

DER NEULANDS-TRIEB
DER
PROVINZ AUCKLAND
VON
NEU ZEELAND

Zur Übersicht der Grenzen und Aufnahmen
VON
DR. FERDINAND VON HUCHSDETTIG
1854



HISTORICAL STUDIES



GROUP

GEOLOGISCHE ÜBERSICHTSKARTE

VON
FREDERICK NELSON

NEWSLETTER

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**GEOLOGICAL SOCIETY
OF NEW ZEALAND**



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J. Cecil Thomson

P. G. Morgan

C. A. Cotton

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Hartley. T. Ferrar

Robert Chawes

Henderson

T. J. Orange

J. Harwick

Robin S. Allen

H. Turner

M. Ongley

H. J. Finley

Colin Harton

R. W. Sillit

John Henry

If an elderly but distinguished scientist says that something is possible he is almost certainly right, but if he says that it is impossible he is very probably wrong.

EDITORIAL

To record the death of one of our members has been a recurring feature of our recent newsletters (six in the last eight issues). The latest loss is Bill Sarjeant of Canada. He is not only a loss to our Historical Studies Group for Bill was one of the world's top men in the study of the history of geology and was active in a number of other fields.

This, our 25th issue, provides an opportunity to look back over the past twelve years and review our accomplishments. This gives cause for concern.

We have done much in recording our history in this newsletter but even here only a small fraction of our membership contributes. Our big failure has been in convincing the major scientific institutions of the importance of our earth science heritage. In Newsletter 20 I mentioned the Hector Library at Te Papapa's disposal of its geology journals. These included a complete set of the Transactions of the Geological Society of London from 1811 that originally belonged to Gideon Mantell and had been annotated by him. How many people know that the University of Canterbury has a similar set that originally belonged to F. W. Hutton ? Are the volumes annotated by him ?

Do other institutions have items of historical importance. Does anybody know ? Do they themselves know? If they do know what steps are they taking to preserve them ?

And, finally, what steps are we in the Historical Studies Group doing about it ?

AlanMason
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Our Introductory Quotation :

This statement was originally made by Arthur C Clarke in Time magazine. It is used by James Lawrence Powell in his book *Mysteries of Terra Firma* (2001) at the head of his first chapter. Appropriately so, for that chapter deals with early attempts to estimate the age of the earth and in particular with Lord Kelvin's mathematical 'proof' that the earth could not be more than 20 million years old.

WILLIAM ANTHONY SWITHIN SARJEANT

15 July 1935 – 8 July 2002



Bill Sarjeant, the only remaining Canadian member of our Historical Studies Group, had figured several times in our newsletter, the last occasion being in our March issue when we quoted extensively from his 1992 paper on the Geology of Middle Earth.

I first made contact with Bill at the INHIGEO Symposium in Sydney in 1994 where he gave an entertaining dissertation on 'Geology in Fiction', an appropriate topic for him as he was both geologist and fiction writer (and many other things besides)

Since our meeting we had corresponded regularly. He sent me copies of his publications and I responded with our newsletter and other New Zealand publications of an historical nature. Amongst the latter were the Geological Society Miscellaneous Publications on Max Gage and Brian Mason. Bill found these interesting and intended to review them in Earth Science History. (I do not know whether these eventuated).

On 4 April Bill told me that he planned to visit New Zealand and I looked forward to another meeting for we had many interests in common in addition to the history of geology. Unfortunately this was not to be. He wrote to me again on 24 May with the news that he had been diagnosed with cancer of the liver. My reply to that letter brought a response from Bill's wife, Peggy, with the sad news that he had died on 8 July.

Born in Sheffield, England, he attended the university in that city graduating Ph D in geology in 1959. From 1963 to 1972 he was on the staff at the University of Nottingham and then moved to the University of Saskatchewan at Saskatoon, Canada where he soon became Professor of Geology. He remained in that position for the rest of his life.

Bill's research fields were fossil plankton, trace fossils (mainly fossil footprints), and, above all, the history of geology. Amongst the several awards he had received in that area was the Sue Tyler Friedman medal of the Geological Society of London. He was only the second person to receive that award, the first being Stephen Jay Gould who also died earlier this year.

Bill's major contribution to the history of geology was his massive Geologists and the History of Geology, the first five volumes of which were published in 1980. These were followed by supplements in 1987 and 1996. His last letter in which he told me of his cancer ended with "However I *am* hoping I may be spared long enough, at least to complete that third bibliography supplement." As it is the ten volumes (8534 pages) published so far represent one of the greatest pieces of scholarship in all geology. They index 44,500 books and papers and include brief biographies of 10,000 geologists.

Space limitations prevent us from detailing all Bill's interests. He was geologist, paleontologist, book collector, fantasy writer, folksinger, Sherlockian scholar, and heritage advocate His several hundred publications covered all these fields and many others. His books include –

A treatise on Dinoflagellates

Four books of science fantasy under the name 'Anthony Swithin'. These were part of a series, 'The Perilous Quest for Lyonesse', Of which he had six more books ready for publication at the time of his death.

Ms Holmes of Baker Street, based on the idea that the great detective was actually a woman.

Saskatoon: a Century in Pictures

Etc etc

His folk music group produced several cassettes.

His library of 85,000 books included 50,000 on geology. His offer of these to his own university was declined – library downsizing is not limited to New Zealand universities ! It is fortunate that the University of Alberta was pleased to accept them.

Bill was on half a dozen community boards in Saskatoon.

And so it goes on. Truly a universal man.

Alan Mason

HECTOR AND SEDDON

Alan Mason in his overview of James Hector in New Zealand and Canada states that I attributed the decline of Hector's influence in New Zealand to a personal vendetta waged by politician R.J.Seddon. It seems that Dell "played down this view" but I never suggested any such thing. My assessment (Waterhouse 1965, p.959) was that Hector fell from power as a byproduct of the political struggles between Seddon and his political opponents. Hector was a friend of those opponents.

Dell, R.K. 1990. Hector, James 1834-1907. In The Dictionary of New Zealand Biography, vol.1. 1769-1869. Wellington. Allen and Unwin.

Mason, Alan 2002. James Hector in Canada and James Hector in New Zealand. Geological Society of New Zealand Historical Studies Group Newsletter 24:5-17.

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Bruce Waterhouse

HECTOR AND SEDDON Some additional information

My apologies to Bruce for misinterpreting the statement in his 1965 paper. I should have read it more closely. However, his clarification has led me to investigate further the Hector-Seddon relationship..

As a result of Bruce's letter the claim that Hector's downfall was the result of a personal vendetta waged against him by Seddon is now made by only two authors – Peggy Burton (1965, p.37) and Pamela Searell in her article on Hector in the Science Gallery Series in New Zealand's Nature Heritage which was published in serial form in the mid 1970's. Neither gives the source for her statement and it is possible that Searell obtained it from Burton.

It is not found in any of the obituaries but such matters were not usually mentioned in obituaries of the time. More significantly, it is not mentioned in articles on Hector written later by his contemporaries i.e. Evans (1949), Haast (1948), Kirk (1923) and Park (1937)

So, was there a Seddon/Hector vendetta. Recent studies suggest not –

“ His –(Seddon's)– son, the Honourable T.E.Y.Seddon has no personal recollections of any animosity between Hector and Seddon. (T.E.Y. Seddon, pers. comm.,11 April 1967). Likewise, Hector's grandson,

P.W.Hector, now of the Dominion Museum, who has taken a personal interest in the problem for some time, has not been able to establish any direct evidence. (P.W.Hector, pers. comm., 14 April 1967).⁴⁴

- Oldroyd, 1967, p.269

⁴⁴ Burton (1965) states that Hector's waning influence was the result of a personal vendetta waged by Seddon, who 'saw no use in science at all' (Dick, 1951:141), but Mr. B.Wearing, University of Canterbury, who is working on the history of the Geological Survey, has found no real evidence for such a vendetta (speech to Geological Society of New Zealand annual dinner, November 1980, Christchurch).⁴⁴

- Fleming 1987, p.39

⁴⁴ The reforms probably owed more to the Liberal government's desire for economy than a supposed personal vendetta between Hector and Richard Seddon.⁴⁴

- Dell, 1990, p.184.

There may have been no personal vendetta between Seddon and Hector but the political climate for geology at the time was such that they certainly must have had a cool relationship despite Seddon's statement to Parliament on 13 September 1893 that "Honourable members would no doubt be pleased to hear that there was no difference between Sir James Hector and myself ; all was going smoothly, and the work was going on very satisfactorily" (Oldroyd, 1967, p.269).

There is no doubt that the rise of Richard Seddon coincided with the decline of James Hector and an idea of the political climate referred to above is found in Hornibrook 1991, pp. [15,16]. Vendetta is too strong a term to use but as Hornibrook shows Seddon and his party, whether in opposition or government, had no time for organized science and Mr. Science of the time was James Hector. Seddon found his excuse to act in the retrenchment then taking place in government.

But the sad thing is that the rise of Richard Seddon also coincided with the decline of Hector's powers of concentration. He was no longer the autocrat of the Victorian New Zealand scientific scene -

⁴⁴.....there is no evidence from the Dominion Museum archives that he made any real attempt to oppose the whittling away of his responsibilities. So far as one can tell, once a decision had been made by higher authority, Hector simply put it into effect, without any opposition, even if it was against his own interests.⁴⁴

- Oldroyd 1967, p.268

If the Hector of the 1890's had been the Hector of the 1870's the course of geology in his country could have been vastly different

San Park

HC

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S[earrell], P. Mid 1970's. Sir James Hector (1834-1907) in Science Gallery, New Zealand's Nature Heritage

Alan Mason

? Does this apply today -

"There is a certain prejudice more or less prevalent among the members of scientific societies in large cities, such as London or Paris, which makes them unwilling to believe that persons residing in provincial towns or in the country can do anything important for science; and it is strangely imagined that a city geologist, who runs over a district in a few days, can make greater discoveries than any one residing in it, who is in the habit of daily and repeated observation."

