Colin Alexander McVean and the Meiji Japan's Public Works
An Apostle of Thomas Telford and Isambard Kingdom Brunel

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The newly established *Meiji* government drove various nation-strengthening or modernization projects that were started up by previous *Shogumate* government in accordance with foreign pressure, such as steelmaking, shipbuilding, mining, railways and lighthouse construction by hiring a large number of foreign engineers. Edmund Morel, appointed as chief engineer for railway construction suggested the government to found the Ministry of Public Works to administrate these projects. In November 1870, the government officially decided to found the works, which started functioning in September 1871 with 11 departments. The engineering institution and survey were new departments, which would be headed by *Yozo Yamao*, first acting vice minister of the works. After Morel passed away, *Yamao* needed someone who assisted his mission. Colin Alexander McVean, a Scottish civil engineer who resigned from the government for lighthouse construction a year ago, was re-employed by the government, and provided sincere support for Yamao through his personal and family connection with prominent figures.

Prologue

McVean made up his mind to resign from the Lighthouse Department in August 1869 after he got injured in his arm during the lighthouse construction at *Mikomoto-jima* or Rock Island, and submitted a letter of resignation to chief engineer Richard Henry Brunton (1841-1909) 1, and Head of the Department *Kagenori Ueno* 2. McVean was really disappointed with Brunton's treatment, but never give up responsibility for his family and never lose hope that he could do something for Japan with his ability of engineering.

He was born in March 6, 1838 as first son of Rev. Donald McVean (1808-80) 3, minister to Iona and Mull (Fig.1). Rev. McVean studied philosophy at the University of Edinburgh, and was appointed as minister at age of 26, then started clergy service with his wife (Fig.2). East side of manse was a sacred complex for Celtic Christian community, consisting of the ruined Iona Abbey, St. Martin's Cross (Fig.3), and graveyards of successive Scottish kings. The Parish church was built by direction of Thomas Telford in 1828. McVean was grown up in this small island, enjoying his childhood with nature; sea, sky, cloud, bird, fish, etc. However, he has known that there was a big world over the Atlantic Ocean as his relatives and neighbours migrated to the North America. In 1851, his father took McVean to London to show him the Great Exposition, which might open up his eyes to engineering 4.

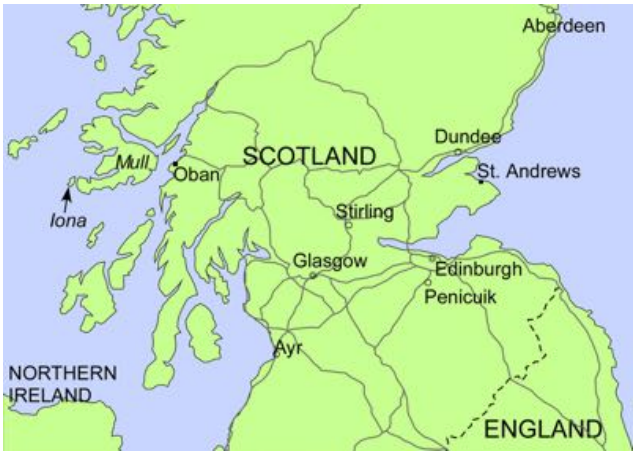

Fig.1 Map of Southern Scotland

Fig.2 Iona Abby (on right) and Manse (on left), taken in September 2010 by author
The Manse in which McVean family lived was converted to St. Columba Hotel.

Fig.3 St. Marin's Cross, Iona. McVean standing at Centre, probably taken in the late 1850s.

When he became 14 years old, McVean moved to Edinburgh to study at the High School 5. He did not proceed to university supposedly because he had to support his family with 5 younger siblings. When McVean visited the London Exposition with his father, he probably realized how engineering-based industry helped people to be more prosperous, and made up his mind to be civil engineer. He loved adventurous life as he spent and enjoyed his childhood in great nature of Iona. Although the UK of the 19th century was called "factory of the world" and advanced in engineering, engineer's training was make by apprenticeship. After he finished apprenticeship at M'Callum & Dundas civil engineers in 1861, and worked for the Hydrographic Office of Admiralty in 1861-64 (Fig.4), and in Bulgaria for Varna Railway construction for 2 years 6 (Fig.5).

Returning to Scotland in the end of 1866, he started to look for substantial appointment, and applied for several posts including resident engineer of Aberdeen Harbour. Although he failed to grasp domestic appointment, he did not rush for another appointment. It was comparatively easy to be hired by the public works of the British India and other colonies, which always demanded large number of engineers. McVean was turning to 30 years old, and wished to get married to someone. As soon as he got engaged to Mary Wood Cowan in the early 1868, he applied for assistant engineer post for Japan's lighthouse department to David and Thomas Stevenson's office 7.

Gentlemen

Having heard that Civil Engineers are required to go out to [.....] in Japan and as you were kind enough to say, when I waited upon you a year ago – shortly after my return from Turkey – that you would bear me in mind for a future appointment - I now beg leave to offer myself as a candidate for service there –

During my apprenticeship of 5 years with Messrs McCall & Dundas – I was engaged upon the Granton branch of the Caledonian Railway and also upon extensive surveys and other works, the last 6 months of my apprenticeship I served in the Engine works of Messrs [Nusti & Coy] Leith in order to make myself acquainted with the erecting and working of the steam engine - I then recd an appointment in the Admiralty survey of Scotland under the command of Capt H.C. Otter C.B. R. N. and on the completion of the Survey I went out to Turkey on the Engineering staff of the Varna and Rustchuch Railway under W. McCandlish Esq engineer in chief and when the preliminary survey and plans were finished - I was transferred to the staff of Sir Morton Peto Bart & other contractors for the lines – in whose employment I remained till the completion of the works about a year and a half ago.

I have been six years in practice as a Civil engineer exclusive of an apprenticeship of 5 years - I regret to say that my testimonials are at my home on the Isle of Mull but I will have copies of them forwarded to you as soon as possible –

I have the honour to rem..... gentle (Application to D. & T Stevenson Civil Engineers Edinburgh On appt. to Japan. 1868, date unspecified).

Fig.4 McVean and his colleagues in the Hydrographic Office, 1864

Fig.5 McVean and his colleagues in Bulgaria, 1866.

Footnotes:

1. Richard Henry Brunton, 1841-1909. He was born in Aberdeenshire as son of Captain Brunton, R.N. After being educated at private schools there, he began his engineering career as a pupil, first of Mr. P. D. Brown, and subsequently of Mr. John Willet, of Aberdeen. On the completion of his articles he remained with Mr. Willet as an assistant, and was employed in that capacity in the construction of several railway lines. Coming to London in 1864, he was engaged for a year in several engineers' offices with railway construction. Appointed as chief engineer for Japan's Lighthouse Department through David and Thomas Stevenson's in April 1868, he was elected as an Associate of ICE and a Fellow in 1879 (Obituary; Proceeding of the Institution of Civil Engineers, 1901).
2. *Kagenori Ueno*, 1845-88. He was born as son of Dutch language interpreter - samurai of the *Shimazu* domain, and followed his father's work. After learned Dutch language at Nagasaki for some time, he realized importance of English language, then stowed away for Shanghai. He failed to visit to the Britain, and returned to *Kagoshima*. He started his career as an English language interpreter and instructor in the *Shimazu* domain, and played essential role as diplomat for early Meiji government.
3. Donald McVean, 1808-80. Minister to Isle of Iona and Ross of Mull Free Church. He was born in the manse of Kenmore, of which place his father was parish minister. He studied in Edinburgh, and was licensed by the Presbytery of Lorn in his 24 year. In 1835 he was presented to Iona; and two years thereafter was married to Miss Susan M^{c}Callum, of an old family in Mull. After flitting from one place to another, he got a manse built in Iona, as well as two churches, one there and the other in the Ross of Mull. In that manse he lived for twenty-one years. He had 4 sons and 3 daughters, and Colin Alexander was the first son. (Obituary presented by the Rev.D.C. Ross, Appin, The Free Church of Scotland Monthly Record, June 1, 1880).
4. Journal of First Visit to London 1851, McVean Archives.
5. McVean wrote several biographies including 'Colin Alexander McVean (Celtic Monthly, December 24, 1896)' and 'Little Journal: Colin Alexander McVean, F.R.G.S, (Girrifis' Collection, Rutgers University).'
6. Articles of Agreement made between William McCandlish and Colin A. McVean, McVean Archives.
7. Application to D. & T Stevenson on appointment to Japan, 1868, McVean Archives.

Chapter 1

1.1. New Appointment in Japan

Tokugawa Shogunate government 1 had to construct lighthouses along the coastal lines of the Pacific Ocean in accordance with the 1866 Amendment of Treaty of Amity and commerce between Japan and five foreign nations, and asked cooperation for French and British governments. French engineer team, hired for establishment of Yokosuka Ironworks 2 (Fig.5) two years ago, made an immediate start on lighthouse construction, while the British was to find suitable engineers through the Board of Trade and the Northern Lighthouse Board in the end of 1867. The later organization has been managed by David and Thomas Stevenson's office 3, a prominent civil engineering firm based on Edinburgh. As Stevenson's office had no engineer for these posts, they recruited a chief engineer and two assistant engineers from outside respectively, and would give the candidates several months training of lighthouse construction under Alan Ramsay Brebner 4, a principal engineer in charge of lighthouse in Stevenson's office.

Fig.1 Yokosuka Port, Shipyard and Ironworks, 1876. Source: Yokosuka City Museum
French engineers started steel making under Japanese authority in 1865.

The Stevenson's office advertised recruitment of chief engineer post first, and chose Richard Henry Brunton (Fig.1) for that post. McVean missed this recruitment, and had to apply for assistant engineer post. Actually, McVean's career was not inferior to Brunton's as chief engineer at all. This post arrangement would cause discord between them soon. Another assistant engineer chose by Stevenson's was Archibald Woodward Blundell 5 (Fig.2). McVean and Blundel became life-long friend.

After McVean received letter of the appointment from the Board of Trade on March 10, 1868, he started writing his diary surely because this appointment was so significant for his life. During the training period at Stevenson's, McVean received first salary and allowance 6 and left Edinburgh on June 16, 1868.

Fig.1 Richard Henry Brunton Fig.2 Archibald Woodward Blundell, probably taken around 1873
Source: Yokohama City Archives Source: McVean Archives

1.2. Marriage with Mary Wood Cowan

As soon as the training of lighthouse construction finished, McVean married Mary Wood Cowan (1837-1925), who was youngest daughter of Alexander Cowan (1775-1859) 7, a papermaker in Penicuik, near Edinburgh (Fig.3). Her family prospered with that business, and her siblings took an essential part in business, politics and academic scenes. Her eldest brother, Charles succeeded family business and was a member of parliament, while second brother, James became Lord Provost of Edinburgh in 1872-74. Her eldest sister, Helen, married Allan Menzies, professor of law in the University of Edinburgh, and their daughter married Archibald Campbell Douglas (1828-1910) 8, a leading architect in Glasgow. Another sister, Lucia Anne married Thomas Constable (1812-81) 9, a great publisher in Edinburgh and leading figure of Scotland academic circle.

Fig.3 McVean Family in 1868, just before leaving for Japan. Source: McVean Archives
Middle row from left, Rev. McVean and his wife, Mary.

As Alexander Cowan was a prominent contributor to Iona Abbey 10, Rev. McVean was acquainted with him, and they might arrange this marriage. Anyhow, it was a turning point for McVean's life to marry Mary as he could join Cowan's family. McVean received many celebration letters from his friends, including Cosmo Innes (1840-88) 11, Henry Scharbau (1822-1904) 12 and Campbell Douglas. They helped McVean for his commission in Japan's Public Works.

My dear McVean June 3 1868

Allow me to congratulate you most sincerely. I am not sure that I have ever met Miss Mary Cowan but I think I know several of her sisters.

I hope you will not forget to let me know where you are to be found in London when you pass through as I should like much to see you. Of course I shall take the greatest interest in your success in Japan as I was so near going with you

Yours sincerely

Cosmo Innes [jn] (Cosmo Innes' Letter of Congratulation to McVean. McVean Achives).

Cosmo Innes was familiar with Mary Wood's family as Mary's sister through his father's connection with the University of Edinburgh. It is not known when Innes and McVean got close friend because they have worked abroad in the early 1860s. Innes was staying in Edinburgh for some time in 1868, waiting to be employed by Public Works of the Government of India. Innes had much wider human network among engineers through King's College alumni, and McVean would rely on Innes soon. It was likely that McVean and Innes recommended William Kinninmond Burton (1856-99) 13, Innes' nephew, to post of instructor of sanitary engineering at Japan's Imperial University in 1887.

Hydrographic Office, Admiralty Whitehall
May. 29. 68

My dear McVean

I had a few lines from Cheesman, in which he told me of your approaching marriage with Miss Mary Cowan, and I need not tell you, how glad I am to hear of it.

Accept my, as well as Mrs Sharban's sincerest congratulations and the best wishes for your happiness. Your kind hearted and amiable – I was going to say wife, deserves indeed every fondness and attention, you can bestow upon her. Please remember me very kindly to Miss Cowan, as well as to Mrs Thompson.

If I can be of any use to you here, I shall gladly do so. I forward with this [.....] of the Admiralty [Patirtuquis] you will see from it what charts we have published of the Coast of Japan, and may therefore be useful to you.

How is Capt. Thomas? Remember me very kindly to him, as well as Mrs Thomas.

Believe me Dear McVean
Ever yours sincerely
Henry Scharbau

P.S.

Are you likely to pass through London – and when?

32 Dundas Str. Edinburgh (Letter of Congratulation to McVean from Henry Scharbau, McVean Archives)

Scharbau and Cheesman were McVean's colleagues during working at Hydrographic Office of the Admiralty in the early 1860s. They believed that surveying and cartography were essential science and technology to provide the most fundamental geographical data and sources for industrial and national development, and that they could work wherever the land was not surveyed as long as they hold adventurous spirit.

Colin and Mary arrived at Yokohama on August 9, 1868, and McVean got start his duty by building of offices and houses for themselves in Benten, premise of the Lighthouse Department under the direction of Brunton. They were relatively safe as long as they lived in Yokohama Foreign Settlement, but Japan's situation was still confusing. McVean left valuable accounts of his daily life and political incidents with vivid illustrations.

