

Sir Sandford Fleming

Kirkcaldy's Greatest Son?



A very strong case, possibly even an irrefutable one, can be made to position Sandford Fleming at the pinnacle of Kirkcaldy's most illustrious sons. Adam Smith's Tercentennial was rightly celebrated in June 2023 but it can be argued that Smith has, rightly or wrongly, been allowed to eclipse many of Kirkcaldy's distinguished sons and daughters. That is no criticism of Smith's genius and greatness – simply a statement of fact.

Kirkcaldy has had to play catch-up with Smith's reputation and recognition. It was over 100 years from his death before a lasting memorial in the shape of the Adam Smith Hall was raised to his memory. Even that was initially driven by Provost Michael Beveridge rather than an outpouring and clamour from the general public. In the century between Smith's death and the opening of the Hall, all that had been accomplished were two modest undertakings. Firstly, to change the name of *Hawkhead's Close* to *Adam Smith Close* and secondly, in 1851, the then M.P. Walter Fergus gifted a bust of Smith to Kirkcaldy Town Council. The bust was originally placed in the Council Chamber and is now housed in Kirkcaldy Museum.



It is not unfair to suggest that the town now needs to play catchup with Sir Sandford Fleming. The sundial on the Prom is an excellent start but more needs to be done – but should tangible recognition take 196 years from his birth or 108 from his death? Fortunately an opportunity is on the horizon.

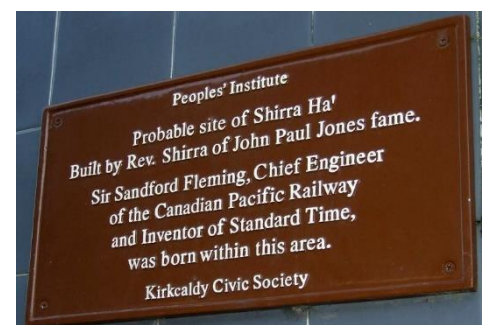
It is impossible to argue against the permanent legacy which Fleming left for Canada and the wider world.

Sandford Fleming was a man of high achievement who had a rare combination of gifts – the genius of dreaming great dreams and the capacity for bringing them to fruition.

Any one of his achievements in isolation is significant but as a body of work they are exceptional.

- Significant involvement in building Canada's railway system including the Intercolonial and the Canadian Pacific.
- Promotion and support of the Pacific Cable.
- Championing the principle of standard time.
- Designed the first Canadian postage stamp.
- Co-Founder of the Royal Canadian Institute.
- Chancellor of Queens University for 35 years.

Sandford Fleming was born in Glasswork Street, Kirkcaldy, on the 7th January 1827. Sandford was not an intrinsic Fleming name but rather it came into the family through



marriage. Sandford was the old name for St. Fort which sits in the former parish of Forgan in North Fife. For many years the Sandford House Hotel sat close to the main Kirkcaldy - Dundee road but is now a private house. St.Fort was the last stopping point for the train which fatefully plunged into the Tay in 1879 when gales brought the high girders crashing down.

Andrew Greig Fleming had married Elizabeth Arnot in Kennoway on the 23rd March 1822. The couple had 8 children with David born in Kennoway and his 7 siblings in Kirkcaldy.

- David Fleming 09/02/1823
- Ann Fleming 30/01/1825
- Sandford Fleming 07/01/1827
- Andrew Fleming 17/01/1829
- Henry Fleming 17/07/1831
- Alexander Fleming 17/11/1833
- John Fleming 31/01/1836
- Jean Fleming 14/04/1839

The family certainly appear to have used the traditional Scottish naming system. The first son is named after the paternal grandfather – in this case David. The second son is named after the maternal grandfather so we can assume Elizabeth Arnot's father was Sandford Arnot.

Some research into this unusual christian name took us to Monimail parish where, on the 17th February 1750, Henry Arnot had married Janet Smith. On the 16th January the following year Sandford Arnot was

born. Seemingly remaining in Monimail, Sandford married an Ann Ballingall on the 27th May 1781. We could trace 8 children born to the couple but also noticed that at some point in the early 1790s the family had moved to Markinch.

It was in Markinch that their son Sandford was born on the 23rd September 1795. The purpose behind this research was purely to demonstrate that it was the Arnot side which brought the name into the Fleming family. What is a trickier proposition is establishing the exact parentage of Elizabeth Arnot. With only old Parish Registers as a guide it is an almost impossible task with such a common name as Elizabeth. However, the main purpose for engaging in this genealogy research was indeed accomplished.

As an aside there was further cross pollination of the name when David Imrie married a Janet Arnot in Markinch. A son was christened Sandford and he appears in the 1841 Census, farming in Milton of Balgonie (Haugh Mill). His wife's name was Mary Campbell. Even in this writer's lifetime there were two gentlemen with the name of Sandford Imrie in Markinch. The elder of the two was a cashier with Tullis Russell & Co., serving them for well over 50 years. His heritage was very clear from his full name – Sandford Arnot Imrie. The younger Sandford carries Campbell as a middle name – a nod to the Mary Campbell mentioned above?

Andrew Fleming and his brother Alexander operated a cabinet making and upholsterers business in

Kennoway. At some point between 1823 and 1825 the family moved to Kirkcaldy setting up in the same line of business said to have been purchased from the estate of the late William Mitchell.

It was quite common in those days for some of the children of large families to live with grandparents. This was the situation with Stanford who spent his early scholastic years in Kennoway living with his paternal grandparents (David Fleming and Janet Greig who had married in Kennoway on 20th December 1788). One important name in this narrative crops up as a teacher at Kennoway School – that is a Mr Bethune who himself emigrated to Canada and was there to welcome Sandford on his arrival in 1845.

Moving back to Kirkcaldy to live with his parents, Sandford completed his education at the Burgh School in Hill Street. This school boasts many of Kirkcaldy's great figures as pupils Adam Smith, Robert Philp and Michael Nairn to name but three.

The office in which he served his indentures was that of John Sang, whose "boys" distinguished themselves in many parts of the world as engineers. John Sang, and later his son, William D. Sang, had particular aptitude for teaching engineering, their office being more or less of a technical college. John Sang was also a mathematical and mechanical genius, one of his inventions being an instrument for automatically recording the acreage of land from a map, the operation being so simple as merely running the pointer on one arm of the machine around the boundaries of the area, and upon completion of the circuit the acreage was shown upon a graduated cylinder.

At the tender age of 14 Sandford was apprenticed to local Engineer and Surveyor John Sang, who is yet another who has slipped under Kirkcaldy's radar. It would be difficult to imagine that young Sandford Fleming could have been in better hands to prepare for the challenges and achievements which lay ahead.

John Sang was born in 1809 and like many of his family was an expert mathematician and an able inventor. In both of these fields he won a significant number of prizes. He was an eminent civil engineer undertaking many works in Fife and beyond, including:-

- The East of Fife Railway
- The Wemyss and Buckhaven Railway
- Burntisland Water Works
- Lochgelly Water Works
- Wemyss Water Works
- Forming the burial ground at East Wemyss.
- Surveying the main road from Boreland to Leven
- The Kirkcaldy and Dysart Water Works – which was his most extensive project and the one which did so much to promote the progress of Kirkcaldy.

During his time with John Sang, Fleming had the opportunity to work on the Edinburgh – Perth – Dundee line. This had to be of immense value in the years to come. When Fleming left for Canada he was presented with a pocket sextant by Sang. Fleming also showed an aptitude for making his own instruments – which included a pair of compasses and a set of brass scales.

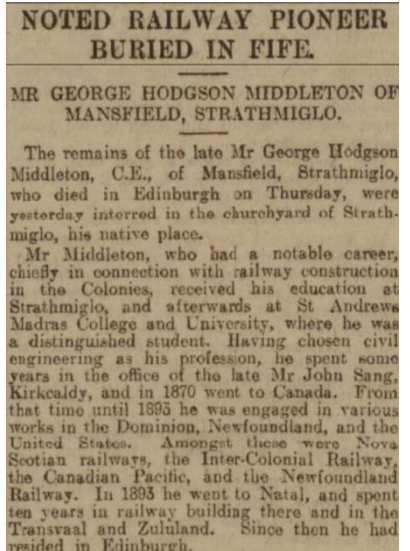
It has long been the belief that John Sang prepared only one man to go abroad and become a significant player in the progress and expansion of railways. However, this is not the case as our research disclosed.

George Hodgson Middleton C.E. had also passed

through Sang's hands. This information was found in the *Dundee Courier's* obituary of the 22nd November 1908. Middleton was a native of Strathmiglo and was educated there before attending St. Andrew's University. A distinguished student he worked with John Sang until, in 1870, he followed in Sandford Fleming's footsteps by going to Canada to seek advancement. Between 1870 and 1893 he worked in Canada, Newfoundland and the United States. He was engaged in works which included the Nova Scotian Railway, the Inter-Colonial Railway, the Canadian Pacific and the Newfoundland Railway. The possibility must exist that Middleton and Fleming met at some point between 1870 and 1893 working on one or all of these projects.

If that was not enough, in 1893 he surfaced in Natal spending 10 years in railway building there and also in the Transvaal and Zululand. He returned to Scotland to live in Edinburgh but on his death in December 1908 he was laid to rest in Strathmiglo Churchyard. Another talented Fifer who seems to have drifted into obscurity.

It is interesting to reflect on what might have become of Sandford Fleming if he had not undergone his apprenticeship in Kirkcaldy? Without that training would he have gone on to achieve all that he did? We will find Fleming's opinion in his own words as the narrative concludes.





So, what prompted the decision to leave these shores for Canada? In 1844 a cousin of the family, one Dr. John Hutchison and his two sons, paid the Flemings a visit when home on holiday from Canada. Research discloses Hutchison was a cousin of Sandford's father and had been born in Wemyss in 1797.

He had emigrated to Canada where he was a Doctor in Peterborough, Ontario. It was he who probably first sowed the seeds with his suggestion that Sandford, with his background in surveying and engineering, together with his older brother David, a cabinetmaker to trade, should try their luck in the Dominion. It seems that the full proposition was that the brothers should be almost emissaries setting things up in order that the remainder of the family could follow in due course.

Sandford Fleming kept a detailed diary from his youth and therefore many of the happenings and events which befell him are recorded for posterity. The diaries commenced on the 1st January 1845 and ran for 70 years. The diaries are now in the possession of the National Museum of Canada although a number are missing.

The 1845 diary is awash with entries in relation to preparing for Canada. On the 13th January Sandford and others had gone to Dura Vale in Windygates to see a Miss Simson's painting entitled *The Slave Market at Constantinople* before returning to Haugh Mill. The mention of Haugh Mill is the first evidence of an Imrie/Fleming family relationship.



Some further research leads us to think the picture in question was the one painted by Sir William Allen with that title. At the time any number of newspapers were advertising engravings of the painting at £3:03:00 which were carried out by a W. Gillies. So, Miss Simson may well have bought an engraving or could it be the actual painting on display? Probably the former but almost certainly Miss Simson would be the owner not the painter.

