

WILLIAM SIEMENS - ENGINEER & HIS INVENTIVE FAMILY

by Peter Lamb

William Siemens has always fascinated me, mainly due to the firm Siemens frequently cropping up in so many aspects of electrical engineering. I might have guessed that in exploring William's life, I would be involved in exploring the whole family, which turned out to be massive.

William Siemens as he was known in England was christened Carl Wilhelm Siemens, being born in 1823 near Hanover in Germany. He was the fourth son of 14 children. The eldest was Werner, (7 years older than William), who enlisted in the Prussian Army, where he developed his first inventions on Electrolysis and a telegraph system to replace Morse Code. Werner was the mentor of the family, particularly after the parents died in 1839.

William was despatched to University where his elder sister Mathilde was married to a tutor. During this time, he was a keen learner particularly English, being enthusiastic to go to England.

At the age of 20, he was considered adequately qualified and headed for London, where he went to Patent Office to patent Werner's unique method of Electrolysis. Then off to Birmingham to see a Mr Elkington, a well-known silversmith, who bought the patent rights for £1,600.00, which was quite a sum in those days. He went back to Germany briefly but returned to London within a year, setting up home with brothers Otto and Frederick joining him.

At this stage it should pointed out that William had served briefly in a factory as a mechanical engineer. The two brothers set about building a gas engine, but then turned their attention to a steam engine using superheated steam in a

factory in Bolton, then later in the Midlands at Smethwick. He was awarded a gold medal for his regenerative condenser by the Society of Arts in 1850. That same year he set up an office in London for his brother Werner's German business, Siemens & Halske of Berlin, manufacturers of dynamos and motors. Werner had originally set the company up as a Telegraph company, but had been joined by Mr Halske with wider interests.

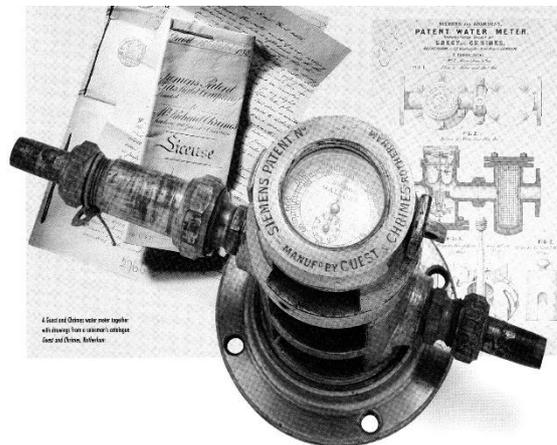


Fig.01 William Siemens Patent Water Meter

William designed a water meter which was shown at the 1851 Great Exhibition (Crystal Palace) and Siemens & Halske displayed Telegraph accessories. William later patented the "Fluid Meter" in 1852 and this was licenced to a manufacturer, Guest & Chimes earning William £1,000 per annum. He went on to invent Gas Meters. Lord Kelvin praised

the invention, saying that British Patent law helped William in his inventiveness “finding a home amongst us”!



Fig.02 Siemens Family, Anne & William with brothers Walter, Carl, Werner & Otto

In 1859 William married Anne Gordon sister of Lewis Gordon, a professor of Engineering at Glasgow University, whom he had met at meetings of the Institution of Civil Engineers, Gordon had a German wife a cousin of William. At the time of his marriage, he became a British citizen; he liked to say that he was “confirming allegiance to two ladies, Miss Gordon and the Queen”. Following his marriage, he set up home in Kensington with brother Carl and his wife joining him next door. Probably brothers Otto and Frederick had returned to Germany at this time.

In 1861 William experimented with a new idea of regenerative steel furnace, taking out a patent. He rented a factory in the Midlands. A French engineer P-M Martin used his method improving it, so much that they agreed to combine their interests, which became known as the Siemens-Martin Process. Many ironworks took up the process with Clyde Shipbuilders having the initial monopoly, but eventually a major steel works was established in South Wales.

The Landore. Silver Works in Swansea was converted by William into a steel works. It supplied steel to build ships and for railways and bridges, the most famous being the Firth of Forth Bridge. This led to William being a very rich man and South Wales having a major steel industry later.