1.3. Two Samurais in Scotland: Yamao and Murata

After the Shogunate government has signed the Treaty of Amity and Commerce with five foreign nations in 1858, Japan fell into chaos with a campaign "Revere the Emperor and expel the barbarians", and the extremist groups attacked foreigners and foreign properties. Under such circumstance, the government had to construct legation buildings for 5 foreign nations at Gotenyama, Edo in 1861 14. The building plan of British Legation was prepared by the first Consul-General Rutherford Alcock (1809-97) 15, and it had to be the first European style architecture in Edo (Fig.4). However, Choshu group, lead by Shinsaku Takasugi (1839-68) 16, set fire on the legation buildings in the end of 1862 just before they came into use. Ironically soon after that, they realized that they had to study modern idea and knowledge from western countries.

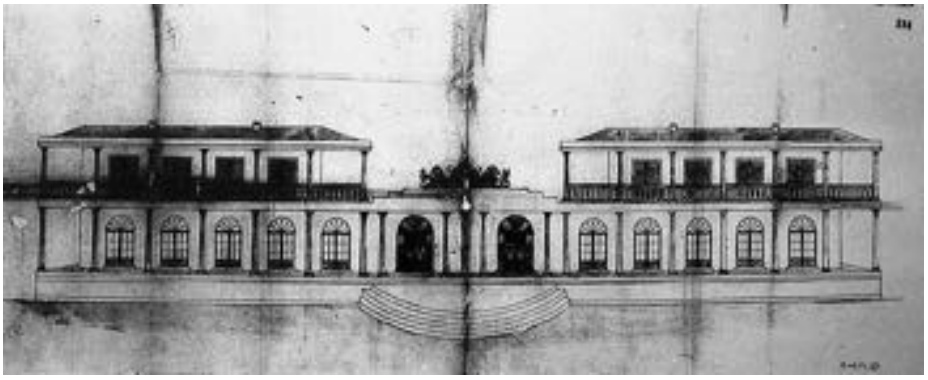

Fig.4 Plan of the British Legation at Gotenyama, Edo. Source: MPK144
Illustration made by Rutherford Alcock, burn down just after completed in 1862

Five young *samurai*s of the Choshu group (Fig.5) left Japan illegally for Britain with help of Thomas Blake Glover (1838-1911) 17 on March 1863. Glover was an agent of Jardine, Matheson Co. It was so lucky for modern Japanese history that Glover got acquainted with Hugh Matheson (1821-98) 18 and asked him to take care of these young Japanese students in the Britain. They consisted of *Hirobumi Ito*, *Kaoru Inoue*, *Masaru Inoue*, *Yozo Yamao* (Fig.6) 19 and *Kinsuke Endo*, all of who became leaders of the Meiji government later. Hugh Matheson, chief manager of Matheson and Co., helped them to find lodging and studying place. Ito, Kaoru Inoue and *Endo* returned to Japan after 6 months, while *Yamao* and *Masaru Inoue* stayed longer to study engineering. After mastered English language and several basic scientific subjects at London, *Yamao* asked Matheson where he could take technicall training. Matheson arranged his apprenticeship at the Napier Shipyard and his lodging at Colin Brown's home 20 in Glasgow.

Fig.5 Choshu Five in 1863 at London. Yamao Fig.6 'Yamao', Acting Vice Minister of Public

In right side front. Source: Yamaguchi Pref. Museum

Works, 1874. Source: McVean Archives

Although *Yozo Yamao* was a key figure in modern Japanese engineering development, he did not leave any biographical record of his life in the Britain. However, Colin Brown described briefly Yamao's life there in his letter dispatched to Rev. McVean as below 21. They are very interesting indeed.

He had studied the Bible intently & became convinced of the truth of Christianity, which he seemed to have embraced very cordially & conscientiously but Brown had some fear this might have compromised him in the eyes of the Governing Powers of Japan, & he advised me to say nothing about it – nor did I till now. But his friends in Glasg were quite confident if he kept on good terms with the authorities he must have got into some important office. His own chief desire in coming to this Country was to acquire knowledge (Rev.McVean's Letter to McVean dated 21st November 1870)

It does not matter that Yamao embraced the Christian religion or not in Glasgow, but he needed to learn Christianity in heart in order to archive his goal. Brown and his friends all understood well what Yamao intended to do in Japan after mastered western idea and technology in Glasgow.

The receipt of your letter has given us much pleasure & interest I shall be happy indeed under a kind Providence I may have been the means, while asking a favour of your son, of doing him a good turn. My young folks are greatly astonished to hear of Yamao being a great swell. They recalled the mornings when he went out so quietly to his work in his working clothes and in the evenings how make them curious toys, teach them the butterfly trick & shew them how to spin Japanese tops.

My young folks in a [….eath] request that Mr. McVean will kindly as[k] his son what a gon-sho-jo means. One of them wonders if it is anything like a Banjo-jo. They are going to write him a joint letter to ask him if he is so busy or so great as to have no time to remember old friends.

I am glad we are to have the pleasure of soon seeing yourself and daughter. The weather is surely cool enough now – and a short time of good Glasgow smoke is often most beneficial to young ladies. I need hardly say how pleased we shall all be to see you at Hillhead. Moffatt is in September generally very cool and bracing but I quite expect you will find Glasgow to be sufficient. When you have any further news from your son, I shall be delighted to hear.

In Yamao's eyes a thorough going Scotchman will be inestimable. In this words, he used to say "Scotchman bestest man, bestest head, bestest hand, bestest heart, bestest soldier." So Colin need not fear a kind welcome – from as nice a little fellow as he ever met.

With kindest regards to one & all.

Yours very truly Colin Brown (Colin Brown's Letter to Rev. McVean dated 21st August 1871)

Although Yamao might be too old to serve apprenticeship at shipyard together with teen-age pupils, he accepted tiring apprentice training for two years and could understand how Scottish archived great industrial development. Returning to his lodging at the evening, he sometimes played with Brown's children with Japanese toys, and studied theoretical subjects at Andersonian University 22. There were some more Samurai students dispatched by different domains in London, in particular from Satsuma 23, from one of whom Yamao might be informed that the Shogunate Government abandoned the authority in the end of 1867, and the Imperial Restoration Day would come soon. He appreciated heartily for Scottish friends, but never visited again to Scotland to meet them.

There was another Japanese at Scotland around 1867. He was Fumio Murata (Fig.7), a Samurai from Hiroshima Domain, who illegally left Japan for the Britain in 1866 with help of

Thomas Blake Glover, and stayed at Aberdeenshire, Glover's hometown for a year and half. His interest into English language and Western civilization were so strong to do so with his own money. Without leaving any memoir on life during staying at Scotland, he came back to Japan in June 1868, and soon published Seiyou Bunkenroku or "Introduction to Western World" (Fig.8) in 1869. He described geography and social-politics of European countries, highlighting Scotland. He was probably the first man who introduced Staffa Island into Japanese.

Despite Yamao, McVean and Murata, all of them were staying at Scotland in 1867, they did not meet there, and of course did not know that they would work together for Ministry of Public Works soon.

Fig.7 'Fumio Murata'.
Source: McVean Archives

Fig.8 Seiyou Bunkenroku or "Introduction of Western Countries"
Source: National Institute of Japanese Literature

Footnotes

1. Tokugawa Shogunate government was founded by Ieyasu Tokugawa in 1600 and lasted until 1868. This feudal government maintained national isolation policy except Dutch and China within the restricted area of Nagasaki. However, the government was repeatedly threatened by Russia and the United States of America in the 19th century, and terminated the policy with the Convention of Peace and Amity between the USA and Japan in 1854. Western science and technology were introduced into Japan through Dejima's Dutch. the government first relied on Dutch government to strengthen the nation. Michel Jules Marie Léon Roches (1809-1901), the second French Ambassador to Japan supported the shogunate government and gave several assistants for national strengthening including Yokosuka Ironwork and Yokohama Ironwork in 1864.

2. The Tokugawa Shogunate government founded ironwork at Yokosuka and Yokohama in 1865 with assistance of French government. Francois Leonce Verny (1837-1908), a naval engineer who had constructed shipyard at Ningpo, China in 1860, was appointed as chief engineer for Yokosuka Ironwork. Louis Felix Florent (1830-1900) took responsibility for lighthouse construction including Kannonzaki Lighthouse and Nojimazaki Lighthouse. Meiji Imperial government took over the ironwork and converted it into shipyard in 1871.

3. David and Thomas Stevenson, civil engineers, Edinburgh. David (1816-1886) and Thomas (1818-1887) were sons of Robert Stevenson (1772-1850), civil engineer specializing lighthouse construction. See "David Stevenson: Life of Robert Stevenson, Civil Engineer, 1878."

4. Alan Ramsay Brebner, 1828-90. Son of Alexander Brebner, builder, was born in Edinburgh, and educated at the High School of Edinburgh. After served a regular apprenticeship as mason, his career as civil engineer started in railway construction work, and in lighthouse construction after he joined Stevenson's office. He was elected as a Member of I.C.E. in 1878. See his obituary in "Minutes of the Proceeding of the Institution of Civil Engineers, Volume 101 Issue 1890."

5. Archibald Woodward Blundell. His background is unknown, but he kept to correspond with McVean.
6. Notice of First Payment by the Board of Trade

Board of Trade, Whitehall, S.W.
30th April 1868

Sir

I am directed by the Board of Trade to transmit the enclosed authority for you to draw upon Her Majesty's Paymaster General for the sum of Fifteen Pounds thirteen shillings & 10d –£ - s – d16 1 10Inc Tax 8 £15 13 10 being the amount of one month's salary as Assistant Engineer for Japanese Lighthouses.

The draft being crossed should, upon being completed, be presented for payment through a banker.

A Declaration to be filled up & returned to the Board of Trade is herewith enclosed.

I am

Sir

Your obedient Servant
Hugh Owen
pr Accountant

To Colin A McVean 84 George Street, Edinburgh

7. See his biography "Thomas Constable: Remains of Alexander Cowan Consisting of His Verses and Extracts from His Correspondence and Journal, 1839."
8. Archibald Campbell Douglas, 1828-1910. Born in Glasgow as son of Rev. Robert Douglas, minister in the parish of Kilbarchan. After attending Glasgow University, he was articled to John Thomas Rochead, architect of Glasgow in 1842, and then set up his own practice in 1855. He designed many churches under partnership with John James Stevenson (b.24 August 1831), later with James Sellars. He hireed a French-born assistant, Charles Alfred Chastel de Boinvile in 1872, and sent him to Japan by request of McVean. Douglas was three time presidents of Glasgow Architectural Association and vice president of the Royal Institute of British Architect in 1891. See Dictionary of Scottish Architect.
9. Thomas Constable, 1812-81. Born in Edinburgh as son of Archibald Constable, publisher and bookseller owning copyright of Encyclopedia Britannica. He inherited publishing business from his father, and was appointed printer and publisher to Queen Victoria. He issued, among other notable series, Constable's Educational Series and Constable's Foreign Miscellany, while published extensive biography of Scottish leading figures including Lewis D.B. Gordon and Pastor Alfred Chastel de Boinville. For Alexander Cowan's family line, see "Reminiscences by Charles Cowan of Logan House, Printed for Private Circulation, 1878."
10. Parochial Book: Jan. 10th, 1840, McVean Archives.
11. Cosmo Innes, 1841-1887. Son of the well-known Cosmo Innes, advocate and professor of history at the University of Edinburgh, was educated at the Edinburgh Academy, and in the Applied Sciences Department of King's College, London. He started his carrier as pupilage with Mr. Robert Sinclair, and as resident engineer for railway construction. In 1868, he went to India as agent of railway constructor in the British India, and joined the Public Works Department of the Government of India as Executive Engineer. He was elected a Member of I.C.E. in 1878. William Kinninmond Burton (1856- 99) was his nephew, and came to Japan to teach sanitary engineering at the Imperial University.
12. Henry Scharbau (1822-1909). French born surveyor and cartographer, joined British Hydraulic Office in 1855, and engaged in surveying along the Hebrides coastal lines under direction of Captain H.C. Otter RN, together with C.A. McVean and W.E. Cheesman in early 1860s. After completed contract with Japanese government, he returned to the Britain, and became the chief cartographer of the Royal Geographical Society, London.
13. William Kinninmond Burton, 1856-99. Born in Edinburgh to John Hill Burton, lawyer and historian, and Katherine Innes, daughter of Dr Cosmo Innes. After studied at Edinburgh Collegiate School, he served 5 years apprenticeship under Brown Brothers, and entered partnership with his uncle Cosmo Innes in 1879 in field of sanitary engineering. In 1887, he was appointed as instructor of sanitary engineering for the Imperial University. He largely contributed to Japan's sanitary improvement including its colonies.

He corresponded with Arthur Conan Doyle.

14. The *Shogunate* Government was to construct suitable legation buildings for five foreign nations with own expense and would let them with annual rent of 10 percent of construction cost in accordance with the Treaty of Amity and Commerce with five foreign nations in 1858. R. Alcock prepared rough plan and elevation of the British Legation Buildings. See signature of MPK144, British National Archives.

15. Rutherford Alcock, 1809-97. Born in Ealing as son of the physician Dr Thomas Alcock, and followed his father into the medical profession. After served an army surgeon for some time, he had to give up medical practice due to rheumatoid arthritis of his fingers in 1837. He entered the Foreign Office, and appointed as Consul at *Fuchow* in 1844, then Consul General at Japan in 1858. He stayed at *Touzen-ji*, *Takanawa*, *Edo* until new legation buildings were completed.

16. *Shinsaku Takasugi*, 1839-68. Born in Haji castle town, *Chosyu* Domain, as son of middle class Samurai, and studied at private school of *Shouin Yoshida*. *Choshu* Domain played vital role in *Meiji* Restoration. *Takasugi* led young *Choshu* Samurais and set fire to newly completed legation buildings. He visited to Shanghai to look invasion of western power in China, while other young colleagues left Japan for the Britain to learn western idea and science in 1862.