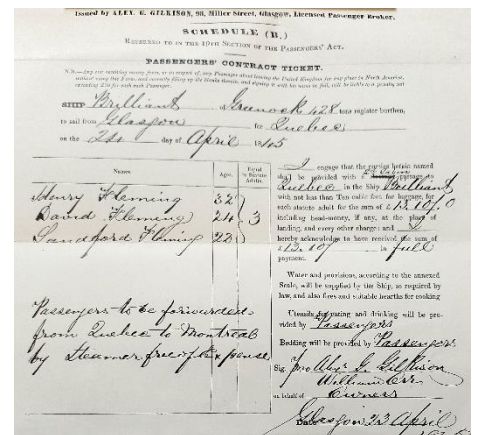
The diary also discloses a double attendance at Church on the 20^h April as Sandford believed it might be the last time he attended a church in Scotland. The following day he went to Kennoway to say farewell to his grandparents. The diary records that a tearful grandmother declared *"If you are in danger I'll no can help you, but I'll pray for you"*.

On the way back to Kirkcaldy the brothers met their cousins from Haugh Mill, Robert and Sandford Imrie, who handed over a letter saying *Just put it in your*

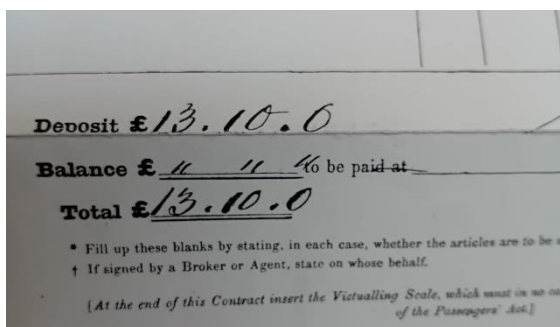
pocket, it might be of use afterwards. The envelope contained two pounds and two crowns. The only other gift, or at least which was noted in the diary, was from Uncle Alexander and was a compass which could also be used as a sundial. The gadget impressed the captain and crew of the ship which carried them to their new home.

David and Sandford left Kirkcaldy on the 24th April 1845 by the 1.30pm ferry over the Forth. They were accompanied by their father. A train journey to Glasgow saw the brothers sail from the Broomielaw on the *Brilliant* to undertake a 6 week journey to their new home.

It was not just the two brothers who made the journey. The invoice for the journey shows there were three Flemings on board. A Henry Fleming from Kennoway, born around 1810, was with them. Little is known of Henry who died in Canada in 1892. Interestingly, the passengers on the *Brilliant* had to provide their own bedding, eating utensils and even drinking cups. The total cost of the

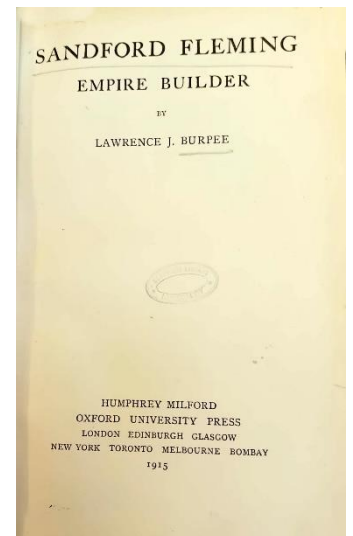


passage for all three was £13:10:00. There seems no doubt that Henry did not accompany the brothers after they landed instead going his own separate way. A portion of the invoice for the journey is shown here if for no other reason than evidencing the



travelling party was three not two.

The above was gleaned from the biography of Fleming which was written in 1915 by Lawrence J. Burpee. Fleming and Burpee met through playing chess, a game which Fleming enjoyed immensely throughout his life. He was a member of a chess club before he left the Lang Toun. His diary suggests the club was called the *Divan*. This intriguing name seems to have been copied from a club in London where apparently players lounged on sofas and divans while playing. Burpee discloses that on his 78th birthday Fleming played three of his grandsons simultaneously - winning each game. Burpee had access to all Fleming's diaries and the finished work was seen by Fleming but he had sadly passed away before it went to print/publication.



Inside the first week at sea the weather turned foul with gale force winds sending waves crashing over the ship. Worse was to follow when iron bars, part of the cargo, broke loose and were rolling around the hold. There was a real danger that these could pierce the wooden hull and lead to the *Brilliant* being lost. The ship was being "tossed like a cork".

The brothers were convinced that they might perish and in the days before wireless – no one would be certain of their fate. Sandford determined that he would write to his father using the only possible 'envelope' – a bottle which was rolling on the cabin

floor. The letter was as follows:-

“Dear Father,
End of April 1845, on board ship Brilliant. We have come through a three day's gale from the Northwest. Blown several hundred miles south of our course. Wind has stopped, but sea is worse than ever. Iron bars in the cargo broken loose in the hold. Ship not expected to last much longer. We send love to all. God keep you”.

Both brothers signed the letter and placed it in the bottle before hurling it into the ocean. The bottle did in fact make landfall in Devon some 7 months later. Mr Fleming became the recipient of two letters – that written by his sons and a covering letter which said:-

“A bottle has drifted on shore this day and been picked up by a poor fisherman. It contains a letter addressed to you. It bears date, Atlantic Ocean, May ulto, and excites great curiosity, having drifted about six hundred and thirty miles”.

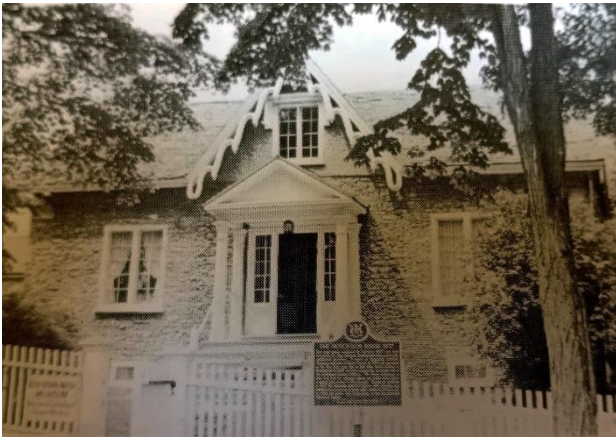
By great good fortune the family had already received letters confirming David and Sandford's safe arrival, otherwise they would have suffered a major shock!

The storm abated and the Captain organised the securing of the loose iron bars, with the male passengers being asked to assist in the task. It was on the morning of the 22nd May 1845 that land was first sighted and on the 5th June the ship docked in Quebec. The diaries disclose that a week before their

arrival a fire had destroyed over 1,000 buildings in the city.

The following day the brothers joined a steamer heading for Montreal. There was no inside accommodation available so there was no option but to sleep on the deck.

A further trip by steamer saw the brothers make Kingston where they then boarded the *Princess Royal* which carried them to Cobourg. Their final destination was Peterborough, the home of Dr. Henry Hutchison. The final transportation vehicle for themselves and their luggage



was a farmer's cart, with their arrival date being the 17th June – 11 days after leaving Quebec and 48 days since leaving Kirkcaldy.

After spending two months as guests of Dr. Hutchison they headed for Toronto where they found accommodation on *Queen Street East*. David found work almost immediately but Sandford was not so fortunate. Despite his best efforts he was unable to secure work as a surveyor and some suggested he should return to Scotland. This led to Sandford expanding his search area by trying to find work in Hamilton. Sadly, he fared no better there.

He did however have a chance meeting with Henry Fleming whose new farmstead was close to Hamilton

and he stayed with Henry for a spell. It transpires that Henry was David and Sandford's cousin.

The former Kennoway teacher, Mr Bethune, had originally had a small farm very close to Dr. Hutchison but, by coincidence, he had moved to a larger farm further inland which was close to Henry's property. As Stanford was not working at this point he helped with the removal and undertook other tasks. He also continued to visit Toronto and Hamilton trying to find surveying opportunities.

Unable to resist looking at Mr Bethune an article was unearthed in the *Witness* (Edinburgh) of the 14th

September 1844. Mr Bethune's christian name was William and at that

stage he was already in Canada. The short article mentioned that:- "An application was made for a presbyterate certificate in respect of the Rev. Wm. Bethune, late parochial teacher in Kennoway, and a licentiate of the presbytery, now residing in Montreal, and who has adhered to the Free Church. Several gentlemen present had asked that the clerk write the certificate but also that Bethune was deserving of something more than the standard form".

An application was made for a Presbyterial certificate in favour of the Rev. Wm Bethune, late parochial teacher in Kennoway, and a licentiate of the Presbytery, now residing in Montreal and who has adhered to the Free Church. Mr Sieverigh was requested to write the certificate required, several members having stated their opinion that Mr Bethune was entitled to something more than one in the usual form.

A minister in Kennoway by the name of Neil Bethune died in 1848 and it would have been easy to pigeon hole him as the father but that notion was soon eliminated.

However, on the 31st October, Stanford received word that Dr. Hutchison was gravely ill and not expected to survive. Sandford immediately returned to offer help in any way he could but by good fortune Hutchison recovered. Hutchison is a major figure in the narrative – firstly, he had partly been the inspiration for Sandford coming to Canada. Secondly, Hutchison was able to find him employment as a draughtsman and, thirdly, through Hutchison, he first met a neighbour's daughter – Jean Hall. More of Jean will follow.

Although Dr. Hutchison survived that illness, in 1848 he contracted typhoid and died. In recognition of his appreciation and thanks Fleming planted a weeping willow over Hutchison's grave. Hutchison's home had been built for him by the community of Peterborough



in 1837. It is now a museum with a Fleming Room incorporated into it. It is, from a google

search, a very impressive private museum giving a glimpse of Canadian life in the 1800s. There are a number of artefacts relating to Sandford Fleming and the museum attracts 7,000 visitors per annum. The team were in contact with Erin Panepinto, the manager of the museum, who was very helpful in clarifying some queries we had in relation to Fleming's early years in the area.

The willow tree did not last long as a memorial, with the cemetery closing in 1851. A new cemetery had been built on the other side of the lake. All the bodies

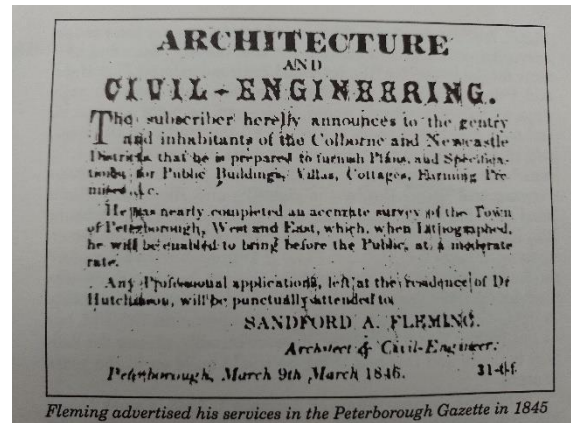
were moved to the new burial ground which included Dr. Hutchison and two of his daughters. The tree was left behind.* When Mrs Hutchison died in 1873 she was living in Toronto. At that point once again the bodies of Dr Hutchison and his daughters were on the move and the whole family now lie together in the Necropolis in Toronto.

*In the early 20th century a severe ice storm destroyed almost all the trees which had been left in the original cemetery – which probably included the willow. (Erin Panepinto).

As mentioned earlier it was through Hutchison's good offices that Fleming secured work alongside a government surveyor who was working on a proposed road between Kingston and Ottawa. The surveyor, a Richard Birdsall, surveyed and measured the route – it was then Fleming who consigned the results to paper. He also taught the Birdsall children drawing in the evenings. Without his Kirkcaldy apprenticeship it is probably unlikely he would have secured the position – but he was now on the rung, even if a low one, in his chosen profession.

In the years that followed Fleming's undertakings, projects and achievements were so numerous it is not possible to detail the many triumphs and tribulations of his life. This can be no more than an outline of what the lad from Glasswork Street went on to achieve.