This comment was made by Robert Bakewell (1768-1843) in 1830 in volume 3 of the Magazine of Natural History.

THE 'AUCKLAND PROVINCIAL GEOLOGIST'

In the year 1861 The Provinces of Wellington, Canterbury and Otago all appointed Provincial Geologists. The Auckland Provincial Council, on the other hand, did not consider a permanent appointment until 1866 (see below) although in 1859 it had engaged Hochstetter on short term contracts to carry out surveys.

Yet it was probably in Auckland that the idea of a Provincial Geologist was first mooted - by Charles Heaphy, in a letter published in 'The New Zealander' on 20 December 1856. Extracts from that letter appear on the opposite page.*

Nothing resulted from Heaphy's letter but over nine years later, on 14 April 1866, S.J.Stratford, an Auckland surgeon and member of the Provincial Council, wrote to Frederick Whitaker, Superintendent of the Province, promoting the appointment of a Provincial Geologist. In this letter Stratford named Ralph Tate of London as a suitable applicant and enclosed a letter from Tate giving his qualifications for the position. This correspondence was published in the 'Daily Southern Cross' on 13 November 1866. Tate was at the time Curator to the Geological Society of London and held several teaching appointments. There is information on Stratford and Tate at the end of this article.

Tate's application and the whole idea of a Provincial Geologist was not considered by the Provincial Council until its meeting on 12 November 1866.

In the meantime, on 9 August 1866, F.W.Hutton, who had arrived in Auckland in June, wrote to James Hector -

I called a few days ago on Major Heaphy and with very satisfactory results. He informs me that for several years the question has been mooted in the Provincial

* A further call for an Auckland Provincial Geologist was made by Lauder Lindsay (1862, p. 82) in an address to the British Association for the Advancement of Science -

The author concluded by strongly advocating the necessity of an immediate systematic Geological Survey of the province of Auckland - one implying a duration of about five years with an expenditure on staff, travelling, and publications of about 10,000 pounds. He recommended this equally for all the New Zealand provinces of which geological surveys have not been made; pointing to the example of Otago, which has recently appointed a Government geologist, who is now engaged on a three years' survey of that, geologically, most interesting province.

NECESSITY FOR A GEOLOGICAL SURVEY OF AUCKLAND.

To the Editor of the *NEW ZEALANDER*.

Sir,—I beg through the medium of your paper, to draw attention to the necessity which exists for a Geological survey of the Province of Auckland.

In a country presenting on every hand indications of mineral wealth, and with a community very far from being deficient in liberality and commercial enterprise, it is singular that this subject should have been so long neglected

Several years may elapse ere the Colony or Province can afford to pay the salary of a permanent Geological Surveyor, but if public attention were given to the subject, much that should conduce to the development of the mineral resources of the place might be easily effected at a trifling attendant expense.

I would propose that a prize of £50 or under, should annually be offered by the Provincial Government for the best Geological Map of any district of an area not less than 20 miles by 20 miles. If the submitted plans were to be accompanied by carefully collected mineralogical specimens, and the country farther described by a written report, the actual (moderate) expenses of the collector might be guaranteed. Such plans and specimens should be properly arranged, and, at all times, open to public view. The attention which would thus be drawn to the subject of the Geology of the country would, I think, quickly be followed by practical discoveries in relation to which such an outlay would be insignificant.

With the aid of such plans, any practical mineralogist, who might visit the Colony, would at once know in what direction to prosecute a search for metallic lodes or coal. The plans though made perhaps by persons possessing but moderate scientific knowledge, would be valuable indices for the experienced and skilful Geologist.

I am, Sir, &c.

CHARLES HEAPHY.

Auckland, 15th December, 1856.

Council of appointing a Provincial Geologist for Auckland, but it has always hitherto fallen through, owing chiefly to their not knowing a competent person to fill the office, and he says that when the council meet again the same matter will be again brought before it, and if this should be the case I should be much obliged if you would recommend me for it. I write this mail to Ramsay, Jukes, Haughton, Sir H. James. Godwin-Austen and few other geological friends in England for letters of competency that I might show the provincial councillors* but I shall not be able to get answers before Dec. and the question may come on in Oct. or Nov. I am so fond of geology and Natural History and so anxious to get employment in the scientific line that I would willingly take the place for a very small salary, say L100 or L200 a year, and travelling expenses paid and I am so interested in the volcanic phenomena of this province that I would sooner geologise here than anywhere else for twice the money. Of course if it is arranged I would willingly be subordinate to you, but in this case I suppose that the gen. govt. would pay some of the expenses.

I could also look after and arrange the Auckland Museum which is sadly in want of someone to look after it as its contents are fast going to ruin. I had intended going to Wellington to see you but Major Heaphy thought it a needless expense, and suggested that I should ask you to speak to Mr. Whitaker (our Superintendent) about the matter. If you wish you can show him this letter. (James Hector Papers)

In a later letter, 15 October 1866, Hutton thanked Hector "for mentioning my name to Mr. Whitaker".

At the meeting of the Auckland Provincial Council on Monday 12 November 1866, John Williamson tabled 'Papers referring to the appointment of a Geologist, for the Province of Auckland'. Regrettably these papers were amongst those 'not ordered to be printed' (Anon. 1867). Furthermore, in November 1872 the Provincial Government Buildings in Auckland were destroyed by fire and the Council minutes were lost#. As stated earlier, the 'Daily Southern Cross' for 13 November 1866, the day after the Council meeting, gives the text of Stratford's letter of 14 April 1866 and its enclosed letter from Tate but it does not report on the discussion.

* One of Hutton's letters, that to T. Rupert Jones who was his geology teacher at Sandhurst is reproduced on p.vi of Dawson 1994.

Information from the Archives of the Province of Auckland held at National Archives, Wellington, as quoted in Auckland Central Library NZMSS 595, Auckland Provincial Council Manuscript Material.

So we do not know the nature of that discussion and whether F.W.Hutton's interest in the position was mentioned. Our only information comes from a letter written by Hutton to Hector on 10 June 1867 -

About 10 months ago an Auckland colonist in England (Dr. Stratford) wrote to the Superintendent and pointed out the advantages of a geological survey of the province and forwarded a letter from Mr. Ralph Tate of the Geological Society's Museum, saying that he would be happy to be appointed Geological Surveyor of the Province. These letters Mr. Whitaker laid before the Provincial Council last year but that august body did not deign to take any notice of them and they did not even trouble themselves to answer Dr. Stratford's letter so that Mr. Tate was rather premature in announcing his application.

Major Heaphy told me that something would be done about a geologist and advised me to write home for letters which I did and have now the highest testimonials from Ramsay, Jukes, Godwin-Austen, S. Haughton, Rupert Jones and R. Scott as geologists and from Wollaston, Carte and Percival Wright as naturalists...I think I have as good a chance as Mr. Ralph Tate especially as I know that Ramsay would not recommend him in preference to me. Mr. Williamson, our present Superintendent, is much more likely to advance science than Mr. Whitaker... (James Hector Papers)

Whilst Hutton (or Tate) was never appointed Auckland Provincial Geologist, he was, during his time in Auckland (1866-71), the only geologist working in the province, the first since Hochstetter, and he later did obtain a provincial appointment in Otago.

Ralph Tate seems to have been confident that he would get the Auckland position. In a letter to Hector dated 18 January 1867, Joseph Dalton Hooker says "A Mr Tate called the other day, he is assistant at Geol. Soc. Mus. and says he is half appointed to the survey of Auckland" (Yaldwyn and Hobbs 1998, p.75). News, or rather lack of news, of the 12 November meeting would not have reached England at the time Hooker wrote his letter.

So Auckland, alone amongst the four major provinces, did not appoint a Provincial Geologist and it remained a backwater in New Zealand geological research until the arrival of John Arthur Bartrum at Auckland University College in 1914.

Campbell 1984 p.22 makes this comment on Hutton's Auckland Period -

I have long had the feeling that he - (Hutton) -has been rather less than fully honoured by New Zealand geologists and by Auckland geologists in particular, and I think that

it was Auckland's loss when he slipped through the province's politicians' fingers a little more than a century ago..

Campbell's remark on "Auckland's loss" would apply equally to Tate (see below).

One would dearly love to know what transpired at that Auckland Provincial Council meeting on 12 November 1866. We are given a clue as to what the Council attitude would have been in a letter written by Hutton to Hector on 1 January 1869

I hear that the Canterbury Government have voted 1200 pounds to build a museum and make Haast curator. I wish I could get the semi-educated drunkards who govern up here to do the same but everything connected with education and science is ignored while they vote 5 or 6,000 pounds for the purchase of native land. (James Hector Papers)

.....

Ralph Tate

Following his application for the Auckland position in 1866, Ralph Tate (1840-1901) held several teaching positions in England until 1874 when he was appointed Foundation Professor of Natural Science at the University of Adelaide. He published on botany and zoology, as well as on geology which was his main interest. Initially his geological studies were on the Mesozoic but on moving to Adelaide he altered course and concentrated on the Tertiary although still writing widely on botany, zoology, and other aspects of geology. His publication list given by Blake 1902 contains over 160 items.