17. Thomas Blake Glover, 1838-1911. Born in Abadeenshire as son of coastguard officer Thomas Berry Glover. Finished school in Aberdeen, he entered into employment of trading company Jardine, Matheson Co. at Shanghai in 1859. He founded own company Glover and Co. at Nagasaki in 1859, and engaged firstly in tea trading, then selling of weapon and manufacturing machines.

18. Hugh Matheson, 1821-98. Born at Edinburgh as son of Duncan Matheson, an advocate in Scottish Bar and Deputy Sherriff of City. Educated at Royal High School of Edinburgh, he served apprenticeship under James Ewing & Co., Glasgow. He made religious volunteer service at schools including Andersonian University, and acquainted with Colin Brown, Euing music lectureship instructor there. He succeeded his uncle's business, Matheson & Co., as well as Jardine, Matheson & Co., while he was a leader of religious and social-academic circles in the Britain. It was so lucky for young Japanese students that Matheson was acquainted with Alexander William Williamson, a chemist in University College, London, Lewis Dunbar Brodie Gordon, the first Regius professor of Civil Engineering at the University of Glasgow, and Colin Brown, music teacher at Andersonian University, Glasgow.

19. *Yozo Yamao*, 1837-1917. Born in Suo, now a part of Yamaguchi city, as son of *Tadajiro Yamao*, village officer, and promoted to *Chosyu* Domain officer after finished private school. Dispatched to Edo, he joined the investigation voyage to Japan's northern coastal lines after he learned navigation. The he stayed sometimes at Hakodate to learn fortification under *Hishisaburo Takeda*. After setting fire on the newly completed British Legation buildings at *Gotenyama* in 1862 together with Chosyu colleagues, he left Japan for Britain to learn Western idea and technology. He contributed to found Ministry of Public Works together with Hirobumi Ito in 1871, and a school for the deaf and dumb in 1880. For his biography, see Masanori Kanekiyo: Biography of Yozo Yamao – Father of Japan's Industrialization, 2003 (Japanese language).

20. Huge Matheson described how he got acquainted with Colin Brown in his Memorials (James Oswald Dykes: Memorials of Hugh M Matheson, 1899).

21. Story of meeting of Yamao and McVean will be described in Chapter 2.

22. Henry Dyner, principal of the Imperial College of Engineering described that he had seen Yamao at the evening classes of Andersonian University around 1866 (Henry Dyer: Dai Nippon, 1904, p.2).

23. Anderson Cobbing (2013): The Satsuma Students in Britain Japan's Early Search for the 'Essence of the West.'

Chapter 2

2.1. Yokohama Foreign Settlement

Kanagawa was the third post town along the *Tokaido* Highway 1 from *Edo*, and would open as one of the treaty ports for foreigners in accordance with the Treaty of Amity and Commerce between Japan and the United States in 1858 (Fig. 1). Worrying that Kanagawa was too close to Edo, the Shogunate diplomats proposed Yokohama as the location of the treaty port. Although Yokohama was a small finishing village at the time, it became a booming town soon after the Shogunate government developed foreign settlement. The British diplomats lead by Harry Smith Parks, the second British Council General to Japan, occupied best location close to the custom house and intended to construct consulate office immediately, followed by Jardine, Matheson and Co.

Fig.1. Post-towns along the *Tokaido* Highway.

However, the foreign settlement was not in good condition, even uninhabitable for foreigners due to lack of sanitary conveniences and security. It was impossible to build substantial Western style building there, as Western architect and builder were not available. Parks repeatedly requested the British government to solve this problem, and in 1867 the British government decided to dispatch experienced engineer, Major W. Crossman, R.E. to arrange substantial diplomatic buildings in the Far East 2. When Crossman arrived at Yokohama, an American engineer Richard Bridgens 3 just finished design of temporary Legation and Consulate buildings. Bridgens is believed to have come to Yokohama from the United States around 1864 by the invitation of Mr. Raphael Schoyer 4, the first president of Municipal Council of the Yokohama Foreign Settlement. Bridgens was a brother-in-law of Anna Schoyer, Raphael's wife, and was commissioned by Yokohama foreign communities for construction of various kinds of western style buildings. Crossman redesigned the buildings and commissioned Bridgens to supervise the construction works. When McVean arrived there in 1868, these diplomatic buildings just completed (Fig. 2).

The British lighthouse engineers' team was given extra duty for arrangement of diplomatic premises and improvement of foreign settlements. As soon as settled down at a simple "Bungalow" provided by Japanese government, under Brunton's instruction, McVean started his mission to build office and workshop of the lighthouse department at Benten, to survey the British consulate premises and Yokohama foreign settlement (Fig. 3) with Blundell, beside his

main mission jobs such as designing of lighthouse ship, buoys and lighthouses.

Fig. 2 Yokohama British Consulate, completed in 1868 with Major Crossman's Design and supervision [Izumida 1994a:] Source: Yokohama City Archives.

Fig. 3 Map of Yokohama Foreign Settlement, 1870. Source: Yokohama City Archives
Surveyed and drawn by McVean and Bundell.

As the bungalow was too small for married foreign staff, he designed and built new houses in western style. It was modest two-storied house with large front verandah and garden (Fig. 4), in which McVean expected to spend happy days with his wife and baby Helen. Returning to Yokohama from Mikomoto-jima in 1869, McVean enjoyed weekend with his family and friends.

Saturday May 22, Fine
Took Mary on Lamberts Horse to see the Athletic sports on the Race Course stayed there for abt 2 hours. very good fun, saw nearly everybody there/ Miss Wauchope gave the Ladies Cup to the winner of the race for it – and made a short speech. after taking Mary home met King and rode back to the course with him – just in time to see the steeple chase – very good fun – and a good race between Hodson, Lee & Helm. [1868 McVean's Diary]

Fig. 4 ‘Our House, Benten, Yokohama’, completed June 1869. Source: McVean Archives.

Mary described that that all of foreigners in Yokohama celebrated the Queens Birthday with Regatta, a competition being between British, American, French & c, and a party on board the Ocean in May 24, 1869. In the evening, there was a grand ball at the Club to which they went. Mary danced 4 times & Colin not at all. Baby Helen was christened. McVean went to dinner party with palanquin (Fig. 5).

Fig. 5 ‘Going out to dinner Yokohama 1869,’ illustrated by McVean.Source: McVean Archives.

Mary very frequently received letter from her family members and friends several times a month, while McVean received letter mainly from his father almost once a month. They believed Colin would successfully complete his contract with Japanese government. Mary did not write her diary, but started writing it in September 1869, when McVean gave up his occupation.

2.2. Lighthouse Construction at Mikomoto-jima

McVean’s diary in the first half of 1869 described construction work of lighthouse at *Mikomoto-jima* or Rock Island, which is situated in Pacific Ocean 20 km away south of *Shimoda* port town, *Izu Peninsula*. The first American Consul General, Townsend Harris arrived at his post in 1856, and stayed here sometime to negotiate with the *Shogunate* government for trading treaty. *Mikomoto-jima* was key post for safe navigation toward Edo Bay.

After finished design of *Mikomoto-jima* lighthouse during the winter season at Benten, started first lighthouse construction at the site. Brunton, McVean, Blundell, Marks 5 (Fig.6), Captain Brown 6 and *Kinjiro* 7 left for *Shimoda* by *Tomio-maru*, a ship of the Lighthouse Department in April 8 1869, to investigate the construction site and prepare stone material. It was just 2 weeks after Mr. and Mrs. McVean had a baby on March 22. They were welcomed by *Yakunin* or local officers, and entertained with Japanese cuisine and enjoyed the sulphur spring or Onsen.

Friday Apr 9
Shimoda Very fine –

Got from boat loads of timber off to Rock Island, went in one of them with Brown, Brunton, Kinjiro and guard. breeze fair but light by fits went out in 1 ¾ hours –

Rock Island is in appearance like a large cinder with a few […by] little plants, and a very little grass on the highest part – very little shelter on it - Fixed on site for camp and left Carrell on the Rock to put up one hut – if possible.

Found a number of fishermen on the rock getting bait & fishing numbers of scarts and a few other birds on the rock shot one scart – on the way back shot little awk – Albatross and gull very like a little Black Back at home – but with black band on tail – and black & red spot on bill - got back in about 3½ hours and felt ready for dinner

Fig.6, 'James Marks, 7/2/69, Yokohama.' Source: McVean Archives.

Mikomoto-jima is an uninhabitable small rock island, and only brave men stayed there in daytime for fishing. McVean started to construct shelter on the island, and prepare stone material necessary for lighthouse at *Shimoda* hillside. On April 11, McVean and Marks walked around Awa area with Yakunins, and found a quarry producing good quality of stone material, then gave them order to find 200 masons or stonecutters to be hired. Brunton returned to Yokohama on April 15, while McVean and Marks supervised stonecutting work at the quarry and construction of shelter-house on *Mikomoto-jima*. Sometimes they needed to stay on the island for supervision a couple of days, shooting bird and catching fish for provision. As several steamers anchored in *Shimoda* offshore before reaching to Yokohama, and *Tomio-maru* connected between Yokohama and *Shimoda* frequently, McVean send his letters to Mary, probably very missing newly born daughter, Helen.

Wednesday Apr 28, Weather fine
gave orders for 80 masons and 100 coolies & 10 carpenters to be sent out to rock at once besides several different things material &c … the greater part of the men employed on the road – must organise a regular system and keep strict discipline on the rock saw two fine hawks, which I took to be ospreys –

It was really hard to organize large number of Japanese workers as many as 200 at once for McVean and Marks, and *Yakunins* did not know western construction manner at all although they had to provide convenience for them. Finishing preparation work or the first stage for lighthouse construction, McVean had to discuss proper construction system for substantial stage with Brunton soon, but he did not mention it in his diary. McVean returned to Yokohama in May 13 to bring construction materials and tools back to the island. In June 7, 1869, after stayed for 3 weeks in *Yokohama*, McVean left for *Shimoda* again with his colleagues.

Wednesday Jun 30, Blowing Hard & wet afternoon –
2 boatloads of stone and 1 of limestone off –
Work going on but [so no] from the want of proper organisation and discipline. Must try hard to get this state of things altered by Terashima next week when he comes down here.

Munenori Terashima 8 (Fig.7) was the first governor of *Kanagawa* Prefecture appointed by the Imperial Government, and has being in charge of the Lighthouse Department. Among the Japanese staffs, *Kagenori Ueno* 9 (Fig.8) took care of McVean. Brunton and his wife visited to Shimoda in July 7 to check progress of the work on the way to Nagasaki, and stayed there only 2 days. McVean noted that Brunton was 'very impatient'.

Fig.7 '*Terashima Munenori, Sangi*, Vice-Governor of *Yokohama*.' Source: McVean Archives

Fig 8 '*Ueno Kagenori*'. Source: McVean Archives

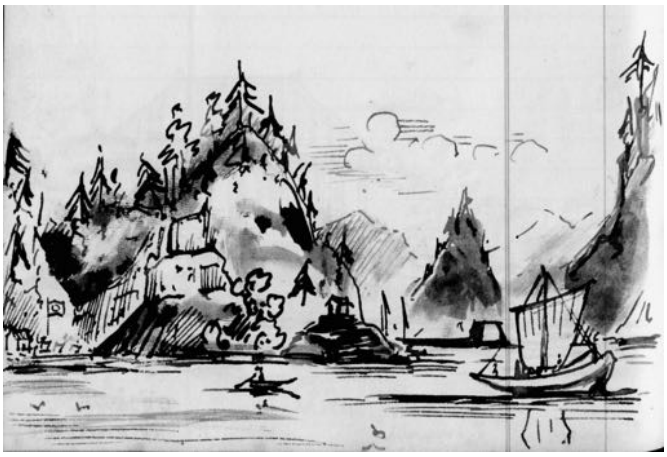

Fig.9 '*Shimoda*, opened up to Foreigners by Commander Perry U.S. IV – 12 years ago, now closed', June 8, illustrated by McVean. Source: McVean Archives

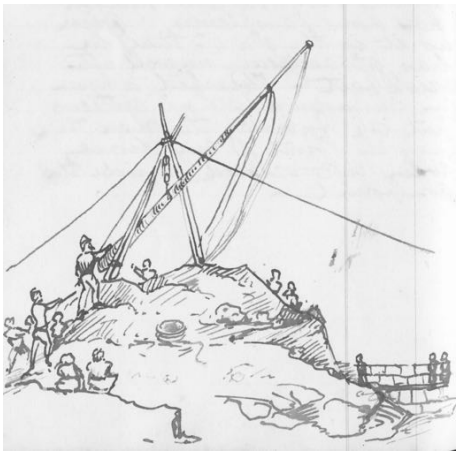

Fig.10 ‘Marks got the flagstaff up this afternoon,’ June 14, illustrated by McVean. Source: McVean Archives

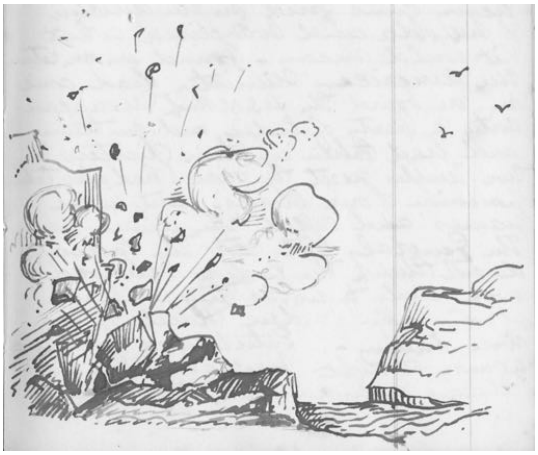

Fig.11 ‘Marks Blasting,’ June 15, illustrated by McVean. Source: McVean Archives

He kept writing his diary with several splendid illustrations in July including scene of calm *Shimoda* Port, flagstaff rising, and rock blasting (Fig.9, 10, 11), but suddenly stopped it in July 31, 1869.

Saturday Jul 31

Dry, blowing a little

Tender - did not come out today - set out the windows in dwelling house - one course of the Tower plinth nearly, completed –

Fig.12 ‘Rock Island Lighthouse’ Source: The Far East Feb. 187o.