Fleming had also advertised his services as an architect and engineer and a copy of one of the advertisements is reproduced here. This one dates from March 1846 and appeared in the *Peterborough Gazette*. He



secured work designing several houses, the spire for St. Peter's Roman Catholic Church, as well as continuing doing work for Birdsall.

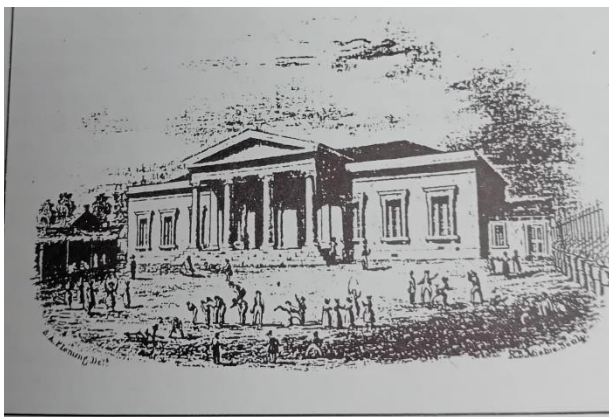
While working at his drawings, Fleming wished that he had a map of Peterborough but quite simply there were none. Fleming asked himself what was to stop him producing such a map? He set about drawing his own map of the town only to discover there was no lithographer in that area of Canada. This meant he could not transfer his plan to the printed page. Not one for being beaten, Fleming headed for Toronto where he purchased the



necessary material and, thanks to having done some of this type of work in Scotland, he produced the map himself. The map sold well and he subsequently produced maps of Cobourg (1847), followed by Newcastle and Colbourne (1848), then Toronto (1851). He had been able to do the lithography himself using the premises of *Scobie and Balfour*.

Hugh Scobie subsequently engaged Fleming to do work which needed his skills in both mapping and drawing.

At this time he embarked on a series of sketches of Toronto which he engraved and then sold. The first was of St. James Cathedral where the full production of 100 found buyers. Again, a copy is reproduced here. These Canadian sketches are, as we discovered, a continuation of similar artwork done in Kirkcaldy.



Kirkcaldy Burgh School, an engraving by Sandford Fleming c.

We became aware that Fleming had produced sketches of at least four Kirkcaldy landmarks and they were incorporated into a publication. The sketches we know of are Ravenscraig Castle, the Parish Church, St. Peter's Episcopal Church and

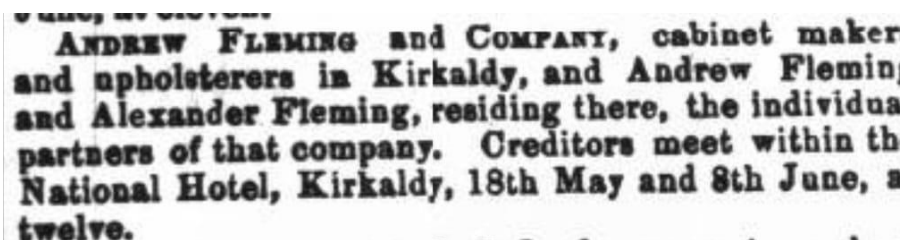
the Burgh School. The assumption is that they were drawn before he left for Canada but it seems probable that they were only published in an amalgam with his Canadian work.

In 1847 Fleming was living in Toronto and by virtue of his letters home to Kirkcaldy being so enthusiastic the whole family took the long sea voyage to join him

and his brother. There was an apparent exception in that Alexander Fleming, Andrew's brother, remained in Scotland where in December 1839, in Markinch, he had married into the Imrie family. His wife was Jane Imrie and the couple had 7 children all born in Kirkcaldy.

Alexander and Jane were found in the 1861 Census which revealed that they were living in Glasswork Street, presumably the same house where brother Andrew had brought up his family. Sadly, it was discovered that, on the 5th March 1867, Alexander was present to register the death of his son, also Alexander, who was only 18. The death was registered as taking place in Glasswork Street

A little research shows that Andrew's decision to move to Canada was perhaps



ANDREW FLEMING and COMPANY, cabinet maker and upholsterers in Kirkcaldy, and Andrew Fleming and Alexander Fleming, residing there, the individuals partners of that company. Creditors meet within the National Hotel, Kirkcaldy, 18th May and 8th June, at twelve.

hastened by unfortunate circumstances, as the *Edinburgh Gazette* of the 11th May 1847 reveals the bankruptcy of Alexander Fleming & Co., and the two partners as individuals, Andrew and Alexander (Sandford's father and uncle). Unfortunately, Alexander seems to have gone through the same situation in 1868 when a second cabinetmaking business was also declared bankrupt. Both creditors meetings, 21 years apart, were held in the National Hotel.

The issue now was to find a spot where the family

could settle. Finally, a purchase was made of land at the Humber River (close to Toronto) which encompassed both a sawmill and what was described as a grist mill (corn/flour mill). A huge amount of time and effort went into getting the mill ready in time for the following season. It was known as the Humber Mill and would become the Fleming home. David Fleming became a partner in the project.

For Sandford there was no rest, he was travelling the area by wagon, stagecoach, and even boat, in an attempt to sell his maps. They sold in hundreds but at the same time as marketing his maps he was preparing for examinations. To secure any of the exciting jobs which were becoming available he needed to secure – *The Dominions Land Surveyor's License*. Without the qualification he could not secure the type of work he so much wanted.

Throughout the winter and spring of 1848-49 he devoted himself to study and he attended classes at the *Mechanics Institute* studying drawing, geometry and arithmetic. In 1849, in Montreal, he sat the examinations which were set over a two day period.



On day one he had been tested in geometry, trigonometry and calculus. Day two brought him before a panel who questioned Fleming on astronomy and tested his ability at finding latitude. He was successful and now had the commission from the Governor as a Land Surveyor. Interestingly, it was James Bruce, the 8th Earl of Elgin, who signed the

certificate in his capacity as Governor General of the Province of Canada, a position he secured in 1847.

Shortly afterwards and still clutching his certificate Fleming was involved in what was tantamount to a riot. The Earl had just opened Parliament when crowds massed on the building and managed to get inside where it was set on fire. The disturbances were over how compensation was to be paid following rebellions in 1837/38. Fleming had studied in the building's library and his diary disclosed that "it contains some of the most splendid books I ever saw and it is certainly a great privilege to have the use of it". With some others, despite the flames, he was able to rescue a huge painting of Queen Victoria and a gilded crown, of no great value as it transpired, which had rested on a cushion above the picture. The building itself was destroyed.

It was in June 1849 that Fleming, Kivas Tully, Hamilton Hartley Killaly (right) and Frederic William Cumberland were instrumental in creating the Canadian Institute which is still going strong to this day (Royal Canadian Institute for Science). The Group had met through their association with the Mechanics Institute.



The original idea was conceived as a meeting place for Toronto's surveyors, engineers and architects, but quickly developed its range to include the sciences. From its beginnings in Toronto it soon spread

throughout the country. The inspiration behind the Institute was to connect the public with Canadian science. The Institute received its Royal Charter in 1851 with the object being *the encouragement and general advancement of the physical sciences, the arts and the manufacturers*. The founding four combined Fleming's background in surveying. Tully was an Irish born architect, Killaly an Irish born engineer, with Cumberland both an engineer and an architect. Fleming was the youngest of the four but it would seem he did not lack confidence.

In early 1850 Fleming rented a building on Yonge Street, Toronto, although he always referred to it as Young Street. He entered into a one year partnership with W.B. Leather and engaged an apprentice, Thomas Ridout, the son of a prominent Toronto family.

There was no lack of work and for two years much of his time was devoted to taking sounds, surveying and mapping plans, for Toronto Harbour and Esplanade. He collaborated in the design of Trinity College and also assisted in planning the layout of the university grounds. He also made a return to Peterborough to lay out the town's cemetery. It has to be assumed that this would be the one where Dr Hutchison and his daughter's bodies were transferred to.

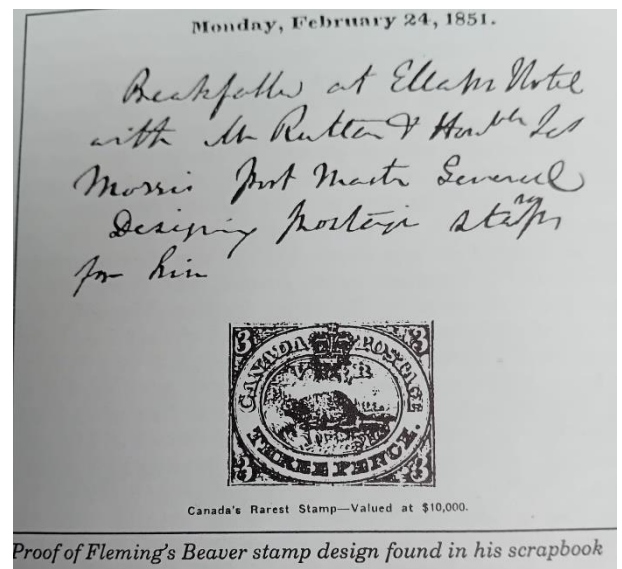
Fleming, as already seen, was more than a competent artist and he received compliments and an award for the designing of a diploma to be issued by the Toronto Mechanics Institute. When the first presentation of the diploma was made it was by the selfsame Earl of

Elgin who came to Toronto to do the honours and Sandford was presented to him. At this juncture his brother David was also making a name for himself through his work in woodcarving. His Royal Coat of Arms, which sat above the Speaker's Chair in the House of Assembly, drew much praise.



The Province of Canada began issuing postage stamps on the 23rd April 1851. The values were 3d, 6d and 12d. The designs were by the now 24 year old Sandford Fleming. Why he was chosen is not obvious – was it because of his design of the diploma for the Mechanics Institute? What is known is that the Postmaster-General, James Morris, had visited Toronto, interviewed Fleming in Ellah's Hotel, and invited Fleming to undertake the work.

The 3d stamp, the first into circulation, was unique and created quite a stir. Postage stamps issued in the British Empire had always featured a profile of the monarch. However, this stamp featured a beaver as Fleming's opinion was that a beaver's trait of being industrious was one reflected in Canadian people. The 6d featured a portrait of Prince Albert by William Drummond and the 12d a portrait of Queen Victoria by Alfred Edward Chalon. The portrait of the Queen was the very one which Fleming



had rescued from the burning Parliament Building!

It was the year 1852 that started Fleming on the work which took up a significant part of his life – the surveying of and then building railways. He had already done some work in terms of assisting in the surveying of the line between Toronto and Kingston. When the Fleming brothers had arrived in Canada there were only 16 miles of track in the whole Province. In the intervening years some piecemeal routes were built in individual provinces but mostly unconnected to each other..



ROUTE OF THE NORTHERN RAILWAY

In 1852 he was appointed to one of two positions available as an assistant engineer on what was named the *Ontario, Simcoe and Huron Railway*. The purpose of the route was to create a connection between the Upper Great Lakes and Toronto. The first sod was cut on the 15th October 1851 by Lady Elgin and it is said that Fleming preserved that first sod – but where? The first locomotive for the route was built in Portland and named *Lady Elgin*.

The Chief Engineer was Frederic Cumberland (right) who had, together with Fleming, earlier formed the Canadian Institute. The other assistant was Alfred Brunel who also went on to have a successful career. His



advertisements showed him to be a civil engineer, mechanical engineer and architect. As he was born in England in 1818 we thought he might have a connection to Isambard Kingdom Brunel who was born in 1806 but nothing obvious was unearthed.