Alderman 1976 has this to say on Tate's work in Australia -

Tate's contribution to the growth of science in Australia, through his personal investigations and stimulation of research in natural science, can hardly be exaggerated. Only a man with an unlimited capacity for work could have accomplished so much.

S. J. Stratford

Samuel John Stratford (1802-71) graduated in medicine from the Royal College of Surgeons in London. After practicing for about 25 years in Canada, in 1854 he moved to Auckland where he took an active interest in scientific matters. More information on Stratford can be found in Anon. 1871. He had dealings with Hochstetter when the latter was in Auckland. The 'Daily Southern Cross' for 1 September 1864 contains a letter from Stratford in which he complains that Hochstetter had ignored a sample of

diatomaceous earth from Cabbage Tree Swamp that he had given him

"It would appear that the very numerous attentions paid to this gentleman while in Auckland was too much for his equilibrium. It is plain by his publication that he came to New Zealand and, as it is vulgarly said, 'sucked the brains of the lieges', and now fosters the work upon the public as original matter."

Stratford's letter brought an equally acid response from Hochstetter's friend, G.F.Fisher, in the 'Daily Southern Cross' for 3 September -

Dr. Stratford, in a letter to you which appears in to-day's issue, seems very much aggrieved that his brains have not been sucked by Dr. Hochstetter...

Stratford's letter of 14 April 1866 to Whitaker seems to have been written from London as its acknowledgment, published in the Daily Southern Cross on 13 November 1866, is dated 18 July, and is addressed to Dr. S.J.Stratford, Norfolk street, London. In his letter to Whitaker Stratford refers to discussions he had held with members of the Geological Society of London. Whilst in London, Stratford presented to the Society "Specimens of shales, marls, and loosely consolidated sandstones from the Tertiary Waitemata series, at Parnell, near Auckland; also one specimen of iron sand from Manukau Heads" (Smith and Game 1954, p.228).

Acknowledgments

The Hocken Library, University of Otago, gave permission to publish extracts from the Hutton correspondence in the James Hector Papers, MS443. Dr. John Yaldwyn of Museum of New Zealand Te Papa Tongarewa gave permission to quote from Yaldwyn and Hobbs 1998.

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Alan Mason

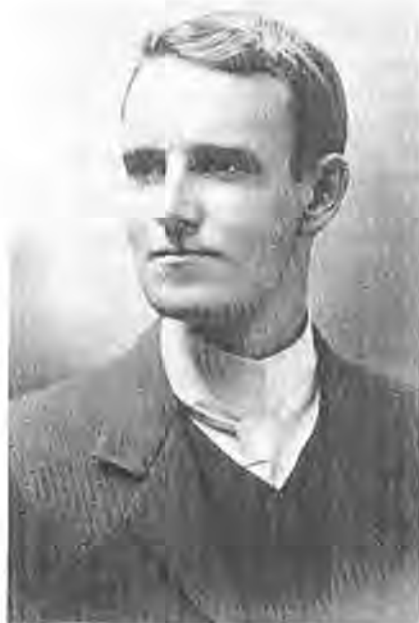
* * * * *

Anecdotes of the intense rivalry, in the last quarter of the nineteenth century, between Edward Drinker Cope and Othniel Marsh in the acquisition of North American vertebrate remains are numerous. The following episode is recorded in The Dawnseekers by Robert West Howard (1975).

Cope spent hours each day on a hilltop spying on the Marsh dig. This encouraged Marsh's crew to assemble a skull from the jawbones, teeth, eye sockets, and horns of a dozen species. They buried "Old What-you-may-call-it" just before Cope showed up for his daily spell at the telescope. When he did arrive, they put on an elaborate pantomime of arduous shovelling and great excitement. Cope sneaked over that dusk, dug up "What-you-may-call-it" and wrote a paper about its significance.

ALEXANDER MONCRIEFF FINLAYSON (1884-1917)

This account of A.M. Finlayson's life and work is a revision of two articles written earlier for the Geological Society newsletter (no. 66, 1984, pp. 66-69 and no. 105, 1994, pp. 59-60), incorporating some new information about him. Regrettably, only one private letter written by Finlayson has been located, and none to him, so that many personal details of his life remain unknown.



Finlayson was one of a succession of gifted men who studied geology and mining subjects at Otago University under Patrick Marshall and James Park during the early years of the 20th century. They included C.A. Cotton, M. Ongley, J. Marwick, and R.A. Farquharson, the last-named of whom became a well-known and respected consultant in Perth, Western Australia. Finlayson, Marwick and Ongley were old pupils of Waitaki Boys' High School, where the Rector, Dr J.R. Don, had introduced geology into the school curriculum, without doubt partly influenced by the wealth of geological features in the countryside within easy reach of Oamaru (1).

Finlayson was born on 10 February 1884 at Waitati (then called Blueskin), Otago, where he was known to all the district as Crieff.

His father, the Rev. A.M. Finlayson (1845-1933), was for many years the Presbyterian minister, both of Waitati and the adjoining parish of Merton. His mother, Janet Brunton (died 1911), was from Merton and before her marriage had studied to be a teacher (2).

Finlayson's early education was first at Waitati primary school and then at the District High School in Port Chalmers. In his second year at Port Chalmers he gained a Senior Education Board scholarship which enabled him to attend Waitaki Boys' High School, from 1900 to 1902. At Waitaki he had a brilliant record and gained distinction in Languages in 1901, and in 1902 the award of a university entrance scholarship. He also played in the school's first rugby fifteen in 1902. From 1903 to 1907 he was at Otago University where the promise of his school career was continued. In 1907 he gained his M.Sc., with double first class honours in geology and in electricity and magnetism. During his course he won prizes in chemistry (Black Prize) and mineralogy (Ulrich Memorial Medal), the Sir George Grey

...larship, and the Senior Scholarship in geology in 1906. As part of the practical for his mining course, he worked as an assistant with the Geological Survey mapping of the Mikonui and Cromwell subdivisions, under P.G. Morgan and Park respectively. Then, in November 1907, he accompanied the Subantarctic expedition organised by the Canterbury Philosophical Institute (now Canterbury Branch, Royal Society of New Zealand) and was with the Auckland party (see below) as assistant to Mr (later Professor) R. Speight (3).

...07 Finlayson gained his associateship of the Otago School of Mines (A.O.S.M.), same year he was awarded an 1851 Exhibition Scholarship which from 1908 to enabled him to go to the Royal School of Mines, Imperial College, London. of his work there was based on New Zealand material and included his important of the ultramafic rocks of the South Island. Then, following a three-month field the summer of 1909, he studied the great pyritic ore bodies of Rio Tinto, near southern Spain (4). Interestingly, part of the same mining region was studied 20 years after by another Otago student, Gordon Williams, also based at ... College. He later became Director of the Otago School of Mines (Williams ...). Finlayson also studied ore deposition in parts of England, and his work in ... culminated in the award of a D.Sc. In 1909 he was awarded the Daniel-Fund of the Geological Society of London and in 1911 the Consolidated Fields of South Africa premium by the Institution of Mining and Metallurgy.



... Auckland Islands party of the 1907 Subantarctic Islands expedition. ... in the photograph are: *back row*, from left – A.M. Finlayson, G. Collins (assistant to geologists), W.B. North (cook); *middle row* – S. Page (photographer), Hudson (entomologist), A.A. Dorien-Smith (English gardener and botanist), ... (cook (magnetic survey), B.C. Aston (botanist), J.S. Tennant (botanist), R. ...; *front row* – E.R. Waite (zoologist), L. Cockayne (botanist), W.B. (zoologist), C.C. Farr (magnetic survey).

At the end of his period in London, Finlayson joined the Indo-Burma Oil Company, being based from 1911 to early 1915 in Rangoon, and eventually becoming chief geologist of the company. The only published record of his scientific work with the company appears to be two short contributions he made to written discussions on papers dealing with petroleum geology read at the Institution of Mining and Metallurgy (Trans. I.M.M., vol. 20, pp. 268-269, 1911; and vol. 21, pp. 168-169, 1912). In a letter he wrote from Rangoon in December 1912 to P.G. Morgan, then director of the N.Z. Geological Survey, he mentioned that his company owned producing wells in the enormously productive Yenangaung field in the Irrawaddy Valley, and that part of his work there had involved a detailed study of the oil-bearing formation from drilling records; his company had drilled 56 wells at Yenangaung, all of which were oil producers. He also told Morgan that over a period before the writing of his letter he had mapped what he described as "a fine big asymmetrical dome" in the north of the country, near the Chindwin River, a major tributary of the Irrawaddy. He referred briefly to the difficulties of exploration drilling in what was an isolated swampy area, subject to fever and flooding. It was later named the Indaw field and was briefly described by the well-known English geologist L. Dudley Stamp in a survey of the oil fields of Burma (Stamp 1927). In his paper Stamp noted that the field "----was discovered rather more than a dozen years ago by the geologists of the Indo-Burma Petroleum Co. Ltd and production [was] first recorded officially for 1918" (5).

Finlayson's work in Burma came to an end with his decision to resign from the company and return to England in 1915, in order to join the British army. By coincidence, another New Zealander, Leslie Beauchamp, the brother of Katherine Mansfield, was an officer in the same regiment, the South Lancashire, that Finlayson joined (6). There is no evidence that the two men knew each other, although a possible link between them was through James Mackintosh Bell, who knew Finlayson through his student work with the N.Z. Geological Survey and who became Leslie's brother-in-law after his marriage to Vera Beauchamp. According to information received from England, it is more likely that Finlayson happened to be posted to this particular regiment to fill one of the gaps caused by continuing officer casualties.

