to the surface. Where a whole or part of a skeleton is enclosed in one of the Septaria, it is lying in the dip of the strata & the Concretion is not round but oblong & thus although ample material is both above & below, there is less at both sides.



There are some enormous split blocks in the Waipara which show this convincingly. Some of my German friends, who got the first volume such as Ehrenberg²²⁶ tell me, that outside of England there is no Society which publishes such good volumes of *Transactions* as the New Zealand Institute. Rather a feather in your cap.

If you should not come, I shall probably leave before the races end of next week.
Ever yours
Julius Haast.

[Note at top:] Received & sent 31/10/70.
[Hector's hand:] Where is the official letter?

²²⁶ Christian Gottfried Ehrenberg (1795-1876), German geologist, zoologist and comparative anatomist.

229: Haast to Hector, 7-11-1870

Te Papa MU000147/003/0219

ChCh
Novb 7 1870

My dear Hector,

I am off to morrow morning & hoped to receive a letter from you ere this, as several steamers came in from the North since my last letter & as you were not amongst the passengers, who came in this morning, I suppose you could not get away.

I hope you have got the wished for advance for me & I have left authority in town to get the money, which will be welcome, as I had to buy two horses & a dogcart in order to be able to go a head.

Your instructions are clear enough but you did not tell me if you want me to go in details about the trachytic porphyries & the older rocks. Do you want me to trace all the different changes in the former? of course all will depend if I shall be able to get on with the Coal strata as quick as I hope, but this being the principal work, I suppose I ought not to leave them till I am quite clear & have mapped every thing to my & (as I trust) to your satisfaction.

In every case let me know what you think about it. I shall write as soon as I have something of importance to communicate.

Ever yours sincerely
Julius Haast.

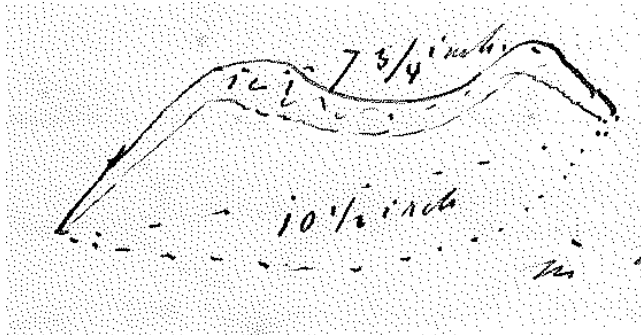
230: Haast to Hector, 13-11-1870

Te Papa MU000147/003/0225

Homebush Station
Malvern hills
13 Novb 70

My dear Hector,

I have been several days at work in this neighbourhood & as I want to send you a list of a few errata's in my 2 printed papers, as well as in yours, I like to give you also already some of the results of my examinations. Hitherto I have confined myself, in going over the ground between the Selwyn & Hawkins in order to fix all the principal points & to collect fossils in the Selwyn, below the Church reserve, where the Coalseams of Jebsons are also in existence. In the calcareous Sandstones overlying them, I obtained fishteeth, scales & some other interesting fossils, some identical with the Waipara & (as it appears to me) coincidental with the Amuri. There is a small nacreous Inoceramus looking shell, but the most important fact is the existence of Saurian remains in the same beds. I got in one of the blocks, which I broke open, the portion of a Coracoidum.



depth 1 ¼ inch.

Unfortunately it was shattered in hundreds of bits, but there are large pieces enough to show the character. In the same stone there was also a Saurian tooth very much decayed, so that when I set the chisel in, the percussion broke it all to bits. It is exactly like 59 (12D) of your drawings of fossil teeth. Another interesting fact is that the green sandbeds which overlies the Saurian beds above mentioned are covered with a compact basalt (coulée) only a few feet thick, but quite different from the Harpers hills & Homebush Dolerite, resembling very much the basalts of the Culverden series. However I shall return to the subject & request you now to send me a table of colours which you wish me to use for the map. I think it would be very desirable to adopt the colours at once as you intend to use them in the future. There is

- 1) recent Alluvium
- 2) supl. " forming the Canterbury plains
- 3) older Alluvium 3-400 feet above the plains in the Malvern hills
- 4) Glacier deposits.

However I need not send you these details as you know them as well as I do.

I may also observe that before I left, I looked once more carefully over the fossils from the Curiosity Shop & I found amongst them some truly III ones including the cup shaped Bryozoa of the Rampaddock Waipara, so that we have to do with 2 distinct formations. I shall of course not fail to pay it a visit & to try to clear that matter up.

Don't forget to give me a colour for Palagonite tufa & for Basalt & Dolerite. Address your letter as usual to Christchurch.

I shall write soon again.
Yours most sincerely
Julius Haast.

231: Haast to Hector, 30-11-1870

Te Papa MU000147/003/0235

[No place]
30/11/70

My dear Hector,

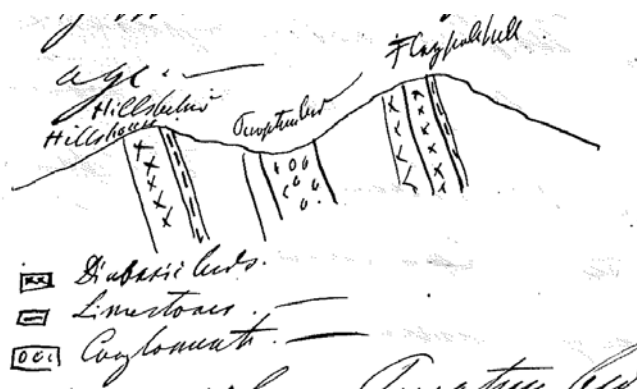
I wrote to you from the Malvern Hills a few weeks ago & come last Sunday to town for our phil Dinner which took place last night & was a great success. I shall be off again this afternoon. Since I wrote last I have done a great deal of work & as I hope, what will prove satisfactory. You know probably that Hill has sunk for coal on his property; he got a good seam 3 feet thick with a few inches of shales interstratified & some others. He is just now driving under my direction in order to cross all the different seams. From a rough calculation there are at least 1,500,000 tons in that basin available, Harts coal not included.

Harts coal is a small outlier & of no practical use for working on an extensive scale. I have traced so far the basin all round & surveyed carefully its boundaries, which are now being accurately fixed by one of our District Surveyors the Govt sent up, to do for me all the work required.

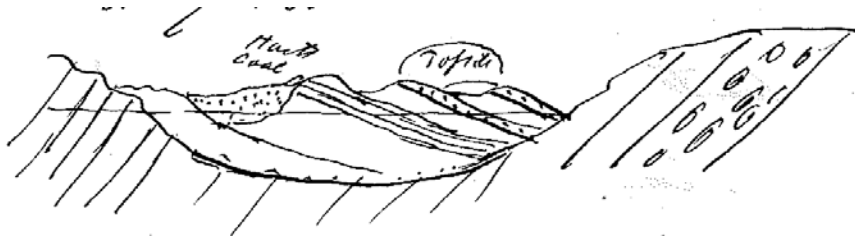
The Coal of Hills is more altered than that of Hart, (I shall send specimen by first opportunity for analysis). It reposes upon basaltic rocks, where it has been opened, the latter much decomposed & waterworn.

There are 2 fossiliferous strata over Harts coal, both with *Conchotyra parasitica*, *Panopaea* & some other bivalves. Some of them a fine Cement stone.

The fossil plants in the well near the old Homestead are the same as in the Clent hills; namely a *Pecopteris* & a *Taeniopteris*. You say it is the *Polypodium hochstetteri*; the only work at hand here is Hochstetter New Zealand, where page 279 he figures it. The Selwyn fern is certainly different; the leaflets are sessile. These beds are situated between the diabasic beds & there coarse conglomerates go through, which I think will definitely settle their age.



The middle or *Pecopteris* beds strike across the Selwyn & form the isolated Hills East of Harts Coal.



I have got some fine fossils from other localities, identical with those from Section XIII 7B. Caverhill range, but I shall make now the principal Harvest, as I found the splendid fossilif. beds, late in the evening the last day I was in the field & I shall wait till I have collected them before I say more about it.

I shall write more fully, the first wet day in the field. The Section No1 is not yet finished as I have still another day's work to follow it through the Ranges towards the Rakaia.

Excuse my hurry
Ever yours sincerely
Julius Haast.

232: Haast to Hector, 18-12-1870

Te Papa MU000147/003/0247

Homebush
18 Decb 1870

My dear Hector,

I received your letter of the 8th of December a few days ago & I am glad to hear that my last communications have had some interest to you.²²⁷ Since I have come back, we have had some horrible weather, more than half of the time, rain, so that I can not complain of getting several good duckings. The consequence was that I got bad faceache & an abscess made a hollow tooth, which compelled me to go back to Christchurch to have the tooth pulled out, by which I lost a few days. But nevertheless as you will see in the sequel, I have all cause to be so far satisfied with the results. Before however entering into the work, I will first answer your last letter. I am sorry that I can not add at present any thing more to the Reports, because I work always till late & after I have written my Journal & packed my specimens, it is too late. Concerning the *Polypodium hochstetteri* I think we are at cross purposes. What I mean is this –

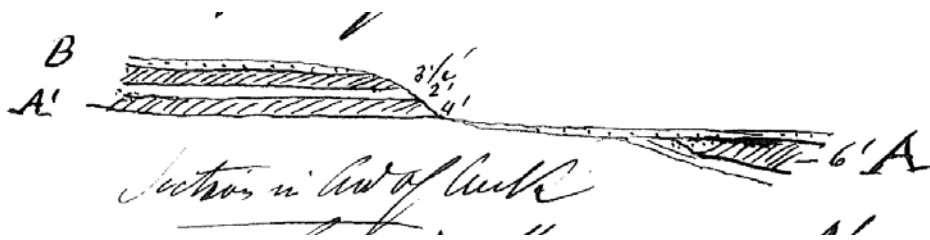
- 1) The fern from Hills well is not the *Polypodium hochstetteri* as figured in his New Zealand.
- 2) This fern is the same (a *Pecopteris* I think) as that of the Clent hill beds.
- 3) The beds in which this fossil occurs are much older than the Browncoalbeds of the Malvern hills.

²²⁷ We have been unable to locate a copy of this letter.

- 4) They are interstratified between 2 beds of Diabasic nature with Marble & belong therefore to a much older series.
- 5) They cannot be Oolite, judging from their position.
- 6) Prof McCoy declares that the Clent hill plants are identical with those of the New South Wales coalfields & as the evidence tends everyday more to prove that these Australian coalfields are carboniferous, we must conclude that finally these Clent hill beds are much older than we have hitherto admitted, although I have always stood up for their greater age.

However I have not yet done with them, because I have found another locality in the Malvern hills where the ground is strewn with these fossils, but it was too late to do any thing & to morrow I shall visit it. Many fossils have been picked up & given to the Museum as coming from the brown coal beds, which in fact belong to the older series. I do of course not deny that there are no ferns with the dicotyledonous leaves of the Brown coals of which I have collected some more characteristic forms.

You will be pleased to hear that in a creek between ---- creek & the Church Creek, 1 ½ miles from the plains, & a good road, I have discovered a fine seam of Brown coal 6 feet thick (at least) quite pure & which I consider is as good as the Big Ben Coal another seam of 3 ½ feet inclusive a parting of 5 inches of Shales, is separated from this fine seam by 2 feet of shales.



But I am not quite certain that the seam A, over which a small water course flows & which is therefore possibly much larger is the same as A', which is exposed about 4 feet. The whole occurs in a horrid little gorge full of lawyers & other abominations & it took nearly 2 days before the whole was so far exposed, that I could measure so far. I shall send specimens after Christmass, when I shall return to town for a few days. I also found seams of smaller thickness as not possible to measure in 5 other localities between the Church Gully & Jebsons. Hill who has begun the drive in about 30 yards in, he has as I expected passed through the same igneous rocks as in the Kowai (Diabasic?); the largest seam hitherto passed is 2 feet thick & a fine anthracitic coal. This accounts of course for Harts Coal having that anthracitic habitus.

The different seams are separated by shales & here & there occur volcanic tufas between them I think the rock in question is a dolerite, although it looks very much like a Diabase.

This rock does not occur as a Dyke but as a stream. It reposes unconformably against some shales, which have suffered denudation & a small coal seam runs all along it. As I shall go there to morrow again, I shall send you a coloured section from Christchurch.

I think I shall manage to finish the field work to end of January & should it take longer I shall not charge more for the time I have been employed which should not be

covered by your £180; because the whole is for the benefit of the Province & I won't spare time & trouble before the whole is satisfactorily settled to you & to myself. I fear almost, that I collect too many specimens for you, however you can use them as duplicates for other Museums.

If you give me a cast of the Moa egg you have got in the Museum, I give you a cast of the *Aepyornis* egg – however sincerely speaking it is at your service, I got another from Paris; it has as yet not come to hand. When you come to ChCh, let us have a serious talk about Museum matters, I can get you lots of things; I have not yet received the map, which I am very anxious to see & have to wait till I come to town.

I hope you will write soon again
Very sincerely yours
Julius Haast.

233: Haast to Hector, 25-12-1870

Te Papa MU000147/003/0248

Glückauf
25th Decb. 1870

My dear Hector,

I came back last night for the Christmass holidays & wish Mrs Hector & yourself a merry Christmass & a happy New Year, in which Mrs Haast joins heartily.

The Geological Sketchmap is very nice indeed & well executed. It will doubtless greatly interest the General Public. I shall have it at once framed & hung in an easily accessible position in the Museum. I hope you can spare me some more copies & letterpress.

If you would allow me a suggestion it would be to have the letterpress to the Map or at least that part which gives the general explanation to the Public printed on a sheet in larger print, so that it can be hung besides it. It would certainly add considerably to its value. I shall also place a show case under the map with the characteristic specimens to each colour.

Many thanks for your Annual Report. What an amount of good & valuable work is done in your Department! Nobody has an idea of it. Would you like me (between ourselves) to write a few observations about it for one of our newspapers, drawing the attention of the public to it & explaining the value to the country of such work? Of course for the editor. If you like it send me if no mail leaves simply a telegram with the words "Write Report as soon as you can" & I shall understand what you mean. Because I shall again leave the 3 or 4th of January at the latest. Hills Drive is going on satisfactorily, he is again in shales like Hart's & will I have no doubt, soon come to Coalseams again.

I have many of the saurian specimens, lost in the *Matoaka*, figured & shall as soon as possible make proper copies of them & send them also to Owen, so that he has the whole matter before him.

There are two analyses which are of great interest to me viz.

No 679 Quartz Trachyte summit of Mt Misery.

This rock changes insensibly on the one hand into what you call quartz Porphyry on the other in Perlites. This is now the question, has the whole group to be called Trachytes or Porphyries? Also the Mt Somers rocks which you declare to be Quartz Porphyries are also gradually changing into Perlites but as Perlites as far as I know are never associated with Porphyries proper, I believe we have to fall back upon naming the whole Group Trachytic Porphyries or Porphyritic Trachytes.

Please tell me your ideas about it.

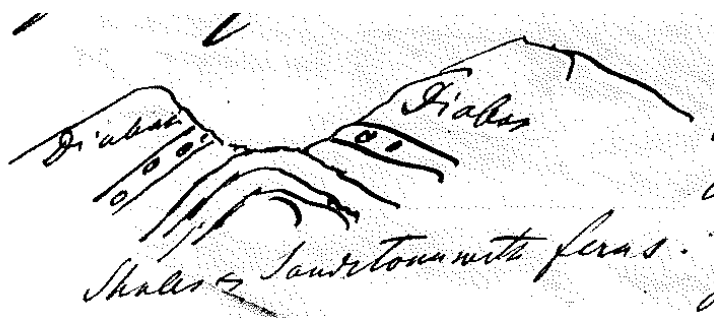
681 Syenitic Granite. Akaroa Peninsula. I have no doubt, that this rock is of volcanic origin from its position & associated rocks.

As far as I can remember there is a similar rock but of trachytic character on the Island in Lake Rotorua Northern Island, which looks exactly like a Granite.

In re Buller

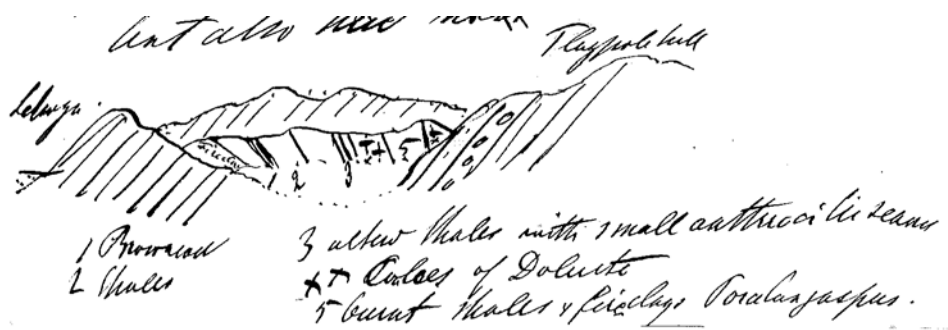
Some months ago after I have read the notes, I told Mr Fraser not to send the paper in question, because I thought that I ought to let the matter drop. After reading Buller's reply I had great mind to let the matter go on & print his own letters in an Appendix. However you are quite right, let us not pollute our *Transactions* with personal matters & have therefore the goodness to put my article aside; tear it up if you like. Mr Buller's so called corrections are full of misstatements, but I leave him to be abolished by Potts, who takes the *Gerygone* question in hand. In fact he has not a leg to stand upon. It is rather amusing to see, how he picks up a mistake of a wrong label having been tied to one of the small birds; such mistakes must always occur.

Concerning the strata with the *Pecopteris* the matter gains additional interest by my last researches. I followed them over Flagpole hill & found that they underlie the Diabasic beds with the Marbles & that in fact they form the lower part of a anticlinal.



Part of Alan's[?] head & Waimakariri gorge consists of these.

I also examined a younger basin behind Flagpole hill, here it is interesting to observe, that whilst the lower beds are true Brown coals, the upper beds are changed into anthracitic coal overlaid by Dolerites, but also here no true basin



I shall write again before I leave. My boys are just coming in and tell me that I ought to play with them Christmas day & I think they are right.

Therefore I conclude my letter with united kindest regards to Mrs Hector & yourself
 Ever yours sincerely
 Julius Haast.

234: Haast to Hector, 31-12-1870

Te Papa MU000147/003/0251

Canterbury Museum
 31 Decb 1870

Dear Hector,

I wrote to you last on Christmass day & have since been so busy, that I have not found the time to write. I have sent to you a little box containing specimens of Coal.