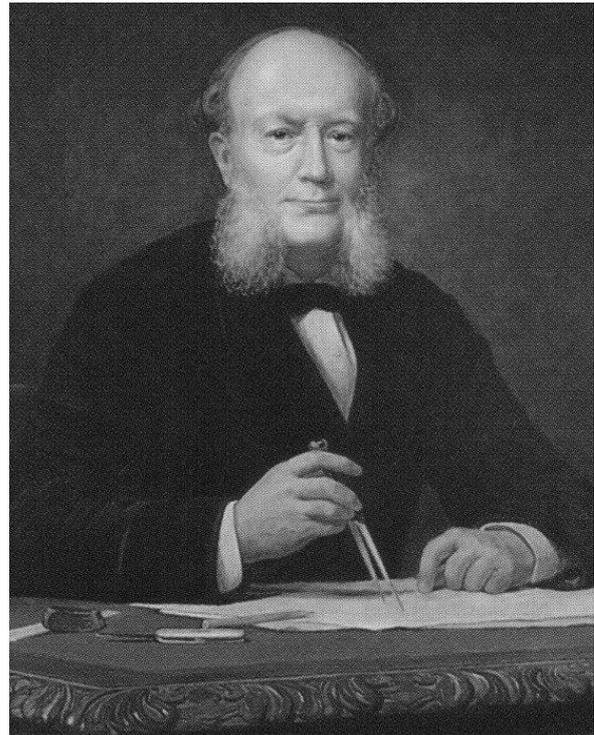


Fig.03 William Siemens

In the early 1860's, telegraph cables were beginning to be demanded in order to connect up the British Empire. Werner's Telegraph Factory in Berlin was only manufacturing telegraph accessories and so it was deemed necessary to build a cable factory in London. Halske objected saying that it was a very dodgy business. William persisted and Carl came over to England to assist. A site at Woolwich was purchased in 1863 and by 1865 it was up and running with 50 employees. Cables could be shipped out by water.

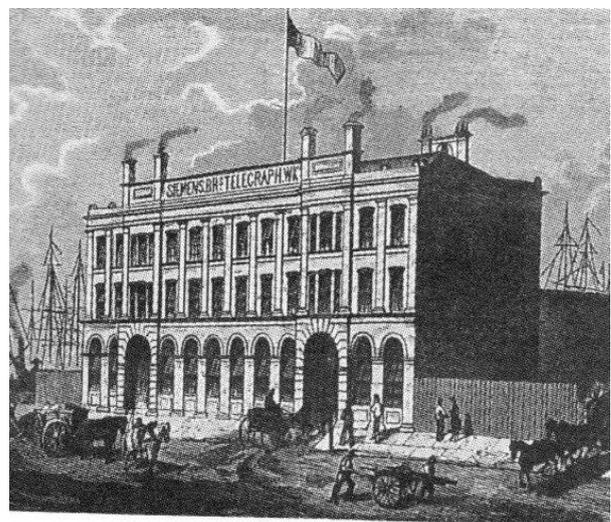


Fig.04 New Factory at Woolwich

The competition was considerable with four other British companies operating, the Telegraph Construction and Maintenance Co., India Rubber Co., Gutta Percha & Telegraph Co., and WT Henlys Telegraph Co. The high standard required by the manufacturers was intense as break-downs would easily highlight the faults. Siemens first foray was to lay a telegraph cable from Rio de Janeiro to Montevideo, thus enabling them to establish a reputation. Next they manufactured the telegraph cable to India, which was laid and operating by 1870.

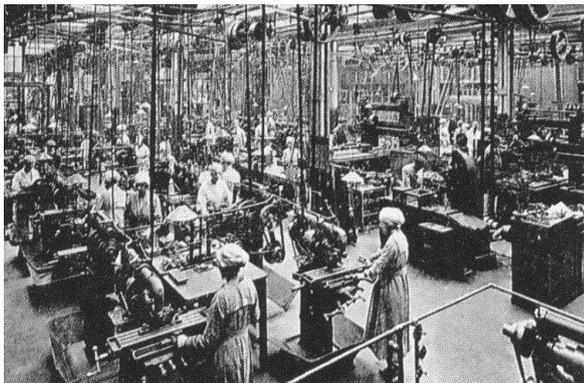


Fig.05 Inside the Factory

The Woolwich factory became a colossus by 1920's manufacturing not only telegraph and electricity cables but also telegraph, telephone and signalling accessories and batteries.