He had been accepted for officer training and as 2nd lieutenant he joined the regiment's 7th battalion which was then engaged in heavy fighting at Messines. Shortly after this it was transferred to the Somme front, where Finlayson was wounded by shellfire. He suffered an eye injury but was able to return to active service in May 1917 after some months of hospitalisation and convalescence in England. During the early stages of what became known as the Third Battle of Ypres he was again wounded, the effects of this resulting in his death on July 23 1917. He was buried in the Hospice military cemetery at Loere (Loker), a short distance southwest of Ypres, Belgium. His name is recorded in the regimental Book of Honour in St Elphin's Church in Warrington, Cheshire.

Finlayson's work, though published over a period of only a few years, covered a surprisingly wide field, embracing four main topics, namely the genesis of metalliferous veins in various parts of New Zealand, the ultramafic and associated rocks of the South Island, the geology of the Auckland Islands, and processes of ore formation in mining fields in Britain and Spain. His studies of veins in Central Otago,

the Reefton district, and the Hauraki field dealt with the problems of alteration associated with the mineral-bearing veins, illustrated where possible by chemical analyses, the detailed description of the veins themselves, and the source of the precious and other metals.

Finlayson's work on the magnesian rocks of the South Island comprised a general account, according to information available at the time, of several of the main occurrences of ultramafics. More particularly, he worked on a detailed study, supported by analytical data, of bowenite and the different varieties of nephrite, bringing together results of previous work. In his discussion of the origin of nephrite, he considered not only the formation of the fine-grained amphibole that is the main constituent mineral but also the importance of contemporaneous shearing to produce the characteristic felted structure of the rock. His detailed study was a forerunner of the comprehensive work of F.J. Turner 25 years later.

The chapter by Speight and Finlayson in "The Subantarctic Islands of New Zealand" is still a major source of information on the geology of the Auckland Islands as well as on rocks from the Bounty and Antipodes Islands, which, however, they were not able to visit. Among the aspects they dealt with in detail are the extent of former glaciation on the main island and the nature and composition of the volcanic rocks making up the southern part of the island (Carnley Volcano). They also mapped and described the crystalline rocks (granite and gabbro) that form the basement of the Carnley Volcano as well as the interesting conglomerate (Camp Cove Conglomerate) in the same area.

In his work on economic geology in Britain Finlayson strongly advocated a connection between the main orogenic episodes and periods of ore deposition, and he suggested that many of the most important deposits were related to the Hercynian earth movements rather than to the Caledonian, as had been previously believed. Twenty years later Professor P.G.H. Boswell (1933) recalled that geologists and mining engineers owed to Finlayson "----the first exposition of the connection between metallogenesis and the major mountain-building movements"(7).

Finlayson was one of the early workers in the microscope examination of opaque minerals using reflected light, following the first studies of sulphide minerals by this method at the copper-mining centre of Butte, Montana, a few years previously. Already in 1910 he advocated the use of ore microscopy, with simple equipment, in the field and foresaw its application to ore-dressing studies. In his work on ore deposition in Britain he published a simple metallogenic map of the British Isles (Quarterly Journal of the Geological Society, vol. 66, between pp. 296 and 297, 1910) and this must have been one of the first examples of this type of map. His work in Spain on the Rio Tinto ore bodies remains a classic study. He dealt not only with the general geology of the mining field in detail, but also with the formation of the massive sulphide lodes. He also worked on the problem of secondary enrichment of the copper-bearing ore bodies, his conclusions in this aspect provoking wide discussion at the time and later.

His continuing interest in his work in Spain is shown by a letter he wrote from Burma on a paper by H.F. Collins in the Mining Magazine on the Rio Tinto pyrite deposits

(Mining Magazine, vol. 5, pp. 383-384, 1911). In particular, Finlayson referred to comments by Collins on the secondary enrichment of the sulphide masses.

Finlayson's life was tragically short, but the few years during which he studied and wrote were unusually rich and productive. His studies in economic geology established him as one of the pioneers in this field. Later, his contributions to discussions in the Transactions of the Institution of Mining and Metallurgy show that he had become deeply interested in the problems of the origin of petroleum and the relationships of reservoirs to orogenic belts. In Burma, however, he would have been dealing with administrative and other problems, as well as with an enervating climate, and almost certainly did not have the opportunity to follow through projects in the detail he would have wished nor access to the facilities he had enjoyed in Dunedin and London. Regrettably, the above notes can give little account of him as a personality, but it is clear from written records after his death, notably by Pullar (1957) and in obituaries, that he had been widely regarded with respect and esteem. His loss in 1917 is a reminder of the sacrifice made by so many men in the First World War.

Notes

1. Dr Don was Rector at Waitaki Boys' High School from 1897 to 1906. Much information about him is given in an excellent article by Alan Mason (2000).
2. The book by R.G. Pullar *By Blueskin Bay* (1957) gives details of early Waitaiti and of the Finlayson family.
3. The Subantarctic Islands expedition, with photographs of the two main parties, is described by Godley (1979).
4. Mining at Rio Tinto has continued intermittently for over 3000 years (Garcia 1996). The district was a major source of copper, silver and gold in the ancient world.
5. The Indo-Burma Petroleum Company was still active in the 1920's but is no longer in existence (Owen 1975, pp.1518-1519 and 1523)
6. Leslie Beauchamp was killed in a training accident in France in October 1915
7. The full quotation, which forms part of the discussion of the paper by Gordon Williams (1933) on his work in the Rio Tinto district, is as follows: "Finally, it was not without interest to recall that they owed to the late A.M. Finlayson, a brilliant post-graduate student, who came to the Imperial College from New Zealand, the first exposition of the connection between metallogenesis and the major mountain-building movements. History had repeated itself, and another Imperial College student, also from New Zealand, had applied to the same problem more detailed tectonic principles."

Scientific papers by A.M. Finlayson

1908

Some observations on the schists of Otago. *Transactions of the New Zealand Institute* 40: 72-29.

The scheelite of Otago. *Trans. N.Z. Inst.* 40: 110-122.

1909

The geology of the quartz veins of the Otago goldfields. *Trans. N.Z. Inst.* 41: 64-84.

The geology of the Reefton gold-veins. *Trans. N.Z. Inst.* 41: 85-98.

Problems in the geology of the Hauraki goldfields, New Zealand. *Economic Geology* 4: 632-645.

The nephrite and magnesian rocks of the South Island of New Zealand. *Quarterly Journal of the Geological Society* 65: 351-381.

(with R. Speight) The physiography and geology of Auckland, Bounty, and Antipodes Islands. In Chilton, C. (Ed.) *The Sub-antarctic Islands of New Zealand*, vol. 2, 705-744.

1910

The ore deposits of Waihi, New Zealand. *Mining Magazine (London)* 2:281-286.

The ore-bearing pegmatites of Carrock Fell and the genetic significance of tungsten ores. *Geological Magazine dec.* 5, 7: 19-28.

The pyritic deposits of Huelva, Spain. *Economic geology* 5:357-372 and 403-437.

The metallogeny of the British Isles. *Quarterly Journal of the Geological Society* 66: 281-298.

Problems of ore deposition in the lead and zinc veins of Great Britain. *Quarterly Journal of the Geological Society* 66: 299-328.

The paragenesis of British ores. *Economic Geology* 5:719-728.

1911

Secondary enrichment in the copper deposits of Huelva, Spain. *Transactions of the Institution of Mining and Metallurgy* 20: 61-72, with following extensive discussion, pp. 72-88.

Short obituary notices of Finlayson are given in the Quarterly Journal of the Geological Society (Vol. 74, p.lxxiv, 1918), the Transactions of the Institution of Mining and Metallurgy (vol. 27, pp. 395-396, 1918), and in the magazine of his old school, "The Waitakian" for 1917.

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Pullar, R.G. 1957. *By Blueskin Bay.* Otago Daily Times.

Stamp, L.D. 1927: The geology of the oil fields of Burma. *Bulletin of the American Association of Petroleum Geologists*

Williams, G.J. 1933: The genesis of the Perrunal-La Zarza pyritic orebody, Spain. *Transactions of the Institutions of Mining and Metallurgy 42: 3-80* (has extensive discussion, including comment by Boswell) (see above).

Acknowledgments

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Bill Watters

* * * * *

How to write to a successful textbook in geology :

Mental effort on the part of the average reader should be reduced to a minimum. To be widely read in English-speaking countries think of the most stupid student you ever had then think how you would explain the subject to him. It is well worth the additional effort.

These words of advice were spoken by Arthur Holmes shortly before his death in 1965. And Holmes should know. His Principles of Physical Geology is the most successful geology text book of modern times, probably of all times. First published in 1944 with a print run of three thousand copies it sold out almost immediately and was reprinted no fewer than eighteen times before he completed the second edition, which was three times the original length, a few months before he died.

The First Report on Coromandel Geology.

In its issue for 14 June 1845 'The New Zealander', an early Auckland newspaper, carried the following report :

"It is not, perhaps, generally known, that during the last three months, the eastern shores of the Waitemata, from Cape Colville to Coromandel, have been explored by Mr. Grayling, and the geological and mineralogical riches of that part of the coast fully ascertained. It is with the greatest satisfaction that we lay before our readers a brief outline of the valuable products there discovered: and we trust, that no long time will elapse, before we shall be enabled to communicate through the colony, the more detailed account, which it is the intention of Mr. Grayling to publish, of the Geology and Mineralogy of that portion of New Zealand.

