

## INTRODUCTION

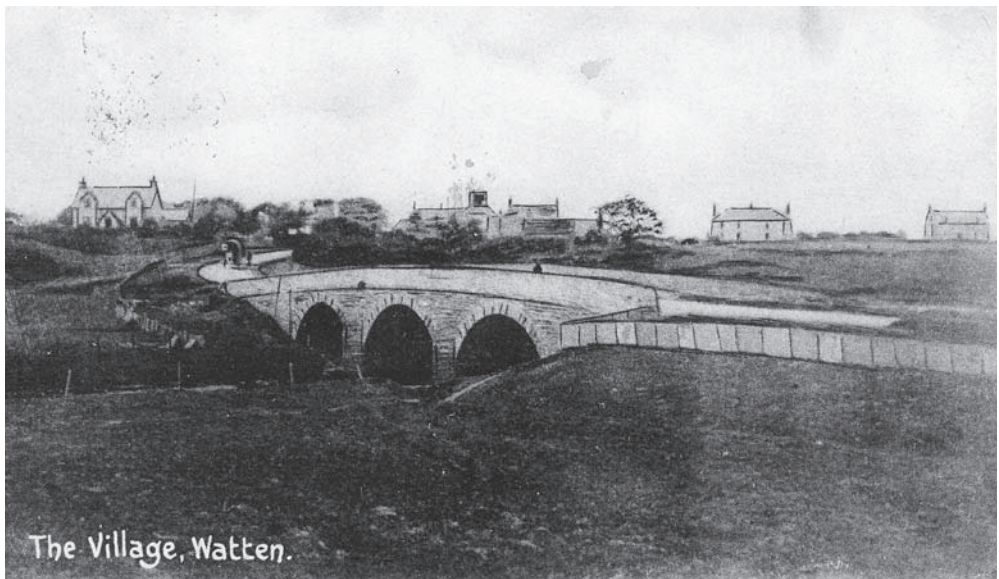
Caithness has a rich history stretching back many thousands of years, but in more recent times many born in the county left to make their mark abroad. Part of the reason for the exodus was the Highland Clearances of the 19th century, while others were looking for adventure or had sampled life abroad during spells in the armed forces. For others still, it was because their parents had taken the decision to leave in search of a better life for themselves and their families. Among these were the first Lady Mayor ever to be elected in the British Empire, the 9th President of the Continental Congress in America during the Revolutionary period, and a pioneering road engineer who moved to South Africa when he was young, to name but a few. Those who stayed at home are credited with great engineering feats and geological discoveries – not only at home but abroad – as well as pioneering work in the arts and sciences. They dedicated, and still dedicate, their whole lives to their work and the impact of these inspirational people has touched the lives of many thousands of individuals worldwide. There are many hundreds of Caithness-born people who had an impact on the world in some way, however there is not enough room in this volume for them all. I have chosen as diverse a group as I could and this book provides an insight into their lives and labours.



## ALEXANDER BAIN

**A**t the village hall in Watten stands one of the world's first electric clocks. It was invented by Watten's most famous son, Alexander Bain. It had belonged to Alexander Sutherland, a local teacher, but on his death it was gifted to Wick's Carnegie Library. However, it was not in working order until a local Thurso man (a Mr Purvis) restored it.

Alexander Bain was born on 31 October 1810. His father was John Bain, a native of Watten, and his mother was Isabella Waiter from Halkirk. Bain's twin sister was