Part of the route had been surveyed in what was termed settled country but work was required on the part where there were as yet no roads nor settlements. The terminus of the line would invariably see a town spring up – they always did. In this case the town was named Collingwood after Cuthbert Collingwood who took command of the fleet at the battle of Trafalgar following Nelson's death.

For 8 years Sandford Fleming worked on the line in a variety of tasks. Organising what would be the intended route, surveying the route through difficult country, the clearing of the route, preparing the trackbed, followed by the laying of the steel tracks. When he started the task he was a trained surveyor so he could accurately measure the sections of the route – he was a draughtsman so he could put to paper what he had measured and also consign to paper plans for the bridges which would require to be built. Long before the 8 years were up he was also an able civil engineer. He, in simple terms, could map, design, and build track and bridges. In 1855, after some acrimony, Cumberland left to be replaced by Fleming who saw the work through to the end, by which time his salary was £500 per annum.' The name of the route was eventually altered to the *Canadian Northern Railway*.

It was in January 1854, while still constructing the railway, that an alarming incident occurred but which eventually led to a happy ending. Sandford had set out to visit Peterborough and found himself travelling with the previously mentioned Jean Hall. Jean had been in Toronto visiting Dr Hutchison's widow. After completing the train journey as far as Newmarket they attempted to complete the journey via a horse-drawn sleigh.

On the journey there was an accident and the passengers thrown to the ground where Fleming was rendered unconscious by coming in contact with a tree stump. With the horses gone and the sleigh destroyed they had to find assistance and shelter. Sandford was convinced that he had broken some bones and ribs. Thankfully, two Scottish ladies came along the road and helped them to the nearest house, the home of another Scot, Neil McLean. The local physician, a Dr. Kellogg, was summoned who pronounced that there were no broken bones despite the intense pain. Fleming had to rest for several days before he was fit enough to resume travelling to their destination. Jean Hall had sat up with Fleming throughout the nights of pain.



The result of it all was the beginning of a courtship which culminated in a marriage on the 2nd January 1855. The honeymoon consisted of a sentimental wagon journey retracing their steps of twelve months previously. The honeymooners visited both Dr. Kellogg and Neil McLean. Fleming found the tree stump and confided to his diary "I have to thank it for my wife".

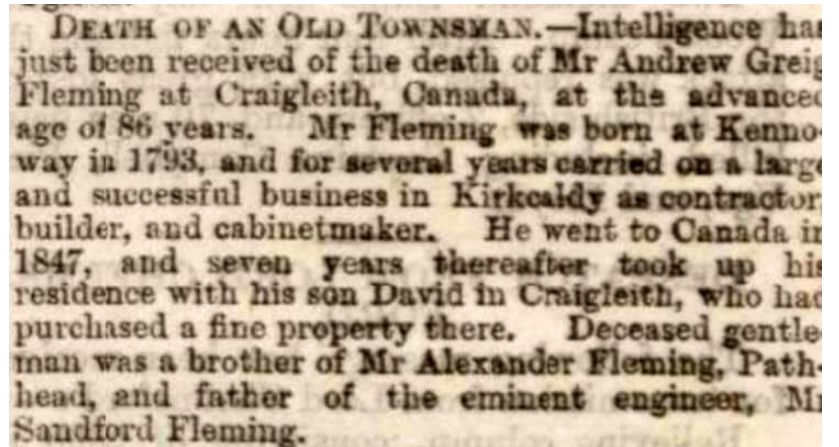
Later that same day he returned to the stump, cut it down and carried it home. It was fashioned into a cradle, possibly by David, which in time to come, was used to rock their own children to sleep. Over the years the couple had nine children although two did not reach adulthood. They were:-

- Frank Andrew 1856
- Stanford Hall 1858
- Minnie F. 1860
- Lily Frances 1861
- Frances n/k
- Jeanie 1864
- Walter Arthur 1869
- Arthur 1871
- Hugh Percy 1872

The couple established their first home in Carlton Street, Toronto. Sandford returned to building his railway while the wider family were re-adjusting their own lives. The Humber Mills were not a success and,

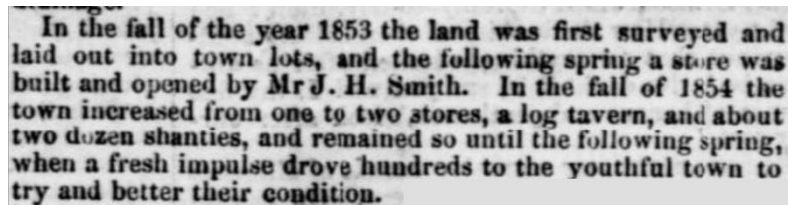
on Sandford's recommendation, the family bought a 400 acre farm close to Collingwood and this was his father and mother's home for the rest of their lives. The property was named *Craigleith*, presumably after the little island in the Firth of Forth.

The Dundee Courier of the 18th April 1879 made mention of the death of Andrew Fleming at the age of 86 at *Craigleith*. It recorded his being born in Kennoway, having his cabinet making business in Kirkcaldy, and of his leaving for Canada in 1847. It would seem that his brother, Alexander, was still alive and living in Pathhead. A point of interest is that the article suggests that *Craigleith* was the property of David Fleming alone.



DEATH OF AN OLD TOWNSMAN.—Intelligence has just been received of the death of Mr Andrew Greig Fleming at Craigleith, Canada, at the advanced age of 86 years. Mr Fleming was born at Kennoway in 1793, and for several years carried on a large and successful business in Kirkcaldy as contractor, builder, and cabinetmaker. He went to Canada in 1847, and seven years thereafter took up his residence with his son David in Craigleith, who had purchased a fine property there. Deceased gentleman was a brother of Mr Alexander Fleming, Pathhead, and father of the eminent engineer, Mr Sandford Fleming.

A little snippet we came upon shows the advantages the coming of a railway can give. This item relates to



In the fall of the year 1853 the land was first surveyed and laid out into town lots, and the following spring a store was built and opened by Mr J. H. Smith. In the fall of 1854 the town increased from one to two stores, a log tavern, and about two dozen shanties, and remained so until the following spring, when a fresh impulse drove hundreds to the youthful town to try and better their condition.

Collingwood and appeared in the *Paisley Herald and Renfrewshire Advertiser* of the 29th November 1856. It must be presumed that it was a former native of the area who sent the piece to the paper. The item indicates Collingwood is a town which, for rapidity of growth, stands unrivalled in the history of Canada. It is the northern terminus of the *Ontario, Simcoe and*

Huron Railroad. "In the Fall of 1853 the land was first surveyed and laid out in town plots and the following Spring a store was built and opened by Mr J. H. Smith. In the Fall of 1854 the town had increased from one to two stores, a log tavern and about two dozen shanties".

There are in Collingwood fifteen general stores, four drug stores, three tailors' shops, two jewellers, two tinsmiths, three provision stores, two bakers, one confectionery, four blacksmiths' shops, one waggon maker, four shoemakers' shops, five butchers, two barbers' saloons, two steam saw mills in full operation, five insurance agency offices, two land agency offices, two land surveyors, one printing office, a post office, a bank agency, a flour depot, ten taverns, eight saloons, a telegraph office, a large railway depot and engine house, a grist mill in course of erection, also a foundry and machine shop in course of erection, a market house and town hall buildings, a fireman's hall, two lawyers, one Church of England, three day schools, and three Sunday schools, and about 150 houses, many of them good substantial buildings.

The item went on to list the established businesses at the time the article was written in 1856:- "fifteen general stores, four drug stores, three tailor's shops, two

jewellers, two tinsmiths, three provision stores, two bakers, one confectionery, four blacksmith's shops, one wagon-maker, four shoemaker's shops, five butcher's shops and two barber's saloons". The list goes on and on with every conceivable trade plus schools, churches, and administration buildings being included. The snippet containing the full list is attached which clearly demonstrates what the railway had brought to a former wilderness in only three years!

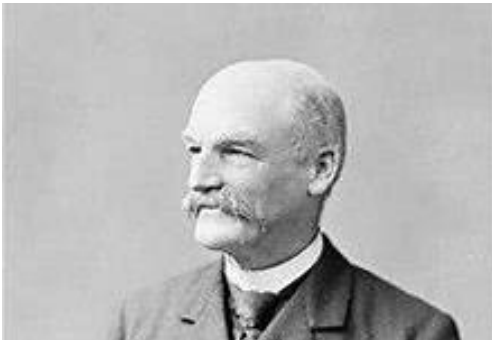
In 1860, the Prince of Wales, later to become Edward VII, toured Canada and travelled the whole length of the railway from Toronto to Collingwood with Sandford Fleming acting as host to the royal party while they were on the train. The construction of the railway was at the time the largest undertaking of his life and its scale

TRIBUTE PAID TO KIRKCALDY PIONEER

Tribute was paid at the recent centenary of the Canadian postal service to the late Sir Sandford Fleming, a Kirkcaldy man, who, in 1851, designed the famous Canadian Beaver stamp. He was also the builder of the first railroad to Georgian Bay, and had many associations with Simcoe County.

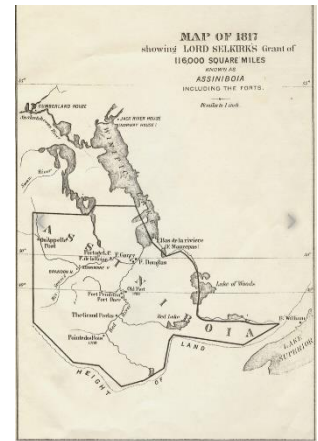
A century has passed since Sir Sandford was appointed assistant engineer to the staff of the Ontario, Simcoe and Huron Railway. In 1860 he was chief engineer of the railroad and accompanied the Prince of Wales, later King Edward VII., on his memorable visit to Collingwood. In 1872 he became chief engineer for the Canadian Pacific Railway.

brought many important figures from Ontario and beyond to see the work he was directing. His name was certainly starting to appear in lights.



Simultaneously, while constructing the railway, Fleming maintained an office in Toronto in partnership with Collingwood Schriber (left) and the now qualified Thomas Ridout. Schriber in time became the Chief Engineer for the government's Department of Railways and Canals. Essex born, he trained in England before his family came to Canada in 1852. His mother's father and grandfather had been a Vice Admiral and a Rear Admiral in the navy respectively – probably explaining the christian name. He worked for four years with the *Toronto, Hamilton and Buffalo Railway* before leaving to work with Sandford Fleming. He left in 1864 to take up his first Government railway appointment. He was knighted in 1893 but, in 1880, although not directly involved, he was party to a low point in Fleming's working life. It does seem to be too much of a coincidence to think other than it had to be Scriber's name which was the spark for naming the terminus Collingwood.

In 1863 Sandford Fleming was out of work as the railway was complete. However, he soon received a request from the Red River Colony. The Colony is now part of present day Manitoba but has an interesting history. The Colony was founded by Thomas Douglas, the 5th Earl of Selkirk, having been influenced by humanitarian principles such as those held by William Wilberforce. Douglas was concerned by the plight of Scottish farmers following the Highland Clearances. He considered that emigration was possibly the only viable answer and was able to secure 120,000 square miles of land from the Hudson Bay Company to begin his colonisation project. The Colony certainly had a turbulent and difficult birth but had stabilised by 1863.