The Copper ore from that district and from Kawau, contains an extreme great per centage, as the analysis of Mr. Grayling has most clearly shown, - a per centage which has never been exceeded in any country.

Galena, or lead ore, has been also found in abundance, containing, according to the same analysist, between 60 and 70 per cent of Lead, and about 15 lbs of Silver, in every ton of ore. This, in connection with the Quicksilver in New South Wales, will render the process of reducing and separating the Silver much less expensive than to send to England. Tin has also been found, and likewise Zinc: in fact, all the metals, in some form of combination, are more or less plentiful, Sulphur is well known already, to be abundant, on the same coast, and it would be a good export for the India and China markets, for the manufacture of gunpowder.

There are also abundance of alkaline earths in the same district; and clays adapted for porcelain ware: besides a variety of saponaceous earths for wool washing."

We would like to know more about Mr. Grayling and his account of "the Geology and Mineralogy of that portion of New Zealand". We can find no evidence that the account was ever published.

Alan Mason

* * * * *

Old Lady : "How did all those rocks get there"
Weary Geologist : "The glaciers brought them"
Old Lady : "And where are the glaciers now"
Weary Geologist : "They have gone back for more rocks"

Baron Nopsca : Paleontologist Extraordinary.

Amongst the several interesting characters discussed by Edwin Colbert in his Men and Dinosaurs (1968) is Franz Baron Nopsca von Felso-Szilvas (1877-1933).

Nopsca was a member of a noble Transylvanian family (as also was Count Dracula!). Fluent in several languages, he had equally wide interests, writing not only on fossil reptiles but also on geology, archaeology, ethnology and the geography of Albania, a country in which he had a life-long interest. His first paper on dinosaurs, written during his first year at university, was an excellent effort for one so young and led him to say to Louis Dollo, a paleontologist with an international reputation "Is it not marvellous that I, so young a man, have written such an excellent memoir?"

Over a period of twenty five years, Nopsca published on all aspects of the dinosaurs and he became an authority on the group.

In Transylvania before World War 1 Nopsca lived the life of a baronial lord with peasants bowing low before him as he drove by in his carriage.



Nopsca in Albanian costume
(and well armed)

His fascination with Albania manifested itself at an early age. He made several journeys through the country and learnt the dialects. In 1913 he proposed to the authorities that he lead a filibustering expedition to establish himself as ruler of the country and pictured himself as riding down the main street of Tirana on a white horse. Once he was king, he would marry the daughter of an American millionaire - any millionaire; they all had daughters eager to marry kings - thus providing himself and the kingdom with ample funds

During the First World War Nopsca, wearing the rough garb of a Romanian peasant and with long and shaggy hair, lived the dangerous life of a spy. After the war, as a nobleman on the losing side, his estates were confiscated. He was appointed president of the Hungarian Geological Survey but antagonized his colleagues and finally left in a

rage and set off on a three-thousand-mile trip through Italy on a motorcycle, with his Albanian friend and secretary, Bajazid, as pillion rider.

On a visit to Hungary after the war Nopsca was attacked by peasants wielding cudgels and pitchforks and was left with a fractured skull, an injury that accentuated his existing mental peculiarities.

Nopsca's secretary, Bajazid, was also his lover. Indeed Nopsca maintained two Albanian homosexual boy friends. In his lucid periods he directed his brilliant mind to research on dinosaurs and to his other interests. At other times his life was one of bizare extremes.

It all ended on 25 April 1933. He gave Bajazid a cup of tea laced with sleeping powder and then shot him in the head. Next he placed the muzzle of the pistol in his own mouth and pulled the trigger.

Alan Mason

* * * * *

Absent-minded Professors

Stories of absent-minded professors are not unusual in the geological fraternity. Here are two examples :

Professor L.A.Cotton, Professor of Geology at Sydney University, during his term as President of the Royal Society of New South Wales, was keen to boost attendance at the traditional monthly dinners. He telephoned members on the day to remind them. He had a good response, so went home happy that he had done a good job. At about 9.00 pm he suddenly realised that he should have been there also.

- from The Memoirs of Professor Alan Voisey

and Professor Walter Bucher of Columbia University and one of the leading structural geologists of his time -

A car pool was organised by some of the Columbia professors with various members taking turns driving. It was the duty of the driver for the day to pick up the other members of the pool. One day it was Walter Bucher's turn to drive, so he dutifully made the rounds and picked up his fellow passengers. Then he drove to his own house and stopped, much to the puzzlement of the other people in the car, and finally began to honk his horn. Suddenly, to everybody's amazement, it became evident that Bucher was stopping to pick himself up.

- from Digging into the Past (Edwin Colbert)

Dr Carl Caldenius in New Zealand

Dr Carl Caldenius, a Swedish glaciologist, visited New Zealand in the mid 1930s, and was responsible for collecting the first pollen samples to be described from New Zealand. Some years later he was able to help Brian Mason who was stranded in Sweden after the German invasion of Norway and Denmark. Brian's story inspired me to try and find out a bit more about Caldenius.

As far as I know, the only person who still has any personal memory of the visit by Caldenius is Dr P.B. (Sam) Maling, who is a member of the Historical Studies Group, and who studied geology at Canterbury University College between 1930-34. He recorded the following memories of the visit (Maling 1991):

"In the summer of 1933-34 we had a notable geological visitor to Canterbury, Dr Carl Caldenius of the Geochronological Institute of Stockholm. He came as the result of a paper of Speight's describing the varved silts in the Rakaia Valley [Speight 1926]. Caldenius had done a lot of work on dating glacial and interglacial deposits in the northern hemisphere, and he hoped, by detailed studies in the South Island, to make some correlation between deposits in the two hemispheres and so determine whether glacial epochs in the north and the south had been contemporaneous. I spent a very interesting week with him and his wife at Pipeclay Gully, below Lake Coleridge. He had workmen cutting a series of steps up the varved cliffs. The riser of each step was smoothed off, the varves plotted on paper, and then vertical strips about two inches wide were cut out and sealed in paraffin wax in tins. In this way he took back to Sweden complete sections of the deposits".

As well as his work on varved silts, Caldenius travelled widely in the South Island, and collected pollen sequences from six Holocene peat bogs, all previously known to botanists: Mossburn, Greenstone Hill, Richter's Rock, Swampy Hill, Bluff, and Otautau. He handed these samples over to his colleague, Professor Lennart von Post, who subsequently persuaded Lucy Cranwell to work on them when she visited Sweden for five months in 1935. The first pollen diagrams from New Zealand (and indeed for the southern hemisphere) were published by Cranwell and von Post (1936), and their paper set Quaternary palynological studies on a firm foundation.

Unfortunately the work that Caldenius did on the Rakaia silts has never been published. In my student days I can recall Max Gage talking about this work, and saying that Speight failed to recognise that the so-called varves were rapidly deposited, and quite different from the annual varves found in northern Europe where glacial lakes are frozen over for much of the year. Canterbury students were banned from using the word "varve", as Max did not believe that such sediments occurred in New Zealand. Jane Soons (pers. comm. 2002) recalled Max Gage commenting that Caldenius recognized that the lake silts were not annual varves when he examined them in detail.

The visit by Caldenius had an interesting sequel several years later. In May 1940 Brian Mason found himself unexpectedly in Sweden, having escaped from Norway just ahead of the German invasion of Norway. The only person he knew of was Dr Caldenius, who had been visiting Canterbury during his first year as a student. He managed to track him down at the University of Stockholm, and Dr Caldenius was very helpful, introducing him to Professor Percy Quensel, Professor of Mineralogy, who subsequently supervised Brian's PhD thesis (Mason & Nathan 2000). Trying to track down Caldenius led to some interesting background information on his visit to New Zealand, as Brian relates:

"Dr Caldenius, who had previously visited Canterbury to study varve sequences, was the only person I knew of in Sweden, so soon after I arrived I went off to the Swedish Geological Survey to try and track him down. I met a geologist called Samdergren, and when I explained that I was trying to find Dr Caldenius he responded "What sort of a place is Hororata?". I was nonplussed. Why would anyone in Sweden want to know about Hororata? I told him that it was a little farming village in Canterbury, New Zealand. He said "Aha, that explains everything"

When Caldenius arrived back in Sweden after his New Zealand trip, he bought himself a motorcar, which was quite unusual in the 1930s. He took Samdergren for a ride in his new car, and Samdergren told me that he was never more scared in his life as Caldenius was a terrible driver. He asked Caldenius if he had a driving licence, and he produced one issued in Hororata, New Zealand.

Several years later when I got back to New Zealand, I met Professor Speight, who had been Caldenius' guide in New Zealand. After I told him the story he laughed and told me the full story. Because Caldenius was going to be working in inaccessible areas, Speight told him to buy a car for transport, and that he would teach him how to drive it. But it turned out to be a stressful and nerve-wracking experience as Caldenius was poorly coordinated, and didn't really understand about changing gears. Speight said "I realised that he would never get a licence in Christchurch where he had to drive in traffic and go up the Port Hills, so I had to take him somewhere it would be easy. So we went out to Hororata. All the policeman there does is to get you to drive down the main street, turn round, and then issues you a licence".

It would be interesting to know if anyone else has any information on Caldenius' visit to New Zealand, or subsequent work on the samples he collected. I am grateful to Jane Soons, Dallas Mildenhall, and Pat Suggate for their comments on this article.