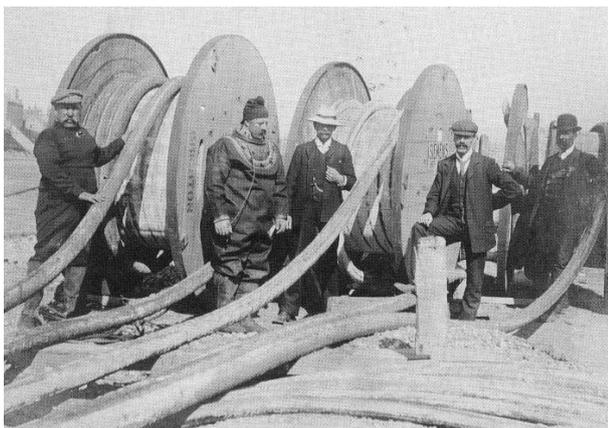


Fig.06 Cable Drums at Woolwich

The first transatlantic cable was laid to America in 1866, which used SS Great Eastern as a cable laying ship, but William decided this was not wholly suitable for the purpose. He therefore set about designing Siemens own cable laying ship, which he called "The Faraday". It was completed by 1874 and

completed a transatlantic cable laying a year later.

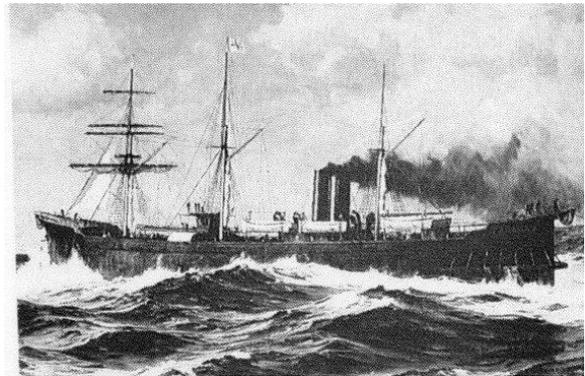


Fig.07 "The Faraday" Cable Laying Ship

It was not too difficult for telegraph cable manufacturers to redesign their machines with added insulation to produce electric cables and the Woolwich factory was at forefront. Bristol Corporation Electricity Department (BCED) bought their cables from Siemens in 1893 with the cables being laid by a Siemens Cable Gang. The leading ganger, John Duggan, chose to stay becoming the BCED's first Mains Foreman. Bristol also bought Siemens alternators.

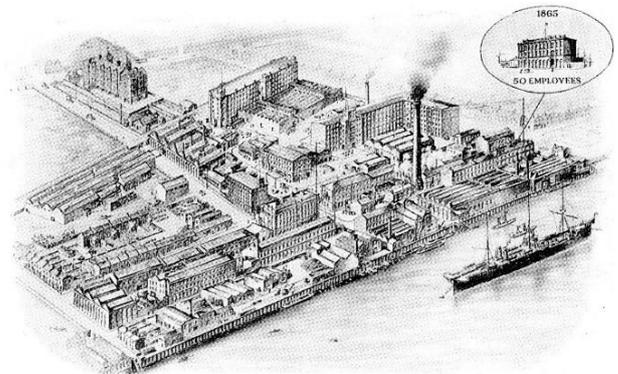


Fig.08 The Woolwich Factory by the 1920's

In 1866 Werner patented a dynamo and alternator in Germany. William was pretty keen to get involved in the lighting business, since Edison at that time had lit the Savoy Theatre upon its opening with 1200 of his bulbs, prior to the Ediswan Factory being set up at Ponders End, in the Lea Valley, London.

William didn't want to be left out of the lighting business and in 1879 installed a complete lighting system in the British Museum Reading Room using arc lamps and two steam driven alternators. A couple of years

later he set about installing a Siemens alternator at Godalming, near Guildford driven by a watermill in 1881. It was pretty crude system being belt driven and using arc lamps for the street lighting. It became the first public electricity supply to be established in the UK, although it was not continuous.