2.3. Resignation from the Lighthouse Department

He did not mention what happened to him at Mikomoto-jima, and Mary resumed writing in September 5 instead as follows.

Sunday Sep 5, 1869 [Mary]
Went to church in the morning, walked both ways, which I have not done for long time. The weather much cooler during the last week or so. Colin's arm considerably better, he & Mr Maxwell went on board the "Galatia" but did not see anything wonderful. Mr Blundell off to Rock Island early this morning.

McVean got injured in his arm in Mikomoto-jima, and needed medical leave sometime. Meanwhile, Mary took care of him without going to church nearly one month, and McVean made significant decision to resign from the lighthouse department being under Brunton's leadership. Mary understood McVean's decision and wrote letter to her family in Edinburgh, while McVean wrote letter of resignation to Brunton and Terashima on August 19, 1869. Blundell also submitted letter of resignation to Brunton following McVean 10.

The Chief of the Japanese Light House Department, Saibansho, Yedo
Sir,

I am sorry at this early stage of my service under your department to be obliged to tender my resignation. My reasons for so doing are - that I find I cannot continue to serve under Mr Brunton your present Chief Engineer - with credit to myself or advantage to the service, or without running the risk of losing the position I hold in my profession - because I consider him incompetent as chief engineer - and that I have lost that respect for him to which the head of an office like ours should be entitled -

For those reasons no other course is open to me - but to resign the appointment I now hold - giving the stipulated years notice from the date of this my resignation - or is so desired by the Japanese Government for any shorter term that may be determined upon.

I am Sir
Your obe.t serv.t.
C.A. McVean Assist. Engineer Japanese service.
Yokohama, August 19th 1869

McVean found that Brunton lacked chief engineer's ability. Mikomoto-jima lighthouse was the first substantial work for them, and McVean and Blundell had to solve the complicated problem arose at site, as Japanese contractor and workers did not know western way of construction at all. Brunton seemed not to give proper instructions to McVean and Blundell, just observing them from headquarter at Yokohama. Moreover, it had to be too hard for McVean to work at remote place leaving wife and a baby at Yokohama for a couple of weeks. So, arm injury might be just an immediate case for resignation, actually there has been distrust between them since technical training days in Stevenson's office. Brunton was always impatient and eager for quick success, and so lacked sense of care to his co-workers. Blundell emphasized that Brunton made "a systematic attempt to force him (McVean)) into resignation 11.'

However, the resignation from the lighthouse department was very complicated issue because they were hired through both Japanese and British governments under certain condition of contract. If McVean and Blundell break off the contract, they could not receive salary and allowance for return at all. Blundell preferred to move to railway department under the same condition, while McVean just quitted government service. He had to make up his mind, returning to Britain by his own money or find new job at Yokohama. McVean chose the later, but it was really uncertain for him if he could earn enough money for stable life there.

Brunton informed the Stevenson's that McVean and Blundell were incompetence, and asked to send him new staffs, while McVean also wrote letter to Stevenson's and his father, and Mary

to her brother. James Cowan 12, Mary's brother as well as leading Scottish politician, met David Stevenson and discussed McVean's case. His resignation really troubled them.

Edinburgh 4 Nov. 1869

My dear Colin

I saw David Stevenson yesterday and had a talk with him about you. We have all of us been much distressed at your resignation, because we cannot here understand what led you to such a step. The difficulty in he way of C.E. obtaining a position and work are so great as you will know, no one would voluntarily give up a position except for very grave reasons.

That you have those reasons none of us doubt, but we all at the same time hope that the step you have taken may be reconsidered. I think I may say that I write you with the united wish and feelings of all the family, and with David Stevenson C. E. earnest recommendation that you should so endeavour to arrange with the principal that you should not be cast adrift, It is only a fortnight since that Stevenson got a report from the office in Japan from your principal in which the name of C. McVean was favourably mentioned, and this has been sent to the home office, A private note also came saying there had been disagreements in the office but they had all been settled. All this may come too late, but it seems at least to assure you and Mary of our love for you both and earnest hopes for your peace & happiness.

Your affec. Brother
Jas. Cowan

James knew that McVean would not be reconciled with Brunton, and asked David to accept McVean's decision, while Rev. McVean fully supported his son's decision, and encouraged him, then wrote letter to Alan Brebner 13, principal engineer in charge of lighthouse construction in Stevenson's. Rev. McVean saw that it was because of Brebner's wrong arrangement of post of chief engineer.

Ross Mull Jany 1870
My dear Colin & Mary
(Previous part omitted)

In my anxiety to get at the feeling in Stevenson's office as to the state of matters between you & Brunton, I thought of writing to Allan Brebner, and had a most gratifying letter from him a few days ago, in which he says he is not least surprised at your having thrown up your appointment. I cannot send you the letter, as I could not resist enclosing it with a Nota Bene of "Private" which you must observe too, to Mr John [James?] Cowan.

Brebner speaks very kindly of you & says he would be happy to do any thing to help you. It appears from his letter that poor Brunton has at last reported that you and Blundell have both resigned - & in doing so charged him with incompetence. - he also says – but I conjure you – both of you – let it not escape your lips to Blundell or any one else on any account - If it came by any accident to Brunton's ears – or to Stevenson's or Brebners – there is no saying what mischief might follow, or what harm it might do to yourself - He says if he had known from first what he knows now Brunton would never have gone to Japan. I am so much afraid of the evil that might result from this being spoken of that I trust you will keep it quiet and burn this when you have read it. I have no doubt Stevenson's eyes must also be opened, tho' having recommended B. for the post, he must feel himself in an awkward box, and probably has no power to recall him. You should also avoid all reflections on B. in the place. If the Japanese authorities were roused, who could answer for the consequences.
(Later part omitted)
Your affte Papa

McVean bore the responsibility of contract breaking, and gave up receiving his salary and returning allowance. Stevenson's did not blame McVean for his resignation, and then chose

carefully succeeding assistants for Brunton's lighthouse department. Actually, George Wauchope 14, elder brother of Brunton's wife supported Brunton very much working together for the Benten with Stirling Fisher 15.

2.4. Vulcan Foundry and Railway Construction

Fig.13 An letter envelop addressed to McVean, Vulcan Foundry, stamp-dated of May 29, 1871

As soon as McVean's resignation was officially approved, he left the Benten foreign staff's house and moved to Dr Hepburn's 16 residence within the Yokohama foreign settlement 17. He started foundry business under the name of Vulcan Foundry (Fig.13), as Mary wrote 'Colin in the thick of foundry business' in September 7 and 'Colin busy in foundry' in 16 September on her diaries respectively. The Vulcan Foundry Limited was a well-known locomotive builder based on Lancashire, and supplied to Japan first locomotive, which started service between Yokohama and *Shinbashi* in 1872.

McVean's foundry, however seems not to be related to this Vulcan Foundry, and he just bought existing ironworks from someone or got in partnership with someone for ironwork business in that name. According to the 1870 Directory and Chronicle of China and Japan, McVean's foundry was in same address with Lucy Co., Yokohama, which was managed by Richard Bridgens, an American engineer. Philip Dawson and George Whitefield were also McVean's partner because they would help McVean later for his mission of *Nihonbashi* Redevelopment Scheme in March 1872 after the big fire. But, nothing is known what exactly they did in Yokomaha in 1869 and 1870 as McVean quitted writing diaries.

George Cowan, one of May's brothers suggested McVean as:

"You should live very economically for some years to some putting bye a large portion of your income. In a few years, you will be much more capable of managing your business, your capital will have increased, you will also have gained the confidence of your customers with will make profits more certain, and then your may allow yourself to spend more. Few good things in this world are got without selfdenial, let nothing tempt you to speculate. You have not sufficient to run such risks, besides it is had for ones more nature."[G. Cowan's letter to McVean dated Dec. 2, 1869]

At that time, the Imperial government just took over the railway construction project begun by the previous government, and needed the British assistance. Harry Smith Parks 18 introduced the government a financing agent, Horatio Nelson Lay 19, who arranged fund rising scheme as well as appointment of chief engineer in 1869. There were actually several places of civil engineers' posts to be hired by the railway department, but McVean did not get interested in it at all, and was supposedly seeking more suitable job, with which he could fully express his ability.

Anyhow McVean's business might be instable, and his father once suggested him to come back to Scotland. McVean refused it and preferred staying in Japan. Life in Japan might be so exciting for McVean that he ascended Mt. Fujiyama with some British travelers in 1870 summer. Reading McVean's travel accounts, his father "was shuddering still at the story of *Fusiyama*" 20.

Ray found an experienced engineer for Japan's railway construction through his connection. He was Edmund Morel 21, who had supervised railway construction in several colonies. After Parks approved Morel's career and profile, he arrived at Japan in April 12, 1870 accompanied with several assistant engineers 22. Morel is widely regarded as one of benefactors in Japan's modern engineering development.

Footnotes

1. Tokaido was a main highway connecting Edo and Kyoto with 53 post towns.
2. Britain expanded the authority over Chinese territories after the Nanjing Treaty of 1842. Hong kong Colonial Government's engineering department was to take responsibility for maintenance of diplomatic buildings in treaty ports of foreign settlements. Limited engineering force in the department, Consul-General and Consular staffs had to arrange diplomatic buildings by themselves. Most of cases, they rent existing buildings like Buddhist temple, which were not inhabitable in winter season and for security reason. R. Alcock, Consul-General in China and H. Parks, Consul General in Japan both urged the British Government to furnish suitable diplomatic buildings for each station. Despite H.M. Office of Works was to take responsibility for the arrangement and maintenance, it did not architect to dispatch to Far East. British Government chose Major William Crossman, for that mission among Royal Engineers. For more details, see Hideo Izumida: A Study on British Architects in East and Southeast Asia 1830-1940, Journal of Asian Architecture and Building Engineering, 2003, pp.131-139.
3. Richard P. Bridgens, 1819-1891. American lithographer. Established the map publishing firm R. P. & H. F. Bridgens with Henry F. Bridgens in 1853 at Philadelphia. Following the short-lived partnership, Bridgens surveyed a number of maps and plans in the early 1850s, and relocated to California where he worked as a civil engineer and architect. Later, he traveled to Japan where he designed a number of structures at Yokohama and Tokyo (The Library Company of Philadelphia).
4. Raphael Schoyer, 1800-65. Artist and entrepreneur. Emigrated first to Baltimore, Raphael worked at New York as engraver, and moved to San Francisco to start independent auction business. He married Frances Hart in New York, and remarried Anna after Frances dies in 1849 at New York. He arrived at Yokohama in the end of 1859 and started multi kinds of business.
5. James Marks, mason. David and Thomas Stevenson's office, Edinburgh sent a mason Marks to Japan's Lighthouse Department together with Brunton, McVean and Brundell. He moved to the Ministry of Public Works by request of McVean in 1871, and worked for construction of technical college.
6. Captain Albert Richard Brown, 1839-1913. He arrived at Yokohama port as a captain of P & O Company, and was hired by Japan's Lighthouse Department. After worked several years for the lighthouse department, he moved to Mitsubishi Company. He returned to Glasgow in 1902, and became Honarable Counsel of Japanese government in Glasgow. He was one of McVean's best friends. For his biography, see Lewis Bush: The Life and Times of the Illustrious Captain Brown (Voyageurs Press, 1970),
7. *Kinjiro*, later *Kentatsu Fujikura*, 1852-1934. He was a son of *Samurai* family of *Zeze* Domain, near Lake *Biwa* and learned English probably at Hepburn's school, and hired as English-Japanese interpreter by the Lighthouse Department in 1868. After he worked with R.H. Brunton for 3 years, he was dispatched to Britain to study lighthouse engineering at the University of Edinburgh and Stevenson's Office. He became first Director of Japan's Lighthouse Department. He was familiar with Robert Louis Stevenson, son of David Stevenson.
8. *Munenori Terashima*, 1832-1893. Japanese politician in the early Meiji period. Born as a son of

samurai family of *Satsuma* Domain, and was adopted by *Muneyasu Matsuki*, a doctor of Dutch medicine at age of 5 years. Learning Dutch science at Nagasaki and Edo, he became Dutch language instructor at Bansyo-torishirabesyo (Institute of Foreign Studies). He started learning English by himself after being aware of the importance of English language during working at the Yokohama Foreign Settlement, and joined Shogunate Mission to Europe in 1862 and Satsuma Mission to Britain in 1965. He changed his family name into Terashima in 1866, and began his political careers in the Imperial government as Governor of Kanagawa Prefecture.

9. *Kagenori Ueno*, 1845-1888. Japanese diplomat of the early Meiji period. Born as a son of *Taisuke Ueno*, Chinese language interpreter of *Satsuma* Domain, and learned Dutch and English languages in Nagasaki, then smuggled himself into Shanghai to learn English. He taught English at Satsuma Domain's school sometimes, and acted as interpreter for British engineers in 1865. Invited by *Terashima* to Yokohama, he worked for lighthouse department in 1868, and played essential rule in the early Meiji diplomatic scene.

10. Blundell withdrew the resignation and stayed at the Lighthouse Department for a year by request of the department. He, then transferred to the Railway Department in the end of 1870.

11. James Cowan, 1816-1895. Scottish Politician. Born as the third son of Alexander Cowan, papermaker and philanthropist, and became Lord Provost of Edinburgh from 1872 to 1874, and then MP for Edinburgh (ODNB). Members of the Iwakura Mission did not know why they were so warmly welcomed in Edinburgh.

12. Blundell's Letter dated 19 Aug 1869.

13. Alan Ramsay Brebner, 1821-1890. Scottish civil engineer. After educated at the High School of Edinburgh, he served a regular apprenticeship as a mason and worked for Messrs. Stevenson's specializing harbour and lighthouse construction (The Scotsman, 7th March 1890).

14. George Wauchope, 1839-1902. Born as the first son of George Wauchope, a clerk of Railway Office Midlothian. He was an elder bother of Elizabeth Charlotte Wauchope, wife of R.H. Brunton, and had to support Bruton after McVean and Blundel left Japan's Lighthouse Department.