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Simon Nathan



INTERNATIONAL GEOLOGICAL CONGRESS ; PRAGUE 1968

The 23rd International Geological Congress opened in Prague on Monday 19 August 1968. Late on the following day, the first full day of the Congress, the armed forces of the Soviet Union invaded Czechoslovakia and brought the Congress to an abrupt end. In an article in Earth Sciences History Volume 14, No.2, 1995, Cecil J. Schneer of the University of New Hampshire, U.S.A., gives a gripping eye-witness account of those turbulent few days. Unfortunately we cannot print all thirty pages of Schneer's story but the few extracts below will give a small indication of the events that took place.

The background : Early in 1968 the Czech Communist Party under Alexander Dubcek began a process of liberalization that was totally at variance with the policies of other Warsaw Pact countries who regarded the changes as a threat to the solidarity of the Eastern Bloc.

The pre-Congress field trips : Highly publicised troop movements in the previous month resulted in many cancellations and by the time of departure only about a quarter of those who originally expressed interest took part. Within Czechoslovakia, the new freedom engendered a spirit of enthusiasm but this changed as the excursions moved into other states of the eastern bloc - "

" The borders between these supposedly fraternal Socialist allies were as forbidding as those between East and West Berlin, marked as they were by barbed wire, armored barriers, guns and guard towers. Some of the buses waited hours while the border guards scrutinized passports in languages they could not read, disappearing for long periods, ostensibly to consult authority. They took pleasure in the discomfiture of strangers, licensed by a climate of universal suspicion and hostility toward all that was neither petty nor common. "

The Congress Opening : On the morning of Monday 19 August the Congress opened with a general assembly of all members. The president of the Indian Congress formally declared the Congress open and then -

" The Prime Minister of Czechoslovakia, Ing. Otto Cernik, appropriately resplendent in academic robes, welcomed the delegates to Czechoslovakia. Within forty-eight hours he would be dragged from his office in handcuffs."

Ludvik Svoboda, President of the Republic -

" invited the Head-delegates and their ladies to a reception next day at Hradcany Castle, the palace where once Tycho Brahe and Johann Kepler had mapped the stars and constructed new universes. This reception would never be held. "

The Invasion : After completion of the first day's sessions, Tuesday evening was a time to relax and many delegates went to various theatres. After the shows -

" The emerging 'congressistes', unable to find cabs, groped through poorly lit streets trying to get back to their hotels. Some of them remarked on the activity of aircraft. Fighters were buzzing the city and heavy transports were coming in but it was probably after most of them had found their hotels and dropped off in sleep that the city was shaken by the immediate sounds of the invading armour and troops moving into position and the attempts of some Czechs driving wildly through the city leaning on their horns to spread the alarm."

" Beginning about 11 o'clock on Tuesday night, the 20th of August, Soviet and Polish air controllers arriving in the guise of allies, seized the airports and directed the landing of fleets of troop-carrying helicopters and heavy transports with tanks and armour. Parachutists seized critical highway junctions and bridges. Simultaneously, armored columns of the troops of the summer manoeuvres struck back across the borders on every side. Within hours they had reached Prague and linked up with the airborne forces.....By morning the essential invasion was over. The party leaders, Dubcek, Smrkovsky and Kriegel with their arms and legs tied behind their backs to their throats - the auto-garotte - were driven off in armored cars. "

There was resistance by the Czechs -

" Some of them died throwing gasoline bombs against the sides of tanks. 'Congressistes' donated blood at the Prague city hospital. "

On the following morning, Wednesday 19 August -

" Tanks had arrived at the Technical University, the Congress headquarters... they settled in, ringed around the park-like grounds, their cannon levelled. Here alone, of all the public centres of Prague there was free passage.

The Congress : On the same Wednesday morning an urgent meeting of the Congress Bureau was called but -

" Unhappily, the majority of the visitors were housed in hotels on the opposite side of the Vltava and the telephone system was disrupted. Of the 91 countries with delegates in Prague, only 26 were represented at the meeting....all favored continuation of the session."

However many of the geologists were confined to their hotels by the gunfire in the streets and nearly all the scheduled activities were aborted.

" There were still a few package of cereal and some stale rolls left for breakfast at the Hotel Flora on Thursday morning.... Bursts of gunfire and occasional blasts continued."

The Congress Bureau met again at 9.20 on Thursday morning -

" but the only topic under discussion was how long to continue the Congress - as if it were functioning in any real sense. Urged by their national legations, members were leaving whenever they could.

It was decided to move the final Assembly forward from Wednesday 28th to Saturday 24th but -

" The next morning (Friday) the Bureau of the XXIIIrd Congress met for the last time. Although conditions in Prague were improving, too many 'congressistes' had left to pretend that the Congress was not in fact over. All plans for further activities at Prague, for example the scheduled meetings of the International Mineralogical Association, had evaporated. "

The closing ceremony was called for 1.00 pm that day.

" In contrast to the thousands of members and their companions at the opening Assembly at the Great Hall in the Park Kultury, with the performance of the National Symphony, there were 400 or so 'congressistes' crowded into a lecture room at the Technical University, most of them Czech geologists resident in Prague."

The Soviet delegation : This was, after the Americans, the largest foreign contingent present. Senior Soviet geologists -

" had earned for Soviet geology the kind of international prestige that Sputnik had gained for Soviet technology and they had won for themselves leading positions in international geological affairs....Now they found themselves surrounded by colleagues - friends, strangers, the geologists of every country in the world - regarding them with an awful unease."

The Russian geologists wandered around

" with their name tags removed and with embarrassed expressions on their faces."

Nevertheless -

" The Russian geologists however had to pretend that there was no invasion going on and try to continue all meetings."

The Czech geologists : Twenty years after their welcome as liberators the Russians had returned as invaders. Many Czechoslovak professionals now lost all hope for the future. Geologists in some numbers escaped the country. -

" When the tanks rumbled by below the window", Dr. Viktor Zemanek recalled six months later in Italy, "I watched them with my boy and I remembered when I stood at the same window with my father in 1938 and watched the Nazi tanks coming in...and then the years that followed.... I couldn't go through that again."

An Overview : The Prague International Geological Congress of 1968 would have been a key meeting for world geology -

" Geology in August of 1968 was undergoing major change. For the first time since the demise of the Wernerian System of the 18th Century, geology, with the theory of continental drift, had a single overriding conceptual framework of global scope."

" The International Geological Congress and its erstwhile child, the International Union of Geological Sciences were a platform for the forging of planet-wide research structures that would be a reprise on a modern scale of the old systems and theories of the earth. The geologists who were dispersed from Prague could not measure what had been missed."

Alan Mason

* * * * *

"In research self-satisfaction is death ! Doubt motivates progress, but it is painful to endure"

Jacques Monad in an interview in Nouvel Observateur (1965)

THE HOCHSTETTER - HEAPHY CONTROVERSY

Or

WHOSE MAP WAS IT ?

In its issue for 13 February 1857 The Southern Cross, an early Auckland newspaper, under the heading "Presentations to the Mechanics' Institute" reported that at a meeting of the Institute on Monday 9 February -

...another valuable present was made by Charles Heaphy, Esq., of a map entitled "Sketches of the geological formation of the Auckland District." - prepared with much artistic skill, and containing much valuable information.

At the time, Heaphy was employed as a surveyor by the Auckland Provincial Government and it may be more than coincidence that during the few weeks prior to the presentation Heaphy had written two letters to another Auckland newspaper, The New Zealander, suggesting that the Provincial Government give consideration "to moderate rewards being offered for the best Geological Map of a District within the Province" *

Early in 1859 Heaphy, along with Haast and Purchas, accompanied Hochstetter in his examination of the Auckland volcanic field (Kermode 1992, p.4) and on the 24 June that year Heaphy chaired a meeting of the Auckland Mechanics' Institute at which Hochstetter presented a "Lecture on the Geology of the Province of Auckland". In his talk, in discussing the Auckland volcanic district, Hochstetter displayed a "large map, which Mr. Heaphy has kindly prepared for me from actual survey". He also acknowledged "some valuable information from different settlers, and especially from my friends, the Rev. A.G.Purchas and Mr. C.Heaphy" (Supplement to The New Zealander 29 June 1859).

At a public meeting on 1 July 1859 a committee was appointed to arrange a testimonial to Hochstetter and the Secretary of that committee was Charles Heaphy (The New Zealander 20 July 1859).

It is therefore obvious that during his visit Hochstetter was on very good terms with Heaphy. This relationship changed on 30 November that year when a paper by Heaphy 'On the Volcanic Country of Auckland, New Zealand' was read at a meeting of the Geological Society of London. The paper was later published in volume 16 of the Society's Quarterly Journal (Heaphy 1860). Accompanying the paper is a map of the Auckland volcanic field and in the text (p.251) this is described as -

* These letters appeared in The New Zealander on 30 December 1856 and 7 January 1857. I can find no record of the Provincial Government accepting Heaphy's suggestion.

"The central portion of a large Geological Sketch-map of Auckland and the surrounding district, constructed by Mr Heaphy from actual survey in 1857, and corrected to February 1859.

The corrections here alluded to have arisen from observations made during the progress of Dr. F. Hochstetter's geological survey of the Auckland District."

In 1862 Heaphy exhibited a 'Geological Map of the Province of Auckland' at the International Exhibition in London.