- 1) Hills Upper seam anthracitic 2 feet
- Mc Ilraith Coal Creek Brown Coal
- 2) Lower seam 6 feet
- 3 Upper seam 3 feet –

& I send to day by post as a parcel No 4 a new seam of 2 ½ feet which Hill has struck in the Shales & which he sent by messenger. I shall be very much obliged to you if you will have these four specimens analysed as soon as convenient, giving me the results, so that I can communicate them to the parties in question. Hill of course is going on & I have no doubt, that he will get some larger seam.

You may imagine that I am very glad that so far the work has been successful.

Before I answer your letter of the 25th I wish to tell you first that I have received notice that a collection has been sent from Sweden consisting of 113 birdskins & 10 quadrupeds; you gave me a collection of recent shells & some NI plants to add. Some other collections will follow as my second & 3 cases with Moa bones, etc have not yet arrived. As a proportion of these things belong to you, I think that about 40 birdskins will be very fair, the more so as you will get the Lions share, because most of the large specimens I got already from Finsch.

Amongst the lot which I shall hand over to you will be *Capercaillie* ♂ & ♀.

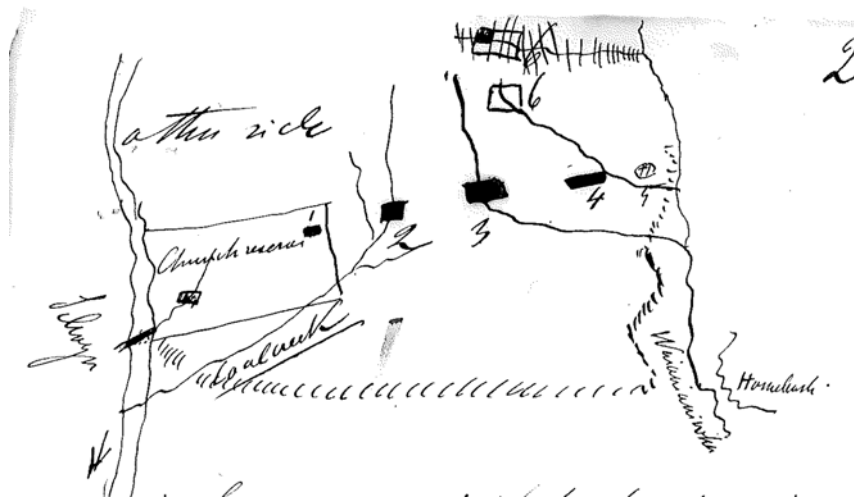
Black Cock ♂ & ♀ & many Hawks, Owls, Ducks etc.

Would you like to have them set up? Fuller would be very glad to do it in his spare time & very reasonable too.

In this case I would recommend you to adopt our octagon stands which are very handy, save lots of room & are very cheap. In the average they cost 9d a piece & it would have the advantage, that we could exchange birds foreign as well as NZ ones, without taking them from the stands.

If you like the idea, I shall get Fuller to give you an estimate what the setting up will cost. I also expect Swedish & Norwegian Minerals & Ores of which you will have also a share, but it will take some time before they come.

The Coal is not on the church reserve but in 2 gullies of which one goes into the Selwyn & the other into the Waiani-aniwha (Homebush Creek). I make you a small sketchmap on the other side



- 1) 2 Small seams about 2 feet each exposed in a Slip
- 2) 6 foot seam
- 3) " "
- 3) large seam in a deep pool thickness unknown
- 4) Small seam opened on side of hill by me
- 5) burnt shales (porcelain jasper)
- 6) Bush section, the lowest beds of the Precipice Conglomerates in which there are nowhere as far as I examined it workable seams.

I never have been at the Waikato heads because when Hockstetter went there I did some work at the Auckland volcanoes. I shall gladly send you a good series of the Clent hill beds.

What you tell me about the Wangapeka plant beds is highly interesting & unknown to me, but I really believe that we have to do with several formations, that Grey & Buller etc are older than our other Coalbeds. However you having the whole by this time at your fingers

ends, will soon get order into the whole matter. Why not send the whole collections to Heer²²⁸, he would be the man to do it first rate. He has as I see done lots of work for the English & American surveys. I have not yet received any cases from the Malvern Hills as they have to wait for the wooldrays but in beginning of February (middle is more probably the time) I hope to get all the collections forwarded to you. I have not received the other cast of the Saurian remains, you kindly sent, can't you also send me some of the Waipara blocks (I mean the casts) it would make the whole more complete. Also the tracings have not been enclosed in your letter.

About the paddle, I told you that it was as far I had material at my command intermediate between *Ichth[yosaurus]* & *Plesiosaurus*; it will probably turn out quite a new genus. I hope you will get away to Tongariro, because we want a good description of the whole eruption.

I think that the money is sufficient & if I am somewhat longer in the field it does not matter. In every case I am quite satisfied. I think also that it is very hazardous to talk about Oligocene in the Southern Hemisphere when we have not as yet been able to find the boundaries between the usual III beds & towards the secondaries.

I shall write again before I go & give you a general view of all the work done the first free moment. I hope you will agree with me that I retired the article re Buller. Had Fraser done what I told him a few days after the meeting, the article would never have gone to Wellington. I do not intend to quarrel with Buller, but he ought to be more careful in future. I am off next week.

Yours most sincerely
Julius Haast.

Rolleston is very glad about the Malvern hills. He wants you to send him a geol. map of NZ. for his own room in the Govt. Buildings.

235: Haast to Hector, 31-12-1870

Te Papa MU000147/003/0253

ChCh
31 Decb 70

Dear Hector,

I wrote you this morning, sending you some specimens of Coal for examination & analysis & forgot to tell you that I want very badly a dredge as I intend to dredge next February & March in & near Lyttelton harbour. Can you lend me one or have one made in Wellington for me. Of course I shall pay for it. Please answer me that question so that I know what to do. I forgot to tell you that your part of the collection was about 1/6th, so that you see that I have the intention to do what is correct.

²²⁸ Oswald Heer (1809-1883), Swiss geologist and naturalist.

I hope you will also dredge & let me have some shells because I want to get some good collections for exchanges away with some of the last Woolships (May) & of course I shall always give you a fair share.

In half an hour the old year goes from the scene & the new one appears. Heaven knows what it will bring to us. I wish only we could sit together & have a friendly talk over something to drink

Ever yours de coeur
Julius Haast.

[*Hector's hand:*] Travers has a dredge to sell JH. What is the price? written to Haast offering 15/1/71.

236: Hector to Haast, 10-1-1871
ATL MS-Papers-0037-081, letter 8

[*No place*]
10th January 1871

My dear Haast,

I have yours of 30th ult. & 3[?] inst. and now send prox. Analysis of the samples of Coal.²²⁹ I mean to get Ultimate Analysis of some of them done also as if they belong all to one formation it is curious. Dont forget to look for the Unio & Pecopteris beds that are just above the Precipice[?].

I will send a map to Rolleston & will see also that a dredge is ready by the time you want it.

I will prepare to get my birds in the state they come from your correspondent in Sweden, as if put in shape I wont be able to stow them away. I have hundreds of birds for which I have no show room. I am going to keep my type collections of N.Z. Birds as skins & not set them up.

I did not hear of the mail till a few minutes since & have a lot of things to do before the hour is up so write in haste.

You are doing first rate work this[?] time[?] as far as I can judge from what you tell me. Toe[?] bones casts are not hard enough yet to travel. I enclose tracings.

Sincerely Yours
James Hector.

²²⁹ We have been unable to locate copies of these letters

237: Haast to Hector, 14-1-1871

Te Papa MU000147/003/0276

Kowai Jan 14 1871

My dear Hector,

You see I have at last done with the lower portion of the Malvern hills & am on my way towards the Coal basin behind Big Ben. I shall use the first wet day to write to you at more length & give you some of the general results as far as I have gone.

To day I shall write to you about another matter, which I am sure will greatly interest you & if we put our shoulders to the wheel we can perhaps manage the thing. There is in Germany a magnificent collection of birds for which the former owner since dead, his sacrificed the greater part of his fortune. This collection is for sale & would have been sold already in Germany, did not the war interfere with all matters of Science. Finsch writes to me, that it is the most perfect collection he knows. Every bird has been set up most artistically by the best taxidermists in Germany & that is really magnificent.

The whole collection together with 14 large & well finished Cabinets, & which can be taken to pieces, can be secured for £1500. Finsch who in every respect is a man of honour, assures me that the setting up alone has cost much more. I have for a long time thought about the matter, how to secure it to New Zealand & will give you now my ideas about it. I got Finsch letters about 8 days ago by last Suez mail & I have been thinking of it night after night. It is out of the question to secure it to the Canterbury Museum, but I have been thinking that in making it a Colonial question as it were, we might raise perhaps the money & secure it for the Colonial Museum. Knowing that the foundation of the British Museum has been laid by a lottery, I think if you would obtain the permission of Ministers to get the money by such means. –

For instance if we could sell 5000 tickets at £1 each we could make prices²³⁰ of £3000 & keep £2000 which would be necessary to allow for packing cases, cost of packing, freight & insurance, also for printing of tickets etc; the £500 in excess would be necessary. We could make the following prizes

A handwritten table of prizes for a lottery, showing ticket counts and prize amounts. The table is divided into two columns by a vertical line. The left column lists prizes of £2000, £500, £200, £100, and £200. The right column lists prizes of £1500, £500, £200, £100, £200, and £500. A horizontal line is drawn under the right column, with a total of £3000 written below it.

1.	£2000.	1.	£1500
1.	" 500.	1.	500
2.	" 200.	2.	£100 200
2.	" 100.	2.	" 50 100
10.	" 200	10.	" 20 200
		50.	" 10 500
			£3000
	£3000.		

²³⁰ Assume Haast means "prizes".

I think I could sell 500 tickets very easily. However if you think that we could get the money easier & quicker, let it be an open question what Museum would get the collection.

Thus Auckland, Otago, Wellington Nelson & Canterbury, which Provinces have Museums could at the end draw for the collection & in the following manner, viz.

for every 100 tickets sold in each province, it would get one chance & we thus could afterwards dispose of it in such a way; I am sure we could as every Province would have a good chance soon get rid of the tickets.

I enclose you Finsch's list, which will give you an insight into the contents of the splendid collection. Finsch who has just sent me 2 cases of birdskins for our Museum has added 4 foreign & 4 European birds set up from that collection as specimens & to show that also those set up from dried skins are perfect in every respect.

I would have sent you Finsch's letter, but it is in German & I give you all the details, however you can have it, if you & others of your friends wish to see it. I leave the whole matter in your hands, think it well over & I assure you that even should you decide that the Collection ought to go to Wellington, I shall do my very best to place the tickets, although I fear it will make it much more difficult from the feelings in the Provinces, but if each Province has a chance it will be so much easier. I suppose if properly represented that the Govt. will have no objection, the main object being to secure a collection to New Zealand & for which we shall have scarcely another chance.

Hochstetter has received the 2nd volume of the *Transactions*, he sends his best thanks to you, he is highly delighted with it. The first volume never turned up, but I sent him also Vol. I & II in a case to Vienna, which I trust will soon arrive. I am at a loss to understand, what became of vol I, I sent a copy per post. I suppose it arrived when he was in the Orient & has been mislaid or sent after him.

I trust you will look into the matter concerning the collections, it would be a great point could we secure it to New Zealand.

Ever yours sincerely
Julius Haast.

When shall I hear from you? In order to save time I have enclosed Finsch's letter & marked the spot where he begins to speak of the collection, perhaps you can get somebody to translate it for you, should you enter into the matter; please return me the letter & lists, if you do not think it will do, the letter in every case.

238: Haast to Hector, 19-1-1871

Te Papa MU000147/003/0285

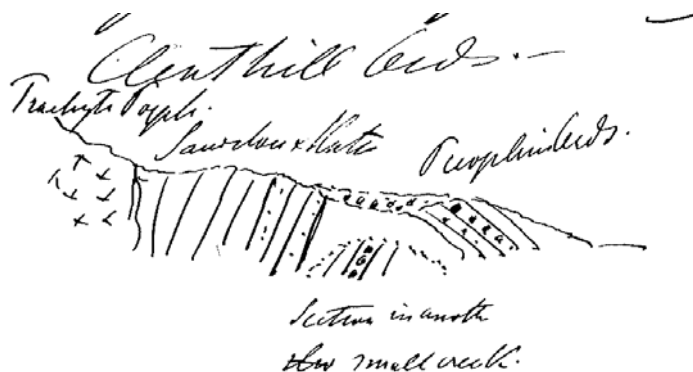
Kowai
19 Jan 1871

My dear Hector,

I received half an hour ago your welcome letter of the 10th, coming in from my work. Many thanks for the Coal Analyses & the tracing of the paddle of the Medio-Saurus (between Ichtyo & Plesio-saurus). Is that not a fair name? I shall send you bye & bye a better specimen of Mc Ilraith's Coal, which was taken from under a little waterfall, just at the outside & consequently contained more water, than in the works it would have. And this would somewhat alter the analysis. I feel quite delighted to get the casts & I hope only you will not overlook, if possible, to let me also have the casts of the Waipara bones Holmes got. By the bye. Did I ever tell you that the cast of the big skull of Hoods is still there, but it is too big to move, being in an awfully bad position. Would it be not worth our while to get a plasterer (there is a capital man in ChCh, who worked in the British Museum) & have some casts made at the spot which after wards we could colour after the original drawing in our possession? In every case I am willing to make a trial of it as it cannot cost much.

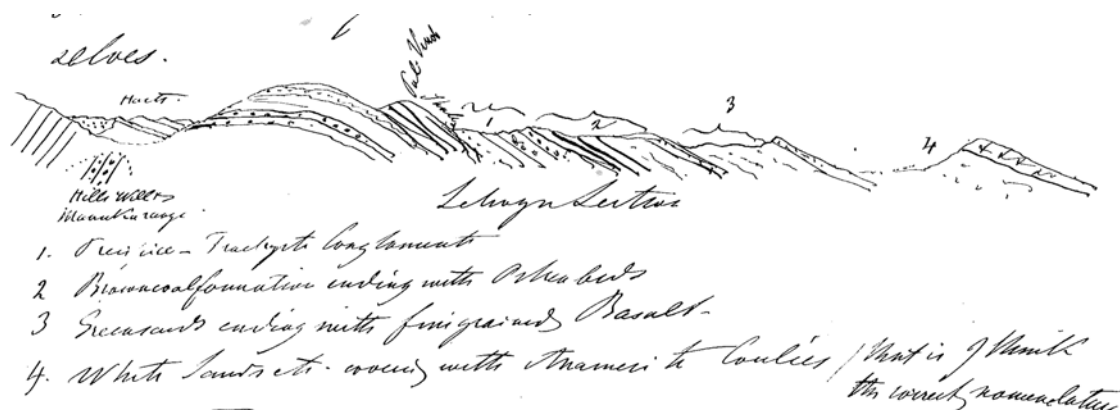
I have taken notice that you want the birdskins as they are & I am afraid that all my planning to get the fine collection from Germany has been in vain, as you can not spare the room. I shall now give you a few notes what I have done lately together with a general Resumee. First the oldest beds are the *Pecopteris* beds in the Malvern Hills; I hunted all over the Big Hill near Harts, of course also near the river but could not find a Unio, but lots of fine ferns but I must have another trial.

They are of far larger extent than I formerly thought as I can now trace them even to the Wairau Marlborough & near the Waitaki & if my memory serves me right even to the Wellington Province. They thus will form a capital horizon for the future. In the Clent hills they occur exactly in the same position & on both sides of the big valley & I now can understand, that they also there take an anticlinal, what I mistook for a fault & thus they underlie also there. The *Spirifera* beds in the Rangitata have the same lithological character & I have no doubt are of the same age, an opinion pronounced 8 years ago against Prof MCoy. This is the section of the Clent hill beds.



These *Pecopteris* beds are overlaid by the Diabasic & Clenton[?] beds & I think we can follow them now through all our Alpine ranges & the so called Kaolin Sandstones. For

instance the so called Pal. Knob in my Reports above the Precipice is simply the overlying beds, whilst close to Harts basin the shales of the *Pecopteris* formation show themselves



The Trachyte or Porphyry Conglomerate (at Precipice for instance) is very thick, contains no coal, only drift trees & patches, but it contains dicotyledonous leaves, ferns & Pinites. (NB. The fern you got from Jebson is from these beds & not from his Coal measures). I studied these beds carefully at some localities even at the Cave of Mt Misery they are missing & the brown coal formation lies direct upon the eruptive rocks. I got some interesting specimens from these beds. With the brown coal beds are also dicotyled. leaves. But as it is rather late, I must not stay too long upon these points & tell you that I have also examined carefully the Big Ben beds, which are the Malvern hill beds in stand alone. Even here surrounded by mountains 4 to 5000 feet high, the Trachyte-Conglomerate beds occur, also the Basalts in coulees & Dykes. I think I have told you already about the *Ostrea* beds, but I can now add, that I found what I consider the fragment of a Belemnite. I may be mistaken, but it looks very much like it & microscopical examination will decide the question. However for 2 days more I searched in the same beds, breaking tons of stones but in vain, nothing more like it could be found. In the Big ben beds in the position corresponding with the *Ostrea* beds are some small ferruginous layers 1 inch thick, which consist half of small fish teeth *Otodus* & in another spot a very ferruginous (decomposing) calcareous Sandstone full of the same teeth in fine preservation. It almost looks like a Hornblende Schist (at first sight) the teeth representing the needles of the Hornblende. I also went once more to the Kowai Coal field, which has a similar Conglomerate underlying but I did not add any thing to the observations of former years. Being so close to Enys I rode over last Sunday for a flying visit, but had of course no time to do much work, although we had a long stroll, but from what I saw, I am convinced that a detail study of that basin will well reward us in good results, principally in reference to the limestones. To morrow I am going to John Hall²³¹ & then to Rockwood²³² & so on to Oakden²³³, because I expect that after all those Rakaia Coalmeasures will become useful someday, principally if there as I suspect the Coals have been altered over a great area. I am rather dissatisfied with my letter, because I wanted to give you much more and clearer information, but to tell you the truth, I am rather tired & it is already 1 o'clock & I feel as did I want to go to sleep. I shall soon write again. Do not forget to answer the few queries in my former letters.

²³¹ Sir John Hall (1824-1907), Canterbury runholder, Mayor of Christchurch and Premier of New Zealand.

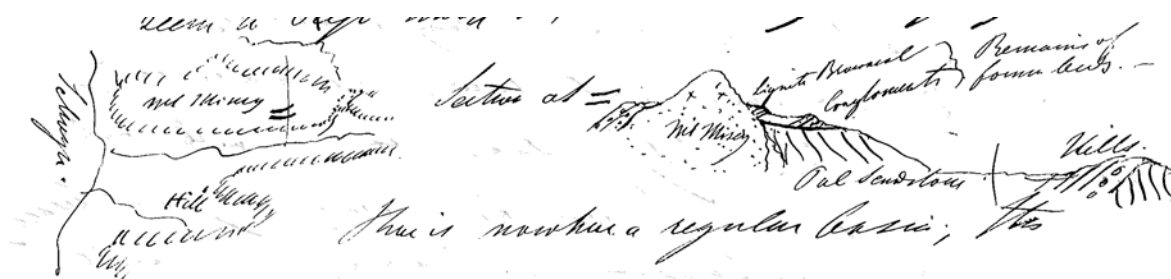
²³² Rockwood Station at Glenroy.