15. Stirling Fisher. Scottish civil engineer. He seemed to be a relative of George Wauchope as Rev. McVean mentioned "Mr Fisher, Mr Blundell's successor will likely tell you he took tea with us at the manse, Mr Brebner kindly called with him, he may likely get on better with Mr Brunton as Mrs B is a cousin of his (Annie McVean's Letter to McVean dated 13th July, 1870).

16. Hepburn, James Curtis, 1815-1911. American medical doctor and missionary. Born as the first son of Samuel Hepburn and Anni Clay in Pennsylvania. Samuel's parents were immigrants from Belfast. He learned liberal arts at Princeton University, and medicine in Pennsylvania University. After worked as medical doctor sometimes, he made up his mind to devote his life for missionary service, and settled down at Yokohama Foreign Settlement in 1859. He waited for timing for missionary work while teaching English to Japanese and practicing medical service. He built his house in 1862 at No. 39, Yokohama Foreign Settlement, where McVean family lived in 1869 and 1870. hi,

17. The Japan Weekly Mail, September 24 1870.

18. Harry Smith Parks, 1828-1885. British diplomat. He was the second Consul-General in Japan from 1865 to 1883. During his period in Japan, A.B. Freeman Mitford, E. Mason Satow, R.G. Watson, J.H. Gubbins, etc., worked as secretary.

19. Horatio Nelson Lay, 1832-1898. British diplomat and businessman. He was born as a son of George T. Lay, a British naturalist, and went to China to learn Chinese language at 1845. He started his career as diplomat from acting Vice-Consul in Shanghai, and became the first Inspector-General of the Imperial Maritime Customs. By recommended by H. Parks, Lay was hired as foreign advisor by the Meiji government to arrange the foreign loan for construction of railway and telegraph lines. He found E. Morel for the post of chief engineer of Japan's railway construction, but his loan scheme was canceled due to incorrect handling of interesting rate.

20. Rev. McVean's Letter to Colin and Mary dated on 15th Nov. 1870.

21. Edmund Morel, 1840-1872. British civil engineer. He was born in London and studied civil engineering at King's College, then shortly in Germany. After being engaged with railway construction

projects in the British colonies including New Zealand, Australia and North Borneo, he was hired by the Meiji government in 1870 as a chief engineer. He presented several suggestions to the government in order to promote rapid industrialization including foundation of public works. He soon fell into critical health condition and passed away in 1871. See his obituary, Proceeding of the ICE.

22. Yoshihiro Morita, Edmund Morel: a British Engineer in Japan, Britain and Japan: Biographical Portraits, Volume 2, 1997, pp.48~59.

Chapter 3 Ministry of the Public Works

3.1. Morel and Public Works

After the Meiji Restoration took place in 1868, the *Chosyu Five* took essential part in the new government. *Hirobumi Ito* was appointed as the first governor of *Hyogo* prefecture in 1869, and soon promoted to acting Vice Minister of the Treasury in charge of railway construction in 1870 (Fig.1). Meeting Morel, *Ito* asked him what were the keys to achieve the railway construction project. Morel soon prepared a project scheme consisting of 8 clauses. A month later, he created complete proposal to succeed Japan's overall modernization projects. Morel emphasized the foundation of the ministry of public works to administrate these projects including railway and lighthouse construction, road and port development, and mining under a minister 1. The proposal included the establishment of engineering institution, which was intended to train young Japanese as engineer in order to switch engineering manpower from foreigner to Japanese. *Ito* translated it with some revisions, and submitted it to *Shigenobu Okuma*, Vice Minister of the Treasury as well as one of oligarchic members of the Imperial Government on May 18, Meiji 3 (June 16, 1870) in the title of Proposal of "*Kobu-In Kenchi no Gi*" or Foundation of Ministry of the Public Works.

Fig.1 "*Ito*, Minister of Public Works" Source: McVean Archives

Ito followed Morel's proposal, which described the importance of the Ministry of Public Works for Japan, as "Britain was historically a country of entrepreneurs, who invested and developed social infrastructure on their own initiative, such as railway, port, waterworks, etc. Therefore, the British government did not need public works department, but its colonies and continental European countries." The British India, in particular, has been had large scale of the public works department since the East India Company's time, and hired a large number of civil engineers 2. Morel worked in several British colonies including Australia, New Zealand and Labuan.

The Ministry of the Public Works Morel proposed would be lead by a minister, and consisted of three divisions; Execution, Education and Accounting. He emphasized the necessary of engineers' education and training programmes using more than half of his proposal pages. "Japan need to hire foreign engineers to drive rapid modernization for a while, but soon or later have to carry out infrastructure development by themselves to keep the nation independent. In order to train young Japanese as engineers, the ministry of the public works has to have engineering institution.

Main function of the Institution would be an engineering college, which was supplemented with school." There was no public educational system yet, and so the Works had to arrange primary school for pupils. It looked like King's College and King's College School in London, where Morel have learned. However, Morel's proposal for engineering education was not

specific yet, and did not mention the departmental organization and school syllabus at all.

Okuma referred this proposal to the oligarchic meeting. The oligarchic ministers understood its aim, but they wandered extent of the ministry's authority. The oligarch needed 5 months to agree the establishment of the ministry, and declared its establishment in October 20, *Meiji* 3 (November 13, 1870). The Ministry was intended to foster various industrial development providing railway, mining, steel making, telegraph and lighthouse for the nation. There was an inconsistency between Morel and the oligarchic ministers in term of understanding of the public works. Morel intended to provide social infrastructure for industrial development, while the oligarchic ministers likely wanted an engine for rapid industrialization. *Ito* was appointed as Vice Minister and *Yamao* as Acting Vice Minister, but the authority and organization were not specified yet.

For the oligarchic ministers, it was hard to agree what departments might be put into the Works. Morel once again urged the government immediately to organize the Ministry of the Public Works 3 on January 8, 1871, and *Yamao* also submitted the government his idea of the organization of the public works as "My Silly Consideration" (Fig.2) 4.

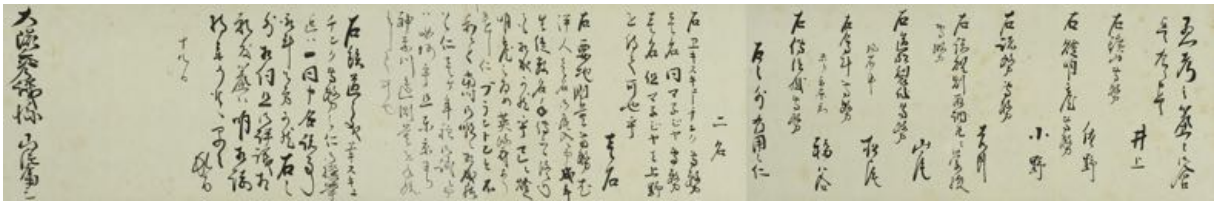

Fig.2 *Guko* (My Silly Consideration), prepared by *Yozo Yamao* on 18th.

[year and month unspecified] 18

Sir, Okuma, a Oligarchic Minister, Yozo Yamao

My Silly Consideration on Candidate of Department Heads, the Public Works

Head of Mining----------Inoue
Head of Lighthouse----------Sano
Head of General Affairs----------Ono
Head of Institution and School----------Yoshii
Head of Shipbuilding----------Yamao
Head of Accounting----------Matsuo, on leave
Head of Telegram----------Fukuya, not yet hired
One Execution Head and one manager head---Possibly Ueno
Survey Head------ a foreign figure who resigned from the lighthouse department due to discord with Brunton.
I will hire him to make survey for a year tentatively along Tokyo to Kanagawa area first.
Execution Head of Railway----------still pending

Yamao of course preferred to hold post of head in the Shipbuilding Department because he has learned it in Scotland. He also suggested *Okuma* to add a new department; Survey. Possible head of the Survey Department would be a foreign engineer who was discharged from the Lighthouse Department sometime ago. The figure must to be McVean, with whom *Yamao* has met and accepted his idea regarding project of national survey.

Finally in August 14, Meiji 4 (September 28, 1871), the Ministry of the Public Works officially started functioning with 11 departments as the following table 5. Five weeks later, Morel unfortunately passed away by tuberculosis before his medical leave was approved.

Officials and Chief Engineers, the Ministry of Public Works in 1871.

Kyo (Ministry)----------Shojiro Goto, tentative

Taifu (Vice Minister)----------Hirobumi Ito
Shoyu (Acting Vice Minister)----------Yuzo Yamao
First Class Departments
Kogaku-ryo (Engineering Institution)----------Yuzo Yamao----------[none]
Kanko-ryo (Promotion of Industrialization)---------Naohiro Ishiguro----------[none]
Kozan-ryo (Mining)----------Masaru Inoue----------[J.G.H. Godfrey, J.F. Coignet]
Tetsudo-ryo (Railway)----------Masaru Inoue----------[E.Morel, R.V.Boyle]
Secound Class Departments
Doboku-ryo (Civil Engineering)----------Kenzazuro Okamoto [moved to the Treasury, Home Affairs]
Todai-ryo (Lighthouse)----------Tsunetami Sano----------[R.H.Brunton]
Zosen-ryo (Ship-building)----------Tameyoshi Hide----------[F.L.Verny]
Densin-ryo (Telegraphy)----------Yasuyo Ishimaru----------[Morris]
Seitetsu-ryo (Steel-making)----------Hironari Nakamura----------[F.L.Verny]
Seisaku-ryo (Manufacturing)----------Tameyoshi Koeda----------[none]
Sub-Department
Sokuryou-shi (Survey)----------Yuzo Yamao----------[C.A. McVean]
*Source: *Kobu-syo Enkaku Hokoku* (History of Ministry of the Public Works, the Treasury, 1889). [ ] by author.

Most of departments already started under different ministries with hired foreign engineers. The Engineering Institution and Survey Department, on the other hand, were newly added, and needed appointment of heads in charge, allocation of budget and foreign advisors. *Yamao* could not find anyone who could take care of new two departments, and so dared to be head of them. However, as Department of Civil Engineering, soon after, was taken by the Ministry of the Treasury again, the Public Works lost its main principle and turned the characteristic and function to ministry of engineering affairs. If *Kobu-sho* is to be properly translated into English, it should be the ministry of engineering affairs.

3.2. Support the Hero! Father's Suggestions

McVean's name reappeared in *Yamao*'s "My Sully Consideration" created on January 8 1871, as possible chief surveyor. *Yamao* started his technocratic career in the Imperial Government from head of the *Yokosuka* Arsenal, and met McVean at *Yokohama* by the middle of 1870 through his business. McVean might be very surprised to hear *Yamao*'s Scottish dialect and could not believe *Yamao*'s experience in Glasgow. *Yamao* was taking technical training at the Napier's Shipyard staying at Colin Brown's house in 1867, when McVean was looking for new appointment after returning from Othman Turkey. They were surprised again to notice that they were seeking someone like themselves each other.

McVean could not help writing letter to his father about this meeting. Rev. McVean took action immediately to investigate what *Yamao* really did in Glasgow asking Colin Brown.

FCM - R.M. 15th Nov. 1870

My dear Colin & Mary,

[Former part omitted]

I can not find Yokosuka - the place of the Arsenal & and where Yozo is in the Map. I would have written to Brown at once for a letter of introduction, had you not said you were to call for said distinguished official & introduce yourself. I find by your letter now to hand, though you had not done so - you still intended to go without waiting a formal introduction Brown anticipated from his fine frank Scotch like character - you would if you found him, get a very cordial reception from him by merely mentioning his name tho' he told me there was a mystery about their not having heard from him which he could not understand.

He had studied the Bible intently & became convinced of the truth of Christianity which he seemed to have embraced very cordially & conscientiously but Brown had some fear this might have compromised him in the eyes of

the Governing Powers of Japan, & he advised me to say nothing about it - nor did I till now. But his friends in Glasgow were quite confident if he kept on good terms with the authorities he must have got into some important office. His own chief desire in coming to this Country was to acquire knowledge - which he might turn to account for the good of his own country. He had completely mastered the English language, as you ought to do theirs for your own interest.
[later part omitted]
Love to you all big & little Your affe Papa

This Brown was a close friend of Hugh Matheson, and was asked to take care of *Yamao* during his apprenticeship at the Napier Shipyard for 2 years 6. Brown was surprised to receive a letter from Rev. McVean asking about *Yamao*. *Yamao* might have been too busy to write his letter to Brown since he left Glasgow. Brown was so happy to hear that *Yamao* has entered into government service and assured that *Yamao* would express his talent in the new government. More interesting matter is that *Yamao* learned the Bible and has followed Christian life there. Then, Rev. McVean believed that *Yamao* would be real hero for Japan's modernization, and advised his son to talk to *Yamao* more frankly, probably about his intension.

FCM – R.M. 19 Dec. 1870

My dear Mary -
[Former part omitted]
We had a visit of Ludovic Cameron here a few days ago - he had called (from Aross) some days previously & came to spend a night with us. Of course he was well plied with questions about Japan - but it is so long since he was there that we did not get very much information beyond what we already knew. We long for Max but can scarcely look for him till the winter is past & gone & the time of the singing of birds &c returns. It is now time for me to advert to the letter enclosed for Yozo Yamao, which reached me a few days ago - but probably Colin may have seen the Hero before it reaches Colin Brown his Glasgow friend says - "I was greatly gratified & obliged by the receipt of your letter, tho' I fear you will hardly think so from my long delay in replying to it. I sent it to Mr Matheson (London) who with me feels greatly obliged to you for your kindness in writing to your son, & to him for his promptness in finding out our young friend whom we had all but given up for lost. Mr Matheson hopes he may soon hear more about him. He is a fine little fellow, and may be of use to your son, in fact they may be of mutual advantage to each other & I hope to hear of their being friends."
[later part omitted]
With warmest love to you all in which Aunt M begs to include hers, Your ever affect. D. McVean

Rev. McVean made effort to link up his son with *Yamao*, Brown and Matheson so that his son might fulfill his dream in Japan. *Yamao* might write soon his letter to Brown and Matheson to tell his situation. Brown received it and remembered the days *Yamao* was with his family. *Yamao* sincerely expressed his gratitude to Matheson and Brown, and might ask help to them in order to solve his problem.