The Heaphy - Hochstetter controversy was set alight with the publication, in early August 1864, of Hochstetter and Petermann (1864). The footnote on page 50 reads as follows

A copy of my original map, to the scale of 2 miles to 1 inch, remained in Auckland for the use of the Government. A second copy was sent to Mr. J. Arrowsmith in London to be used for the construction of a large New Zealand map in six parts, which that gentleman intended to compile, with the understanding, however, that this map was to be used only as a preliminary delineation of my observations. The Geological map of the Province of Auckland, which was exhibited in the International Exhibition of London, in 1862, by Mr Charles Heaphy, was entirely a copy and combination of my maps and surveys, without any acknowledgment of my authorship. The map, also, of the Isthmus of Auckland, given in the Quarterly Journal of the Geological Society of London, by Mr Charles Heaphy, was published without my knowledge, and is a very incomplete copy of my observations and maps, which were in Mr. Heaphy's official charge. In this map that gentleman also introduced his own observations upon the geological formations of the neighbourhood of Auckland, made previous to my arrival in New Zealand, but without possessing even the most elementary knowledge necessary for making a Geological Survey. I have felt it my duty to make these remarks out of respect for truth and science.

To counter this claim of piracy levelled against him by Hochstetter, Heaphy solicited letters from various people to prove that Hochstetter himself was the plagiarist. e.g.

From J.L. Wilson, Provincial Surveyor -

I have made an examination of the original of Dr. Hochstetter's plan of the Isthmus of Auckland, and comparing it with your geological plan of the Auckland district, presented to the Mechanics, Institute in the year 1857, I have no doubt he copied your plan.

H.N. Warner, Deputy Waste Land Commissioner, referring to Heaphy's 1857 map which was at the time hanging on the wall of the Mechanics. Institute said that it-

had been borrowed by the Doctor for his information, and actually formed the nucleus for all his work, in this locality, however much he may have added to it.

These two letters, along with others, were published in the Auckland newspapers. The New Zealander (27 August) and The Daily Southern Cross (29 August). Those in The Daily Southern Cross were under cover of a letter from Heaphy himself. Both newspapers leaped to Heaphy's defence with lengthy editorials

The Daily Southern Cross editorial -

Knowing, as we do, that Dr. Hochstetter received very valuable aid from Mr. Heaphy whilst pursuing his scientific researches in this province. we should, even if the charges were true, have called this conduct on the part of Dr. Hochstetter very ungenerous, but as we have received satisfactory demonstration that not only are these charges untrue, but that the worthy doctor has himself been the plagiarist and the copier, we must say that these reflections are most unwarrantable. Mr. Heaphy has verified to us by the exhibition of maps and original documents that he really is the aggrieved party, and that Dr. Hochstetter has copied with the most infallible precision the principal groundwork of his geological map of Auckland prepared here before Dr. Hochstetter set foot upon New Zealand soil, in proof of which the marginal lines exactly correspond, and in which the Doctor could not get the colour to match when he subsequently added to the map.....

We may say, too, that we have seen some most elaborate proofs of Mr. Heaphy's skill while studying geology very many years ago, and at a time when Dr. Hochstetter was probably only imbibing the "most elementary knowledge" of the science which he now professes to be master of. Dr. Hochstetter may be a very accomplished geologist, but he has certainly not added to his fame by unwarrantably attempting to detract from the merits and attainments of a gentleman resident amongst us of acknowledged ability.

The New Zealander editorial contains similar personal criticism of Hochstetter -

Dr Ferdinand von Hochstetter may be, for aught we know, a personage of large importance; but he has taken some pains to bring himself into a paltry position. He may be an accomplished geologist, though he does not escape some

telling criticisms in England # : but we regret to find him not a little wanting in certain other accomplishments that are assuredly not less desirable.....and we know that our quondam guest from Deutschland had shown himself hasty and harsh; but until we strictly investigated the matter we could not have believed that our German acquaintance had allowed himself to fall into such a depth of falsification, for the sake of gratifying a very gratuitous spleen.....

....We have proved the painful fact of Dr. Hochstetter's ungrateful tergiversation * and deception.....

The New Zealander editorial concludes with -

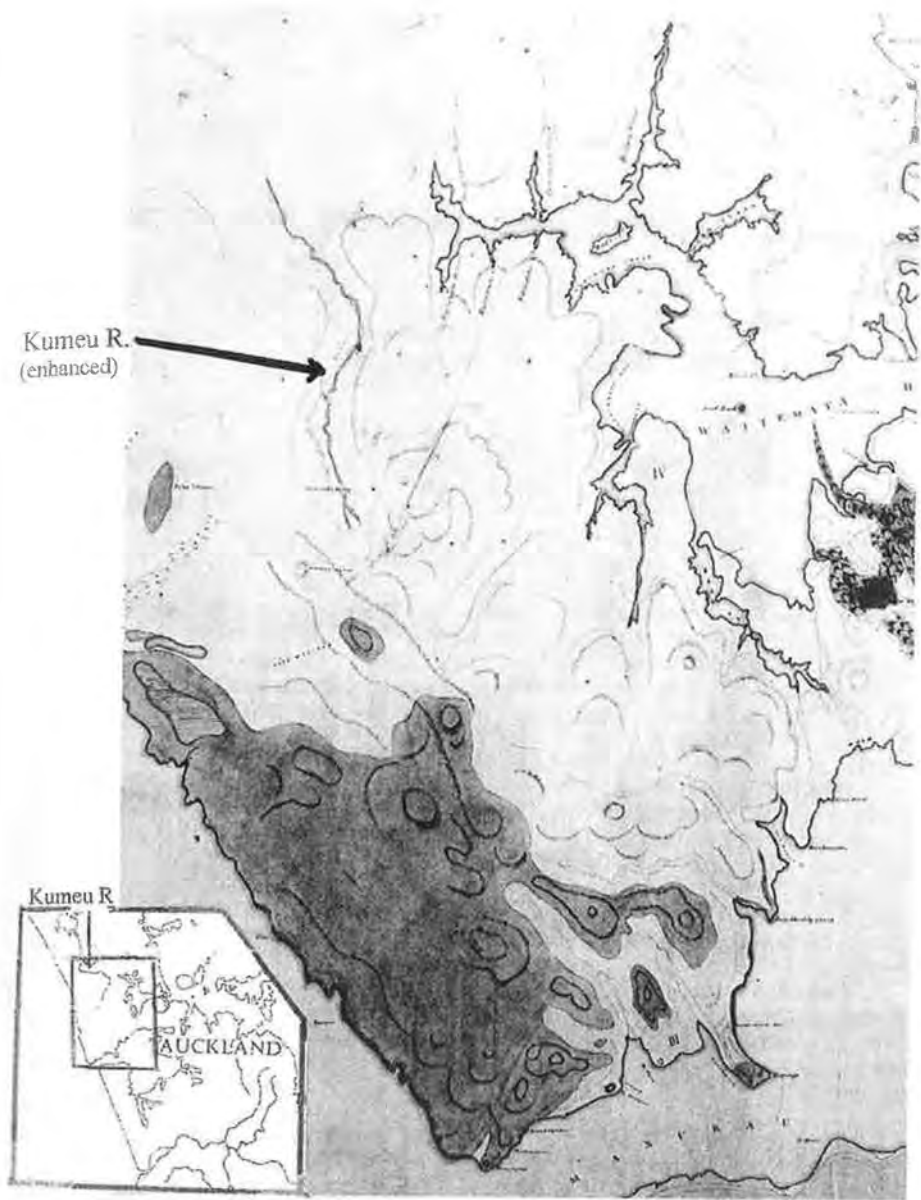
It is a melancholy thing to see the moral infirmities of men eminent for intellectual superiority; but unhappily the scientific world is but too familiar with such scandals

But, most important of all, The New Zealander editorial gives the results of its own investigations -

We have compared the original maps of Dr. Hochstetter and Major Heaphy, both of which are in Auckland, and the following is the result. The two maps are on precisely the same scale. Every name and outline on Major Heaphy's map is identically reproduced in Dr. Hochstetter's including literal errors and topographical divergences from accuracy. And there is something more than all this. Dr. Hochstetter's map takes in a little more of the country, both to the East and West, than does Major Heaphy's map. The addition to the former was made at a later date, and there is actually in Dr. Hochstetter's map, on each side, a distinct and obvious line of boundary between the part copied from Major Heaphy and the part subsequently added. This is owing to the circumstance that the color-materials employed at the two periods were not identical in character. There are other "evident indications." Here is one of a kind rather amusing. Major Heaphy's map represents a portion of a certain river, the Kumio. Dr Hochstetter traces the same river, just so far as is done in Major Heaphy's map ; and there the river absolutely stops short - whether sinking into the earth at that spot, or how disposed of otherwise, the map deponeth not. It happens, however, that the Kumio flows on, as well-behaved rivers usually do, till their waters reach the sea; but the district through which it flows further, is

Three days later, in its issue of 30 August 1864. The New Zealander reprinted an article from the Saturday Review of 11 August 1860 which was critical of some aspects of Hochstetter's lecture to the Auckland Mechanics' Institute on 24 June 1859.

* The Shorter Oxford English Dictionary gives several definitions of 'tergiversation', one of which is "turning in a dishonourable manner from straightforward action or statement".



The river that went nowhere

Detail from an uncatalogued map in the collections of the Auckland War Memorial Museum – 'Sketch of the Geological Formation of the Auckland District' by Hochstetter

exterior to Major Heaphy's map, and to Dr. Hochstetter's cognizance. We might multiply instances of the evident indications but these will suffice #.

The New Zealander editorial claims that Hochstetter's original map was sighted. In a letter published in The New Zealander on 29 August 1864 Heaphy states -

" The original, Sir, was taken by Dr. Hochstetter to Europe, and the map at present here is one that was made by Mr. Surveyor Boulton, whose services as a draughtsman were placed by the Government at Dr. Hochstetter's disposal while he stayed here, and who worked with the Doctor on the two maps almost simultaneously."