²³³ John Jackson Oakden (c. 1818-1884), Canterbury runholder.

Ever yours
Julius Haast

PS

It is a fine seam that of Hills, but cut off by Dolerite Ashes; he is going to sink a shaft; I picked out a spot for him. I think with 100 feet he will reach the Coal. The Coal measures go partly round Mt Misery, at one spot, look at sketchmap, they seem to dip under the Mt Misery Porphyries.



There is nowhere a regular basin, the coalbeds etc dip always to one side alone. You will see it in the large Sections. When are you off for the volcanic sport at Tongariro?

239: Hector to Haast, Undated

ATL MS-Papers-0037-081, letter 9

[No place]

[No date]

My dear Haast,

The papers about the further Survey of the Malvern Hills appear to have been mislaid in the Col. Sec.'s Office. This accounts for the delay. However I have sent in a fresh application & it will be all right.

Owen did not find Eagle bones. Did I say he did?

I dont see why I should have sent my paper to Ch.Ch. It is not controversial but merely does, what you have partly done in your supplement, viz. recalled attention to important facts that you had omitted to mention. As your paper was adressed to the reader in Europe I thought it right to loose no time in completing the data. The facts I mention, with the one exception of the ---- were all well known previously by those interested in the subject in the Colony. As on the Moa ---- I will have fuller information in a week or two I will reserve any publication till then. I therefore cannot agree to your reading it before your society as you propose as that would only make my action appear to be controversial which it certainly is not. There is nothing to answer in my paper as there are no theories.

In haste
Sincerely Yours
James Hector.

240: Hector to Haast, 16-5-1871

ATL MS-Papers-0037-081, letter 10

[No place]
16th May 1871

My dear Haast,

Buller has returned highly delighted with you Museum. He is re----- on the subject of *A. mantelli* not being the same as *A. australis*. He says you are getting splendid drawings made of the new Giant Eagle. I will be able to send you in a few days a lithograph of the Moa's neck. I have sent a short notice of it home but will describe it at length in our Trans. The next thing Buchanan will draw will be the Saurian Fossils, so I will be glad to get Triphooks sketch of the head that was lost in the *Matoaka* if you wish it to go with the rest. The sooner we get all the illustrations that are to appear the earlier & at less expense do we get the work out. Have you heard of the Moa foot steps at Poverty Bay. They are very fine. A case containing a set fixed in plaster was sent to me in Decr. last & has never reached me. Hood has however seen them & brought away rubbings. The first was the size of *D. robustus*.

I have set Hutton to make a critical examination[?] of the Quartz Porphyries &c. of the Malvern Hills. He will go through all the igneous rocks & get the material for a proper classification nomenclature of them. I am publishing a little handbook of all our analyses. I hope to hear soon from you & am very anxious to get your sections as the Progress Rept. is rather too meagre to allow of my bringing up the years[?] retrospect of our work.

In haste
Sincerely Yours
James Hector.

I send a copy of Vol. III.

241: Haast to Hector, [6-1871]

Te Papa MU000094/001/0101

[Recd. 3/7/1871]

Excuse my hurry!

My dear Hector,

I have only time to thank you for your two letters & shall write more fully by next letter. Dr Powell²³⁴ passes next Thursday over Wellington, I shall give him the Map the sections are ready except colouring & the Report goes on also.

Did I ever pay you for the dredge?
Ever yours
Julius Haast.

[*Hector's hand:*] The Dredge was not paid for. JH.

²³⁴ Dr Llewellyn Powell (c. 1842-1879), medical doctor and lecturer in botany and zoology at Canterbury College, succeeded Haast as president of the Canterbury Philosophical Institute in 1874.

242: Haast to Hector, 3-8-1871

Te Papa MU000094/001/0124

[No place]
3/8/71

My dear Hector,

I have been creeping on gradually with my Report, but do not yet know when it will be finished as I have so many other things to attend to whilst our Provincial Council is sitting. You never gave me an answer to my telegram, so I suppose you are not in a hurry, besides it is impossible to hurry over things of that kind, the more so as you possess the map & the gist of my Report already. You will remember that when I was last time down the coast, I found South of the Paringa, the Grey Coalformation but no coal & I pointed out to my men to hunt more inland. One of my men has been down again & he tells me that 2 miles South of the Paringa in a small creek he has discovered Coal seams & what he thinks of excellent Coal; he will send me by first opportunity a specimen.

As the Paringa is not at all a bad harbour, that discovery seems to me of some importance.

Mc Ilraith sent me word, that in poking about, he has found near the base of the Porphyry Conglomerate, a bed of fossils; he states that as far as he can see they are quite distinct from those of the *Ostrea* beds & that there is a big roundish Shell in it, like a white Oyster as he thinks. I consider this very important & should like to go up; perhaps that it will connect the Malvern Hills beds with the Amuri formations. When my eyes want a rest, I shall run up for a day or two, if you agree to it.

Ever yours most sincerely
Julius Haast.

243: Hector to Haast, 18-3-1872

ATL MS-Papers-0037-082, letter 1

Colonial Museum
18th March 1872

My dear Haast,

I have two notes to answer – one relating to the transfer of young Dobson to Ch.Ch. which I have sent on to Lemon²³⁵ as it is no use speaking to Gisborne²³⁶ till he is made all right with first.

The other note is about the Kakas & the case of Moa hunter remains. By the way Travers has brought some of the same chert flakes from the Chatham Is. They occur in

²³⁵ Dr Charles Lemon (c. 1834-1901), general manager of New Zealand Telegraph Department in Wellington.

²³⁶ William Gisborne (1825-1898), New Zealand politician and Chief Clerk in the Colonial Secretary's office.

ruins[?] with all sorts of polished & rough stone implements, & were evidently used for skinning seals! By the way I have never been able to realize the cutting up of a seal or a whale or a Moa with a polished Stone adze. As a practical hunter I think I would always prefer a chert flake to whatever "age" I might belong. I am glad you like the drawings, but it would have cost too much to do them full size. However I will see how we get on & if possible put in an extra plate with your chapter.

Hutton is off to the North. He has not added much of anything to our knowledge of the South & has brought[?] very few specimens & no new fossils. Nothing like the number I got for the upper & lower Otapiri series where I merely rode over the ground. He has been in too great a hurry. I gave him 4 months & he only took 6 weeks. When may I expect your specimens? I have all the fossils arranged now for reference so that when you come up you will be able to compare the results from different localities at a glance. While arranging them in a general way they have always been kept in the groups as collected.

I do not quite understand what you say about the Clent Hill beds. Are the Fern beds above or below the supposed Devonians? Are those the conglomerates you mention[?] as being lowest rocks in the district. However your Report will no doubt make it all clear.

Mail just closing sooner than I thought
Sincerely Yours
James Hector.

244: Hector to Haast, 21-4-1872
ATL MS-Papers-0037-082, letter 2

[No place]
21st April 1872

My dear Haast,

I have been imprisoned on a judicial investigation from 10 to 6 every day for the past week & it is not over, so that all my own work is behind.

1. Certainly give the Malvern Hill Rept. to the papers if you like. I am sorry for the errors in it but will see they are noted. They are not all our fault however & we had to deal with careless printers – not those who usually print for me.

I dont follow your remarks about the Shag Point Coal. I surely never said there were no conglomerates at Shag Point. What I said was there was not a seam of coal yet found with the same conglomerates up Trotters Creek & in other parts of the Horse Range. However I may have misunderstood you also. Do send up the Fossils soon.

I enclose copies of *Harpagornis* & my Penguin Plates. I hope the former will please you. They are to be printed in black[?].

Lemon promises to change Dobson to Ch.Ch.
Sincerely Yours
James Hector.

245: Haast to Hector, 3-7-1872

Te Papa MU000147/004/0043

Canterbury Museum
Christchurch
July 3 1872

Sir,

The Trustees of the Canterbury Museum have instructed me to write to you in order to obtain a number of copies of the *Transactions of the NZ. Institute*. Hitherto they have received any Surplus Copies from the Phil. Inst. of Canterbury, which were sent with exchange collections to Europe & other parts of the world, but they are now informed, that they can not expect any more copies from that society.

The Trustees think that an institution which may lay claims to be more than a Provincial Museum, as far as usefulness is concerned, might receive some little assistance from the Governors of the NZ. Institute in the shape of a dozen copies of the *Transactions*. Will you therefore be good enough to lay this application before the Governors & send me an answer at your earliest convenience.

I have the honour to be
Sir
yours obediently
Julius Haast
Hon. Secretary

Dr J Hector FRS
Director Col Museum
Manager NZ. Institute

246: Hector to Haast, 18-7-1872

ATL MS-Papers-0037-082, letter 3

[*No place*]
18th July 1872

My dear Haast,

I have yours of 9th July by the *Albion*.²³⁷ The difficulty in getting the 50 copies out is that the whole thing is in sheet[?] yet & all the officers are hard at work with Parliamentary papers. If I had known there would be so much bother I would not have promised you the early copies & then you would not have felt disappointed. I sent on the analysis of "Halls" coal with a memo. that the result shows that the estimated area of altered Br. Coal cannot be depended on.

²³⁷ We have been unable to locate a copy of this letter.

I had one look at the Clent Hill Bone bed. It is bone but beyond that I can say nothing. This is not the time of year for original investigations. I get very ---- bothered.

I am glad you are coming up. I wish I could "right off" ask you to bring Mrs. Haast & to come & stay with us but that will require consultation with the proper authorities & some planning – also an exact knowledge of the time of your coming. I hope the note about publishing answered the purpose. I forget what it was now. The only paper I ever sent home was part of the Moa Paper & I did so only because you had sent your address on the Moa to England first & I was afraid that unless something was said a serious misconception might arise that there had been a distinct race here from the Maories at one time – a view which you abandon in your later papers. I think by the same mail or thereabout that I sent my abridged paper home, I sent the whole all except Dr. Thompsons letter to the Otago Institute but it was not read till months afterwards. At the same time I quite agree that it does good if papers are fully ventilated. The readers are quite different. If a subject has more than a local interest published at home but also in the Colony, as the intended at home may not likely see our Trans. & those in the Colony may never see the home periodicals or Society Trans. I cant get a copy of the Coal Reports to send you I fear in time. "Public works" are supposed to be printing them but they all come here to be corrected.

In haste
Sincerely Yours
James Hector.

247: Hector to Haast, 4-10-1872 (copy in Gore's handwriting)
Te Papa MU000147/004/0058

Colonial Museum
Wellington 4 Ochr. 1872

My dear Haast,

Many thanks for the case. The Kiwi skeletons I will hand over to Dr Knox. The other things except the *Cnemiornis* bones, I have given to Hutton.

I have carefully examined these bones and find that they differ more from each other than from the bones which I showed you as *Cnemiornis*. It is unfortunate that the head of your longest bone is gone, but I have taken the liberty of opening the shaft cavity in both bones and feel sure that yours was quite as pneumatic as Captn Frasers and that they are bones of the same or closely allied species.

If you are quite sure that your *Cnemiornis* there can be then no doubt of my determination being correct, but there must in that case be some mistake about Prof Owens bone as he distinctly states that the humerus of his *Cnemiornis* has no pneumatic depression even, and it disagrees in other respects from either your bone or Capt Frasers, which I only called *Cnemiornis* because the associated bones without doubt belong to that Genus. I gave a short notice to the Society last evening and among other things gave the following ratios of weight to bulk of various humeri of birds.

<i>Cnemiornis</i> (Fraser)	24.4
Weka	21.0
Kakapo	18.7
Kaka	13.1
Hawk	12.6

The points of resemblance to your bones are position of Nutriant foramin, form and position of the anconal Jut, lecture and surface markings of bones, equality of size and thickness, similarity of form, identity of muscular depression. The only point of difference are, in your white bone the muscular depressions are less, & in the black specimen more pronounced than in Frasers bone.

Yours sincerely
[J. Hector]

248: Haast to Hector, 16-10-1872

Te Papa MU000094/001/0403

[No place]
16.10.72

My dear Hector,

I am glad you are getting the timbers & am only sorry that you do not make at once provision to let us have a full share & a complete set, as we intend to let you have the same. Armstrong²³⁸ starts to morrow for Arthur's pass & West coast road to get all the subalpines etc timbers, which will cost some money as we have to send a dray all the way. All what I can say is if you want as complete a set as possible of our timbers you ought to get me a similar set from the North Island. We cut all 4 feet 6 inches.

I have looked into the *Cnemiornis* matter & although there are minor differences between our bone & Owen's *Cnemiornis*, I am sure they are the same bone, belonging to *Cnemiornis* a flightless (rail) bird. I have moreover, both the ulna & radius of *Cnemiornis* which would never articulate with the broad distal end of your bone, but perfectly well with Owen's & ours. Although your bone does not agree altogether with our *Harpagornis*, it stands close to it, & as it appears to me belongs to a bird which could well fly, heavily though. If you pay us a visit, bring the bone with you.

You better write a few lines to Powell, to stir him up.

I hope you will keep old Knox up to the mark. You can keep the volumes a little longer; having begun with my lectures, I have to stick to them & no time for Palaeontology.

Ever yours sincerely

Julius Haast.

²³⁸ John F Armstrong and his son Joseph B Armstrong were described by Haast as his botanical assistants. John Armstrong was also Government Gardener and curator of the Christchurch botanical gardens.

249: Hector to Haast, 25-10-1872

ATL MS-Papers-0037-082, letter 4

[No place]

25th October 1872

My dear Haast,

All the vouchers have gone in and I hope by this time you have got your money. There were no end of enquiries there have been so many changes of late.

I thought you were to send in a further account for the shag point work. I suppose you are full of lecturing work. How do you like it?

Sir Geo. Grey sent me a Maori tradition about the Hokioi or great c----- Hawk which they describe as having been as large as a small Moa. It is very interesting. They say it lived in the mountains near Taupo and used to fly higher higher than the common hawk.

I will send you a copy of the translation. He thinks it is your *Harpagornis*. Mantell says he has often heard of it & mentioned it when in England.

I have all the woods now from this quarter, lots of specimens.

Sincerely Yours

James Hector.

250: Hector to Haast, 8-10-1873

ATL MS-Papers-0037-082, letters 5 & 6

[No place]

8th October 1873

My dear Haast,

The bones & Paper arrived safely as I telegraphed. I have selected the best of the former & am getting them Photographed Nat. size. & if the negatives are good will send them to be printed by the Heliotype company as by that process they are absolutely accurate & much cheaper than hand lithography.

Your Rangitatta map & sections are all in the printers hands & I may get proofs in time for the mail. I am also doing your Malvern Hill & Shag Point maps in same style.

Hutton's map is done and I enclose a private copy for you to look at. The Report is not yet in type. You will see him as he passes no doubt on his way to Otago. He goes by this steamer.

I have so many things in press just now that I am tied up but must try to get away soon as there is much field work to do in way of Coals & Petroleum &c. Did I tell you of the beds of Dolomite that we have cut in the Collingwood Coal Measures!!

McKay²³⁹ has been at Catlin River & finds Blacks Saurian to be a fossil tree & the teeth to be the black oyster!²⁴⁰

There is no doubt that the Amuri beds are in that locality however for fossils I got – so there may be some mistake & he may have missed the exact place.

I have just got a lower jaw of *Mesoplodon hectori* with the teeth opposite to the sym---, not terminal, which shows the small value of that character just as your species with the Callous vomer shows that that cant be depended on either. Nothing now remains to separate it from *Berardius* where it was first put but the want of the frontal crests & the unsymmetrical blower.

Your *Harpegornis* (should this not be the spelling?) paper is very interesting & will be a great feather in your cap.²⁴¹ I will see that you get every justice in the illustrations.

In haste as usual
Sincerely Yours
James Hector.

251: Hector to Haast, 21-11-1873

ATL MS-Papers-0037-082, letter 7

Hurunui
21st November 1873

My dear Haast,

I am in Canterbury at last after many broken promises, but wont get to Ch. Ch. this time as I am due on the West Coast & must be off at once by either the Hurunui or Waiau Pass. I have been much interested by my trip down the coast which was new to me but yet familiar through your Reports. I had no difficulty in making out the Kaikoura & Amuri Bluffs & unless I see something at Weka Pass tomorrow I feel confident that my old idea of passage beds (Cret:Tert) will hold good in spite of our gallant & ---- colleague's late report.

His map is very good on the whole considering the pace he scrambled over the country but as might be expected there are some perverse blunders. Before I return I mean to have a look at the upper Clarence & Awatere Valleys as the exact age of the outliers there will have much bearing on the Geological ----- of the Country.

²³⁹ Alexander McKay (1841-1917), New Zealand geologist.

²⁴⁰ Alexander McKay, 'Reports relative to collections of fossils in S.E. district of the Province of Otago', *Reports of Geological Explorations during 1873-74, 1877*, pp. 60-61.

²⁴¹ Julius Haast, 'Notes on *Harpagornis moorei*, an Extinct Gigantic Bird of Prey, Containing Description of Femur, Ungual Phalanges, and Rib' *Transactions and Proceedings of the New Zealand Institute*, vol. 4, 1874, pp. 192-196, 2 pl.

Enys will give you all the news. He is a very pleasant companion on a trip & as sharp as a needle in following the structure of the country. He has a great natural talent for Geology.

I was glad to see that Owen has done you justice in his last memoir on the Moa. I had only time to glance over it before I left.

McKay has done well in the south & is to go round to join me at Greymouth. I have no doubt now that the Greymouth & Amuri sections are the same only there are older fossiliferous beds at Amuri that have not been yet picked up on the West Coast.

Sincerely Yours
James Hector.

252: Haast to Hector, 5-12-1873

Te Papa MU000094/002/0296

Canterbury Museum
Christchurch, N.Z.
Decb 5 1873

My dear Hector,

When I was in Otepopo, looking at the Coal, I promised one of the owners, that if an analysis of the Coal were made at the Laboratory of the Geol Survey I would request you to send him a copy as well as of the Report which contained what I would say about the Mine. Will you therefore be good enough to send him a copy of your Analysis as well as of the Report. His name is James T. Donaldson.²⁴² Ravenswood farm, Hampden, Otago.

Yours very sincerely
Julius Haast.

[*Hector's hand:*] Get out the specimen & enclose Analysis. JH.