These were the days leading up to the formation of the Dominion of Canada in 1867. Prior to that date the country was in reality a collection of colonies known collectively as British North America. In 1867 the Dominion of Canada was formed by the coming together of Ontario, Quebec, Nova Scotia and New Brunswick. These were the first four provinces which over the years have developed into the current 10 provinces and 3 territories. What was seen as a vital ingredient for a coherent Dominion was viable and direct communications between the colonies. Nova Scotia and New Brunswick agreed to join at the outset only on the promise of rail communication being a priority. Eventually, Manitoba and British Columbia

both agreed to join the Dominion in 1870 and 1871 respectively, again on the promise of railway links being undertaken.

Fleming would likely be approached for two reasons – firstly, his recent railway success and, secondly, his long held vision of a railway which would link all the British Colonies together – in essence a railway from the Atlantic (Nova Scotia) to the Pacific (British Columbia).

Fleming was asked to represent the Red River Colony and petition both the Colonial Government and the Imperial Government in London. Fleming was already promoting his vision of a railway which would run across the country from coast to coast. In 1862 he had prepared and submitted the first well thought out proposal for such a link to the Government. These two elements would make him a prime candidate to assist the Red River Colony and he most certainly argued their case vociferously. He took the plan to both the Governor, Viscount Monck, and in 1863 sailed to England to lobby the Colonial Secretary, the Duke of Newcastle. Sadly, the idea did not come to fruition at that stage.

However, shortly thereafter he was summoned to meet the Premier of what at the time was United Canada, John S.

Macdonald. It almost requires a degree in Geography to understand Canada in that period. United



Canada (now Ontario) and Lower Canada (now a large part of Quebec). This took place in 1841. He was told that the Government had determined to start surveying for a railway which would link Quebec with Nova Scotia and New Brunswick. This was a vital building block to help create the Dominion. The theory was that a team of three engineers would be appointed as commissioners and Fleming was asked to be the commissioner for the Canadian Government. Fleming did not hesitate in accepting, after all the line would be part of his coast to coast vision.

While awaiting the appointment of his fellow commissioners he was astonished to learn that New Brunswick, Nova Scotia, and the British Government, via the Duke of Newcastle, had all recommended him as their commissioner. It almost amounted to sole control of the project being vested in himself.

We start to see Fleming's name featuring in the press

around this time and the *Weekly Chronicle (London)* of the 3rd October 1863 confirms the above in that Messrs. Tupper and Tilley, the respective representatives of Nova Scotia and New Brunswick, had just returned from Quebec and they had concurred in the appointment of Sandford Fleming as the surveyor of the route through their provinces.

Messrs. Tupper and Tilley, the representatives respectively of this province and New Brunswick, have returned from Quebec, Canada, whence they went to confer with the Canadian government on the subject of the survey of the route of the proposed Intercolonial Railway and other matters connected with the contemplated undertaking. The secretary of the province has not yet made public the result of the conference, but we observe that the organ of the Canadian government affirms that Messrs. Tupper and Tilley concur in the appointment of Mr. Sandford Fleming, a Canadian engineer, who will therefore be entrusted with the entire responsibility of the survey on the part of the three provinces—his only associate being the engineer appointed by the imperial authorities.

Matters had moved on over the winter and the *Scotsman* was able to report in its edition of the 30th April 1864 that the British Government has given a

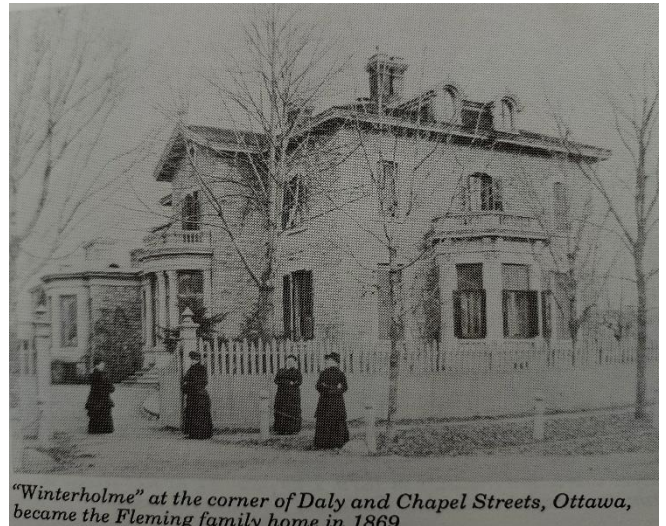
April 12, 1864.
OUR House of Assembly has nearly concluded its labours for the season, and the Government have been enabled to sustain themselves in their position without encountering any adverse vote. Railway matters have principally occupied the attention of the House during the session. A Convention of delegates (including the Governors) on behalf of each of the three colonies of Canada, New Brunswick, and Nova Scotia met at Quebec in September 1862, and agreed on a plan to build the Intercolonial Railroad between Halifax and Quebec, Canada to assume five-twelfths of the whole cost, and New Brunswick and Nova Scotia the other seven-twelfths between them in equal proportions. The British Government agreed to give a guarantee to the extent of three millions sterling, for the purpose of enabling these colonies to borrow the necessary funds to build the road at 3½ per cent. interest, instead of 6 per cent., which they would have to pay if they borrowed the money on their own credit.

guarantee of £3,000,000 sterling to allow the provinces to borrow the monies to build the railway. The guarantee allowed the funds to be borrowed at a far keener rate. The cost was to be shared with five twelfths of the total to be borne by United Canada and the other seven twelfths between Nova Scotia and New Brunswick.

At that point and, for the next five years, Fleming moved the family to a house in Brunswick Street in Halifax. Fleming also purchased a large property in the suburbs called *The Dingle*. The family retained the property as a holiday haven long after they left Halifax for Ottawa in 1869.

In Ottawa the family moved into a substantial mansion called Winterholme. This remained the principal family residence even after the death of Lady Fleming in 1888, when a niece, Elsie Smith, came from Kingussie to preside over the household.

After Fleming's death *Winterholme* was converted into 16 exceptional apartments. There seems little doubt that Fleming had the property constructed when he moved to Ottawa in 1869.



The Dingle is now a public park – the land donated by Fleming in 1908. It is officially known as the *Sir Sandford Fleming Park* and extends to 95 acres. As a comparison Kirkcaldy's Beveridge Park is 104 acres. It would seem that Michael Nairn (Ravenscraig) is not the only one of Kirkcaldy's sons to donate ground for a public park.

It was in Halifax that he made two important and lasting friendships with Sir Charles Tupper and the Rev. George M. Grant. Tupper, in time, came to champion Fleming in difficult times in the future. Grant became a biographer on many of Fleming's survey expeditions.

The *Railway News* of the 4th June tells us that

Sandford Fleming had twice covered the route and the cost quoted was his estimate and explains the value of the guarantee mentioned above.

The *Evening Mail* of the 13th September 1865 relates the story that Sandford Fleming has now submitted a report stretching to 160 pages. The object of the report was to allow the Government to determine the expediency of undertaking the work which in essence would lead to the formation of the Dominion of Canada.

Railways came about by the advances in the technology of the time. The steam railway engine was capable of moving both people and goods at a speed which hitherto was unimaginable. Before that a man could only travel as fast as a horse could carry him. A railway was seen as a way of ending the isolation of the individual colonies and it would also offer economic benefits through intercolonial trade. Not only that but connecting both manufacturing and agricultural production to ports would have a major uplift in both imports and exports. The other advantage was creating all year round access to the ice free ports of St. Andrew's, St. John's and Halifax. No longer would travel come to an end with frozen rivers such as the St. Lawrence.

Fleming had submitted his report while the terms of the formation of the Dominion were being hammered out. The results of his surveys found him giving details of three potential routes but he strongly advocated what he termed the *Chaleur Route*. The

basis for his choice was that it was the most economically viable. The route would link up the large manufacturing conurbations of Montreal, Kingston and Halifax, with sea ports. In New Brunswick, the line would bring benefit to their lumber and fishing centres. In Nova Scotia the important centres of coal mining and ship building would have a rail link. It promised to open up all manner of opportunities for people and industry to forge ahead with the expansion of the country.

One other aspect for the choice was that the route was a distance from the American border which was seen as a sensible precaution. Canada had not forgotten the war of 1812/14 which was fought between America and Great Britain. As a British colony there had been several incursions by American troops during the conflict. A wary eye was also kept on the Civil War being fought in America. The legislators liked what they saw and the planned route was accepted.

Canada became a country on the 1st July 1867 and soon afterwards Stanford Fleming was appointed the Engineer-in-Chief for the route which was of course Canada's first national infrastructure project.

Intercolonial Railway.
Latest advices from Canada corroborate the statement in last week's Journal, p. 1627, that Mr. Sandford Fleming is appointed engineer-in-chief. In accordance with Government instructions, a notification has been issued that at an early day tenders will be invited from contractors for the construction of certain sections of the railway between Riviere-du-Loup and Rimonski, Canada; between Truro and Amherst, N.S., and between Dalhousie and Bathurst, N.B. The work is to be let in sections ranging from 15 to 35 miles, according to situation or local circumstances. The object of the notice is to afford ample time for contractors to examine the ground. The surveying of the line has commenced. Mr. Walsh will be commissioner for Ontario and chairman of the board, Hon. Mr. Chandler for New Brunswick, and Mr. Langton will act for Hon. Joseph Howe for Nova Scotia. The Quebec commissioner is not yet decided upon.

Fleming divided the route into four separate sections with an engineer in charge of each. The sections were

St. Lawrence, Nova Scotia, the Restigouche and the Miramichi. The four engineers reported to Fleming but each section was further subdivided creating a total of 25 segments. Each segment had its own engineering team and the reporting worked on a pyramid system where Sandford Fleming was at the pinnacle.

By November of 1872 the first section was completed and this ran between Amherst and Truro in Nova Scotia. Within two years the railway was running along the south shores of the St. Lawrence River between Rivière-du-Loup and Mont-joli which as the names suggest were in the Quebec section. It was in the July of 1876 that the third and final section was completed and the line declared open. This section ran from Mont-Joli to Campbellton which was in New Brunswick. The complete undertaking covered 1,100 kilometres and was considered one of the great achievements of the age.

One of the major innovations came from the building of bridges from stone and iron. This was strongly advocated by Fleming as being both more durable and less vulnerable to fire. Wood had been the choice of materials for bridges prior to that time – but flying sparks could lead to major fires breaking out. Critics were concerned that bridges would crack if made of iron although perhaps the higher cost of building with stone and iron was a contributory factor. Fleming certainly won the battle although it appears that at one time there were three wooden bridges along the whole route.

With the completion of the main line the route passed into the hands of the Canadian Department for Railways and Canals. Some sections incorporated parts of railways previously built by provinces and these also became federal property. The provinces were also busy completing branch lines to link into the new federal main line. Without doubt the country was starting to open up. Increased employment opportunities were soon obvious to the communities which the railway served and the Government ensured that freight tariffs were kept low to help stimulate growth and expansion.

The promise of railways being constructed was once again used in order to bring British Columbia into the Dominion in 1871. This would be an intercontinental route and of course Fleming's dream had been to see a railway running from the Atlantic to the Pacific.



Fleming was offered the post of Chief Engineer of this Canadian Pacific route. He was still heavily involved in the Intercolonial but in the end decided to accept the offer. As always Fleming wished to survey the potential routes himself.

On the 1st July 1872 the surveying party set out. Fleming had his son Frank with him and also a doctor, a botanist, and what was termed an "adjutant - general". This was the person in charge of the supplies. One of the party was the previously

mentioned Rev. George M. Grant. Grant rose in time to become the Principal of Queens University in Kingston.