*Postcard of Watten, early 1900s*

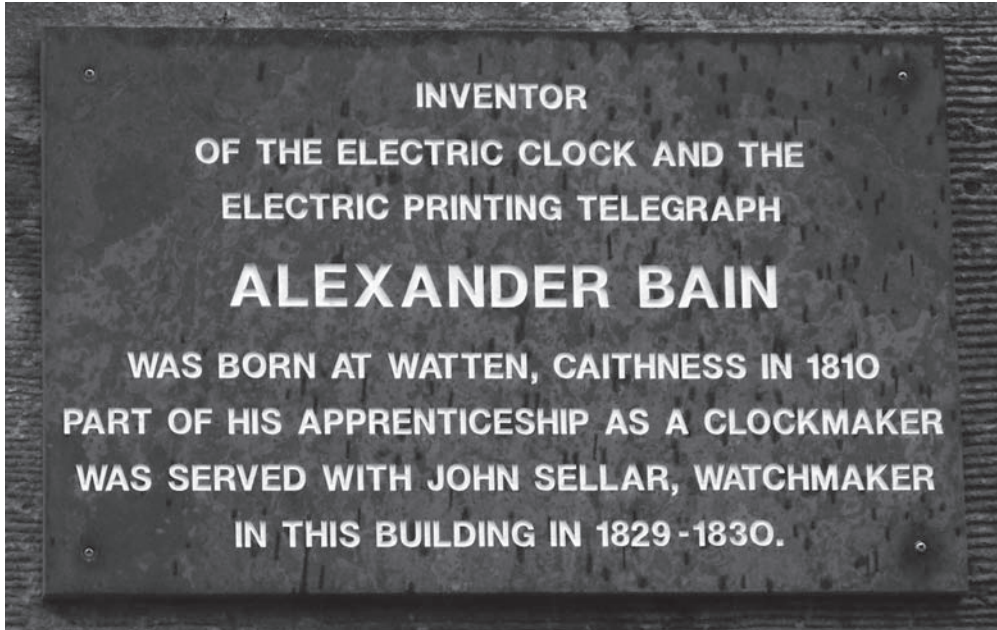


named Margaret and they were baptised on 22 November 1810. It is believed that the Bains had 13 children, although one of them died in infancy. The couple had married at the turn of the 19th century and John worked a croft at Housty near the hamlet then known as Achingale – now Watten. Not long after the birth of the twins, the family moved to Leanmore to take over the tenancy of the larger croft, which it is thought was run by John's father, Alexander. At this point the family consisted of their eldest child Elizabeth, followed by Barbara, Peter and William, as well as the new-born babies. By the time Bain went off to the local school at Backlass (aged five), he had been joined by John and George. Between 1816 and 1823, Isabella gave birth to Bessy, Isabella, David and Joseph.

Schooling was important to the Bains. John wanted his children to be educated so they could be successful. However, Bain was not an academic. He would rather sit and daydream than pay attention to the teacher. Growing up on a croft, he enjoyed the outdoor life and during the summer months when the school was closed, he managed to find work on a farm at Bower. He finally left school in 1822. By this time he had become fascinated by clocks and watches and how they worked. On 30 January 1830 he began his apprenticeship with the watch and clockmaker John Sellar in Wick. Ultimately, he spent much less than the required seven years he was tied to Sellar to complete his apprenticeship. He had attended a lecture on electricity and found it a fascinating subject, so after a few years in Wick he managed to break the agreement. Yet it seems Sellar may have been in financial difficulties anyway, because soon after Bain left, Sellar closed the shop and moved on.

Meanwhile, Bain headed for Edinburgh where it is thought he finished his apprenticeship. He managed to secure a position but he was a restless person and soon found himself southbound to London. While at Clerkenwell – the heart of the clock making industry – he attended lectures where he saw electromagnetic apparatus being used. It was while watching this that he wondered if it could be possible to harness electromagnetism in watches and clocks. In 1838 at the house in Wigmore Street where he was staying, he completed an early electric clock and by the end of that year had assembled an electric printing telegraph. It could not have happened at a better moment in his life, as he was beginning to struggle financially. He showed his inventions to his friend Charles McDowell and his clock was later placed in the window of Hunter & Edwards – a clockmaker's in Cornhill in London. He had also managed to devise a small enough device to store the electricity, which later became known as an earth battery.