[*Skey's hand:*] Cannot find any analysis of Otepopo Coal. Dec 22/73

²⁴² James T Donaldson (1832-1908), Scottish farmer at Hampden in Otago and formerly manager of the Newcastle Coal & Copper Company in New South Wales.

253: Hector to Haast, 8-3-1874

ATL MS-Papers-0037-082, letter 8

[No place]
8th March 1874

My dear Haast,

I have had some trouble in getting the Geol. Reports for you as there was 3/4 sheet not printed. I have got 50 of your and Huttons Reports stitched & 20 will be sent to each[?] in anticipation of the whole reports which must stand over till my return.

Your *Harpagornis* paper is printed & reads very well. I have been examining the bones & have made out some interesting points that you will hear of in time. Do find a Sternum. I suppose you heard from Hocken²⁴³ that Hutton thinks he has made it out to be an owl! I am having the bones Photographed so as to get the reduced lithographs as perfect as possible.

I have got a great part of the vol. ready for the press so as to get away & tomorrow I start for the East Cape. I find I will have funds to the extent of £60 to £70 that can be devoted to your district. Please write me an official suggesting what you think you can do & when.

We have just unpacked the Catlin River & West Coast fossils (McKays). There are over 10,000 specimens - & often 5 to 10 fossils in each. The Reefton fossils are just as I made out by my own small collection - true Devonian - same as the Mt. Arthur beds & quite distinct from the Trias beds of Mt. Potts. These are the same as the nuggets where they are overlaid unconformably by the *Comptopteris* beds at Catlin River - at the base of the latter are Inoceramus, Belemnites & Ammonites & in the upper part a few Amuri forms appear - I will be back in 3 weeks or so.

Sincerely Yours
James Hector.

254: Haast to Hector, 19-3-1874

Te Papa MU000094/002/0385

Canterbury Museum Christchurch
March 19th 1874

Sir,

In continuation of our conversation concerning some field work to be done by me for the Geological Survey of New Zealand, I beg to state, that I shall be able to devote a portion of this autumn to the same & would propose, that I should go for a few days to the Malvern Hills to examine the altered coal discovered by Mr Gerard²⁴⁴ in the Rakaia valley & some other parts where Browncoal seams have been opened up.

²⁴³ Thomas Morland Hocken (1836-1910), New Zealand collector, researcher and bibliographer.

²⁴⁴ William Gerard (c. 1822-1898), Canterbury runholder and station manager.

The principal portion of the time at my disposal I would however devote to a detail examination of the district north of the Kowai & Waipara. (Weka pass beds).

Will you inform me, if you agree to this proposal at your earliest convenience, so as not to lose the fine weather.

I have the honour to be
Sir
your most obedient servant
Julius Haast

Dr J. Hector FRS
Director Geol Survey
Wellington.

255: Haast to Hector, 27-3-1874

Te Papa MU000147/004/0122

Christchurch
March 27 1874

My dear Hector,

We had the pleasure to see Sir David here and we had some music & did not forget you. You will be pleased to hear, that we got a fine skeleton of *Dolychodon layardii*, 16 ½ feet long, so that another skeleton will be ready for your inspection when you come to pay us another visit. Dr Berggren,²⁴⁵ who has collected a heap of things, is going for a few weeks or more to Otago, he is afraid that if he stops there long he will scarcely have means to go to the Northern Island, but I told him, he may rest assured that you would see that the General Govt. avails itself of his services & that he does not leave the country without having thoroughly examined it. He was 4 days in the Little River district & he was particularly pleased there, as in one day he obtained over 100 species of Mosses; some of the results are very curious. If possible write or telegraph to him to Otago (Museum).

I have received the 20 copies of the geol. reports with many thanks. Will you not publish my Malvern Hills Map? Before the end of the month I hope I can send you some more details.

Ever yours sincerely
Julius Haast

Can't you spare me any geol. specimens of the Northern Island? principally volcanic & eruptive rocks? I will send you an equal amount of Banks Peninsula specimens. We got a few days ago a humerus of *Cnemidornis* from Glenmark. Shall I send you a cast of it?

²⁴⁵ Sven Berggren (1837-1917), Swedish botanist and explorer.

256: Hector to Haast, 20-4-1874
ATL MS-Papers-0037-082, letter 9

[No place]
20th April 1874

My dear Haast,

I have just returned from the East Cape district where I have been for six weeks among the Maoris. The work has been most interesting but rough. The Petroleum comes from the Amuri series, or beds of nearly similar age with *Belemnites*, *Inoceramus* &c. On them is a fine development of Nummulite Formation & then the Cucullaea series. The Ototara beds proper seem to be either wanting or represented by the deep water ----- beds. There is there a great break till we have the upper Wanganui (same as the L. Waipara Gorge) series.

Unconformably to this is a great Tertiary formation with white sandstone at the base. This is the Moa Footstep bed.

This has again been covd. by a Marine bed to 16ft & at Poverty Bay coming back for 3/4 of a mile with stratified drift shells all recent species.

I have very large collections of fossils. Hikurangi is not volcanic so far as I have seen. Certainly none of the East side. It consists of Triassic & Upper Palaeozoic.

The oil escapes from Anticlines of the Upper Mesozoic Rocks, especially near junctions with the overlying Cucullaea sandstones. The base of the Cucullaea beds is formed[?] by a solid Reef of *Ostrea ingens*? resting on & containing large fragments of an igneous breccia the cement of which is like the newer more Auriferous Breccia at the Thames.

I am sorry to find that only slow progress has been made with the Lithographs owing to the short supply of stones. Till the work for the Vol. & Geol. Repts. has been done it will be impossible to begin the full size illustration of *Harpagornis*. You must not think that I have delayed them intentionally, but remember that I only get the use of the Printing Office when they are not busy with some other thing. Had we a scientific Lithographic Press it would be different, but there is no chance of getting that at present.

I doubt if any home society would publish full size lithographs of bones without having the specimens before the artist so dont be impatient & I will do the best I can. I wonder you did not send a notice of *Harpagornis* to the Zoo. You see Owen has done it for you in a way, but there would be nothing disloyal in your having sent a paper or even a copy of the same paper you read here. I thought that had been settled. Buchanan is hard at work on your bones now & I hope soon to send you proofs of the plates. *Cnemiornis* is done but not printed off or I would send you a copy. The Vol. is well advanced, only Geol. & the Proceedings remaining. The Botany is now in hand & the appendix is mostly printed already – but the repeated strikes among the printers will make the issue later than usual, probably 1st week in June. I half suspect you will be in the field at present. I hope so.

Sincerely Yours
James Hector.

257: Haast to Hector, 30-4-1874

Te Papa MU000094/002/0403

Canterbury Museum
Christchurch, N.Z.
30 April 1874

My dear Hector,

I am glad you have safely returned & with such good results. Your explanation of the beds (with Petroleum) is very interesting & this will bring us a step further on. Where do the nummulite beds lie exactly? That will form a splendid horizon to work from.

Concerning my *Harpagornis* paper I trust you will do your utmost to have it printed of as soon as possible, I mean the 4to paper with full size illustrations. One looks so foolish to refuse to have it printed at home under the plan that it will be issued immediately in the Colony; this is now more than 9 months already elapsed & I do really not wish to be coming after the Otago people with my work, moreover people ask always to see the bones, so do your best to have them drawn, so that you can return them to me.

By the way the bone Humerus you got from Capt. Fraser is certainly not that of *Cnemiornis*, I got one lately complete from Glenmark it is somewhat smaller, than the one figured by Owen; did you not get a humerus with the *Cnemiornis* skeleton? I believe the bone of Capt. Fraser belongs to an owl (as far as I can remember its general outlines).

Can you not send me a cast of it? or of both?

I am sorry to say I have not been able to leave, Mrs Haast having been seriously ill & so I could not go anywhere, moreover the Museum work is increasing at such a rate, that I have to take my nights too to keep up with the work. I am at my wits ends for space.

Would you include the Maquarry Islands etc with the NZ. fauna. I got a splendid King penguin from there. Let us try to agree on such points.

I hope you won't forget me with fossils.

Have you received the copy of my Report, I mean address?

Yours sincerely

Julius Haast.

258: Hector to Haast, 20-8-1874

ATL MS-Papers-0037-082, letter 10

[No place]
20th August 1874

My dear Haast,

I am very sorry about the delay in sending the Carved head which was due to no neglect of mine but some stupid idea that it was not to go till we obtained the Tradition about it. As to your remark about it being "never too late", I can only say that it is the very first I have been able to get since I promised you one. As I told you before those in the Museum are only deposits.

I quite agree that it will be better for you to come up & go over your specimens & sections with me especially as Hutton has now gone through the fossils for the first time & it will be necessary to have a conference as to the exact relation of the beds in some localities. Buchanan has nearly completed the drawings of all the fossil leaves also so that we will soon have a better basis for comparison than hitherto.

I send you some flax papers &c. also a yarn about Moas with which I daresay you wont agree. I am very busy just now, but will try to save up business for your coming next month. Make no difficulty about your expenses – I think I can get that put all right.

In haste
Yours Sincerely
James Hector.

259: Hector to Haast, 15-9-1874

ATL MS-Papers-0037-082, letter 11

[No place]
15th September 1874

My dear Haast,

I return in separate post parcel the *Cnemiornis* bones you kindly lent me. I have made careful drawings of them for preservation. I see no more difference among them & the Otago specimens than might be fairly expected in a bone of a disused limb.

Bone characters are only constant as specific guides when they depend on some very essential function. In disused limbs I should expect the bones to be very variable. The same is true of Hypertropic[?] birds as in Moas, & accounts in my opinion for the great variety in the lower limbs. But I know your views on this matter are very different.

I am going to take a run home to Europe. If there is anything I can do for you I will be happy to undertake it. I wont start till I return from Auckland where I go on Saturday.

I was glad to learn from Dobson the other day that Mrs. Haast is so much better.
Ever Sincerely Yours
James Hector.

The Sumner Cave controversy

On August 17 1874 Haast was stunned to read a newspaper account in *The Press* of a paper read a few days earlier by Dr Hector at the Wellington Philosophical Society on behalf of Alexander McKay, Haast's former assistant, about the results of an archaeological investigation at a cave in Sumner. This was a project that had been initiated and supervised by Haast two years earlier, although he had not yet written up the results.

Haast was furious, and the ensuing arguments involved most individuals in the small New Zealand scientific community as well as branches of the New Zealand Institute. Articles and letters were written in newspapers, questions were raised in Parliament, and Sir Joseph Hooker, President of the Royal Society in London was asked for his opinions on the ethics of the case.

Although there is considerable correspondence about this controversy, there were few letters between Haast and Hector at this time. The only two, given on the following page, concern Hector's request for an apology for comments that Haast had made about him, and Haast's rejoinder. We have, however, found a number of letters written by and to Haast, and these are given in Appendix 1.

There was no direct correspondence between Haast and Hector for the next four years. At the urging of Hooker, Hutton and others, Haast finally agreed to resume correspondence in 1879, but the tone was never as warm as it had been before the controversy.

260: Hector to Haast, 23-12-1874 [*copied in neat hand*]
ATL MS-Papers-0037-082, letter 12

Wellington, New Zealand
23rd December 1874

Dear Haast,

I have refrained from writing to you about your remarks relative to myself in the Postscript to your paper on the Sumner Cave,²⁴⁶ until the matter had been dealt with by the Board of Governors of the Institute, as I thought that personal considerations should be avoided till the real merits of the case had been pronounced on. I now write to say that I feel sure you will admit the injustice of the hasty and most unwarranted expressions which you published concerning myself, and which I cannot but think you must now regret, and also to express a hope that, in order to remove what must otherwise preclude the continuance of the friendly relations which we have hitherto maintained, you will withdraw your injurious and unfair imputation on my conduct in the matter; such apology to be to the satisfaction of a gentleman whom I will name, and to receive equal publicity with your accusations.

Yours faithfully
James Hector

Julius Haast Esq PhD F.R.S.
Christchurch

P.S.: I have just seen Major Palmer²⁴⁷ and he has kindly consented to receive your apology. I shall be quite satisfied to leave the matter in his hands.

261: Haast to Hector, 2-1-1875 [*copied in neat hand*]
ATL MS-Papers-0037-082, letter 13

Christchurch
2nd January 1875

Sir,

I have received your letter of the 23rd of Decby. 1874 with considerable surprise, but I nevertheless reply to let you know, that I am quite willing to withdraw the expressions you complain of if you can show me, that it is honourable to be, as you have been by your own showing the confederate of my former workman and paid servant in publishing the results of my own labours without my knowledge and consent, thus forestalling my own publications, an action which all over the civilised world is considered dishonourable. Until then I must decline to receive any private communications from you,

I have the honour to be
Sir
your most obedient servant
Julius Haast

Dr J. Hector F.R.S.
Wellington

²⁴⁶ Julius Haast, 'Results of Excavations and Researches in and near the Moa-bone Point Cave, Sumner Road (Postscript)', *Transactions and Proceedings of the New Zealand Institute*, vol. 7, 1874, pp. 528-530.

²⁴⁷ Major Henry Spencer Palmer (1838-1893), was officer in charge of the British Expedition to observe the 1874 Transit of Venus, based in Burnham, Canterbury.

Gap of four years in the correspondence

262: Haast to Hector, 18-4-1879

Te Papa MU000094/004/0144

Canterbury Museum,
New Zealand
Christchurch 18th April 1879

Dear Hector,

You are quite welcome to take MCoy's paper with you to Wellington. I was not aware that he had published any thing on the Rangitata fossils; if so I shall be glad to know in or about what year, in order to get the volume in question. If there are any specimens in the Museum you wish to examine more closely, I shall gladly show them to you or give you the keys of the show cases. I shall be at liberty after 4 o'clock.

Yours truly
Julius von Haast.

263: Haast to Hector, 13-5-1879

Te Papa MU000147/005/0051

Canterbury Museum
New Zealand
Christchurch, May 13th 1879

Private.

Dear Hector,

I was sorry not to be at the Museum when you called but was under the hands of the dentist that morning. The Committee of the Sydney Exhibition wish that I should send 2 or 3 Moa skeletons to that Exhibition. I wish to know if nobody else is sending such things & if there is proper room. Also if there are other specimens, which I might get up. I have amongst other things, a set of slabs of Canterbury Timber, could get up some building stones. Please let me know by return of post what you think ought to be done.

Yours truly
Julius von Haast.

264: Haast to Hector, 24-5-1879

Te Papa MU000094/004/0163

Canterbury Museum
New Zealand
Christchurch May 24th 1879

Dear Hector,

Thanks for your letter of May 17th & for giving instructions to send to me the necessary information about ethnological collections.²⁴⁸ The following series, I think, might be of interest.

I

- 1) Moa hunter Encampment Rakaia.
- 2) do. Sumner cave & outside.
- 3) do. Shag point.
- 4) Encampment at Brighton Otago no Moa bones, but only chipped basaltic Stone Implements.

Of all these places I can send good representative series of the Kitchen middens, stone Implements, ground plans & sections on a larger scale to be hung to the walls. I may add that I have also a series of Canibals feast relics which in order not to mix the series might also be sent. Would you like some descriptive notes for a catalogue or should each specimen be accompanied by a descriptive ticket?

II

Series of Stone Implements such as found in New Zealand, either in greenstone or other material I have got no greenstone Mere to send, can you not get one for the occasion on loan from Sir George Grey or a Maori Chief?

Perhaps you will also be able to place some interesting stone Implements & ornaments in this collection. Some carvings etc might also be furnished by you. Of unique specimens I shall send only casts.

III

Series of Stone Implements etc of the Morioris Chatham Islands.

Did you not get also a large Model of the Moriori canoe through Deighton?²⁴⁹ Perhaps you could send it.

IV

If there is room & would add to the interest of the NZ collection I could also send a representative series of prehistoric stone Implements from Europe, Africa & America etc to show how all natives when arrived at a certain stage of civilisation manufactured in the same manner the identical forms.

²⁴⁸ We have been unable to locate a copy of this letter.

²⁴⁹ Samuel Deighton (1821-1900), early New Zealand colonist and resident magistrate in the Chatham Islands.

V

Skeletons of *D. giganteus* & *elephantopus* & perhaps a smaller one (*casuarinus*).

VI

Collection of Canterbury Timber in slabs? Could you not add to it the Northern Island ones?

VII

Collection of building stones in square blocks, worked so as to show their character.

VIII

If there is sufficient wallspace I could have the Tunnel section copied (40 feet long) add a surface map, showing the geol. features of Banks Peninsula in the neighbourhood & the radiation of the dykes from the principal centre near Quail Island; also say 50 represent specimens, showing all the different characteristic rocks passed through. I might also get Mr Dobson to add some engineering details in illustration of the mode of piercing the tunnel.

The Canterbury Committee have told me that they will assist me with some of the funds at their disposal, to get the collection up, because I have unfortunately none to spare for the purpose but will devote most willingly all my spare time, that N.Z. is properly represented in Sydney. As the Moas have to be remounted with sliding rods, so that they can be put together easily in Sydney, there will be some expenses connected with the whole matter. Have you any funds to spare in case the local Committee can not afford me the assistance required? Reischek²⁵⁰ our taxidermist who is leaving in a few days to return to Europe, has set up three very fine cases for Enys, one contains 7 or 8 Kiwis (3 species) another 4 Kakapos & another 4 Huias.

Enys will allow to send them to Sydney so that the most interesting portion of our Avi fauna will be represented. The Moas will take about 6 feet by 3 feet resp. 9 by 3 feet but a rail ought to be put round them.

The ethiol. collections will occupy at least 60 feet square showcases, if properly established & probably more.

If there is any thing more you can suggest I shall be very glad to assist. I may mention that all work we can do ourselves or any minor expenses we shall willingly bear, but that I am unable to spend Museum funds, rather at a low ebb this year, on the Exhibition.

Yours truly
Julius von Haast.

28th

No steamer leaving I can inform you that the Local Committee have allowed me £50 towards getting up the specimens. I do not know if it will be sufficient but will do my best.

²⁵⁰ Andreas Reischek (1845-1902), Austrian taxidermist, ornithologist and naturalist explorer, who worked at Canterbury Museum from 1877 to 1879.

265: Haast to Hector, 13-6-1879

Te Papa MU000094/004/0180

Canterbury Museum
New Zealand
Christchurch June 13th 1879

My dear Hector,

Thanks for your telegram concerning the Tunnel Section I only offered it in case you wished to have it represented. I also thought it was a great deal of money. If you will return me the tracing you have & which as far as I remember is not completed I will add all that is necessary & two other sections in illustration of which I spoke to you in my last letter. I shall also prepare rock specimens.

You do not tell me if you wish a representative collection of 2) foreign stone Implements or not; also if you wish 3) tickets in explanation written, together with notes 4) for a Catalogue.

Stack²⁵¹ thinks he can borrow some greenstone Meres & Tikis from the Maories. 5) Shall I also prepare Cannibal's feast collection? I think the £50 allowed by the Local Committee are sufficient for all purposes.