[aigne] Aug 22/ 71

Revd & Dear Sir

The receipt of your letter has given us much pleasure & interest. I shall be happy indeed under a kind Providence I may have been the means, while asking a favour of your Son, of doing him a good turn.

My young folks are greatly astonished to hear of Yamao being a great swell - they recalled the mornings when he went out so quietly to his work in his working clothes and in the evenings how make them curious toys, teach them the butterfly trick & shew them how to spin Japanese tops.

My young folks in a [….eath] request that Mr MacVean will kindly as[k] his son what a gon-sho-jo means - One of them wonders if it is anything like a Banjo-jo -. They are going to write him a joint letter to ask him if he is so busy or so great as to have no time to remember old friends. I am glad we are to have the pleasure of soon seeing

yourself and daughter - the weather is surely cool enough now - and a short time of good Glasgow smoke is often most beneficial to young ladies - I need hardly say how pleased we shall all be to see you at Hillhead - Moffatt is in September generally very cool and bracing but I quite expect you will find Glasgow to be [sufficient]. When you have any further news from your son, I shall be delighted to hear.

In Yamao's eyes a thorough going Scotchman will be inestimable - In this words he used to say "Scotchman bestest man, bestest head - bestest hand, bestest heart - bestest soldier" - so Colin need not fear a kind welcome - from as nice a little fellow as he ever met - With kindest regards to one & all -

Yours very truly Colin Brown

Gon-sho-jo is a post title of government officials of the early Imperial Government. But when *Yamao* first entered to government service, his post in the Ministry of Civil Affairs was *Gon-dai-sho*, one rank higher than *Gon-sho-jo*. Assumedly *Yamao* was given better post than the firstly offered engagement. Due to Rev. McVean's effort and suggestion, McVean made up his mind to support *Yamao*, who were taking responsibility of formation of the Public Works. McVean surely emphasized significance of survey and mapping for national development, and *Yamao* agreed it. McVean did not hesitate to close the Vulcan Foundry 7.

McVean resumed writing his diary in January 1, 1872, and looked back on his appointment of the Public Works took place in last September as follows.

Monday Jan 1, 1872

(M) Did not sit up last night to see the New Year come in, but got up early this morning in hopes of seeing the Mikado, but were disappointed & only had the pleasure of seeing his empty carriage. He went to Yokasuka. Colin went to Yokohama by coach & in the evening dined with Mr. Dowson.

(C) Letter to Dalgleish sent off today, dispatched two boxes of seeds and bulbs – by American mail – one to Papa and one to Dalgleish. Wrote to J. Cowan and to J. Craig by last mail I think. Recd my appointment to the Board of Works (Japanese Govt) 13th Sept. 1871, about three weeks afterwards was promoted to be Chief of the Imperial Survey. Yozo Yamao being appointed Chief Commissioner of Surveys & Technical Education. About the same time, George Eaton appointed asst teacher 27 Oct. /71, Henry Batson Joyner appointed asst Engineer 17th Nov. /71 (Transferred from Railway Section) [(M) means Mary, (C) Colin]

January 1, 1872 was November 21, *Meiji* 4, when the Empire made official visit to *Yokosuka* Arsenal with some of oligarchic ministers and officials including *Yamao* as Mary mentioned. A week before formation of the Public Works was completed on August 14 *Meiji* 4 (September 28, 1872), McVean was re-employed by the government, and soon was promoted to Chief of the Survey Department in charge of *Yamao*. McVean's circumstance changed drastically after meeting with *Yamao*. He wrote letters to his friends and family members including James Cowan, Mary's brother as well as Provost of Edinburgh City of 1872. McVean had another reason to write letter to James, it was to ask him to take care of the *Iwakura Mission* 8 in Scotland. As *Ito* has left Japan as Vice Ambassador of the *Iwakura Mission* for nearly 2 years, *Yamao* had to manage the newly formed Public Works, and his big headache was how to establish the Engineering Institution.

McVean moved to *Tokyo* soon, and built new residence at the premise called *Yamato Yashiki*, now Hotel Okura site. The house he designed was big western style one with some odd ornaments (Fig.3).

Fig.3 McVean Family at the *Yamato Yashiki*. Source: McVean Archives.
Probably taken in the early 1872, as first son Donald Archibald was still small baby.

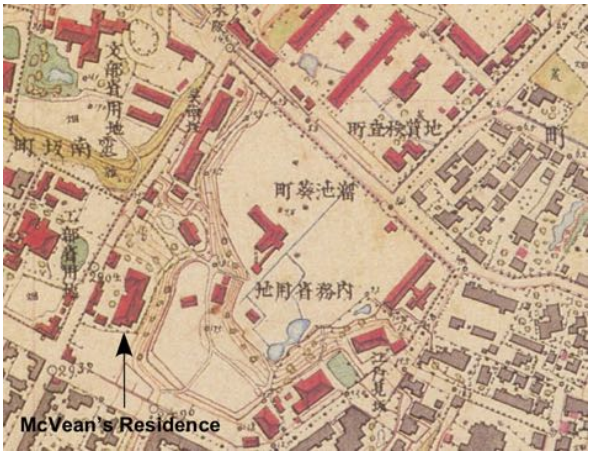

Fig.4 McVean's Residence at the *Yamato Yashiki*. 1885 Tokyo Map.

Footnotes

1. *Ito, Hirobum*i: *Tetsudo Sogyo no Jiseki* (History of Foundation of Japan's Railway), 1902.
2. For Public Works of India Colony, see the following books and articles.
・Cotton, Lieut.-Colonel A: Public Works in India, Their Importance; Their Extension and Improvement, Wm. H. Alien & Co, 1854.
・Bourne, John: Public Works in India, Longman, Brown, Green, Longmans & Roberts, 1856.
・Baker, Colonel: Official Report on Indian Public Works, Richardson Brothers, 1856.
・Public Works of India, The Builder, Oct. 30. 1869.
3. Edmund Morel's Dispatch to *Okuma* dated on January 8 1871 (Nov. 18, *Meiji* 3) Regarding the Foundation of the Ministry of the Public Works, *Okuma Archives*, *Waseda University*.
4. *Yuzo Yamao*'s Dispatch to *Okuma* dated 18 "My Silly Consideration for the Public Works." *Okuma Archives*, *Waseda University Library*. Although writing year and month were not specified in this dispatch, they should be November 18, *Meiji* 3, as Morel arranged his dispatch on January 8 1871.
5. *Kobu-sho*'s history was edited by the Tresury in 1889 as "*Kobu-syo Enkaku Hokoku* (History of Ministry of the Public Works, the Treasury, 1889).
6. Cobbing 1998: pp.118-119.
7. There is a document of selling foundry property in McVean's Archives.
8. *Iwakura Mission*. The mission was dispatched to the United States and Europe to study modern government system and policy from the end of 1871 to middle of 1873. Ambassador was *Tomomi Iwakura*, who was accompanied by *Takayoshi Kido, Tomomichi Okubo, Hirobumi Ito and Naoyoshi Yamaguchi* as

Vice Ambassador, and more than 40 officials. They were heartedly welcomed in every part of Scotland, in particular at Penicuik with marvelous banquet arranged by Charles Cowan, Mary's brother. However, they did not know why Scottish was so kind for them (*Kunitake Kume*, *Bei-Ou Kairan Jikki* (Memories of the Iwakura Mission in the Unites State and Europe), 1878).

4. The Engineering Institution and Survey Department

4.1. Engineer's Education in Britain

Yamao's first relied on Morel establishing the Engineering Institution as long as Morel was alive. However, There was no such model in the British government as Morel suggested. During the Industrial Revolution period in the Britain, young engineers have been produced through apprenticeship, which was regarded the most authentic way of engineer's training in the middle of the 19th century. Those who wanted to learn theoretical subjects such as mathematics, chemistry, physics, and applied sciences, they went to college to take such subjects at college as part time student. There was no professional engineer's training college in the Britain except the British India. The Public Works of the East India Company demanded a large number of civil engineers for colonial development, but it could not find enough number of competent civil engineers 1. Then, the East India Company decided to establish a civil engineering college at Roorkee in 1854. But, it was not successful due to lack of practical training opportunity for students in India.

However, other European nations have established the engineering college in the first half of the 19th century respectively to achieve rapid industrialization such as *École Polytechniques* in France, *Berliner Technische Schule* in Germany and *Eidgenössische Polytechnische Schule* in Switzerland. The British government started discussion whether the government had to found professional engineering college for the British India's Public Works in 1867, and the Institute of Civil Engineers also took action to investigate present and future engineering education for Britain comparing with other European nations in 1868. The report entitled "The Education and Status of Civil Engineers, in the United Kingdom and in Foreign Countries (1870)" 2 presented various ideas of leading British scholars. Fleming Jenkin of University of Edinburgh supported advantage of existing apprenticeship training, denying theory oriented French way. On the other hand, editor of "Builder", Britain's leading engineering journal, pushed Zurich way of harmonious combination of theory and practice 3.

William Rankine 4 of the University of Glasgow who has emphasized "mutual dependence and harmony between sound theory and good practice," proposed the University Council and the India Office to found professional engineering college within his university in 1870 5. Eventually, British Government rejected Rankine's idea and made decision to establish new professional engineering college for the British India at Cooper's Hill, near London (Fig.1) 6. The students would learn both theory and practice half year alternately in the first 3 years, and would take one year practical training under the skilled engineer in the 4th year, then take the final examination at the college. The successful students were given junior certificate from the Institute of Civil Engineers and would be employed by British India's Public Works 7.

Morel surely has known the Institute of Civil Engineers' report and the foundation of the Indian Engineering College. When Morel proposed to establish engineering college together with Public Works for the Imperial Government, he was going to ask someone to set up the college; college regulation, syllabus and a list of teaching staffs, but he was under severe illness and passed away in November 5, 1871. Although McVean did not leave any records in 1871, he surely met Morel and understood his intention.

Fig.1 Indian Civil Engineering Collage, Copper's Hill. Source: The Illustrated London News, March 1870

4.2. Japan's Engineering Institution

Following Morel's suggestion, in April 1871, *Yamao* prepared "Draft of Outline of the Engineering Collage of the Public Works," and proposed programmes of *Syugi-ko* (Technical School) and *Densyusei* (Training in Foreign Country). The College was to consist of *Daigakko* (Collage) and *Shogakko* (School). The School was 2 years course, and would admit 300 pupils, who were taught by 7 teachers. Only distinguished pupils would proceed to the College, and study several years under 6 teachers and 6 assistant teachers. So, the college was expected to have 6 branches or departments. Sketch image of the school buildings, probably drown by *Yamao* was attached to the Draft. Morel was confident in seeking proper teaching staffs through his connection, but soon after passed away by tuberculosis in November 5, 1871.

After the *Kogaku-ryo* (the Engineering Institution) was formed as one of department of the Ministry of the Public Works in August 14, the *Meiji* 5 (November 20, 1871), *Yamao* issued "*Kogakko Teisoku no Gairyaku* (Outline of Regulation of the Engineering College)" in November 4, the *Meiji* 4 (December 15, 1871). The school was scheduled to open in July 15, the *Meiji* 5 (August 18, 1872), after the school buildings completed in May, the *Meiji* 5 (June 1872).

Re-employed by Japanese Government, McVean was first commissioned to build the school buildings based on the provided sketch image, and intended to complete the buildings by August 1872. But, soon after, *Yamao* realized that the expected teaching staffs never came to Japan, and had to find another advisor through their connection. McVean actually could help *Yamao* and *Ito* to set up the college through Mary's connection. Thomas Constable 7, husband of Mary's elder sister, in particular was the centre of Scotland academic circles, and was familiar with Lewis Gordon 8, David Stevenson, William Rankine, Fleming Jenkin 9, Hugh Matheson and etc. *Yamao* resumed correspondence with Matheson and Brown by the end of 1871, and possibly asked Matheson for setting up of Japan's engineering college.

According to Matheson's memory, however, Matheson was "requested in 1872 by one of the number, who had become Minister of Public Works, to assist the Government to found at *Yeddo* a College of Civil and Mechanical Engineering." 10

Letter from Mr. Matheson, Hampsrad, 20th January 1877.

My Dear Miss Gordon, - Having had charge of some of the first students sent to this country from Japan many years ago, I was requested in 1872 by one of the number, who had become Minister of Public Works, to assist the Government to found at Yeddo a College of Civil and Mechanical Engineering. I was to select the professor, fix the scale of their salaries, arrange a programme of studies, and procure all the necessary books and materials required for an institution which was designed to train a large body of Japanese youths for the services of their country in connection with public works. The commission was felt by me to be a most difficult and responsible one, but as it

was conveyed in the most generous terms, expressing unbounded confidence in my self, I resolved to set about its execution. I knew that there was one friend to whom I could apply with the certainty that he would give me good advice, and I lost no time in driving over to Totteridge to lay the matter before your dear brother. He gave me the encouragement of which I stood in need; and as the first thing was to obtain a man who could take the position of Principal, to whom the Government wished to give a good deal of authority, he recommended my communicating with the late Professor Macquorn Rankine, of Glasgow University, his own successor in the Chair of which he was the first occupant. That distinguished man was laid aside at the time by the illness of which he soon afterwards died, but he sent me several names, among them that of Mr. Henry Dyer, a young man of twenty-four, who had passed through his collage course with much distinction.

Based on this description, it is widely believed that *Ito* asked assistance to Matheson in setting up of the engineering college in August 1872, when he visited to London as Vice-Ambassador of the *Iwakura Mission*. But, it is more likely that *Yamao* already wrote letter to Matheson asking whether he could help to set up the Engineering College, and then, *Ito* officially requested assistance to Matheson at London. Anyhow, Matheson endeavoured to find proper teaching staffs through his friend Lewis Gordon, former Regius Professor of Civil Engineering and Mechanics in the University of Glasgow. It was so lucky that Gordon asked cooperation to Rankine who has once intended to found the engineering college in his university. After Rankine failed it, Japan was capable to receive benefit of all of Rankine's essence through Henry Dyer and other teaching staffs. *Yamao* and *Ito* directed *Tadasu Hayashi* 11 (Fig.2) to complete all procedure for appointment of the teaching staffs and accompanied them to Japan in March 1873. *Hayashi* was one of early officials of the Engineering Institution, and took care of foreign teachers and engineers.