OCEAN TO OCEAN. Sandford Fleming's EXPEDITION through CANADA in 1872. Being a DIARY kept during a JOURNEY from the ATLANTIC to the PACIFIC with the Expedition of the Engineer-in-Chief of the Canadian Pacific and Intercolonial Railways. By the Rev. GEORGE M. GRANT, of Halifax, N.S., Secretary to the Expedition. With Sixty Illustrations. Demy 8vo, cloth extra, pp. 372, price 10s 6d. [In a few days.

The good Reverend wrote a book, *Ocean to Ocean*, about the trip which was published in 1873

and became a best seller. The surveying for the route was completed on the 11th October 1872 having covered 5,314 miles which included surveying in the formidable barrier of the Rocky Mountains.

The Doctor in question was a Charles Moren and the botanist was Irish born John Macoua. Between 1872 and 1881 Macoua took part in five surveying trips with Fleming. A photograph of the Flemings – junior and senior, along with Moren and Macoua, is reproduced



Ocean to Ocean in 1872. Fleming, second from left, with son Franky, Rev. George Grant and Dr. Arthur Moren

here. The complete survey used 800 men working in 21 separate segments with Fleming in overall charge.

Fleming then had to organise detailed surveys of the possible routes and he took part in the surveying when he could. A turbulent time in Canadian politics saw construction only start in 1880 with the railway completed in 1885.

However, there was a major shock in store for Fleming when he was summarily dismissed in May of 1880. The Intercolonial Railway was complete and the Intercontinental had been surveyed even if there had been limited construction taking place. In essence, he was in charge of both ventures from 1872-1876.

The dismissal appears to have been a political decision and Fleming never spoke about it. He could certainly be hard work as he had no time for politics and doubtless could be abrasive as with the question of iron bridges. There had certainly been friction between Fleming and the aptly named Charles John Brydges who was the Superintendent of Government Railways. There were suggestions that two major disagreements had been the root cause – one being the bridge over the Red River and the second was whether the route should pass through Winnipeg or

It is stated that the Government have passed an Order-in-Council authorizing the payment of \$45,000 to Mr. Sandford Fleming in consideration of his services as chief engineer of the Pacific railway and consulting engineer of the Intercolonial railway. Mr. Fleming's salary, it will be remembered, was never definitely determined during the whole course of his employment in these positions.

further north. The blow was softened by a payment of \$45,000 organised by Sir Charles Tupper. Remember Collingwood Schriber? He

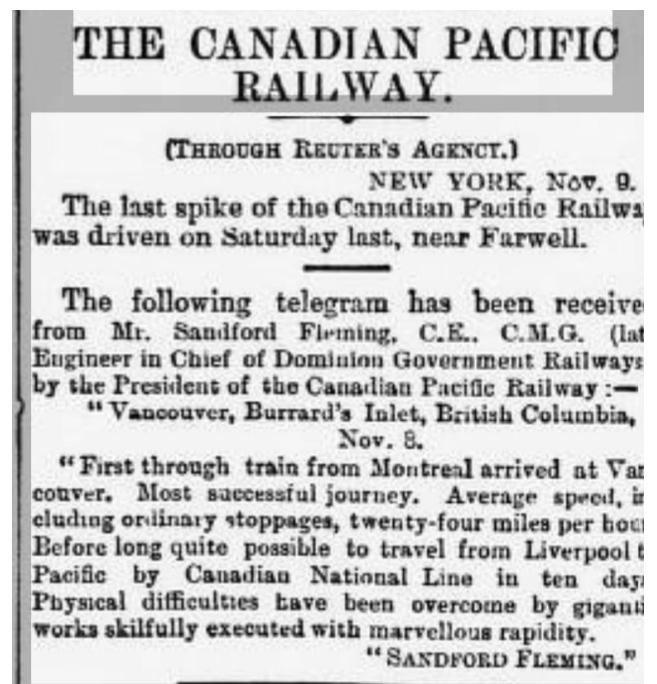
was the man who replaced Fleming!

At the time the construction was about to pass into private hands and this may have prompted the dismissal . The Government had decided that they did not want the railway to be a federal project and *The Canadian Pacific Railway Company* was formed to finance and build the route. This was the sunset of

Fleming's involvement in surveying and building railways but doubtless he would have derived some pleasure when he was asked to return and give his opinion on the suitability of Roger's Pass as a route through the Selkirk Mountains.

Fleming purchased shares in the Hudson Bay Company and in November 1881 he was appointed as the first Canadian resident to serve on the London Committee of the Hudson Bay Company.

Roughly two years later he became a director of the Canadian Pacific Railway. There can be no question that his dismissal from that company would have been the low point of his career but he soon turned his attention to other matters. That said, he was still to be involved in the pinnacle of the construction of the route.



On the 27th October 1885, a train left Montreal for the West. It included a carriage which carried amongst other important figures the directors of the Canadian Pacific Railway. This was to be the train which would make history by crossing the country to the Pacific. As a director Sandford Fleming was in the party. The final gap in the rails lay near the town of Craigellachie in the Rocky Mountains. Teams of men were working feverishly, from both east and west, to close the gap.

Heavy rain had delayed the work but it was clear that the end was not far away.

On the morning of the 7th November the double lines of rails were joined and the spikes hammered home – except one. It was director Sir Donald Smith who had been chosen by his peers to hammer home the “last spike” which was decorated with gold.



Sir Donald used a heavy spike-hammer to drive it home to spontaneous cheering. The photograph of the event which shows Sir Sandford in his top hat is one of the most famous in Canadian history and is reproduced here. His height and hat make him rightly stand out which is fitting for a man who was

the pioneer of the line, surveyor of the road, and engineer of the railway.

Despite the importance of the occasion normality was quickly resumed with the guard calling out, as if he had been doing it for years “*All aboard for the Pacific*”.

Standard Time and the 24 Hour Clock

At the same time as championing the Pacific Cable (see below) Fleming was wrestling with the universal measurement of time.

There are many versions given of why this became an obsession – the one certainty is that it was caused by confusion over a railway journey but where it took place is anyone's guess. Some say it was in Ireland – others cite it being in Halifax – others claim Montreal – but in reality it makes no difference. Fleming either missed a train or thought that one was running late due to the chaos from the use of solar time. That said, these could simply be urban myths as Fleming had travelled extensively in America/Canada and Europe. He surely had to be aware of the difficulties caused by variations. Fleming calculated that on a journey a from Halifax to Toronto the traveller would find that, on reaching his destination, his watch would be 65 minutes faster than clocks in Toronto.

THE PEOPLE WOULD AWAKEN
in the morning without the slightest consciousness of any change. They would only be surprised to discover that every individual carried the same time. If a person travelled northerly and southerly, stopping at a thousand places, say between Winnipeg and New Orleans, he would find the hours, minutes, and seconds everywhere in complete harmony. If he travelled from Boston to San Francisco he certainly would find a difference with regard to the hours. He would find Chicago an hour slower than Boston, Denver an hour slower than Chicago, and San Francisco an hour slower than Denver, but he would find also that the minutes and seconds on his watch were in agreement with the minutes and seconds on

Matters would be worse in America where there were 3 hours 30 minutes between the times used in New York and San Francisco. Matters were exacerbated even more for the world traveller. All this had not really been a major problem until the introduction of steam locomotives and shipping when it did matter – huge distances could now be covered in relatively short time creating a significant disparity to the times shown on clocks. The only solution was to constantly change the watch, or do as some regular travellers did – carry a watch with up to six dials on its face. Each dial was marked with the name of the city whose

time it showed.

Fleming set about finding a solution as he believed "everyone has a right to know what time it is". In 1879 he read a paper to the Canadian Institute – that august body which he had helped form. As always being an exact man, thanks to his training, his paper was very thorough. He covered the history of measuring and recording time and then figuratively speaking went round the globe explaining what other countries did – invariably something different which did not help matters.

NEW TIME STANDARD.
EXPLAINED BY SANDFORD FLEMING,
ESQ., C.E., ONE OF THE FOUNDERS.
HISTORY AND DEVELOPMENT OF THE
NEW SYSTEM—ITS ADVANTAGES TO
THE PUBLIC.
(*Milwaukee Journal.*)

DEAR SIR,—The standard time project which is being discussed all over the country is a comparatively new question. Yet it is one which would have commanded no attention had it been brought forward at any other period in our history. The marvellous progress which we have of late years made has forced the question upon the public. It is an outcome of the great social and commercial changes which have been effected in the community through the agencies of steam and electricity, the grand civilisers of the age in which we live.

LONG AGES BACK,
before artificial time measures were invented or needed, the human race had only the rising and setting of the sun to govern them in their daily avocations. The Greek and Roman civilization divided the interval of daylight between sunrise and sunset into two parts. This established noon, and for ages it was the only period publicly noticed by the Romans. Noon was proclaimed by a sound of trumpets and manifested by the sun's shadow in a particular direction along the forum. This led to the introduction of sun-dials and the arbitrary division of forenoon and afternoon into hours, but the nights remained undivided for many centuries. This is the origin of the system of chronometry which we have inherited. It so happens that at the hour of noon, at any given place the sun is south in the heavens, as at every individual place on the surface of the earth.

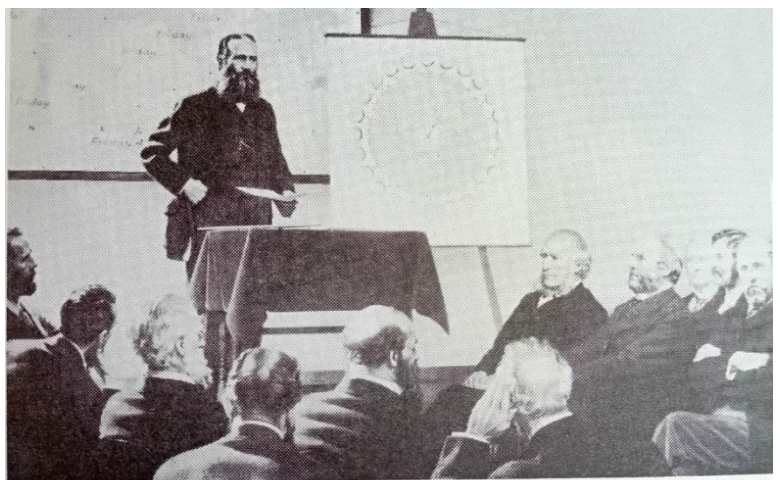
Outside of Fleming's great work as a railway engineer his name is inseparably linked with our universal system of using Greenwich as a prime meridian for the establishment of a standard time. The system, which was entirely of Fleming's invention, has been adopted throughout the world.

He had a proposal which was that the world should be divided into time zones with the starting point being

Greenwich near London (0 degrees longitude). There

would be twenty four equal zones – matching the number of hours in a day. Each zone would consist of 15 degrees of longitude and a degree would equate to four minutes. This would give $15 \times 4 = 60$ minutes per zone.

Travelling eastwards from the prime meridian the time zones increase



Fleming described his concept of Standard Time to members of the Royal Canadian Institute in 1879. This painting by Rex Woods is from the Confederation Life Gallery of Canadian History



consecutively by one hour, while travelling westwards has the opposite effect. The earth is a sphere and at the Equator is roughly 25,000 miles in diameter. This gives a figure of roughly 1,041 miles in each zone. The advent of a 24 hour clock eliminated possible confusion over a.m. and p.m.