6) Would it not be better to send the exhibits direct from here to Sydney to avoid breakage?

7) What is the latest date the Exhibits have to be shipped from here?

8) Would you like the matter concerning Ethnol. Collections printed here? In that case inform me in what form etc.

Please answer as soon as possible, because having other work also to attend to, I do not wish to leave every thing to the last. The Moas are advancing.

If there is any thing more you can suggest let me know in time.

I will also try to have some more rockpaintings copied.

Yours truly

Julius von Haast.

²⁵¹ Reverend James West Stack (1835-1919), New Zealand missionary, writer and interpreter.

266: Haast to Hector, 8-7-1879

Te Papa MU000094/004/0191

Canterbury Museum
New Zealand
Christchurch, July 8th 1879

My dear Hector,

Since you left I have been hard at work with the Sydney Exhibits; the 3 Moa skeletons are now being varnished & a carpenter is at work at the packing cases.

About 200 Stone Implements etc. are already ticketed & catalogued. I find that except a few rude stone knives from Waingogoro Northern Island, I have nothing to show the character of the older cooking places & kitchen middens of the North Island. Can you spare a representative series? If you like, I can either return it to you or in order not to complicate matters will take them as an exchange & give you for them either similar specimens from this Island or European pre historic things of which I have many valuable duplicates. However no time has to be lost & they have to be sent at once. In a few days I shall forward to to [sic, you] the first part of the Catalogue with ample notes, which I have partly taken from my Report. I am at the end of the £25 & should like another imprest of £25, which I think will be ample for every thing. Shall I send up the accounts or wait till the whole money has been expended? The latter would be the simplest. Telegraph to me about the N. Island ethnol. specimens so that I can go on with the work. I trust you had a pleasant passage to Wellington.

Ever yours faithfully
Julius von Haast.

[*Note in Hector's hand to send £25 more.*]

267: Haast to Hector, 24-7-1879

Te Papa archive MU000188/001/0453

Canterbury Museum, New Zealand
Christchurch, July 24 1879

My dear Hector

Your telegram of July 15 came to hand & since then I have also received £25 so that I now have £50. You said that you had a Northern Island collection & that I could work in, but hitherto I have heard nothing more etc.

I have now all the moa hunter Kitchen middens together. I shall continue with the more recent things. I enclose Manuscript for Catalogue.

As you will see I have used a great deal of printed matter & of course as I am the responsible author brought forward my own views, but pointing out, that you & many other scientific men disagree with me. – Now you can cut the matter down as much as you like, naturally you have to take care that you do not interfere with the sense. There are still about 60 specimens to be catalogued & then the Maori things will be taken in hand. I hope in a 14 night to have everything ready. The moa are being packed, building stones, timber etc. ditto.

I do not yet exactly know how far the money will go, but fear that the £50 will be scarcely sufficient, as there are so many expenses I underestimated, so I trust that you will have still some money to spare. – I believe another £20 will be sufficient.

I shall send you soon another portion of the Catalogue. It will now go quicker. The space I wanted for these specimens up to 450 will be 65 feet \square . Tickets calculated in. By next mail another portion of the manuscript will follow. Please telegraph to me, when & how many specimens you will send, so that I can spare the numbers in the Catalogue? Will you yourself write the notes to them or shall I do so, in giving extracts from Taylor etc about the Kitchen middens in the North Island?

I think the ethnological collections I am sending will want over 100 \square feet. Shall I send the European American & ethnological collections for comparison or will it not be too much?!

Please answer my questions.

Faithfully yours
Julius von Haast.

268: Haast to Hector, 16-12-1879

Te Papa MU000147/005/0064

Christchurch
Decb 16 1879

Dear Hector,

I see that you have returned to New Zealand & was very sorry to hear that you had such a terrible passage. I went myself to deliver your parcel to Mrs Hector, but I was not so fortunate to find her at home. I write to enquire of you, what became of a parcel sent by the Dept. of the Interior Decb 12th 1878 Washington, containing Report of the US Entomological Commission & which never reached me. It was adressed to the Geol. Survey of Canterbury. As it was sent probably through the Smithsonian Institution & I received before books from them through you or the C. Museum, it might perhaps still be at one of the offices. I have also not received for some time Hayden²⁵²'s publications which formerly reached me quite regularly. I better write to him direct & inquire what became of them. I shall be much obliged to you if you will inquire if the book in question (Entom Com.) lies somewhere in one of your offices.

I suppose we shall soon see you here.

Yours faithfully

Julius von Haast.

269: Haast to Hector, 9-3-1880

Te Papa MU000094/004/0303

Museum
9/3/80

Dear Hector,

Kent came to me telling me that he had to send a box to you in which there was still room & asking me if I had any thing to add, so I gave him 14 copies of Kreffit²⁵³'s book. If you can get 10/ a piece, I shall be very glad. I have sent a copy to be coloured for you, which I shall forward by post.

The volumes of the *Transactions* wanted to make up the set are Vols I & VI.

I shall be very glad to get them.

I trust you found Mrs Hector & the children in good health.

Ever yours faithfully

Julius von Haast.

²⁵² Ferdinand Vandeveer Hayden (1829-1887), American physician and geologist.

²⁵³ Johann Ludwig (Louis) Gerard Kreffit (1830-1881), German zoologist and palaeontologist in Sydney.

270: Haast to Hector, 15-3-1880

Te Papa MU000094/004/0315

Christchurch
March 15th 1880

Dear Hector,

Thanks for sending me the drawing of the whale. There is however one important omission & that is the tooth in front of the lower jaw which, although only ½ inch high, shows well above the gums. Of course it can only be indicated, but is characteristic.

I shall have the case with the drawers packed & send it on at once. One of the drawers is in the hands of Buller. I took a collection of Butterflies to Wellington in it & asked him to leave it at the Colonial Museum, which probably he has done.

I found another of the anatomical books here & thinking that you would like to have it also I have offered the owner the £1 he gave for it, so that the series might be more complete. In case you wish to have it, send me a cheque of £1, otherwise return it.

As soon as I have got on a little more with the work on hand, I shall get the Humpback Whale skeleton down. I am glad you got the *Euphysetes* ♀ & calf. Every step is a considerable step in advance, & I have no doubt, that considerable light will come from New Zealand as to the life history and anatomy of the Whales, if we keep our eyes open.

Yours faithfully
Julius von Haast.

271: Haast to Gore & Hector, 3-1880

Te Papa MU000094/004/0317

[A group three letters filed together]

ChCh
March 30 1880

My dear Hector,

Thanks for cheque of £1.1, which I shall pay over to owner of book. My wife is still very weak; Turnball says that it has turned to a regular attack of low fever, but thinks that in a week or so she will be better. Thanks for sending me another copy of the handbook on Grasses, which will be very useful, as it can be kept with the botanical specimens. Gore writes to me about 2 Fijian skulls of Holmes, whose collections arrived some time ago, I do not remember that he said any thing about sending you two, if so it quite escaped me. I shall look up the letter. In any case I shall be glad to forward you two of those he sent.

Yours faithfully
Julius von Haast

I am glad the drawing of the whale as to tooth is all right.

Canterbury Museum
Christchurch
March 31 1880

My dear Mr Gore,

In answer to your letter of March 26th I have looked over Mr Holmes letters, in one of which (of Decb 24 1878) the following passage occurs.

“Of the skulls, I send you the lot, though I had determined to send two to Dr Hector, who I know wants them. They are all deficient in teeth, which to a great extent dropped out on the way here, being badly packed.”

I can find nothing more in any other letter, but this is sufficient for me & I will have two of the skulls packed & forwarded to your Museum, requesting you to give due acknowledgement to Mr Holmes for his gift.

Will you kindly inform me, if you can buy the tickets for Minerals etc for the numbers (◇[*diamond symbol*]) in Wellington & at what price.

Yours faithfully
Julius von Haast.

1/4/80

My dear Hector,

Mr Traill,²⁵⁴ who (I was informed) had a Whale skeleton for sale tells me, that it is one of *Neobalaena marginata*, which we do not possess, but he tells me “Having heard from Dr Hector that he wished much to possess this skeleton, I took no further steps to dispose of it, for though not actually promised to Dr Hector, yet I do not think I should feel justified in going past him now, & if he continues of the same mind, and I had no wish to get up a competition between him & you in order to enhance the value.”

Will you therefore kindly inform me if you wish to purchase this skeleton in which case I shall take no further steps, moreover I do not intend to pay a fancy price. From Traill’s letter I observe that he has made offers to Baird²⁵⁵ & other Institutions in N. America as well as in Paris.

Yours faithfully
Julius von Haast.

²⁵⁴ Charles Traill (1826-1891), Scottish naturalist born in Orkney, arrived in New Zealand in 1856 and originally settled in Oamaru, before becoming a resident on Stewart Island.

²⁵⁵ Spencer Fullerton Baird (1823-1887), curator at the Smithsonian Institution.

272: Haast to Hector, 6-1880

Te Papa MU000094/004/0329

[No place]
[June 1880]

My dear Hector,

Thanks for your letter of the 8th of this month & the 2 Catalogues.²⁵⁶ I have at once written to Mr Traill telling him, that of course I do not wish to say another word about the whale skeleton in question. The principal thing is that we keep the skeleton in New Zealand & I dare say, we shall get one as the time rolls on.

The printing of your Catalogue reminds me of the descriptive Catalogue of my collections. As it was not printed, I shall be glad to have it returned as part of it I can use for my own Museum Catalogue.

A whole series of rock shelters has been discovered in South Canterbury with paintings & I shall have the whole lot carefully copied & try to collect all I can get; perhaps when we have the whole series together, more light will be thrown upon the former history of the aborigines. My wife is slowly improving but has still to stay in her room.

Ever faithfully yours
Julius von Haast.

273: Haast to Hector, 23-11-1880

Te Papa MU000147/005/0126

Christchurch
Novb 23 1880

My dear Hector,

I was very sorry not to have seen you as you passed through Christchurch lately. I had a tray of specimens of Tridymite ready for you to pick from. Prof. v. Rath²⁵⁷, the discoverer of the mineral, says (via letter to Ulrich²⁵⁸) that except from the original Mexican locality it is the finest as regards size clearness & well developed form of the little crystals. If I have a chance I shall send some specimens up to you. I shall send in about a fortnight a paper on *Balaena huttoni*. I can see no difference between it & *rostrata*. I shall also, besides a few other drawings, give the photograph of the whale bone. It will be in time for this year's volume. You never sent us the folio edition of the NZ. grasses. Can you not send it to the Museum or have I to write to the Colonial Secretary for it? Could you spare me another copy of Hutton's Manual of NZ. Mollusca. I want to have it bound with some others. I shall go about Middle February to Melbourne. Are you going back there? Let me soon hear from you.

Yours faithfully
Julius von Haast.

²⁵⁶ We have been unable to locate a copy of this letter.

²⁵⁷ Gerhard vom Rath (1830-1888), German geologist and mineralogist.

²⁵⁸ George Henry Frederick Ulrich (1830-1900), German mineralogist, director Otago School of Mines.

274: Haast to Hector, 3-12-1880

Te Papa MU000094/005/0065

Canterbury Museum
Decb 3 1880

Dear Hector,

Thanks for your letter, I shall send the specimens by first opportunity. I shall be the whole March in Melbourne, if you do not care to go back & if I can be of any assistance to you, please let me know, I shall gladly do what I can.

Dr Krauss²⁵⁹ of Stuttgart has sent me the enclosed letter. It arrived some time ago but got mixed amongst some papers & I only found it this morning.

[*Illegible words.*] manage to make the exchange with him.

Dr Otto Buchner con. Secretary of the Oberhessische Gesellschaft für Natur- und Heilkunde in Giessen has written to me about the same subject. That old Society wants also to exchange publications with you & is especially anxious to get also the publications of the Geol. Survey.

Will you write direct & shall I transmit to him your answer.

Yours truly

Julius von Haast.

Krauss means NZ. Institute , he says Phil. Society of Wellington.

[*Attached official from Krauss, asking Hector for exchange of publications – not transcribed*]

275: Haast to Hector, 15-1-1881

Te Papa MU000094/005/0102

Christchurch
Jan 15 1881

My dear Hector,

I sent you through Professor Parker²⁶⁰ some specimens of Tridymite, which I suppose you have received. If you want some more, please let me know. You will see from my paper on *Balaenoptera* that I came to the conclusions that *B. rostrata* & *huttoni* are identical, notwithstanding that the form of the sternum is somewhat different. I did not add a drawing of the animal, as one was published by Hutton. Of course if you think that such figure would be useful, I can always add it yet & you have then to alter the text. I shall leave for

²⁵⁹ Christian Ferdinand Friedrich Krauss (1812-1890), director of the Natural History Museum in Stuttgart.

²⁶⁰ Thomas Jeffery Parker (1850-1897), biologist, university professor and museum curator in Otago.

Melbourne (via Tasmania, where I intend to stay a week) middle of February & should be glad if you would give me a few lines to the Chief Executive Commissioner, so as to get a pass. Of course if you are going there before, it will not be necessary.

We are again in the middle of removing specimens; we shall take the Maori house away, place it on the western side of the Moa room & throw a glass roof across the yard between the 2 buildings, in which the Maori house stood. This will give us a room 95x58 & in it the technological collections will be placed. We have ordered a good many Models both in Germany & England & I hope in course of time to create a useful institution.

Yours faithfully
Julius von Haast.

276: Haast to Hector, 20-7-1881

Te Papa MU000094/005/0226

Canterbury Museum
July 20 1881

My dear Hector,

Prof. E. Suess²⁶¹ of the University of Vienna, the well known geologist, who is just writing an important work on the changes of the earth surface, is very anxious to consult the Reports of the Geol. Survey of New Zealand, especially the Report for 76/77 containing a Report of Cox²⁶² & others. Will you be good enough to send him the same & any other information on the subject which may throw more light on the question. He will no doubt fully acknowledge your kind assistance.

Yours faithfully
Julius von Haast.

[*Note by Hector instructing Gore to send the Reports*]

²⁶¹ Eduard Suess (1831-1914), Austrian geologist.

²⁶² S Herbert Cox (1850-1920), Assistant Geologist and part-time Inspector of Mines at the Geological Survey.

277: Haast to Gore & Hector, 22-7-1881

Te Papa MU000094/005/0221

[Two letters filed together]

Canterbury Museum

ChCh

July 22 1881

My dear Mr Gore,

I wrote lately to Mr Stansell²⁶³ to let me have the readings of the Barometer without any corrections & the thermometer from 30th Decb 1876 to 14th January 1877, wind etc. as I want to calculate the altitudes of several positions I visited at that time. However he tells me that he has returned the books to Wellington. Will you be good enough to send them to me.

Please remind Dr Hector of his promise to send me a plaster cast of Colenso's Bell & Sir G Grey's stone idol. I have got a cast made of Major Wilson²⁶⁴'s stone bird & place one at the disposal of the Colonial Museum.

Yours truly
Julius von Haast.

[No place]
Aug 3 1881

My dear Hector,

I wrote to Mr Gore some 10 days ago, as I did not want to bother you with such small matters, to send me the readings of the Christchurch Station for the term noted on the enclosed paper, but have not received them; I can therefore not calculate the altitudes for my paper I intend reading tomorrow night. I suppose he never got my note. Will you be good enough to give instructions that it be sent to me. I hear you are coming here in about a fortnight to confer the degrees.

Yours faithfully
Julius von Haast.

Wanted

The readings of the barometer & thermometer of the Christchurch Station from Decb 30th 1876 to January 14th 1877.

The barometer readings uncorrected for temperature if possible.

²⁶³ John Brough Stansell (c.1820-1889)

²⁶⁴ Major John Wilson in Waikato purchased the Korotangi Stone Bird shortly after it was discovered in 1878.

278: Haast to Hector, 17-8-1881

Te Papa MU000094/005/0238

[No place]
17/8/81

My dear Hector,

I was very much disappointed when I heard that after all you would not come to deliver the diplomas & customary address.

I am much obliged to you for sending me the copy of Broun²⁶⁵'s *Coleoptera*, but I find that 8 pages are missing from 560 to 568 inclusive. Perhaps that you can send me these 8 missing pages. Thanks also for the meteor observations. I wanted them for my Hanmer Plains paper, but have since found that a trig station is close by, so that it was not needed after all.

Yours faithfully
Julius von Haast.

279: Haast to Hector, 7-9-1881

Te Papa MU000094/005/0259

[No place]
7/9/81

My dear Hector,

Dr Feddersen²⁶⁶ of Leipzig has sent me the enclosed papers, requesting me to select some scientific men in NZ & Australia whose biography ought to be placed in the Dictionary. Will you be good enough to fill up the enclosed & forward it to Leipzig. I have also sent one to Buller but could not add the paper in explanation, please show it to him, if he should wish to see it. Dr Feddersen added a list of those scientific men in NZ & Australia to whom he had sent the circular. It was very remarkable by the omission of yours, Muellers & MCoys names. Besides Buller, I have sent it also to Dr Bennett,²⁶⁷ who was not in the list.

Yours faithfully
Julius von Haast.

[Form attached – not filled out]

²⁶⁵ Major Thomas Broun (1838-1919), Scottish-born New Zealand entomologist, teacher, farmer and soldier, author of *Manual of the New Zealand Coleoptera* (published in seven parts between 1880 and 1893).

²⁶⁶ Berend Wilhelm Feddersen (1832-1918), German physicist.

²⁶⁷ Dr George Bennett (1804-1893), English-born Australian physician and naturalist.

280: Haast to Hector, 20-9-1881

Te Papa MU000094/005/0276

Canterbury Museum
Christchurch
Sept 20th 1881

My dear Hector,

I am very glad to hear that the casts for us are in a forward state & shall gladly receive them. I have already a cast of the Korotangi bird & some other things of that kind in hand for you.

Dr Haacke²⁶⁸ intends to work out the Arachnida in the Canterbury Museum & as we have the whole collection formerly belonging to the late Dr Powell, I thought that it might perhaps suit you to have a handbook prepared for which he would be quite willing. He also could take the NZ sponges. Think the matter over & let me know. Is any body working at a new Handbook of the NZ Echinodermata? Haeckel²⁶⁹ has devoted considerable time to their study.

Faithfully yours
Julius von Haast.

281: Haast to Hector, 28-10-1881

Te Papa MU000094/005/0307

Canterbury Museum
Oct. 28 1881

My dear Hector,

It will of course take some time before the Spider Catalogue can be ready, so that there is no need to ask for authority of printing. Dr Haeckel draws very well & we intend to have illustrations to each species. I shall let you know in good time, whenever that will be. You say nothing about the Sponges. In any case if you should have a chance, have our NZ sponges preserved in spirits of wine.