Fig.2 "*Hayashi*" Source: McVean Archieves

Fig.3. "*Murota*" Source: McVean Archives

4.3. Construction of Engineering College Buildings

McVean's started up his mission from appointment of department technical staffs; Henry Baston Joyner 12 and George Eaton 13 transferred from the Railway Department, and Richard Oliver Rymer-Jones 14 probably through Cosmo Innes's recommendation. Joyner was a talented engineer who served a pupilage under Charles Nixon, and had wide range of experiences in survey, construction and design. Parting from the Survey Department, he was appointed a Chief of the Imperial Department of Meteorology. Eaton and Rymer-Jones became instructor in the Survey Department's school. *Yamao* hired two Japanese officers; *Fumio Murata* (Fig.3) for the Building Section of the Survey Department, and *Hideo Murota* for the Survey Department.

To open the School, McVean and Joyner arranged building scheme in January 5, 1872, and *Yamao* soon "sanctioned the building of technical school and dormitories & c. in brick, and the employment of a European foreman mason, and carpenter to superintend the building, buildings

to be in the Gothic style." McVean and Joyner started up drawing from student's quarter and teacher's quarter first, then school building (lecture hall). Probably Joyner was talented in design of elaborated buildings, and took initiative in design work. Meanwhile, McVean hired carpenter William Anderson 15, and mason James Marks 16, who also soon started preparation of building materials respectively. McVean had to postpone setting up of the Survey Department, still no surveying instruments.

The premise of the College campus was allocated at former *Nobeoka Domain*'s estate, present Ministry of Education and Science's site at *Toranomon*. Yamao preferred Gothic style probably because he watched quit often construction scene of the University of Glasgow's new buildings when he has stayed at Glasgow in the late 1860s. The buildings have been designed by George Gilbert Scott in Gothic design on the hill observing River Kelvin (Fig.4). To build big scale Gothic style architecture in Japan, he relied on Campbell Douglas 17(Fig.5, 6), a leading architect of Glasgow, who kindly provided various conveniences for McVean.

Fig.4. New Building for the University of Glasgow, designed by G.G. Scott, Builder 1866.

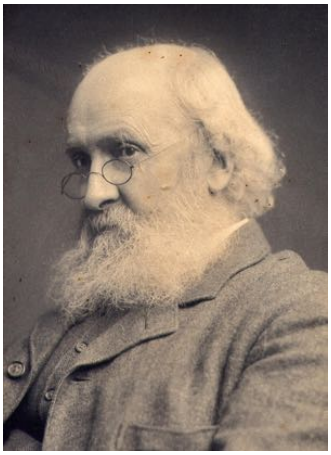

Fig.5. Campbell Douglas Fig.6. Elizabeth Douglas Source: McVean Archives

In February 13, 1872 (December 24, *the Meiji* 4), foreign engineers were "invited to the *Cobu-sho* to drink the *Mirin* sent by the *Mikado*, and entertained by Messrs *Sano*, *Ishimaru*, *Murata* and others." McVean met Brunton, and received a strange letter from him. It made trouble to him, and showed it to *Yamao* and *Murata*. *Yamao*'s answer was "better take no notice of Brunton's letter." Brunton flattered himself that he would lead Japan's modernization, and could not admit that McVean appeared in such honorable occasion.

In February 26, McVean completed a list of articles required from the Britain for the School buildings. Following day, McVean and *Murata* "went to *Yokohma* to send money, half cost of

material required through the Chartered Mercantile Bank, and to send letter to Campbell Douglas requesting him to execute the order." In March 3, Marks cleared and leveled ground on site of the School, and in March 5, Joyner and Marks started to set out foundation stones, while McVean went to Yokohama to enquire for hoop iron and Anderson made out list of timber required for buildings. In March 16, McVean "set out site of Boys dwelling roughly, - for excavation - ordered same to be commenced at once - also sheds for workmen - Marks went with Mr *Murata* to examine bricks at the brick field."

Although McVean and Joyner hastened to construct the buildings, in March 25, McVean had to tell *Yamao* "the necessity of providing temporary quarters for the teachers of *Kogakuryo*, to arrive in this August as the buildings could not be completed so soon as at first intended." The construction of the school buildings delayed for more than a half year due to lack of suitable building materials as Anderson complained of "none of the timber is what he chose, but all of inferior quality" in March 30.

McVean soon found several assistants including Wilson, Cartman and Stevens probably from Yokohama Foreign Settlement, and paid them salary in monthly based. *Yamao* and McVean were so careful to appoint foreigners in annual contract. To cope with increasing volume of duties, McVean asked help to "Cosmo Innes, - to engage three Surveyors - to come at once - draft of agreement and money to follow next mail" in April 16, and to "Cam. Douglas, - asking him to appoint one Teacher of Surveying, one Architect and a Draftsman" in April 23. Douglass would soon send a talented young draftsman; Charles Alfred Chastel de Boinville 19.

Having engaged in the *Ginza Redevelopment Scheme* for a month, McVean resumed drawing of the school buildings in May 5, but soon "*Yamao* told me the Castle Grounds were to be surveyed – suggested I should go to Yokohama and try to procure the service of another surveyor" in May 7. Joyner and Cartman "forenoon finishing up drawings of buildings - afternoon setting out foundations of single teachers quarters - I received a letter from *Matsuo* asking me to buy a steam saw mill (portable)" in May 17. Steam engine mill was necessary to hasten sawing of timber for the school building construction, and McVean arranged purchase of portable engine and saw mill from Whitefield and Dowson. Carpenter Anderson and mason Marks prepared timber and stone materials respectively, while McVean, Joyner, Cartman and Wilson surveyed the Castle Ground in May and "*Yamao* and *Sano* they wished to look at site for a new Palace" in May 31.

In addition to these works, McVean was asked by *Sano* to prepare something for Wien Exhibition, and by *Yamao* to draw design of several buildings such as his new house, *Kwankoryo* 20 ground plan and residence of *Sanjo Daijin* 21. Construction of the school buildings had to slow down to process these numerous jobs together. In July 6, McVean received letter from Douglas "goods will probably be here [*Yedo*] by middle of August," and from Hudson "Hoop Iron and Tar 2 barrels, shipped for *Yedo*." In August 26, McVean found "scaffolding built for school." In November 21, "*Yamao* came in and settled that the buildings would go on with the stone work as originally intended. I found out that the first quality of stone ordered had been stopped and a better kind substituted for it."

In December 16, McVean "had a long dispute about a mistake in the area of *Kogakuryo* in ground, a bad tracing without my signature was sent into *Tokin Fu*, while the correct tracing with my signature seems to be lost. The mistake was a slip in the division of feet into *Tsubo* made by Jones. The error on the part of the Japanese was taking a tracing and using it without my knowledge." Soon after de Boinville arrived at Tokyo in December 26, he started his work from supervision of the School buildings, and so, the construction work went on smoothly without troubling Joyner and Jones any more as McVean described "de Boinville to herring bone the joints in Teachers quarter." In February 14, 1873, McVean decided "Mullions of Boys quarters, *Kogaku* [*Kogakuryo*] to be in brick walls to be reduced to 14 in thick from 18 in" (Fig.7). In February 18, "Mr George C. C. of Railways called to ask if Mr. de Boinville could make

drawings for new railway quarters to be built near *Yamato Yashi*. De Boinville was also getting busier (Fig.8).

The articles sent from Glasgow through Douglas arrived at Yokohama, but McVean was disappointed that "opened clock cases and found clock faces all broken from bad packing" in March 3. Before McVean was leaving Japan for the Britain in March 25, he asked "*Yamao* authorizing him [Joyner] take charge during my absence." The Architect, a British architectural described the progress of modernization of the Meiji Japan in February 15, 1873 as bellow.

Public Works in Japan (February 15, 1873, The Architect)

With regard to their style of building generally, the Japanese have as yet made little progress. Houses of brick are quite the exception; houses of wood are the rule. Fires lately have been extremely frequent, and although the wooden tenements are thus quickly consumed and actually offer every facility to the spread of the conflagration, they are rebuilt in the same manner as before, and of the same inflammable materials. It is satisfactory, however, that of late the Japanese government begins to recognize the folly of this style of building, and see the advantage of remedying the evil which has hitherto existed. They have engaged the services of English architects and engineers, and several buildings on improved principles are now in course of erection. Mr. Waters Surveyor-General, is building for the Government at Yedo two barracks after the European style – one for four battalions,, and the other for three battalions of infantry, The works are of brick, and are to be heated with steam and lighted with gas throughout. Mr. Waters is also engaged in the construction of large suspension bridge over a ravine in the same district. Competent men have also been engaged by the Government to make a regular survey of the country, some what after the plan of the Ordnance Survey of Great Britain, as well as of the capital, and at the same time they are preparing designs for a technical school on a very extensive scale. The school is to accommodate about 400 scholars, and foreign teachers are to be appointed. The building will be in the Lombardo-Gothic style architecture. It is also contemplated, when the other general improvements of Yedo are finished, to effect great alteration in the present state of the streets and bridges, which are now very neglects.

Fig.7 "Technical School, designed by H.B. Joyner, and erected under the direction of C.A. McVean." Source: McVean Archives

Fig.8 *Yamato Yashiki*. Source: The Far East November 30, 1874.
Temporary School in Centre, de Boinville's Residence in centre top

4.4. *Ginza Redevelopment Scheme*

Before Japan's first railway connecting between *Yokohama* and *Shinagawa* officially open in October 14, 1872 (September 12, *the Meiji* 5), the Government officials including foreigners tentatively could take this train (Fig.9). In April 2, McVean went to *Yokohama* with this train and "saw Shand 22 about money for passages of new assistants from England and India, - Bank agrees to advance the money without a deposit on the seal of B of W [Board of Works]." Following day (Wednesday, February 26, the Meiji 5), he met "*Mr. Yamao* at the Railway Station and returned in the evening with *Mr. Yamao*," and saw "great fire burning in *Tokei*, - *Co-bu-sho* [*Kobusho*] & large Hotel burned." *Yamao* immediately took action and instructed McVean to examine the burned area.

Next day of the Fire (April 4, 1872 (February 27, the Meiji 5)), McVean "went to examine and report upon extent of fire, - and as to making a survey of the ground, - in order to enable Tokei [fire proof] to lay out new streets & c., found the burned quarter to extend about a mile and a half long by half mile wide, - from within the 2nd moat to *Tsukidji*, - from 20 to 30,000 people reported to have been burned out." McVean understood what *Yamao* intended; laying out new wider streets and rebuilding with masonry.

In April 5, McVean met *Yamao*, and "received instructions to proceed with the survey, - survey to be finished in 7 days" 23. *Yamao* was prepared to take the responsibility in the redevelopment project, but had to go to *Osaka* for his mission. While *Yamao* was away from Tokyo until April 27, *Sano* managed the redevelopment scheme in the Public Works' side.

In the afternoon of April 6, McVean, Joyner, Jones and Wilson started survey of the affected area "a beginning at *Wadakuragomon*, 24" and telegraphed for Smedley 25 by Sano's orders "to assist in getting out designs for homes 26, - to be built in place of those burned" in April 8. They worked hard until midnight or sometimes all night. The Oligarch government discussed with the Ministry of Finance about necessity of redevelopment with masonry on February 30, the March 5 (April 7, 1872), and the Governor of Tokyo Prefecture issued a notification dated March 2, the Meiji 5 (April 9, 1872), "the burned area is to be redeveloped with wider streets and rebuilt by masonry," and requested proposal of redevelopment scheme to other foreign engineers including McVean, Henry Brunton, Thomas James Waters and Louis Felix Flealant 27.

In April 14 (March 7, the Meiji 5), Sunday, McVean and his colleague completed a draft report and had consultation with *Sano*, *Matsui* & C. all the afternoon 27. McVean and Wilson drew new street plan, Joyner drafted building act, and Smedley designed plan of new houses respectively. In April 21, Sunday, they almost completed their duties, and McVean explained their whole redevelopment scheme to at *Cobusho*. Although Waters' proposal was very obscure,

the Governor of Tokyo Prefecture made up his mind to commission the project to Waters. As McVean and his colleague did their best for arranging of the proposal, Yamao might want to take responsibility for execution, but the Public Works in absent of Yamao, had no much power (Fig.10).

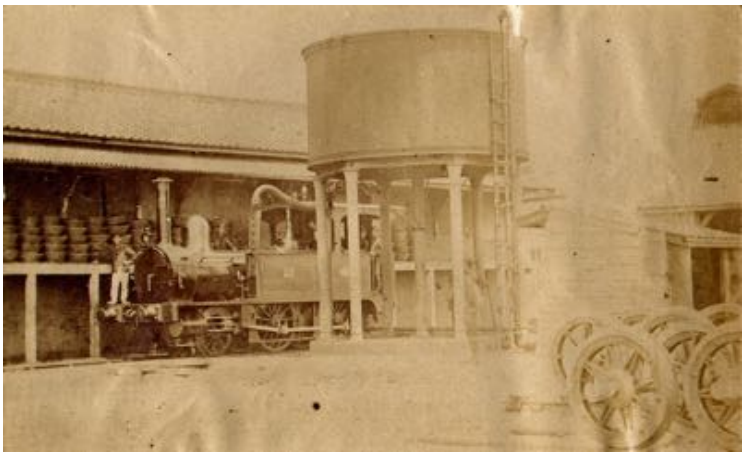

Fig.9 Locomotive. Source: McVean Archives.

Fig.10 Redeveloped Ginza. Source: McVean Archives.

4.4. Setting up of the Survey Department

While McVean busily engaged in construction of the technical school buildings, he Thursday 21 Mar

M[r] Yamao here in the forenoon –

In March 21, McVean had "long conversation with him (Yamao) on the establishment of the Survey Office on a permanent footing – authorized sending for 7 new assistants – 3 years engagements. New office to be built, with quarters & c., proposed engaging Cartman temporarily. I am to send in report as to the organisation of the survey Department."

about establishment of the Survey Office, and asked him to appoint several foreign staffs and to buy meteorological instruments and books. In April 1, Yamao agreed that McVean "go home with commission from government to procure large instruments for survey & c" and to employ "one teacher, one architect, four surveyor and a draftman." As mentioned before, the survey department took charge of construction and maintenance of public buildings under the Public Works. McVean found those figures through his channel, and send "money for passages of new assistants from England and India." McVean's channel was Como Innes, Henry Sharbau and Campbell Douglas [McVean diary 1872 April 16].