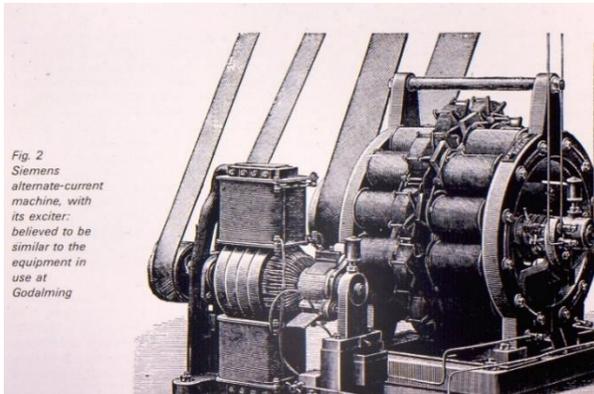


Fig. 2
Siemens
alternate-current
machine, with
its exciter,
believed to be
similar to the
equipment in
use at
Godalming

Fig.09 Godalming Siemens Alternator 1881

The marriage of William and Anne didn't produce any off-springs and I guess he wouldn't have had much time for family since he was a very busy man. In 1867 a distant cousin, Alexander Siemens, arrived from Germany at the age of 20 and was adopted by William and became a British citizen. When William died in 1883, Alexander took over the Woolwich factory. Most Siemens factories were nationalised at the out-break of the WWI, but I can't find mention of the Woolwich factory becoming part of the later English Electric, which took over many of the Siemens factories.

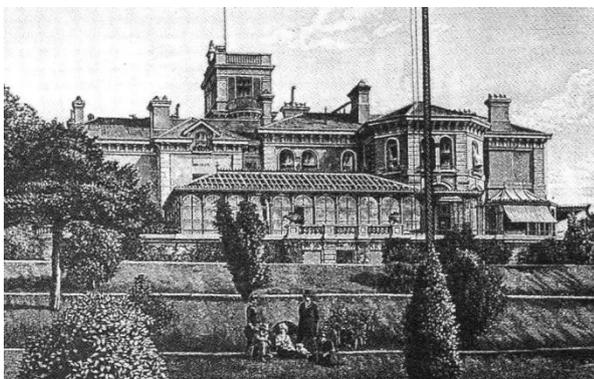


Fig.10 Sherwood House, Tunbridge Wells, William Siemens last home

In 1874 William and his wife moved to Sherwood House at Tunbridge Wells, where he installed a complete electrical system. In an

outhouse, he installed a steam engine and dynamo. A water pump was installed to provide fresh water from a nearby stream.

He attended numerous meetings, since he belonged to at least six societies or institutes and gave lectures and presented papers to them all!! The first Society he joined was the Royal Society of Arts in 1849, who presented him with a medal of which he was immensely proud for his regenerative condenser.

He attended Michael Faraday's later lectures at the Royal Institution and the British Association for the Advancement of Science. One of the earliest Society's he joined was the Institution of Civil Engineers and the Institution of Mechanical Engineers. He was a member of the Council of Civil Engineers in 1871 and remained so until his death. He was President of the Iron and Steel Institute and not surprising lastly joined the Institution of Telegraph Engineers in 1872, which later converted to the title Institution of Electrical Engineers, with William becoming its first President.

A tranche of letters was unearthed by English Electric in 1953, which showed the amazing breadth of correspondence received from famous people of the period Michael Faraday, Sir William Armstrong, Sir Joseph Lockyer, Lord Kelvin, Alexander Graham Bell and Charles Darwin. All people who recognised his inventive genius!

William Siemens was knighted in 1883 only a few months before his death. On the continent Werner was similarly ennobled by King Frederick III, awarded the honour of Von Siemens in perpetuity. Carl, who had later been dispatched to St Petersburg to set up factories there, was also honoured by the Tsar. What an amazing inventive family? The present German business still has descendants of both Werner and Carl on the Board.

Bibliography : *Material all extracted from WPEHS Library "Sir William Siemens – a Man of Vision". All photographs from our Archive.*