I have returned the original of the Korotangi to Buller & added a small box, containing 4 casts for you.

- 1) Korotangi
 - 2) Parihi or Fishknife the original (slate) found at the mouth of the Ashley.
 - 3) Adze
 - 4) Grindstone. found in a claim at Bruce Bay.
- (see page 400 of my Report of Canberb. & Westland)

²⁶⁸ Wilhelm Haacke (1855-1912), German zoologist who visited New Zealand in 1881.

²⁶⁹ Ernst Haeckel (1834-1919), German biologist, naturalist, philosopher, physician and artist.

Although I have given the few notes to Grey concerning the Korotangi I have sent a copy to Major Wilson (through Buller) so that if he likes he can incorporate the few points I made out with his paper. In that case please do not print my paper on the subject.

The likeness in the workmanship, although of such different material, as between the ancient Japanese Bronze bird & the Korotangi is very striking. I have also sent a drawing to Major Wilson.

Yours truly

Julius von Haast.

282: Haast to Hector, 4-2-1882

Te Papa MU000094/006/0043

Canterbury Museum
Christchurch
Febr 4 1882

My dear Hector,

Owing to the unfortunate fact, that about £400 had to be cut off the Museum's Estimates for this year owing to want of funds, I am not able to keep Dr Haacke any longer. I write therefore to you to hear if you cannot give him, at least temporarily some occupation, either in the Museum or in the field. I am exceedingly sorry to part with him, because I have found him very useful & as he would be satisfied with very little you could have a great deal of work done for a comparatively small amount. As he has studied Geology, you could make use of him in the field or describing fossils. Owing that I have very little money, I paid him only £2.2 per week. So if you can, please give him a chance if only for short time. I shall see you in Auckland, because I can not leave before the 23d, otherwise I should have been delighted to travel with you & Brown.

Yours faithfully

Julius von Haast.

283: Haast to Hector, 20-4-1882

Te Papa MU000094/006/0118

[No place]
20/4/82

My dear Hector,

I was very sorry not to see you when you passed Christchurch on your way home. The box with the interesting photos (doubly interesting for me) has arrived. I enclose receipt of cartes. You can send me the small amount in postage stamps. I had them hung & they look very well. Have you any body here to look after your show cases in case a pane of glass should get broken? If not, one of my people will do so if you wish it. I thought of this as I saw the other evening some fellows leaning most carelessly against them. When are you coming down again?

Yours faithfully
Julius von Haast.

There is no other expense, as we carried them over & hung them ourselves.

284: Haast to Hector, 10-7-1882

Te Papa MU000094/006/0200

[No place]
10/7/82

My dear Hector,

Mr Robson²⁷⁰ sent me two skeleton of *Euphysetes* (which by the way prove on examination that your views that my *E. pottsii* & these 2 are only *Kogia breviceps*, as I intend to show in a future paper). I offered him £10 for the two, which I think is a fair price; however he is not interested with that & will probably try you. I trust you will not spoil the market. I have written to him that I hold the skeletons at his disposal.

Very truly yours
Julius von Haast.

²⁷⁰ Charles Hepburn Robson (1830-1893), amateur naturalist and lighthouse keeper at various New Zealand localities, first joined the Wellington Philosophical Society in 1873.

285: Haast to Hector, 17-1-1883

Te Papa MU000094/006/0249

Canterbury Museum

Jan 17th 1883

My dear Hector,

Owing to absence from town & other impediments, I can only answer your welcome note of Decb 23rd today. I have at once signed the paper & returned it to Müller. About the Chevron bones you surely are mistaken as I pointed out to you when you were in Christchurch. You do not say in your description, how many lumbar vertebrae there are but have no doubt, that your skeleton like *musculus* figured by van Beneden²⁷¹ 15, therefore there are

7 cervical

15 dorsal

15 lumbar or together 37. the 38th is the first caudal between it & the last lumbar the first Chevron bone articulates consequently they begin on the 37-38th & not on the 41-42 – or your animal would have 19 lumbar. The thing is quite clear & if you look at your vertebrae you will find that the articulations for the chevron bones are occurring sooner.

You told me to remind you of *Globiocephalus* as you would look out if you could spare me a skeleton to set up. Please do so & let me know. I trust Mrs Hector & the children are all in excellent health & find their new house, all they desire.

Ever faithfully yours,

Julius von Haast.

[Notes attached on chevron bones]

²⁷¹ Pierre-Joseph van Beneden (1809-1894), Belgian zoologist palaeontologist.

Tarawera excursion to Fiordland, February 1883²⁷²

In the late 1870s the Dunedin-based Union Steamship Company started to offer annual summer cruises to Fiordland. These proved very popular, attracting both local and international travellers. In 1883 both Hector and Haast were listed among the 175 tourists on the S.S. *Tarawera* who left Port Chalmers (Dunedin) on February 7th for a two-week cruise.

The newspapers give details accounts of the trip, including mention of activities by Haast and Hector:

“The Company did everything possible for the passengers’ comfort and convenience. Dr Hector lectured in George Sound on the “Geological History of the Sound”, and passengers and crew gave nightly concerts, the principal vocalists being Mr R. Gillies, Lord Lennox, Dr von Haast, Miss E. Jones and some of the ship’s company”. (*Star, 17 February 1883*)

“The geologists had great talks on deck today about the geological features of the coast as we passed along, and it was pretty hard sometimes to keep the peace between them, as the junks of red sandstone were flying about pretty freely, though of course in a loving and respectful manner. (*Otago Witness, 24 March 1883*)

“When about a third up the [Caswell] Sound we passed a clearing on which two or three huts or weatherboard buildings are erected, and nearby there are blocks of a white stone said to be marble. This is the property of the Caswell Sound Marble Company, and when we came opposite we stopped to allow Dr Hector and others to go ashore with a boat. We steamed on to the head of the Sound, but they rejoined us in the course of the afternoon with their boat. (*Otago Witness, 24 March 1883*)

“The third concert came off tonight, and was given entirely by passengers, and was another great success, Dr Haast having several bouquets of wild flowers thrown to him for his inspiring performance”. (*Otago Witness, 24 March 1883*)

²⁷² We are grateful to Dr Frances Steel, University of Wollongong, Australia, for drawing this trip to our attention

286: Haast to Hector, 11-5-1883

Te Papa MU000094/007/0001

[No place]

11/5/83

My dear Hector,

In a letter lately received from Buller, he says "Hector says you have abandoned your Moa theory and given in your adhesion to him on this *quaestio vexata*". In order not to give rise to any misunderstanding, I give you a verbatim copy of my answer.

I fear Hector has somewhat misunderstood me; what I said was that since I read that speech of yours in the Cambridge Maori case that a legend about a Pet Moa had been accepted by both sides as correct, I had lost my faith in Colenso's statement, that beyond the fabulous account of a Moa with a human head etc all the other accounts had been manufactured since the Maories had been told by the Europeans, that the big bones were those of a large bird once inhabiting New Zealand. This as you will see, does not change in any degree the evidence of the long extinction of the Moa, as shown by me, but proves only the fact, that the inhabitants of NZ for long generations past have retained an account of these large birds which became extinct through their ancestors. However as I wish only truth, I shall wait patiently & I have no doubt, that gradually we shall have more evidence to establish the former beyond dispute.

So far my letter to Buller. I hope you had a pleasant trip to the North & are now back to your home.

Ever faithfully yours
Julius von Haast.

287: Hector to Haast, 23-5-1883

ATL MS-Papers-0037-083, letter 1

Colonial Museum of New Zealand, Wellington

23rd May 1883

My dear Haast,

The tradition of the Pet Moa is quite new to me. You did not give that or any other reason but otherwise your version of what you told me is correct & just what I mentioned to Buller. I never did doubt the long existence of the Moa in N.Z. nor the longer occupation by Maories than is generally stated. All I have held in that the existence of the Moas overlapped that of the Maori or the ancestors of the present Natives.

If you also think so now then we are all at one again.
Yrs. Ever
James Hector

I have just seen your interesting address. When did you see Feistmantel²⁷³'s statement about the Fossil Floras?

²⁷³ Karl Feistmantel (1819-1885) and his son Ottokar Feistmantel (1848-1891) were both Bohemian geologists.

288: Haast to Hector, 9-6-1883

Te Papa MU000094/007/0008

[No place]
9/6/83

My dear Hector,

I only today find the time to answer your welcome letter of May 23rd. As I intend to bring out a paper on Maori stone Implements (mostly chipped ones) I shall take occasion to explain what bearing the Pet Moa Legend has upon my views. It is in Buller's address on the Rangatira Block page 29 Appendix II. Feistmantel's statement is in the *Neues Jahrbuch für Mineralogie* 1880 II 2 page 253-256. It is also reprinted in the *Botanischen Jahresbericht* for 1880 2 parts – A Phytopalaeontologie Referent Dr H Th. Geyler²⁷⁴ page 152 to 154 with all the more important details & Feistmantel's conclusions, which I gave.

I suppose you have your hands full now as the Assembly is soon meeting.
Ever faithfully yours
Julius von Haast.

289: Haast to Hector, 2-7-1883 [Two letters]

Te Papa MU000094/007/0016

[Christchurch]
[2/7/83]

My dear Hector,

Thanks for the copy of the *Transactions* for the Museum. I send you to day an official letter about 2 very important matters to me, as I thought it better to let it pass through the official channel. I hope you will manage to issue such a textbook from your office, because I have my hands more than full & you have all the necessary material at hand. I shall want some 24 copies every year I suppose & it will besides have a good sale.

Lately I have been in the Malvern Hills & got some valuable & interesting information, about several points (Coalseams & cause of alteration of Coal). Shall I write you some notes for your Reports of Geol. Explorations as a continuation of my Malvern Hills Report of 1870/71? I suppose 2 pages in print will be sufficient & a few small sections. I would have read it as a paper before our Phil Institute, but as I told you as long as Hutton is President I will not have any thing to do with it, as I want peace.

Yours faithfully
Julius von Haast.
2/7/83

[Official letter attached]

²⁷⁴ Hermann Theodor Geyler (1835-1889), German botanist and paleobotanist.

Canterbury College
Christchurch, New Zealand
July 2nd 1883

Sir,

There is a very great difficulty in lecturing on New Zealand Geology, on which questions are set in examination papers at home and although I have tried to keep *au courant* of the Geological Survey work, it is almost impossible, to assist my students, as much as is really wanted. One great want is a Geological Map of New Zealand on a larger scale, where even roughly all the formations & localities are shown. Could not such a map be prepared at the Colonial Survey Office? I would willingly pay the expense if not too large. Also a textbook of the Geology of New Zealand is badly wanted, giving a synopsis of the different formations, the principal fossils, ores & minerals contained in them & other information necessary to the student, who wishes to pass his examination successfully.

If you do not intend to bring out such a textbook very shortly, I shall be obliged to do so during the next long vacation. In that case I trust you will kindly assist me with any further information I want & the necessary woodcuts of which you have doubtless the blocks. As the second term begins on the 23rd of this month, when I have to lecture to some of my more advanced students on NZ. Geology, I should be much obliged if you could send me an answer at your earliest convenience.

I have the honour to be Sir
your most obedient servant
Julius von Haast
Professor of Geology.

290: Hector to Haast, 12-7-1883

ATL MS-Papers-0037-083, letters 2 & 3

Colonial Museum of New Zealand, Wellington
12th July 1883

Dear Sir,

In reply to your letter of 2nd inst. in which you inform me that there is very great difficulty in lecturing on New Zealand Geology, and requesting me to afford assistance by the publication of a geological map and a text book on the subject. –

I have the honour to inform you that a small scale geological map is now being printed and the MSs of a large scale map giving all the districts of the Geology so far as ascertained, to date, is also ready to send to the press. Either of the maps could be enlarged by hand if you only require one copy for class room purposes. In the course of a few days I will be able to furnish you with a copy of the small map when you can inform me if it will answer the purpose and how much you require it to be enlarged.

The detailed map will be on scale of 30 miles to the inch, but will bear much greater enlargement with advantage which can be done after publication

I am also making progress with sheet maps but it will be long before they can be united to form a complete map except of certain districts.

The preparation of a Students text book of New Zealand Geology should naturally take the form of an abridgement of a general work which I have had in preparation for a long time, but which is constantly postponed for the more pressing current work of the Survey. However as soon as several works I have in hand at present are through the press, I will endeavour to get out a short but connected epitome of the Geology with illustrated sections and figures of characteristic fossils.

At the same time I may express my opinion that it must be most unsatisfactory for examiners, teachers & students to have questions set on N.Z. Geology by examiners in London, on the present state of the published knowledge of the subject.

I remain -----
Yours faithfully
James Hector.

291: Haast to Hector, mid-1883

Te Papa MU000135/003/0008

[*Three letters filed together*]

Canterbury Museum
Christchurch, N.Z.
July 19th 1883

My dear Hector,

Many thanks for your 2 letters & the nice geological map which arrived this morning. I would have written next Saturday & sent you the few notes on the Harts Coalmeasures, but will write at once & forward the specimen of Browncoal from the 10 feet 6 inch seam, lately found above the small seam of altered coal. I should like to have an analysis attached to my notes. As you will see it is an excellent Browncoal. The cause of the alteration I also traced. I agree with your map except what you mark, Jurassic, Liassic etc, because I am sure that a great deal of it is of the same age as the so called lower carboniferous. There is also another point, where an improvement has to be made & that is at Arnotts point Westcoast where the foliated schists do not reach the coast. Of course we can have only one Geology to teach students for examination, because the English Examiner who knows nothing about our Geology has to follow what officially is offered to him. My reason that I wrote to you officially was simply to bring the matter before you & to strengthen your hands. I believe that some 60 or 80 pages in print would be quite sufficient to give an outline for the student. You could perhaps write an introduction to your annual Report, with a general outline of our Geology that would be quite sufficient, & as you have any amount of sections you can republish, you ought not to have much difficulty. Now concerning the large map. I want one to hang to the wall, where I can point to & which the students can study. Of course it ought to go more in detail & give a mass of names, I mean all the principal localities where the different formations occur. If something is not done, it will be necessary to stop any questions being asked in NZ Geology & that would be a pity & moreover would be somewhat a lectimonium postulates[?] to us. And even if I would undertake the putting together of such a manual of NZ Geology, I had to send to you for any amount of information to bring it up to

date & it would give you just as much trouble. Of course I shall if necessary give any assistance to you in getting the matter together but you have I suppose sufficient assistance of your own people, so that you do not want mine.

If you write such a small text book (or introduction) the introduction of the future annual reports might, if you will allow me to make a suggestion, be so arranged, that it could be brought separately & added to the handbook or textbook year by year, so that the students & professors were always *au courant* of the main results, achieved each year. Perhaps a few of the leading fossils might also be figured. I shall write again next Saturday when sending you my notes.

Yours faithfully
Julius von Haast.

Saturday
21 July 1883

My dear Hector,

I wrote to you last Thursday & sent you a specimen of the Brown coal from Harts' mine. Enclosed you will find a few observations on the subject, which please have added to your usual reports if you think them of sufficient interest. The ground plan & section can of course be reduced to a smaller scale & the writing considerably improved. I have just finished an address to our Dialectic Society (Canterbury College) which has taken some time. I have chosen as my subject Humanism & Realism principally treating of what has been done in Germany. As soon as printed, I shall not fail to send you a copy.

Our lectures begin next Monday.
Ever faithfully yours
Julius von Haast.

Christchurch
Aug 8th 1883

My dear Hector,

Thanks for your note & the Coal Analysis, in which I was rather disappointed, as I thought from the character of the Coal & the dark brown streak, that it would rank much higher. In case you would print my notes, will you be good enough to correct the description of the Coal so as to bring it in harmony with the analysis. I think I said an excellent Brown coal, the word excellent ought to be replaced by fair or something similar.

The people are going diamond-mad & all this in the face of the evidence, amply shown to them. At least all I have been shown by Jacobsen²⁷⁵ were not diamonds, but it is of no use to stem the current. The mania will soon enough come to an end.

Yours faithfully
Julius von Haast.

²⁷⁵ Isaac Jacobsen (1823-1906), Nelson miner, architect and builder from Hamburg who sparked a brief diamond rush in Canterbury when he mistook quartz crystals he found in Alford Forest for diamonds.

292: Haast to Hector, 15-1-1884

Te Papa MU000147/006/0067

[No place]

15/1/84

My dear Hector,

As Ulrich would be delighted to be elected into the RS. a honour he well deserves, I have filled up the enclosed form. Please to sign it & hand it over to Buller with my request to do him the same favour.

I hope to see you in passing when joining the Governor to go to the Sounds.

Yours faithfully

Julius von Haast.

293: Haast to Hector, 12-6-1884

Te Papa MU000095/001/0053

Christchurch

June 12 1884

My dear Hector

I have just received Vol XVI of our Transactions. It appears a good volume. I wish to say that for years past you have always sent a copy to the Museum Library, which however has not come to hand this year. Will you kindly give instructions that it is sent.

I suppose something sent by the Smithsonian Institution goes through your office, or is there another way in which this international exchange is sent? A number of publications from America sent in the last 2 years never came to hand. As for instance the 1st annual Report of the United States Geol. Survey & the 2nd annual Report it sent Sept 19. 83. Both are in 2 copies. One for the old Canterbury Geol. Survey, which I always give either to the Museum Library or to some other & one addressed to me. Will you kindly inform me, to whom I have to write, if they have not come to you or have not yet arrived.

In the July vacation I shall finish my paper on *Megalapteryx hectori*. There is now not the least doubt, that it is a gigantic Kiwi.

Yours faithfully,

Julius von Haast

294: Haast to Hector, 7-7-1884

Te Papa MU000095/001/0080

[No place]
July 7th 1884

My dear Hector,

Thanks for your note of 28 June & shall gladly receive the Vol XVI for the Museum, but as yet it has not come to hand.²⁷⁶ A few months ago I received again a reminder from A Bill Dept of the Interior Washington requesting me to send a receipt for Report of the US Entomological Commission, addressed to the "Geol. Survey of Canterbury Christchurch on Decb 12 1878 – which I never received. Did you get the same & how long ago? I wish of course to send an answer that they can look up how the book went. They must have a splendid order in their office. I am now in the midst of the *Megalapteryx* paper.²⁷⁷ It is all right & the characters are very clear & distinct, but it wants full sized figures. Can you manage them to fold up? Otherwise it would be better to publish the paper at home I think 2 plates (folded) would be sufficient. I would then only give a resume in the *Transactions*. Please tell me as soon as convenient, that I can arrange my paper.

Yours faithfully
Julius von Haast.

295: Haast to Hector, 31-7-1884

Te Papa MU000095/001/0103

Christchurch
July 31 1884

My dear Hector,

Thanks for your kind information about the parcels. I never supposed that those addressed to others would be opened there, but what I wished to know is if your copy of Report of the U.St. Entomological Commission sent Decb 12 1878 has been received by you, because in that case my copy must have miscarried & was not sent through you. This is what principally I wish to know, so that I can answer the enquiries from Washington.