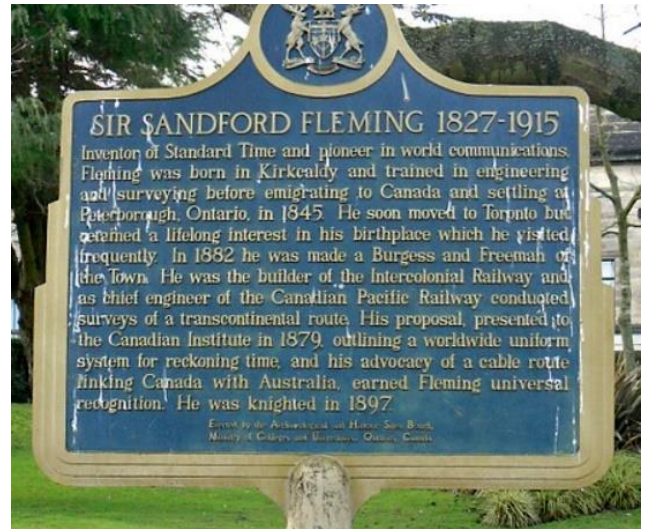
The previous year he had attended the meeting of the *British Association for the Advancement of Science* which was held in Dublin. Although he was permitted to attend he was not allowed to speak. When the Governor-General of Canada learned of the treatment he had received he took steps to counteract the slight. This was the Marquis of Lorne who had a little clout – he was a son-in-law of Queen Victoria! He arranged for Fleming's address to the Institute be printed and circulated to governments around the world.

It was the Czar of Russia who gave the first real positive response and an international conference was held in Vienna which Fleming addressed. A further conference was called and held in Washington. This Washington Meeting was called the *International Prime Meridian Conference* and met in October 1884.

The conference lasted for a month. In the end Standard Time was scheduled to be introduced on the 1st of January 1885. Bit by bit over the following years more countries adopted the system and in 1890 Fleming could advise the Royal Society of Canada that it had been adopted throughout North America, Great

Britain, Central Europe, Sweden, Japan and Australia. Canada had adopted it in October 1883 – a year before the conference! American railways had also adopted the system in 1883 to bring clarity from chaos.

On the 21st September 1973, in Kirkcaldy's War Memorial Gardens, thanks to *the Historic Buildings and Architectural Sites Board of Canada* – Provost John Kay was able to unveil a plaque which recognised Fleming and his achievements. A



photograph of the plaque is shown here. Please do not go and look for it – it was vandalised some years ago although the pole which supported it is still in place. A maple tree was planted beside the plaque.

On the 22nd September 1973 a similar plaque was unveiled in Toronto by John Fleming, Sir Sandford's great-grandson – it still stands unharmed. Toronto was chosen as the city as that was where Fleming had delivered his first paper on the subject.

The Pacific Cable

MR SANDFORD FLEMING AND THE PACIFIC CABLE.— A memorandum by our distinguished townsman, Mr Sandford Fleming, respecting the establishment of the Pacific cable, has been issued in Canada. Mr Fleming states that among the tenders received is an offer from an old-established and reliable firm to lay the cable on the old British route by Fanning Island for the sum of £1,517,000, to include maintenance and repairs for three years after completion—the cable to be owned and controlled by Government, and worked under Government authority. Mr Fleming expresses himself strongly in favour of State ownership of the cable, and thinks that the capital to be raised need not exceed £1,600,000, and that the total fixed charges for the first three years should not be more than £75,000 per annum. He calculates that the surplus of revenue over expenditure for the last three years should be £154,000, and for the whole of the first 10 years £742,000. Mr Fleming is satisfied that his estimates are “reasonable and reliable,” and that a mutual effort on the part of Great Britain and the two great divisions of the Colonial Empire “can establish the Pacific cable with ease, and practically without cost to the taxpayers in either country.” The memorandum has been communicated to the Imperial and Australasian Governments with a view to the discussion of the details by a joint Commission in London.

Not one for feeling sorry for himself over his dismissal from the Canadian Pacific Railway, Fleming had also concentrated on another of his pet projects. This was the promotion of the construction of the Pacific Cable. An ardent and long standing proponent of communication by telegraph he had always insisted an

accompanying telegraph line run alongside any railway he was involved with.

As early as 1879 he had been advancing his idea by writing to Frederic Gisborne who was then in charge of the Canadian Telegraph system. To his mind, the idea was simple and obvious. It was built around the 1858 Atlantic Cable which ran from Valencia Island, just off the west coast of Ireland, to the Bay of Bulls off Newfoundland. This pioneering cable only lasted for three weeks before failing, although not before Queen Victoria had sent the first transatlantic message to President James Buchanan of the United States. Permanent success was not far away and, after improvements were made to the materials used, in 1866 the *S.S. Great Eastern* built by John Russell and I.K. Brunel successfully laid an effective and lasting Atlantic cable.

Fleming argued that when the Canadian Pacific Railway was completed it would be possible to send a telegraph from Halifax to Vancouver. Therefore, by extension, he reasoned there would be direct communication from London to the Pacific coast. His question was why stop there? He argued that a cable could/should be laid from Vancouver, across the Pacific Ocean, linking all the British possessions on the route and terminating in Australia and New Zealand. He was of the firm belief that the cable should only touch land which was a British possession. His overriding purpose was the above but not far behind was the belief that competition to the existing monopoly of the Eastern Telegraph Company would see a dramatic reduction in the prices charged to use the service.

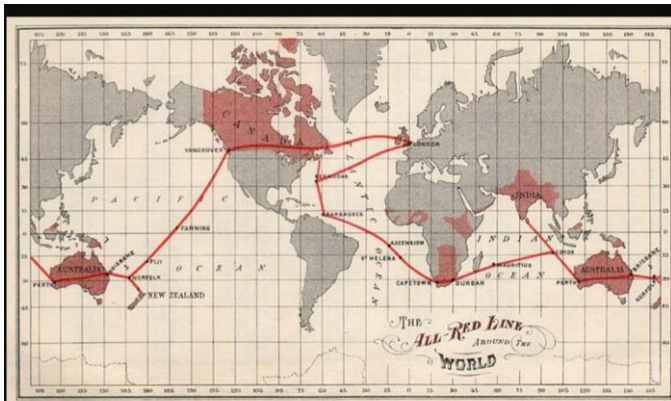
It appears no one took the idea seriously but Fleming, true to type, did not give up. He continued to add more facts and statistics to his submissions in an unremitting barrage to Ottawa. There still appeared to be a coolness to the idea but in 1887 a Colonial Conference was held in London. Its purpose was to celebrate Queen Victoria's 50 years on the throne.

It was the chance Fleming had been waiting for. When he spoke to the conference he provided facts and figures then strenuously argued that much of the opposition came from the existing *Eastern Telegraph Company* which ran its communications eastwards from England and held a complete monopoly. He believed they were afraid that the new cable would

affect their business hence their vigorous objections.

He also argued strongly from the point of view of Britain's communication security. Much of the existing cabling was dependent on foreign powers for its security. He pointed out, as one example, "that the cable could be cut by the uncertain Turks, over whose shoulder the Russian Empire breathed perpetually".

Fleming and other supporters believed that communication with Australia via this alternative route would be more secure in times of conflict. The



Sketch map of the All Red Line drawn in 1902 or

existing cable passed through areas which were not part of the British Empire while the proposed route would only pass through British dependencies. Cartographers at the time coloured British possessions in red and the route became

known as *The All Red Line*.

The British Government had refused to send a ship to survey the route. Canada had offered one but the Admiralty did not even answer. Fleming and an unnamed friend had even offered to pay half the cost of the survey from their own pockets - \$90,000.

The Colonial Conference simply passed a resolution which suggested the possibility should be investigated. Fleming remained in England to try and get the said investigation underway - but he

discovered no one was prepared to take any action.

However, Fleming persisted in championing the cause and he took advantage of discussions between Canada and Australia in 1893. Ostensibly it was primarily a mission to promote trade between the two countries but discussions took place regarding the cable. The idea was surfacing again with more relish and a *Postal and Telegraphic Conference* was held in 1893. It was agreed that tenders should be sought for the work to see if the cable could be constructed and at what cost.

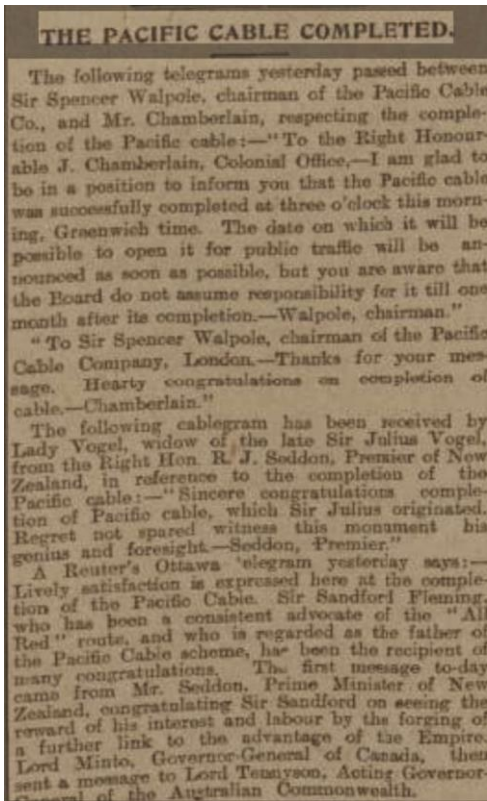
Fleming prepared fresh plans and had them ready to forward to any company interested in the work. That was in the August and by November six companies had submitted tenders. Matters moved slowly but in 1896 the *Pacific Cable Board* was formed with representatives from Britain, Canada and Australia.

It did appear that the cable was ultimately going to proceed as while Britain had been at times cool on the idea, Canada, Australia and New Zealand, were fully supportive.

THE PACIFIC CABLE SCHEME.
A telegram in the "Times" from Ottawa says that the Earl of Aberdeen and Lord Stratheona have been invited to act as representatives of Canada on the Board of Control of the Pacific cable. Sir S. Fleming, in a letter to the press on cable matters, advocates the acceptance by Australia of the offer of the Eastern Extension Company to lay a cable from Cape Colony to Australia, but with the condition that the Australasian colonies may purchase the line at a fair valuation when they so desire.

A survey of the route began in 1899 and *The Pacific Cable Act of 1901* gave the board responsibility for constructing and operating the system. Cable laying commenced in 1902 and on the 31st October of that

year the first message was tapped out in the Fiji Islands and sent to King Edward VII. The first message to Canada was one of congratulations to Sandford Fleming from the Prime Minister of New Zealand. The delays had been in a large part mainly caused by the *Eastern Telegraph Company* having friends in high places. In fairness, there were other delays relating to the management of the cable laying operation and the subsequent ownership of the completed cable – but it had been achieved.



When the Pacific Cable commenced public service, in December of 1902, telegrams to Australia were reduced to half the former cost! The monopoly was broken and the costs halved.

In 1907 the Governor General of Canada, Earl Grey, remarked:-

"For upwards of twenty five years, Fleming has devoted his energies in the task of securing cheapened telegraph service. The bare recital of his efforts in this direction almost suggests the missionary fervour of St. Paul. He has without hope

of personal gain visited five continents; he has traversed all the great oceans, the Atlantic many times; he has given himself, his time, and his substance, ungrudging and without stint to the service of the Empire”.