In April 23, he sent letter to Nobunao Samejima to London enclosing draft of agreement to

be singed by assistants, also draft for $8,000 to pay for passages & c. to pay for passages & c. Under this agreement, Sharbau, Cheesman, one survey teacher, one architect and one draftsman would be appointed.
August 28, letters received from Cam. Douglas & Sharbau, Sharbau reports that Samejima will not pay the money for surveyors passages and instruments in consequence men are kept idle in London and their servies lost to the government for the time being, reported to Sano Kobusho, telegraphed instructions to Samejima.

August 30, At Kobusho with Farman, saw his agreement signed for 6 months at $200 per month.
May 29, McVean, Joyner and Steven went to Bengten to set Base Line.
Wilson and Cartman on the Castle Survey.
July 13, Hardy arrived from Bombay, to join our staff McArhur to arrive next mail.
July 19, Complaint of Cartman's behaiviour when out, investigated it and found it evidently exaggerated. Engine arrived saw bench due next week.

In August Eaton went to Mt. Fuji, in September Mr and Mrs Joyner went to Mt. Fujiyama.
In September 11, McVean received letter from O'kura sho writing to know approx.area of Japan, sent to l & Co. for large scale map. In September 20, Jones and Wilson calculating area of Japan approx. after receving char of Japan from Lane & Crawford.

Tuesday 24 Sep
Yamao in office today – agreed to give Wilson 3 years engagement at 200 and $250 two late year's - Hardy to be transferred to Railway if he likes – Cartman to be discharged – Uncertain about the future of the survey classes myself to engage men when I go home - after the arrival of the men expected from home –
Fagan's app^{t} uncertain as yet

Saturday 28 Sep
Kawano informed me he was going with me to England when I go.
after noon – arranged to keep to the ½ holiday in future except in cases of necessity for special work.

Wednesday 2 Oct
2 cases private Furniture opened – two cheval glasses broken from bad packing –
Saw M^{r} Yamao – decided that I should go home on leave next month
Jones & Eaton to get one years engagement at $200 –
Cartman to be discharged-

Thursday 3 Oct
Examination of Pupils before M^{r} Yamao – Kobayashi and Saikino seemed to be the best on the whole – The boys generally seem to be getting on very well – especially those who have been longest with us –

Friday 4 Oct
gave in list of the Boys in their order according to the marks rec^{d} at exam. 1st Division Kobayashi 1st 2nd Division Saikino

Thursday 10 Oct
Marks commenced laying corner stones of foundation single Teachers quarters

Friday 11 Oct
owing to the heavy rains the opening of the Railway is put off –

Tuesday 15 Oct
Spoke to Kawano ab^{t} Wheelers pay – and also ab^{t} the style of building in the new survey quarters recommended – a different style to be adopted – something with which the men are acquainted – also tried to impress him with the necessity of giving stringent orders that the masons on Kogaku building should strictly attend to Mark's orders –

October 22, wrote Cam. To say cheval glasses were broken, and to enable to send out two new glasses.
Wednesday 23 Oct
October 23.
letters from Sharban & Cheesman – Cheesman to arrive on 6th Novr – Sharban not rec^{d} the money for ins^{ts} from Samishima yet
Klasen arrived –
Friday 8 Nov
M^{r} & M^{rs} Cheesman arrived went down in the afternoon to see them
Sunday 17 Nov
saw M^{r} Yamao – and arranged that I was to start for home at end of Jany

Monday 18 Nov
Saw M^{r} Yamao again – proposed to engage 12 ordinary chain surveyors and 3 superior men for high work also to give in estimate for probable am^{t} required to purchase Ins^{ts}

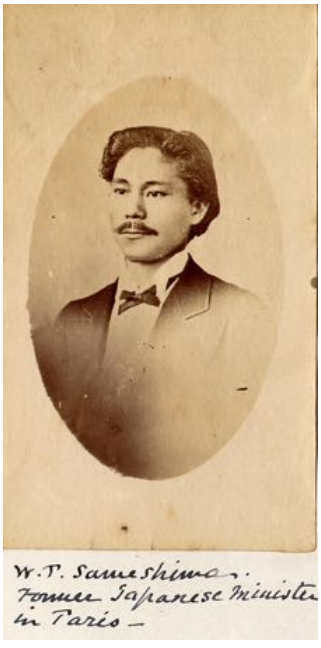

Fig.27. "W.T. Sameshima, former Japanese Minister in Paris" Source: McVean Archives
McVean probably met Samejima in 1874 when he came back to Japan.

Friday 13 Dec
wrote Whitfield & Dawson abt Morton Nile not being up to the mark
afternoon saw Sano wished me to give him some advice abt the things for exhibition

Friday 20 Dec
Went Exhibition by appt to [...] Sano - gave him drawings for two kinds of cases for exhibiting specimens and Illustrated exhibition "Paris Exhibtn " in order to give designs for cabinets &c to carpenter –

Thursday 26 Dec
Saw Mr Sano by appt at Kobusho De' Boinville arrived – Recd cheque on Mitsui for C.M. B. for $2653 – 82 – Paid by office to Dowson on acct of Morton Mile $500-00 – receipt by Dowson to office -

Wednesday Jan 1
I was presented at Court –From the P.W.D - were Cargill, Godfrey, George, [Fleuren], Self
Saturday 4 Jan
Saki and seaweed at the office – Japanese and Foreigners together to begin the New Year
Friday 10 Jan
Saw Mr Yamao Joyner to be left in charge during my absence – and to receive a rise of salary of $50 per month -
also sanctioned the appt of a clerk & secy -
Separate house for Di Boinville sanctioned
Saturday 22 Mar
Dined by invitation with our staff – at Japanese restaurant opposite [Water's}
was informed in the office that I was to receive ¾ pay while away money to be paid in advance calculated for 7 months - and $2000 travelling expenses

Sunday 23 Mar
Mr Joyner recd letter Mr Yamao authorizing him to take charge during my absence –

Monday 24 Mar
Left Yedo and got on board the "Bombay" signed new agreement for three years at Davidson's office – with Yamao tiffined with Yamao –
Recd from Mr Kawano in presence of Yamao at Tiffin it Ko-fu-té $3,837.50 being supposed to be travelling expenses and ¾ pay for seven mo – but find it is nearly $400 short of the proper sum due to me 7 months from now

- as the ¾ pay is calculated for $350 per mo – my pay however being increased on 14 Septr next to $450 also no acct is taken of salary due to me to this date for March – Explain this to Kawano
Instructions from Yamao as to purchase of Instr and engaging of apts to follow by next mail – to 35 Royal Terrace Edinburgh

Tuesday 25 Mar
Yesterday saw us off on board ship –
Mr & Mrs Joyner Mr & Mrs Spence – Mr & Mrs Sheppard Mr & Mrs Cheesman – Dawson Hardman &c &c Kawano & Kobyashi embarked with us for home –
gave Joyner letter to Hardy asking him to give in his survey field books and informing him that Joyner was left in charge - gave Joyner notice to the same effect to be put up in office

Footnotes

1. Public Works of India, The Builder, Oct. 30, 1869.
2. Council of the Institution of Civil Engineers: The Education and Status of Civil Engineers, in the United Kingdom and in Foreign Countries, 1870.
3. Civil Engineering College for India, The Builder, Feb. 4, 1871.
4. William John Macquorn Rankine, 1820-1872. He was once a Regius Professor in Civil and Mechanical Engineering, the University of Glasgow, and developed theory of thermodynamics together with William Thomson (Lord Kelvin). We is believed to have been diabetes and passed way in the end of 1872, just after he arranged a list of teaching staffs for Japan's Engineering College.
5. For the foundation of the Royal Indian Engineering College, refer to,
Brendan Cuddy and Tony Mansell: Engineers for India: The Royal Indian Engineering College at Cooper's Hill, History of Education, 23-1, 1994, pp.107-123.
6. The College building was old estate, which was renovated by M.D. Wyatt.
7. Calendar of the Indian Engineering College, Coopers Hill, 1872.
8. Thomas Constable, FRSE, 1812-1881. He was the eldest son of Archibald Constable, and took over his printing business on his father's death. In 1839 he was appointed printer and publisher in Edinburgh to Queen Victoria, and issued, among other notable series, Constable's Educational Series, and Constable's Foreign Miscellany. He also published several memoirs of leading figures including Lewis Gordon and Pastor Charles Alfred Chastel de Boinville.
9. Lewis D.B. Gordon, 1815-1876. Scottish civil engineer. He was first Regius Professor of Civil and Mechanical Engineering in the University of Glasgow in 1840-55. After studied at the University of Edinburgh, he started his career as engineer under o Isambard Kingdom Brunel. He got interested more in mining, and studied at the Freiburg School of Mines and the École Polytechnique in Paris. ,
10. Fleeming Jenkin, 1833-1885. British Scholar and Engineer. He was born and grown up at England, and educated at various parts of Europe Continent. After finished the University of Genoa, he started his career as engineer, constructing railways in Europe Continental and England, and then became professor at the University of London and Edinburgh. His interest was very wide covering arts, economy and sanitary other than engineering.
11. David Stevenson and Thomas Constable: Memoir of Lewis D.B. Gordon, F.R.S.E. Late Regius Professor of Civil Engineering and Mechanics in the University of Glasgow, 1877, pp.89-90.
11. *Tadasu Hayashi*, 1850-1913. Government Official and Diplomat in the Meiji Period. Born as son of *Taizen Sato*, a medical doctor of the Sakura Domain, and adapted by *Dokai Hayashi*, a medical doctor of the *Shogunate* Hospital. After learned English for some time at Hepburn's school at Yokohama, he was dispatched to Britain to study modern science. He returned to Japan during the Civil War Period between the *Shogunate* and the *Imperial* Party. He joined the *Shogunate* Party led by *Takeaki Enomoto* and at last surrendered at *Hakodate*. After jailed for 2 years, he joined the *Iwakura Mission* as interpreter and

secretary by *Ito*'s recommendation. After served for the Engineering Institution of the Public Works, he became diplomat, Ambassador in the United Kingdom in 1905, and Ministry of Foreign Affairs in 1906. He left memoir entitled "*Atoha Mukashi no Ki* (Memoir of Tadasu Hayashi)."

12 Henry Baston Joyner, 1838-1884. British Engineer. Born near Harrow, and served a pupilage under Charles Nixon, MICE from 1856 to 1860. Then he became an assistant engineer in Nixon and Dennis, and engaged mainly in railway construction. In 1871, he left England to take up an appointment under the Imperial Government of Japan, in whose service he remained about seven years-being employed first in the Railway Department, and in the Survey Department of the Public Works for 2 year, then in the Meteorology Department of the Interior Affairs for 3 years. Joyner's sister married Thomas Manson Rymer Jones, Richard Oliver's elder brother in Japan. As Charles Nixon has worked long time together with John Nash, Surveyor General of His Majesty Office of Works, he was surely excellent builder.

13. George Eaton. He arrived at Japan together with R.O. Rymer-Jones in early 1872. They were supposedly recommended by Cosmo Innes. He was employed first on monthly bases contract as survey

14. Richard Oliver Rymer-Jones, 1849-1919. Son of Thomas Rymer-Jones, Professor of Physiology in the King's College, London, studied at the King's College, and became civil engineer following his elder brother, Thomas Manson. He married Isabella Mary Fenton, a daughter of Charles Ducker Fenton. Thomas Manson was a year later employed by the Railway Department, and married Margaret Batson Joyner, a daughter of Henry St. John Joyner in 1873.

15. William Anderson. His origin is not known. After finished construction of the Imperial College, he transferred to various departments of the *Meiji* government as carpenter and worked until 1885.

16. James Marks. He was experienced mason, and first worked for the Lighthouse Department together with McVean and Blundell. He was transferred to the Engineering Institution by request of McVean in early 1872. He built large scale of kiln to produce bricks at *Fukagawa* in 1872.

17. Campbell Douglas

18. Yamato Yashiki.

19. Charles Alfred Chastel de Boinville

20. Kwankoryo.

21. Sanjo Daijin

22. Alexander Allan Shand, 1844-1930. Born in Aberdeenshire as the son of James Shand, surgeon, and received banking business training there, then started working for the Chartered Mercantile Bank of India, London and China before age of 20. Appointed as Acting Manager of Yokohama Branch of the Bank, he worked and stayed at the Yokohama Foreign Settlement for some time. He was employed by the Ministry of Finance, Imperial Government to teach commercial bookkeeping in 1872 a half year later than McVean. Their family met quit frequently.

23. Oligarch Government's Instruction to Public Works dated February 28, the Meiji 5. The Public Works was instructed to complete detailed survey and map drawing of the affected area within 7 days.

24. Wadakuramon. One of the Shogunate Castle Gates, assumed to be an outbreak of the Fire.

25. John Smedley,

26. Tokyo Prefecture's Guideline for Masonry Buildings dated March 13, the Meiji 5 (April 20, 1872). Houses in the affected area were to be masonry as illustrated by Mr. Waters, a foreigner employed by the Ministry of Finance.

27. McVean's Proposal for Redevelopment of the Affected Area to Mr. Sano, Acting Vice Minister of Public Works dated April 14 and 19.

20. *Michinobu Kawano*, 1839-1899. Born as a son of *Michiro Kawano*, a Samurai of Chosyu Domain, he started his career in government official from Ministry of Imperial Affairs in 1871, and soon moved to the Survey Department of Public Works probably as Yamao needed him. He worked under McVean and visited the Great Britain together McVean in 1873.

Yamao directed McVean to survey the area and to make scheme of redevelopment. McVean and Murata

5. Life in Yamato Yashiki

5.2. Official Returning to the UK

to but surveying, meteorological and seismological instruments.
reorganization of Ministry of PW, moving survey dept to Home, leaving Yamao.

Conclusion

substantial work at survey department under Home Office.
but no Yamao.