Poor Hochstetter's death is a terrible blow to me. I had yesterday a letter from him dated 10 June, he had then no idea how ill he was.

Yours faithfully
Julius von Haast.

²⁷⁶ We have been unable to locate a copy of this letter.

²⁷⁷ Julius Haast, 'On *Megalapteryx hectori* a New Gigantic Species of Apterygian Bird', *Transactions of the Zoological Society of London*, vol. 12, no. 5, 1886, pp. 161-169, 1 pl.

296: Haast to Hector, 26-8-1884

Te Papa MU000095/001/0124

Christchurch
Aug 26th 1884

My dear Hector,

Thanks for your note of Aug 15th & your offer of the Entomol. Report, which amongst others never came to hand.²⁷⁸ However I do not wish to deprive you of it, but I can now write to the senders & tell them, that the same must not have come through you, or you would have forwarded it, if it had come with yours. I think your plan to bring out your Geol. Reports as Bulletins is capital, because in such way those people most interested will get at once the benefit of it. If I have any geol. information I shall avail myself of your kind offer, but I have now seldom a chance to do any geol work worth speaking of. For the last 3 weeks I have been hard at work writing a biography of my poor friend Hochstetter. It is already in print & will appear shortly in the NZ Science Journal, illustrated by 2 good photos showing Hochstetter when in NZ & some 3 years ago. Poor fellow. It is a terrible blow for me. I never had a brother, but a brother could not be more to you, than Hochstetter was to me.

I had to read over 250 letters, some very long to collect all the facts & I am sure it will also interest you. Next long vacation I shall try to go to some portion of this district where some more details are desirable, for my own satisfaction. I manage pretty well the N.Z. Geology. Each student has one of the Handbooks & from the different Reports I fill up more details. In points where I do not agree with you (there are very few after all) I give the Geol. Survey's opinion first, & then give my own version but tell them to follow for the present the Handbook.

Ulrich has lots of very interesting information on rocks, minerals, why do you not manage to get him to publish them with you? I think a little diplomacy (of which the world says you are a master) would bring about the result, if desired.

Yours faithfully
Julius von Haast.

²⁷⁸ We have been unable to locate a copy of this letter.

297: Haast to Hector, 22-9-1884

Te Papa MU000095/001/0147

[No place]
22/9/84

My dear Hector,

Thanks for your note about Cooper. I shall tell Wise the contents, since then I have received from an other corner full particulars.

I enclose the 3 receipts about the book packages from the Smithsonian Institution & take the liberty to enclose an order to receive some books from the Colonial Secretary's office. I suppose they are books. Will you kindly send for them & have them forwarded to me.

Thanks for the Geol Reports, I have just begun to read them & shall write more fully about them in my next.

Yours faithfully
Julius von Haast.

298: Haast to Hector, 16-1-1885

Te Papa MU000095/002/0009

Canterbury Museum
Christchurch, N.Z.
January 16th 1885

Sir,

The Honorary Secretary of the Phil. Institute of Canterbury has communicated to me the contents of your letter of the 17th of Decb in which you state that you intend to prefix a note of mine addressed to that Gentleman to my paper. I wish to point out to you that this note was not an official communication but simply written to prevent any misunderstanding, as to the place where I wish my paper to be published, as hitherto you have published some of my geological papers read before the Institute in the Geol. Survey Reports. I therefore must request you to omit any mention of my note in the *Transactions*, as this note was not read before the Phil Institute.

I have the honour to be Sir
yours obediently
Julius von Haast.

299: Haast to Hector, January 1885

Te Papa MU000095/002/0010

[Two letters filed together]

Canterbury Museum
Christchurch
Jan 17th 1885

Dear Hector,

Some years ago I lent you a small publication of MCoy's on fossil plants of Australia. I thought you had returned it to me, but on looking for it, cannot find it anywhere, so I suppose it was never sent back. Will you kindly look if you have it still & send it back to me, as I am in want of it.

Yours faithfully
Julius von Haast.

Christchurch
Jan 22 1885

Dear Hector,

Thanks for returning MCoy's papers. Yesterday I had a letter from Prof Eduard Suess in Vienna. He tells me that the second part of his *Antlitz der Erde* (a magnificent geol. treatise) will appear shortly & that he has begun with the third part which will include New Zealand. He has only the Geol Survey Reports up to 1879/80 & he can find no where any later ones in Vienna. He is very anxious to get the rest. Will you kindly give instructions that those after 1879-80 are sent to him. His address is

Professor Eduard Suess
University Vienna
Austria
Yours truly
Julius von Haast.

300: Haast to Hector, 5-2-1885

Te Papa MU000095/002/0035

Canterbury Museum
Christchurch N.Z.
Febr 5th 1885

Sir,

In answer to your letter of Jan 30th I beg to state that I have received the case containing the packages for the Institution under my charge as well as for other persons & Institutions, which have been delivered.²⁷⁹ I shall always be very glad to be at your service.

I have the honour to be Sir
yours obediently
Julius von Haast.

301: Haast to Hector, 7-2-1885

Te Papa MU000095/002/0028

Canterbury Museum
Christchurch
Febr 7th 1885

Dear Hector,

Please give instructions to send to the Museum a copy of *Corals & Bryozoa* of Tenison-Wood,²⁸⁰ which I had never seen until today. It has doubtless been overlooked to forward copies at the time of issue.

Yours faithfully
Julius von Haast.

²⁷⁹ We have been unable to locate a copy of this letter.

²⁸⁰ Julian Edmund Tenison Woods (1832-1889), English Roman Catholic priest and geologist in Australia.

302: Hector to Haast, 18-7-1887
ATL MS-Papers-0037-083, letter 5

Colonial Museum of New Zealand, Wellington
18th July 1887

My dear Haast,

I just missed you at the club & they could not tell me where to look for you, but as I hear that you are not going South for a few days I hope to be able to welcome you back to N.Z. in the flesh. This afternoon I am sorry I must go out of town early on business.

With kind regards to Lady Haast,
Sincerely Yours
James Hector.

Sir. J. v. Haast KCMG

NB. I have just put your name down at the Club.

[Haast died unexpectedly on 16 August 1887, a few weeks after he returned to Christchurch]

Appendix 1: Extracts of letters concerning the Sumner Cave controversy.

Although there are few surviving letters about the Sumner Cave controversy written by Hector and Haast, there was an active correspondence between Haast and other members of the scientific community, especially Sir Joseph Hooker and F.W. Hutton. A selection of letters is reproduced below, in chronological order. For some of the letters we have only quoted extracts where the controversy is only one part of the letter.

A1: Haast to Hooker, 21/10/1874

Kew DC 174 ff.374

Canterbury Museum
Oct. 21. 1874

My dear Hooker,

I send you by this mail, a parcel of papers, containing a paper of mine, together with an Appendix, which was printed in the newspapers, but which I have now printed on a slip in order to send it only to a few scientific friends in order that they know how the matter stands. As Hector is going to England, I wish to right myself with the scientific men at home. I shall not make a single comment upon the whole business, except to say that this, although on a minor scale, has been going on for years but in order not to have any quarrels, I have quietly submitted to it and I will only add, that if I had taken, on Hector's strong recommendation, one of his workers in my employ, & the same had come & had said: Dr I have some private notes on some important excavations, which have not yet been published by Dr Hector, will you read them for me, I would at once have put him down as an ungrateful scoundrel, who made me a dishonourable proposal, and he should have left my room much quicker, than he entered it. There is an unwritten code of honour against no man, who respects himself aught to sin.

However I will not say another word and only express my regret, that I should bother you with the matter, but I care too much for your good opinion, that I am in self defence compelled to lay the matter before you.

I beg to enclose the names of two candidates for the Linnean, both well deserving men, would you be kind enough to see them elected.

I had just now a letter from Dr Berggren, the Swedish Botanist, from Auckland, he informs me, that he has made a great many discoveries in cryptogamic botany, which I am sure, will give you pleasure; he is a hardworking man, who thinks for himself and has a future before him.

Dr Buller, who has arrived here, wishes to be kindly remembered to you; he is full of the glories of Kew.

For the past six months I have had great domestic troubles, my poor wife having been so very seriously ill, as soon as we could move her, she wen (a few days ago) to Melbourne, to go to a Hydropathic establishment, which I trust will restore her.

With best wishes Monsieur de President
ever most sincerely yours
Julius Haast

Dr JD Hooker, CB, PRS
Kew

A2: Haast to Hooker, 9/1/1875
Kew DC 174, ff.375

Canterbury Museum
Christchurch, N.Z. Jan 9 1875

My dear Hooker,
[*First section not included*]

I send you herewith 3 more papers which show you, how that unfortunate matter with Hector stands. There is not another opinion here, amongst the unbiased people, that the Governors (a few Wellington men), have perpetrated a great wrong & we shall not rest before we have brought the whole case before a higher tribunal, because if this were to pass, there is an end of all scientific research. At the same time the fellow lies at his heart's content. However judge for yourself. I would not trouble you with the matter, but I care too much for your good opinion. As Hector is going home, he will of course present the matter in another light – if he can & as "*les absents ont toujours tort*". I wish to right myself. The thing has made me quite ill, to be surrounded by ingratitude & treachery. However as I intend to come also home with Mrs Haast during the course of this year, when I hope to find you & Mrs Hooker in good health, I shall then be able to defend my case more effectively, should it be necessary. What a joy it will be for me to make the personal acquaintance of you & yours & feast upon the treasures in your Gardens & Museum.

[*Last section not included*]

Ever Yours Sincerely
Julius Haast.

A3: Hooker to Haast, 27-1-1875

ATL MS-Papers-0037-102

Kew
Jan 27 75

My dear Haast,
[*First section not included*]

Since then at any rate I have yours of Oct 21, telling me of your grievance which distresses me much. Few things are to me more painful than Scientific disputes, whether for precedence, priority or aught else; & I can only hope that your's, like worse ones, may be yet healed & that nothing will occur to exacerbate it.

[*Last section not included*]

Kindest regards to Mr & Mrs Buller
Most sincerely yrs
Jos D Hooker

A4: Hutton to Haast, 27-1-1875

ATL MS-Papers-0037-109

Otago Museum
Dunedin
27 Jan 1875

My dear Haast,

As you seem anxious to know my opinion about your squabble with Hector, I may as well tell you, although I do not wish to be drawn into it, that in my opinion McKay had no right at all to publish anything about the Sumner Cave without first obtaining permission from you. As you paid him no doubt all the facts were your property, and I also think that Hector ought to have declined reading it. I also think that, as the Governors have the right of veto on any paper, they should not publish McKay's, but if they had been obliged to give legal reasons for not publishing it they could hardly do so.

You now know the opinion I have always held on this subject, and you may judge whether I am likely to have said that I thought your conduct "infamous" as reported by some of my dear friends in Wellington.

I am in a position to prove, and I shall do so in my report on the Geology of Otago, that Moa remains occur in connection with extinct shells, but I cannot agree with you that the Shag vally Maori ovens shew the remains of two distinct races of men the later not being Moa hunters.

I have just returned from there and Mr Rich tells me that I saw as much as you did, but I am now having a deep trench cut right across the sand hills, so as to prove incontestably the structure of the whole affair. I am afraid also that you have not correctly determined the shells found in the Maori ovens. I shall always be glad to help you in naming these things if you will send me numbered specimens.

By the bye I can find no tertiary & volcanic rocks at the North & South peaks in the Horse range as shewn by your map & sections. I suppose you put them from information derived from others.

I enclose a tracing of the geology south of the Waitaki.
Yours truly
F.W. Hutton.

A5: Hutton to Haast, 18-5-1875

ATL MS-Papers-0037-109

Dunedin
18 May 1875

My dear Haast,
[*First section not included*]

J.T. Thomson told me that he was going at our last meeting to bring up the subject of publishing McKay's paper, and I told him that I should support him in expressing my regret at the course pursued by the Governors of the Institute, but for some reason he did not do so. Perhaps he is waiting, until the volume with McKay's paper in it is published.

[*Last section not included*]

We are both very glad to hear that Mrs Haast is so well.
Yours truly
F.W. Hutton.

A6: Hooker to Haast, 29-6-1875

ATL MS-Papers-0037-102

Kew
Jun 29 / 75

My dear Haast,
[*First section not included*]

I cannot tell you how concerned I am at the breach between the Scientific Departments at Christchurch & Wellington of which you acquaint me, if I could be heard on a subject of which I know any one side, I would urge on you the advisability of not making a class or local question of it. I refer to your "breaking with the Wellington Institute". I hope this is not a final decision. The affiliation of the N.Z. Societies has been quoted over & over again as one of the greatest of beneficial moves & been set up as an example for us to imitate, & any premature rupture in it will be damaging to Science at large, & toll heavily against whoever takes the initiative in announcing his intention of leaving the association. Remember too that all these causes of rupture are temporary. The Institutions stand! The members, go! I speak from my experience of British Scientific Institutions. I never ----- of our gain by breaking with any of these, & I have known many to lose. Their enemies in the Institution chuckle over it, their friends in it feel that their cause is lost – that it is desertion in part – if he

again has no partisans in the Institution he should accept this is as a proof that his is the losing side & take it without personal feeling. Dr Hector is home, but so busy that I have hardly seen him.

I signed & sent in Mr Barraud's proposal paper.

Poor Mueller! What you say of him is all true. It is a hopeless case but I do not see why as a scientific man he should not be perfectly happy when he is in a Scientific post, with every leisure for work. All the accounts I heard of the Garden tally with what you tell me of it – it is a thousand pities that he would not submit the laying out & decoration of it to a good subordinate. I urged him over & over again to consult the feelings & wishes of Government & the colonists that matter. The greatest pity of all is, that he has alienated all his friends in the Colony – even the oldest & best.

I am much interested in the so called *Cordyline* that was cultivated for food by the N.Z. aborigines, we have it alive & it has nothing to do with *Cordyline*, but what it is I know not, it never flowered I am told in N.Z. & does not here.

very sincerely yours
Jos D Hooker.

A7: Hutton to Haast, 6-8-1875
ATL MS-Papers-0037-109

Otago Museum
6 August 1875

My dear Haast,
[*First section not included*]

I have seen the new volume of the *Transactions* and shall bring up your matter as soon as members have their copies so as to read the evidence. I shall make out as strong a case for you as I can but as I do not wish to make any mistake in it, I want to know if you can tell me two things.

- (1) Was the pos[t]cript to your paper read before the Canterbury Phil. Soc? or did it only appear in the newspapers? And
- (2) Did McKay's paper appear in full in the Wellington papers? or only in abstract?

I want accurate information on these two points so as to prevent any mistakes in wording our resolution.
[*Last section not included*]

Yours Truly

F.W. Hutton.

A8: Hutton to Haast, 19-9-1875

ATL MS-Papers-0037-109

Dunedin
19th Sept. 1875

My dear Haast,

Your questions are difficult to answer. I should very much like to see you resume writing papers in the *N.Z. Trans*, and I sincerely hope that you will do so somehow or other. But when you ask me whether you should preface your first paper with the remarks you mention, I hardly know how to answer. Different people are differently constituted, but if I were in your place I think I should consider that I had won all that I had been fighting for, for you may be sure that the Governors will never do the same thing again, and I should therefore think it more dignified to let the matter drop and resume writing as if nothing had happened.

You may think differently and I would sooner see you commence writing again with your preparatory remarks, than see you remain outside as now. You must remember that printing McKay's paper has done you no harm scientifically; it is only the principle of publishing it that is wrong, and that I think has been sufficiently vindicated.

That is my honest opinion, I counsel moderation, and it is always a nice thing to make the first step towards a reconciliation.

[Last section not included]

Yours truly
F.W. Hutton.

[Postscript not included]

A9: Holmes to Haast, 09-1875

ATL MS-Papers-0037-090

Delanasau
Bay of Islands
Bua, Fiji
September 1875

My dear Dr Haast,

[First section not included]

Your quarrel with Dr Hector I have also taken note of, and as I said to Gore in a letter some time ago "to us outsiders it certainly appears that Dr Hector is in the wrong", the idea of any servant publishing the results of his employers hard earned and costly researches is simply preposterous; still I quite believe that Dr Hector was led to believe by your employee that through lapse of time and other reasons you were indifferent about who published the results of the Sumner cave investigations. Personally I always held Dr Hector to be above resorting to any such devices to gain an advantage or "peg a hole ahead" even in a scientific encounter. I saw how he & his family went to England on a tour. How wonderfully N.Z. has gone ahead since I left, and how Vogel has put himself ahead, whether it is all sound, and the

enormous expenditure on public works, advisable the future will disclose, I fancy there has been just a trifle too much done in railways at all events?

[Last section not included]

I must now conclude.

With our united kind regards to yourself and Mrs Haast

Believe me

yours very sincerely

R.L. Holmes

[Postscript not included]

A10: Haast to Hooker, 6/5/1875

Kew DC 174, ff.379

Geological Survey of Canterbury

Christchurch, N.Z.

May 6th 1875

[other hand: arr. 29 June]

My dear Hooker,

[First section not transcribed]

When in Melbourne I placed the papers concerning the McKay affair in the hands of my scientific friends there, who are quite unbiased in the matter, not adding a word of comment of my own. They came to the unanimous decision that I had been most infamously treated, that an uneducated workman was far less to blame, than any so called scientific friends, the treachery of whom was unconceivable. There can be only one voice[?] on the matter & I leave it confidently to the future, in the mean time I have broken all connection with the N.Z. Institute until this extraordinary decision of a small local clique in Wellington is rescinded.

Of course I do not want you to enter into my personal quarrels, but as PRS you ought not to give ----- ---- when appealed to, as to the principle at stake, because if such a thing is allowed to pass there is an end to all scientific research where you have to employ workmen or assistants.

[Last section not transcribed]

Ever Sincerely Yours

Julius Haast.

A11: Haast to Hooker, 28/8/1875

Kew DC 174 ff.381

Christchurch N.Z.