Bain had faith in his new inventions but he needed backers to support him financially. He was introduced to Professor Charles Wheatstone and decided to take the electric clock and printing telegraph to him. Wheatstone gave him £5 and promised him more money. Instead, Wheatstone had a copy of the clock made and showcased it at the Royal Society, claiming it was his own invention. Needless to say, Bain was furious when he found out. He challenged Wheatstone's allegations, but to no avail. Nevertheless, Bain still had work to do and he approached John Barwise. Barwise was a chronometer maker and between them, they applied for the first electromagnetic clock patent. The process



*Alexander Bain plaque, Wick*

took three months and was granted on 11 January 1841. It was the first ever clock of its kind in the United Kingdom.

In March 1841, Bain showed his clock at the Polytechnic Institution and told them he was its inventor. Wheatstone got wind of this and a bitter dispute that was to last their lifetimes ensued. In 1842, as Bain worked on John Finlaison's house (Finlaison was the Actuary of the National Debt), he discovered that the earth could be used as a path for the returning electric current and the following year, having experimented with it, he began working on what was to become the electrochemical telegraph. This machine was the first to be able to send a facsimile message to another place using electricity. It was a remarkable feat of ingenuity, even though he never got the chance to show it publicly, and he never succeeded in gaining the patent for it. This was granted to Frederick Bakewell in 1848.

On 15 May 1844 at the Upper Chelsea Church, Bain married Matilda Bowie, a widow who had a six-year-old daughter. The couple had five children of their own. Their first-born was Elizabeth, followed by Isabella, twins Alexander and Henry, and another daughter named Barbara. Not long after they married, the new family moved north to Edinburgh where he set up his own electric clock and telegraph business. In May 1845, he was awarded a contract to erect the first telegraph line between the capital and Glasgow. During the works, his brother John travelled down from Caithness to aid him, but he returned to Watten in 1852 to take over the croft at Backlass. When the works were complete, he tested it and for the first time, the clock at the Edinburgh railway station controlled the clock at another station. It was a momentous occasion and he saw his dream realised. Later, he was appointed Scottish Manager of the Electric Telegraph Company,



but it did not suit him and he soon returned to his love of making his own clocks and telegraphs. He managed to make improvements to the electrochemical telegraph and invented a punched tape sender that sent messages down the telegraph at high speed. In 1846, he demonstrated it in France, to the amazement of the French scientists. A year later, the family left Edinburgh and returned to London.

In 1848, the opportunity arose for Bain to visit the United States, where he was able to show his telegraph to Henry O'Reilly – an Irishman who had emigrated to New York with his family when he was a child. O'Reilly was highly impressed by the invention, and when he formed the New York and New England Telegraph Company with Bain, he engaged Bain to carry out the requisite line building work, which was completed in 1850. The line ran from Boston in Massachusetts to New York. However, the line caused controversy with the Morse Company, who at the time believed it should have the monopoly. Following legal wrangling, the two companies eventually merged to form the New York and New England Union Telegraph Company. The lawsuit cost Bain dearly financially, but in June 1852 following his return to England, the Bain-run New York State Telegraph Company was sold for over \$65,000, and by the end of the year, his telegraph lines were no longer operating in America. It was also during his time in the States that he received the news that his mother had passed away, aged 70.

When he returned to England in 1852, Bain returned to clock and watch making. In May he was granted the patent for electric clocks, watches, and all the apparatus needed for them to work. The following year, his wife Matilda became ill. She moved out of the family home at Hammersmith and went to live with her sister Elizabeth (John Finlaison's wife) in Richmond in Surrey. Throughout her stay, her health deteriorated and she died on 14 August 1856. The death hit Bain hard. He seemed to lose interest in his business for a while, but about a year after the death, he resumed his work. However, after a visit to the United States again, he found on his return to England that the telegraph company had been taken over by the Government. Disheartened and without work, he tried to gain employment as a labourer, but his pleadings were ignored, so he returned to Scotland where he met up with John Stephen (from Bower in Caithness), who now resided in Edinburgh. His stay lasted until he recovered from an illness. He then decided to move back to London, probably in the hope of finding work. But his personal life was plagued by loneliness. With his wife gone and his family grown-up and living their own lives, he felt isolated and suffered from bouts of depression.