Queens University Kingston

There is an idiom which is very applicable here and that is *to come the full circle*. All those years ago when he first arrived in Canada both himself and his brother had seen the college in Kingston as they sailed up Lake Ontario. Stanford had noted in his diary that it was *a plain college*. However it was a college and therefore to Fleming it was important. He knew the value of education but, even from an early age, he had not expected to have the opportunity of attending university. Such an education was not as common then as it is today and he had accepted that it was beyond his reach.



Therefore, in 1880 he felt it a tremendous honour when what was

now Queens University elected him as its Chancellor. He won the election for chancellor from another significant figure in Canadian history – Samuel Hume Blake. He now had an opportunity to influence and shape education. To be the head of such an institution was a matter for great pride and a photograph of Fleming in his robes of office is shown here.

Even as early as his inaugural address in 1880 he

expounded the case for science being at the centre of university education. *The School of Mining and Agriculture* was established at Queens in 1893. The following year a faculty of applied science was added. Fleming set in train the steps which led to Queens becoming a modern university with the teaching of science and engineering at its core.

Fleming held the position from 1880 until his death and felt great pride and satisfaction from the opportunity to confer Degrees on the graduates year after year.

In this position he found himself hosting royalty once again in 1901 when the Duke and Duchess of Cornwall and York visited Queens. The Duke and Duchess later became George V and Queen Mary. No doubt Fleming would have reminded the Duke of the trip he made on the new railway to Collingwood with the Duke's father.

A further memory was mentioned in 1905 when Fleming conferred an Honorary Degree on the Governor-General Lord Grey (mentioned above). Fleming recounted one of his earliest Kirkcaldy memories. This was the passing of the Reform Act of 1832 when a small flag was placed in his hands as he marched in a procession with constant chants seeking three cheers for Earl Grey, the great Prime Minister, who had secured the passage of the measure through Parliament. He was of course the Governor-General's grandfather. Seventy three years had passed since the event.

Fleming himself had never received a Degree but that was rectified in 1884 when the University of St. Andrews, in his homeland, conferred upon him the degree Doctor of Letters, *honoris causa*.

E FIFE FREE PRESS, SA

The honorary degree of Doctor of Laws has been conferred by the University of St. Andrews upon Sandford Fleming, C.E., C.M.G., Chancellor of Queen's University, Toronto.

Recognition – Honours

Following on from the honour given by St. Andrews, Columbia followed in 1887 and then the University of Toronto in 1907. Surprisingly, Queens were the last to give an honorary doctorate in 1908.

For a man who was an avid supporter of the Empire he would have been delighted to be appointed a C.M.G., in 1877 (Companion of the Most Distinguished Order of St. Michael and St. George).

In 1897 the world celebrated the Diamond Jubilee of Queen Victoria. One of the names in the Jubilee Honours List was Sandford Fleming who was knighted by the Queen and became a Knight Commander in the Order of St. Michael and St. George. Mr Sandford Fleming had become Dr. Sandford Fleming and was now Sir Sandford. Jeannie Hall from Peterborough, Ontario was now Lady Fleming.

In 1950 Fleming was added to the list of Canada's list

of persons of National Historic Significance.

Recognition – Physical Features

- The Sir Stanford Fleming Park in Halifax.
- Sir Stanford Fleming Avenue in Ottawa.
- Sandford Island and Fleming Island in British Columbia.
- The Town of Fleming in Saskatchewan is located on the Canadian Pacific Railway.
- Mount Sir Sandford is the highest peak in the Selkirk Mountains.

Recognition – Buildings

- Fleming Hall was built in his honour at Queens University. It is the home of the Electrical Engineering Department.
- Fleming College in Peterborough is a Community College of Applied Arts and Technology.
- The Sandford Fleming Building at the University of Toronto – Faculty of Applied Science and Engineering.
- The Sandford Fleming Elementary School was opened in Vancouver in 1913.
- The Sandford Fleming Academy in New York Ontario.

Recognition – Canadian Postage Stamps.

Fleming has been recognised on two separate occasions by the issue of stamps. In 1977 the stamp

featured an image of Fleming and a railway bridge of his design. Given Fleming was born in 1827 this would seem to mark the 150th anniversary of his birth.

A further issue followed in 2002 which featured his promotion of the Pacific Cable. This would seem to mark the centenary of the opening.

The Freedom of Kirkcaldy

MR SANDFORD FLEMING.

The Clerk reported that the expenditure incurred in presenting the freedom of the burgh to Mr Fleming amounted to £14 12s 9d.

The Clerk mentioned he had expected to be able to have the ticket at the Council meeting to show the members, but he received word that Mr Fleming was going to Canada, and he had just time to send it away to catch him at Liverpool.

The minute was approved of.

On the 13th November 1882 while on a short trip to his home town Sandford Fleming was granted the Freedom of the Burgh at a function in the Town Hall. John Sang was in

attendance on the occasion.

Object 12 recounts the full story of the presentation and also includes the story of all the other recipients. It is pointless to cover the same ground here but some of Fleming's words from his acceptance speech are among the finest spoken or written about Kirkcaldy and are a fine compliment and worthy of repeating:-

Any little success I have achieved in the country where my lot was cast, is due wholly to the rich inheritance I received here, to the principles of truth, and honour, and uprightness which were implanted in the home of my boyhood. To those who conducted

my early training, and moulded my character in the Lang Toun, I give full credit for all.

Reflection

The final words can be left to Fleming himself and were written close to the end of his life. He was looking back and reflecting on the 88 years of his existence. With his outlook, drive and determination, he made his life count – it was not left to chance.

I have often thought how grateful I am for my birth into this marvellous world, and how anxious I have always been to justify it. I have dreamed my little dreams. I have planned my little plans, and begrudged no effort to bring about what I regard as desirable results.

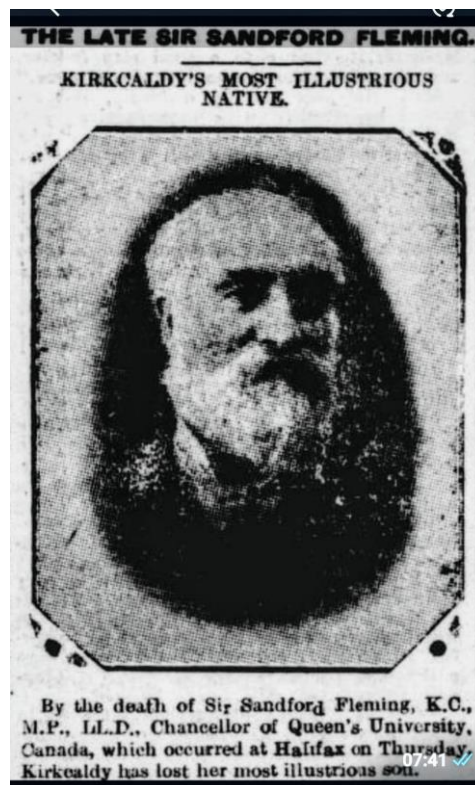
I have always felt that the humblest among us has it in his power to do something for his country by doing his duty, and that there is no better inheritance to leave his children than the knowledge that he has done so to the utmost of his ability.

It has been my great good fortune to have my lot cast in this goodly land, and to have been associated with its educational and material prosperity. Nobody can deprive me of the satisfaction I feel in having had the opportunity and the will to strive for the advancement of Canada.

I am profoundly thankful for the length of my days,

for active happy years, for friendships formed, and especially for the memory of those dear souls who have enriched my own life while they remained on this side.

On Thursday morning on the 22nd July 1915, in Halifax, Sir Sandford Fleming quietly moved to the other side.



The Way Ahead.

To conclude we must return to the theme that Adam Smith has been allowed to dominate and dilute the memory and achievements of so many talented sons and daughters of Kirkcaldy.

We have long argued that the *Kirkcaldy's Famous Folk Board* is of little or no use sited inside the Town House.

What purpose does that serve in highlighting that we are more than simply Smith? The board should be copied and placed in strategic sites around the town. Kirkcaldy should not be afraid that it will in some way diminish Smith's standing, rather it will show that we are more than just Smith – a lot more!

Kirkcaldy has an opportunity to redeem itself in relation to Sir Sandford Fleming. The 7th January 2027 will mark 200 years since his birth – and that should be recognised in a way similar to the excellent tribute the town has just paid to Adam Smith. While Fleming's name may not be associated with academics, academia and influencers, to the same degree he has made a huge and lasting mark on the world and well deserves proper recognition from the town of his birth, the town he loved so well and the town he never forgot.

Can anyone convincingly argue that Fleming does not deserve a place at the pinnacle of Kirkcaldy's greats and that his achievements should be acknowledged and recognised in 2027?

The books consulted in the preparation of this Object were:-

Man of Steel - The story of Sandford Fleming 1827-1915 By Hugh MacLean, Ryeison Press 1969.

Sandford Fleming - Biography - Lawrence J. Burpee - Oxford University Press 1915.

No Better Inheritance - Jean Murray Cole - Peterborough Historic Society.

Kirkcaldy's Famous Folk - Sir Sandford Fleming by Kirkcaldy Civic Society.(Prime Source)

A number of Websites were also consulted principally *Sir Sandford Fleming* and *The Canadian Encyclopedia*.

Invaluable assistance was also given by the *Hutchison House Museum* in Peterborough and they are acknowledged in the text.

Acknowledgements.

Newspaper Cuttings - Individual newspapers credited in the text but the information is obtained from Findmypast Newspaper Archive Ltd in partnership with the British Library.

All newspaper articles if not credited in the text or included in the following acknowledgements are from the Fife Free Press. A wider range of papers have been used than usual. The Fife Free Press did not arrive until 1871.

Page 1 Sandford Fleming photograph - Lawrence J. Burpee biography

Page 1 Bust of Adam Smith - Fife Cultural Trust.

Page 8 John Hutchison via Hutchison House Museum.
Page 9 The Slave Market at Constantinople - National Gallery of Scotland.
Page 10 Lawrence J. Burpee biography
Page 11 As above.
Page 13 Hutchison House Museum
Page 15 As above
Page 17 No Better Inheritance.
Page 18 As above
Page 20 The Canadian Encyclopedia
Page 21 The Canadian Encyclopedia.
Page 23 Lawrence J. Burpee biography - portrait
Page 23 No Better Inheritance.
Page 24 Wikipedia The Northern Railway of Canada (Map)
Page 24 The Canadian Encyclopedia (Cumberland)
Page 27 No Better Inheritance.
Page 29 Jersey Independent and Daily 29th September 1860
Page 30 The Canadian Encyclopedia (Schriber)
Page 31 Government of Canada - Historical Boundaries of Canada.
Page 32 Photograph again The Canadian Encyclopedia
Page 32 Government of Canada - Historical Boundaries of Canada
Page 34 The Scotsman in its edition of 30th April 1864
Page 35 No Better Inheritance.
Page 37 Herepaths Railway Journal 10th October 1878
Page 39 Canadian Pacific Map - credited to Elaine Ellinger by Wikipedia March 2021
Page 40 The Globe 9th June 1873
Page 40 No Better Inheritance.
Page 41 Hamilton Daily Times 9th September 1880
Page 43 Lawrence J, Burpee Biography
Page 46 University of Toronto Archives (Globe)

Page 47 War Memorial Gardens Plaque credited Kilburn
23/1/2008 by Wikipedia

Page 50 The All Red Line via Wikipedia drawn 1902/03

Page 51 Dundee Evening Telegraph 4th October 1899 (Top)

Page 52 Sheffield Daily Telegraph 1st November 1902 (Bottom)