The footnote on page 50 of Hochstetter and Petermann 1864 quoted above refers to "a copy of my original map, to the scale of 2 miles to 1 inch" remaining in Auckland.

I have not been able to locate Heaphy's 1857 map but the Auckland War Memorial Museum possesses a framed map by Hochstetter approximately 1.25m x 1.25m which is entitled "Sketch of the Geological Formation of the Auckland District". This map is on the scale of 1 mile to 1 inch not 2 miles to 1 inch as mentioned in the Hochstetter and Petermann footnote. It does, nevertheless, have one important feature that suggests that it may be the map seen by the editor of The New Zealander (see second paragraph below).

In the absence of Heaphy's map I am unable to confirm the statement by the editor of The New Zealander regarding the names and outlines of the two maps. Nor did I see any sign of a colour boundary but I would not expect this to show after 140 years.

There is no Kumio River on the map but the Kumeu River, west of the headwaters of the Waitemata Harbour does exactly what the editor says ; it vanishes off the map just before the point where it turns to the west.

There is, in any case, no reason to doubt the word of the editor of The New Zealander. Scholefield (1958, p.81) describes The New

It must be noted that in its review of Hochstetter and Petermann published on 18 August The New Zealander makes no mention of Hochstetter's accusation of piracy against Heaphy. In fact, it ended its review by saying -

"We can strongly recommend this book to our readers who will find in it much interesting and useful information."

* It is significant that this is almost exactly the same title that Heaphy gave to the map which he presented to the Auckland Mechanics' Institute in 1857.

Zealander as "one of the best and most influential papers in the colony".

With regard to Hochstetter's claim (1864 p.50, above) that the map exhibited by Heaphy at the International Exhibition carried no acknowledgment of Hochstetter the newspaper reports also include the following letter to Heaphy -

In reference to your enquiries, I beg to say that I remember your acknowledgment, on your geological plan of the Province of Auckland, (exhibited in the Odd-Fellows' Hall here, and transmitted by me to the International Exhibition of 1861) of the parts copied from Dr. Hochstetter's plan of the geology of this district

Edward King
Hon. Sec. International Exhibition 1862

All rather damning for Hochstetter and it is worthy of note that on page 21 of his New Zealand (1867) he has a similar footnote to that on page 50 of Hochstetter and Petermann (1864) quoted above but this time he makes no accusation of plagiarism against Heaphy. It is also worthy of note that nowhere in the columns of the Auckland newspapers for the following six months does he reply to the accusations made against him.

The only voice raised in his support is that of his friend G.F.Fischer, the man responsible for the English translation of Hochstetter and Petermann (1864) but even he starts off on the defensive (The Daily Southern Cross 3 September 1864 and The New Zealander 7 September 1864) -

By no means do I excuse my friend Hochstetter in having been guilty of making serious reflections upon Mr. Heaphy in his Geological Atlas of New Zealand, and for what appears ungenerous conduct. But while Dr. Hochstetter makes these charges it is not unlikely that he was labouring under a misapprehension, as his information was based more on the representations of others than on his personal knowledge, as he never visited London during the expedition so as to have been able to see Mr Heaphy's maps.....Mr. Heaphy has cleared himself from the charge of piracy by Mr. King's letter,....

The debate in the columns of the newspapers continued for several days and widened to include the lack of acknowledgment given by Hochstetter in his use of Heaphy's drawings in the original German edition of New Zealand (1863).

On the first page of this article we quoted Hochstetter's acknowledgment, in his talk to the Mechanics' Institute, of the help he had received from

"my friends, the Rev. A.G.Purchas and Mr. C.Heaphy"

In his New Zealand (1867), this tribute reads (p.17)

"my friend the Rev. Mr. A.G.Purchas and Mr. Ch.Heaphy"
(note "friend" in the singular)

Although he no longer regards Heaphy as a friend, Hochstetter does acknowledge his assistance e.g. on p.21 and on p.253 where he names the now-destroyed cone between Mt. Victoria and North Head 'Heaphy Hill'.

Hochstetter would have been careful to make these acknowledgments as the entire Hochstetter/Heaphy controversy was one of acknowledgment of each other's work.

One interesting counter claim by Heaphy is made in a letter published in The Daily Southern Cross on 29 August 1864 -

When Dr. Hochstetter went from this to Nelson, I made for him, at his own request, a general map of the geology of the Nelson country, indicating, as far as I was able to, the various formations, and intended to serve, as my map had done here as a guide to him in exploring. He wrote to me privately, saying that my map had been of much assistance to him, and was very correct; but neither in his lecture at Nelson nor in his book has he in anyway acknowledged the assistance.

In 1846-7, I made maps of exploring expeditions made in company with the Hon. Mr. Fox - now Colonial Secretary - and Mr Brunner of Nelson, to the interior lakes and the greenstone country of the West Coast. Dr. Hochstetter made use of these maps - his map of Nelson shows them even to their clerical errors - but there does not appear in the "Atlas" nor the lecture the slightest acknowledgment of their having been used.

In the course of the press publicity given to the controversy, S.J.Stratford, an Auckland doctor who was interested in scientific matters, took the opportunity of launching an unrelated attack on Hochstetter. On 1 September 1864 The Daily Southern Cross published a letter from Stratford in which he complains that Hochstetter had ignored a sample of diatomaceous earth from Cabbage Tree Swamp which he had given him -

"It would appear that the very numerous attentions paid to this gentleman while in Auckland was too much for his equilibrium. It is plain by his publication that he came to New Zealand and, as it is vulgarly said, 'sucked the brains of the lieges', and now fosters the work upon the public as original matter."

Stratford's letter brought an equally acid response from Hochstetter's friend, G.F.Fischer, in The Daily Southern Cross for 3 September -

"Dr. Stratford, in a letter to you which appears in today's issue, seems very much aggrieved that his brains have not been sucked by Dr. Hochstetter."

Within a few years those exchanges in the press of August/September 1864 were forgotten, at least by the press and the public if not by Heaphy and Hochstetter. The Daily Southern Cross for 10 October 1868 reported that Hochstetter, on the motion of Captain Hutton, had been unanimously elected the first honorary member of the Auckland Institute and that Mr. Gillies, in seconding the motion" said it was doing honour to themselves more than to the doctor. (Hear, hear)".

Today, Hochstetter is regarded as "The Father of New Zealand Geology", and justly so, although as this article shows, he did possess some personal failings. Heaphy, on the other hand, is remembered today as an artist and as New Zealand's first Victoria Cross winner. Heaphy, the geologist is almost forgotten, and unjustly so. I hope to rectify this in a future article.

.....

Acknowledgment :

Mr. Gordon Maitland, Curator of Pictorial Collections at the Auckland War Memorial Museum, provided the photographic detail from the Hochstetter Map and also gave permission for it to be used in this article.

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Alan Mason

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LA CRÉATION

MYSTÈRES DÉVOILÉS

Expliquant la Nature de nos Jours
 NÉCESSITÉ DE LA CROIX
 LA NATURE ET LA SITUATION DU PÈRE DU SOLEIL
 L'ORIGINE DE L'AMÉRIQUE
 LA FORMATION DE LA TERRE
 L'ORIGINE DE LA VIE ET LES CAUSES DE LA CATASTROPHE DE PÉROU
 Charles Lyell

510. — La plus grande, la plus longue et la plus importante crevasse se trouvant du nord au sud, bien visible et déjà large à l'aurore, n'empêchait pas la communication des deux continents l'un de l'autre. Cette crevasse aura été peut-être plus large; elle divisait la terre presque à moitié dans la direction indiquée. On pouvait pressentir qu'une séparation inévitable et inévitable: que la masse la plus grande resterait en raison de sa pesanteur, et que la plus petite serait repoussée à une distance proportionnelle à son équilibre proportionnel.

511. — La masse la plus forte et la plus résiliée.

Nous ne savons pas de quel nom on appelait, à l'époque du sixième jour, le continent de cette masse: après Noël ou l'Appala, comme de nos jours, l'Asie, l'Amérique et l'Europe.

La grosse masse partielle, dont la crevasse s'étendait du nord au sud de l'Asie, était à l'ouest, et dans l'orientation où elle a subi, sa surface s'est portée plus à l'ouest encore; cette masse forma elle-même un grand continent, que nous appelons aujourd'hui l'Amérique.



Arthur Holmes, 1890-1965



Alfred Lothar Wegener, 1880-1930



Sir Harold Jeffreys, 1891-1989

Preuves de la formation de l'Amérique.

Sommaire. — Les faits toujours appuyés de leurs preuves, 522. — Preuves physiques; correspondance des caps et des golfes, 523. — Preuve tirée du système des volcans, 524. — Nomenclature des principaux volcans, note U, id. — Tremblement de terre de Liaboune, 525. — Tremblement au Pérou, 526. — Cataclysme au Kautschatka, 527. — Cataclysmes partiels; effets à attendre du prochain cataclysme général, 528. —



HISTORICAL STUDIES GROUP NEWSLETTER

Number 25 September 2002

Editorial	2	
William Anthony Swithin Sarjeant Alan Mason	3	
Hector and Seddon	Bruce Waterhouse ... 5	
Hector and Seddon : additional information	Alan Mason	5
The 'Auckland Provincial Geologist'	Alan Mason	8
Alexander Moncrieff Finlayson	Bill Watters	15
First Report on Coromandel Geology	Alan Mason	22
Baron Nopsca : Paleontologist Extraordinary	Alan Mason	23
Dr. Carl Caldenius in New Zealand	Simon Nathan	25
International Geological Congress Prague 1968	Alan Mason	27
The Hochstetter - Heaphy Controversy	Alan Mason	31