London did not work out for him and he returned to Edinburgh. By the end of 1871, he had managed to find a job with James Muirhead & Sons in Glasgow and he happened to meet Professor Sir William Thomson who, with the help of the local Member of Parliament for Glasgow (Mr W. Dalgleish) and Mr C. W. Siemens (the first president of the Society of Telegraph Engineers), petitioned William Gladstone – the Prime Minister – calling for Bain to be granted a pension from the State for all the ingenious work he had carried out over the years. The petition was granted, as Gladstone himself knew full well of Bain's work. Bain was granted the sum of £80 per annum. Thomson was delighted for his friend, and he learned a great deal from him watching his demonstrations. This

enhanced Thomson's own work with electricity and he later became world-famous as Lord Kelvin.

Meanwhile, Bain found another job, working at an opticians. This supplemented his income and in 1873 he was awarded £150 from the Royal Society. All this money meant he could now live more comfortably, although his health was failing. He returned to the county of his birth for the last time in 1874. When he was younger, he had planned to purchase a farm in the area so he could retire there, but he never found the time. It was something he regretted all his life.

The visit went well, but his health became more of a concern. He returned to the Helensburgh area following the visit north, and worked on clocks until he had a stroke that paralysed him. His friend William Thomson found a place for him at Broomhill Home for Incurables in Kirkintilloch, and it was here he died on 2 January 1877, aged 66. He was buried at the Old Aisle Cemetery in Kirkintilloch.

Shortly after his death, a group of Glasgow electricians had a granite memorial erected. The inscription on the headstone reads:

Alexander Bain, electrician and telegraph engineer, distinguished for many inventions of the greatest value in electric telegraphy &c, &c. Born in the parish of Watten, Caithness-shire, October 1810. Died 2 January, 1877, interred here.

In addition to this original inscription, the Town Council of Kirkintilloch added the following:

On 10 April 1959 the Town Council of the Burgh of Kirkintilloch publicly noted the importance of the inventions of Alexander Bain who died at Broomhill Home, Kirkintilloch, particularly the electric magnet clock, and resolved that this inscription be placed hereon and that this tombstone be maintained in perpetuity at public expense. He thought above himself and also helped to secure a great and better world.

It was one of the first of many memorials to the Watten-born inventor. At Stafford Place in Wick, where Bain started his apprenticeship with John Sellar, a plaque was also erected. In the village of Watten, Bain Place is named in his honour and just outside the village hall stands a granite memorial which was erected in 1943. It reads:

Erected in 1943 by public subscription in honour of the distinguished Caithnessman, Alexander Bain, inventor of the electric clock and the electric printing-telegraph. Born at Leanmore, parish of Watten, 1810. Died at Kirkintilloch, 1877. He thought above himself and so helped to raise a new world industry.





*Alexander Bain memorial, Watten*

Quite an achievement for a man who daydreamed at school.

In Thurso, at the Enterprise Park, Manpower PLC's building is called 'Alexander Bain House' and the Wetherspoon's pub in Wick is called the 'Alexander Bain'. Glasgow and Edinburgh also have paid homage to him: BT's main building at York Street is called 'Alexander Bain House' while in Edinburgh, a plaque was unveiled at 21 Hanover Street, which was his workshop in the capital in 1941.

During his lifetime Bain also published two books. These were *A Short History of the Electric Clocks with Explanations of their Principles and Mechanism and Instruction for Their Management and Regulation* in 1852, followed almost 20 years later by *A Treatise on Numerous Applications of Electrical Science to the Useful Arts*. He could never have imagined how his work would impact the world, and in his home county he is still revered, especially in Watten.