Aug 28 1875

My dear Hooker,

I wrote to you on the 30th of July & have since received your welcome letter of July 30th from which I observe with great pleasure that Miss Hooker has returned to you much better in health. My wife as I told you in my last letter continues to become stronger every day & has never been in better health; it appears that one cause of the very alarming symptoms was the ----- of Chloral[?], which was given to her to induce sleep & which was continued for months here. However our medical man did it for the best. Concerning the building of the main hall to our Museum I am happy to say that the Govt. has ceased its opposition & the work is now going on to my great satisfaction. There is no apprehension that the Phil. Inst. of Canterbury or any other affiliated Society will leave the N.Z. Institute, which simply administers the funds which belong to all the Societies, but after all, what has happened & which has been crowned by the actual falsification of the minutes of the Wellington Phil Society in changing the title & other equally strange things, there will be doubtless concerted action of the principal Societies to leave the management of the N.Z. Institute so altered, that such disgraceful proceedings can not more take place. In the mean time I have resigned the presidency of the Phil Inst. & shall not publish anything in the *Transactions* until the Phil Institute has received an authoritative opinion from home as to the principle at stake. I have done this after consulting several of my scientific friends in Melbourne who were quite unbiassed & have judged only the matter as it were from Hector's & McKay's defence. As I have done this under protest, there can be no question of the losing side, there was simply might against right. If however any unbiassed scientific tribunal at home says that I am in the wrong, I shall be the first to apologise but if the principle for which I stand up is the correct one & this decision will appear in the volume I shall continue to read papers in our meetings & publish them in the Volume, because the course I have taken has been the correct one. This is all very tiresome & I know that a man, who has a grievance is a nuisance, but as you have always taken so much kind interest in our scientific advancement, I hope you will pardon me, that I once more have alluded to that unfortunate matter in answering some points in your letter. There has been a change of Ministry in Melbourne & some of Mueller's friends have taken the ministerial benches & I am curious to see if & what they will do for him. I can not see, how it will all end. I was very much struck, that at a dinner at the Rev. Barry's in Melbourne, who had invited all the principal scientific men, Mueller spoke to them all as if they were strangers, giving each his proper title, whilst I knowing most of them only as correspondents spoke to them as friends ought to treat each other. Afterwards I told Mueller, I found this very strange, but his answer was ---- Doctor von Haast (he gave me always my proper title & of course he expected me to call him ---- Baron[?]) none of them have stood my me in my troubles; they were all envious, jealous etc. Of course I could say nothing more. Of course when others spoke to me about him, I always told them, that where there were great lights there were great shadows, that Mueller had done good work & was an earnest worker & that his little eccentricities[?] should be overlooked.

But I am anxious to get soon again into the fresh mountain air amongst rocks & plants, then I shall forget the little miseries of this world & I hope only some new botanical treasures will give me a new opportunity to send you some further parcels.

Ever yours sincerely

Julius Haast.

A12: Hutton to Haast, 19-5-1876

ATL MS-Papers-0037-110

Otago Museum
Dunedin
19 May 1876

My dear Haast,
[*First section not transcribed*]

Hooker is very much given to gammon, and I always had an idea that he would praise both sides and give his vote in the middle. I am very glad indeed that you have buried the hatchet.

I think that if we could get the N.Z. Institute to be peripatetic and meet annually at the different towns, we should have a much greater hold upon it.

If this were done Hector's power as manager would soon decline. At any rate there ought to be regular annual meetings at which the scientific men from all Provinces should attend. Hector would funk this as he would very soon find his level there. Still the plan will recommend itself so much to the public that if the societies of Auckland Christchurch and Dunedin were to unite in demanding it, I think it would be done.

This is the best course for us to pursue in my opinion.

Yours truly
F.W. Hutton.

Appendix 2: Other controversies

The Hector papers in the Hocken Collections, University of Otago, contain two memoranda containing extracts from letters, copied apparently by Bothamley (presumably on Hector's instructions) about controversies in 1874-75 (Buller's FRS nomination) and 1885 (Notes added to Haast's reports). These documents are apparently the basis of the allegation by von Haast (1948, p. 747) that "...the Hector dossier of correspondence retained by Hector and assembled by his son for the purpose of a life of his father, and now in the Hocken Library at Dunedin, was obviously intended not so much to enlighten readers upon the career of Hector as to cast discredit upon Haast". These are, in fact, the only items in the collection that relate to Haast apart from some letters from Hackett to Hector. The memoranda are transcribed in full below.

A: Controversy over Buller's FRS nomination

Hocken: MS-0443-3/15

[Introduction by J. Hector]

On meeting Dr Buller on 1 December 1874 in Christchurch I observed a coolness in his manner towards myself, and in conversation Dr Buller frankly told me that he was much astonished that I should attempt to prevent his election as F.R.S. as it was inconsistent with what he had been led to expect by his previous correspondence. I denied the imputation and asked Dr Buller's authority, when with some reluctance he said it was Dr Haast on Mr Kirk's information. When I returned to Wellington I taxed Mr Kirk with the misstatement, and the following correspondence ensued.

A. Mr Kirk to Dr Hector: 3 December 1874

Please let me have Haast's mal-statement in writing as I wish to obtain an explanation from him at once.

B. Dr Hector to Dr Buller: 3 December 1874

(Telegram) Haast on Kirk's authority said I would oppose your election to Royal Society – is this correct version of what you told me?

C. Dr Buller to Dr Hector: 3 December 1874

(Telegram) Yes – correct version – I expressed astonishment knowing how loyal I have always been to you. Your assurance quite sufficient.

This was referred to Mr Kirk by Dr Hector

D. Mr Kirk to Dr Hector: 4 December 1874

Haast's statement to Buller that I asserted you had opposed Buller's election to R.S. is entirely devoid of truth. I have never made any such statement, or any upon which such a statement could have been based. I have written to Haast for an explanation.

E. Mr Kirk to Dr Haast: 4 December 1874

From a copy of a telegram now before me I hear you have asserted to Dr Buller that Dr Hector would oppose his election to the R.S. and that you have given my name as your authority.

Not having made any statement of the kind or anything bearing upon it I am compelled to ask you for an explanation of the matter and shall be glad of your early reply.

F. Dr Haast to Mr Kirk: 15 December 1874

In answer to your note of Decr. 4th, which I only received on my return to town tonight, I wish distinctly to say that I never made any statement concerning Dr Hector opposing Dr Buller's election into the R.S. as communicated in your note. Dr Buller certainly must have misunderstood me because you never told me anything of the kind and consequently I could not have repeated it.

G. Mr Kirk to Dr Buller: 23 December 1874

Dr Hector sent me a copy of your telegram respecting his alleged opposition to your election to the R.S. when I immediately wrote to Dr Haast for an explanation. I enclose a copy of the reply received yesterday, as well as of my letter to Haast, and must now leave the matter in your hands.

H. Dr Buller to Dr Hector: 1 February 1875

You spoke to me this morning on the subject of Kirk's letter of 23 December last. I did not reply to that letter as I was in hopes of meeting Kirk and explaining my position in this matter.

After what you said this morning I feel bound, even at the risk of appearing to betray confidence, to furnish you with the enclosed extract from a letter which I received from Dr Haast in reply to mine informing him that I had taxed you with your intention to oppose my election to the R.S.

This extract I think you will admit shows that I was warranted in speaking to you in the manner I did.

Dr Haast to Dr Buller: 4 December 1874

(Extract) Many thanks for your letter but I hope you have not quoted "Kirk" to Hector. This would have been imprudent as he never told me who had taken the necessary steps, only letting me infer. I told you this in strict confidence and there is really no occasion to make me go at loggerheads with Kirk without any cause. There was really nothing gained by it as by this time you know that weak Hector sufficiently, who moreover will now do everything in his power to make me also an enemy of Kirk with whom I have been hitherto on friendly terms and with whom I ought not to quarrel for the Museum's sake. However it cannot be helped now.

B: Letters between Haast, Buller and Hector in early 1885
Hocken MS-0443-3/23/4

Haast to Buller, 17-1-1885

Ch.Ch.
17 Janry 85

Dear Buller,

As I know you are a member of that hard worked body the Governors of the N.Z. Inst., I write to you on a matter which for years past has brought me a great deal of annoyance. Year after year there appears papers in the Geol. Survey Repts. in which my work, done in many instances for the Geol. Survey, is pulled to pieces and very often in an unfair way. As I have no chance to controvert the statements at the time, I left them unanswered, but asked Prof. Brown who is a great chum of Hector's repeatedly to let Hector know that I objected very much to be always dragged out & to request him to take no notice of my former work. Last vol. brings again a number of papers in which my work is again alluded to in a way Hector ought never to allow so that in self defence I read a paper before our Inst. in which I protested against that kind of work. As Hector has repeatedly printed my papers read before our Institute in his Geol. Repts. to which I now object – as long as my work is treated in them in that manner – I wrote a private note to our Secy. in which I requested him to tell the Manager that I wished my papers to be printed in our Trans. and not to have any footnotes added to it, the editor being at the same time also the Director of the Geol. Survey. Yesterday I received a note from Chilton telling me that Hector had written him that he would print my private note at the head of my paper. I can simply say that my note written privately has nothing to do with the Trans. it was not read at our meetings. I wrote therefore an official letter to Hector as Manager protesting against such a peculiar way of editing. Now you as a Governor ought to look into the matter and stop a thing which shows a great animus on the part of Hector & would surely do great harm, because if such things can happen I shall certainly move heaven and earth to have the whole matter – Geol. Survey & N.Z. Inst. enquired into during next sitting of parliament. Repeatedly I have been asked by some of our members about such a Committee of enquiry, and have always stood – notwithstanding this constant worrying – loyally by Hector. Altogether it is a very strange proceeding with the Geol. Survey of N.Z. If in other countries such a thing would happen that the work of former workers on the Geological Surveys is always, year after year pulled to pieces by their successor, it would be a perfect bear-garden. If there is a point of difference & if the former Geological Surveys are to be got, there is always Conference, often on the spot and only under most rare instances is a former worker set upon – sometimes a survey is made quite fresh and the former work not alluded to, as in one instance in the Austrian Survey, but generally there is a loyalty existing which has never existed with us. Hector will find to his cost that he had too great confidence in one of his men. This man went out with the object of fault finding and put, in many instances, his foot in it – as the German saying goes. He dug a pit for others & fell into it himself. I do not want to quarrel with Hector, on the contrary – but when year after year I am attacked, I must defend myself. Let him ignore my work altogether, but if necessary I am ready to fight to my last breath. I have now had my say but I am annoyed beyond measure that in a small place like N.Z. we cannot work harmoniously together, but one has to be subjected year after year to this worry & trouble.

Yours &c.
Julius von Haast.

Hector to Buller, 3-2-1885

Petone
3 Febry. 1885

My dear Buller,

I have read Haast's note which you handed me before the Board meeting to day and also the critical paper to which he refers. Of course the latter must be dealt with publicly now, which I much regret – as it was quite uncalled for and the necessary reply will I fear be very uncomfortable to Haast who seems to be morbidly sensitive – almost hysterical. As to the note, I cant make out what he complains about or what right he had to attempt to poison your mind against myself and against “that man” who I presume is his old friend McKay. Now that is very queer conduct & not in the least the proper course to pursue if harmony is to be maintained the supposed absence of which Haast pretends to deplore. How easily he forgets all that he has done to destroy the harmony among scientific workers in New Zealand. As to McKay, he came to me strongly recommended by Haast, and I have since found him zealous, absolutely truthful, accurate, clear headed & with a wonderful natural talent for geology and above all extremely modest & on his guard against theory - & curiously enough he has a very high opinion of Haast, which is undiminished by all that has taken place & it is very pleasant to hear the grateful way in which he mentions kindness to him in former years. As for Haast's grievance that “year after year” he is unfairly treated, it is all a delusion springing from a morbid state of the mind. To suppose that the Survey is to suppress observations for fear of hurting the feelings of early workers on the same ground, is too absurd altogether, and I consider that Haast telling a third party like yourself that if I persist in doing what I think to be my duty he will move heaven & earth to intrigue against me is – well, very bad taste. Let him get a parliamentary enquiry, nothing will please me more than to have an opportunity of showing how much good work is done with a mere pittance compared to what it costs in other countries. There are several minor points in the note which are quite wrong but are really not worth referring to at length – for instance – Prof. Brown has never represented to me what Haast imputes. Again, if this annoyance has been going on year after year, why has he never mentioned it to me as we have had lots of friendly converse. Then I never wrote to Chilton that I was “going to print his private note at the head of his paper” & Haast knows exactly what I did write because it is correctly stated in his official letter to me of a previous date to his note to you. Again I did not desire that such a note should be sent officially through Chilton, as I have never printed any paper of Haast's in the Geological papers without his consent. To conclude I hope you will assure Haast that there is no animus cultivated against him or any one else in the work of the Geological Survey. If he will be good enough to point out to me what he considers to be instances of any such animus – I will no doubt be able to afford him an explanation that will be satisfactory to him.

J. Hector

Dr Buller, CMG FRS

Haast to Buller, 12-2-1885

Ch.Ch.
12 Febry. 85

My dear Buller,

Many thanks for sending me Hector's letter. It shows clearly how far he is from understanding the real points at issue. I shall now answer his contentions one after another & wishing to "poison further your mind against him" (for you know as well as I do his strong & his weak points) I will leave it entirely to you to decide, who is really the injured man. In the first instance let me at once say that I do not complain that the ground I examined for the Geol. Survey Dept. has been re-examined over & over again because principally in a new country this is necessary, but the results of such new Surveys ought never to have been published without first having been informed if there was a difference of opinion to give me a chance to go with the director over the ground, so that the questions at issue could then & there be set at rest. So it is done in all Geological Surveys. As I stated only facts in my last paper which was not an attack upon Hector but a defence after I had been attacked year after year I look quietly towards Hector's answer & shall be able to prove all my allegation from his own publications. That I am not morbidly sensitive. I have shown that for years past, I have never written a word in reply, though even such peace loving people, like poor Hochstetter thought, when he observed that Hector had resurveyed the ground, I had previously reported upon and afterwards published the notes of the new Survey without giving me a chance to defend my own work, that this was "a very uncommon and unfriendly procedure. I have nothing whatever to do with Hector's surveyors – they have to follow his instructions. You can bear me witness that I always stood by Hector, but in self defence, if the thing goes on, I shall do what I think is right. There is no question of intriguing of which I know nothing, but of which I could get any amount of lessons in Wellington.

I can simply reaffirm that I requested repeatedly Prof. Brown to tell Hector, with whom I never wished to quarrel, to treat me not in such an unfair manner. I also wrote to Hector alluding to the subject, once as I remember well, rather strongly, when the alterations in the structure of the Southern Alps was made in his map, but as usual, when something is not convenient to Hector he did not reply – Hector says that I destroy harmony amongst scientific men – Of course if we all bow to him, accept his opinions, allow him to criticise all our work without reply & to lay down the law in scientific matters, everything goes on smoothly, but as soon as one complains of not being properly treated & shows up the deficiency & faultiness of his own work we are . . . well – almost hysterical. However his own letter shows that he is in this state. Metternich spoke in the same manner when any body dared to disagree with his doings.

As Hector has before made footnotes to my papers without my knowledge or consent (see amongst others Geol. Surv. Repts. 1870/71 pages 7 & 11) I would of course expect that a similar thing might be done this time, as the Editor of the Trans. & the Director of Geol. Surv. are one & the same person. As I told you in my last letter I am quite willing that Hector ignores my work altogether & never mentions my name, but when this is not done in future (of course I hold him responsible for the publications of his officers) I claim that an opportunity is given to me to show the correctness of my work. This is only fair & done all over the world. Personally I have no animus against Hector & doubtless the wish to keep on

really friendly terms has caused me not to speak before as I ought to have done long ago & as I intend to do in future if I am treated in the same manner. I shall certainly not trouble you any more about this matter and am much obliged to you for your kind intentions.

Ever faithfully yours
Julius von Haast.

Appendix 3. List of official letters not transcribed

A number of letters from Haast to Hector, held in the Te Papa archives were not transcribed as they dealt with administrative matters, often related to expenses or lists of specimens. For completeness these letters are listed below:

xx/xx/1869: MU000147/003/0016
11/08/1869: MU000147/002/0234
23/04/1870: MU000147/003/0088
16/10/1870: MU000147/003/0205
29/06/1871: MU000094/001/0103
12/10/1872: MU000094/001/0401
22/10/1872: MU000094/001/0415
28/06/1874: MU000094/003/0034
29/09/1874: MU000094/003/0097
21/10/1874: MU000094/003/0110
20/12/1874: MU000094/003/0131
14/12/1880: MU000094/004/0191
14/12/1880: MU000094/005/0077
27/07/1881: MU000094/005/0209
04/05/1882: MU000094/006/0144

Appendix 4. List of letters that we were not able to locate

Haast and Hector often refer to letters received from the other. Most of the letters from Haast to Hector have been located in the Te Papa archives, and only a few are missing. In contrast, over 40 letters from Hector to Haast could not be located in the Haast family papers in the Alexander Turnbull Library. It is not clear whether these were not filed by Haast, or whether they were later removed before the collection was deposited in the Alexander Turnbull Library. It is possible that they may be filed away in the Canterbury Museum archives which are not currently accessible.

Missing letters from Haast to Hector

Date of Hector letter referring to letter from Haast that cannot be located	Date of missing Haast letter
17-10-1863	14-10-1863
9-1-1864	12-12-1863
29-9-1864	17-8-1864
24-12-1865	6-12-1865
10-1-1871	30-12-1870
10-1-1871	[?]-1-1871
18-7-1872	9-7-1872

Missing letters from Hector to Haast

Date of Haast letter referring to letter from Hector that cannot be located	Date of missing Hector letter
4-1-1864	29-[12?]-1863
27-5-1864	15-5-1864
27-5-1864	23-5-1864
24-12-1864 (in 21-12-1864)	20-12-1864
26-2-1865	22-2-1865
6-3-1865	28-2-1865
16-8-1865	14-8-1865
27-8-1865	[?]-8-1865
26-9-1865	25-9-1865
14-11-1865	Four letters, undated
4-6-1866	2-6-1865
25-9-1866	Three letters, undated
10-11-1866	Three letters, undated
16-4-1867	[?]-4-1867
27-6-1867	10-6-1867
27-6-1867	25-6-1867

Date of Haast letter referring to letter from Hector that cannot be located	Date of missing Hector letter
11-7-1867	[5?]-7-1867
26-7-1867	Two letters, undated
12-10-1867	5-10-1867
25-12-1867	15-12-1867
7-6-1868	[?]-5-1868
17-8-1868	8-8-1868
1-9-1868	25-8-1868
11-12-1868	[?]-[11/12?]-1868
13-12-1868	27-11-1868
9-3-1869	26-2-1869
24-5-1869	19-5-1869
7-7-1869	Two letters, undated
20-8-1869	18-8-1869
2-10-1869	Two letters, undated
22-1-1870	Undated
9-3-1870	14-2-1870
27-5-1870	24-5-1870
20-6-1870	4-6-1870
19-8-1870	12-8-1870 (two)
19-8-1870	16-8-1870
1-10-1870	16-9-1870
1-10-1870	28-9-1870
13-10-1870	[?]-[10?]-1870
21-10-1870	17-10-1870
18-12-1870	8-12-1870
24-5-1879	17-5-1879
[?]-6-1880	8-6-1880
7-7-1884	28-6-1884
26-8-1884	15-8-1884
5-2-1885	30-1-1885