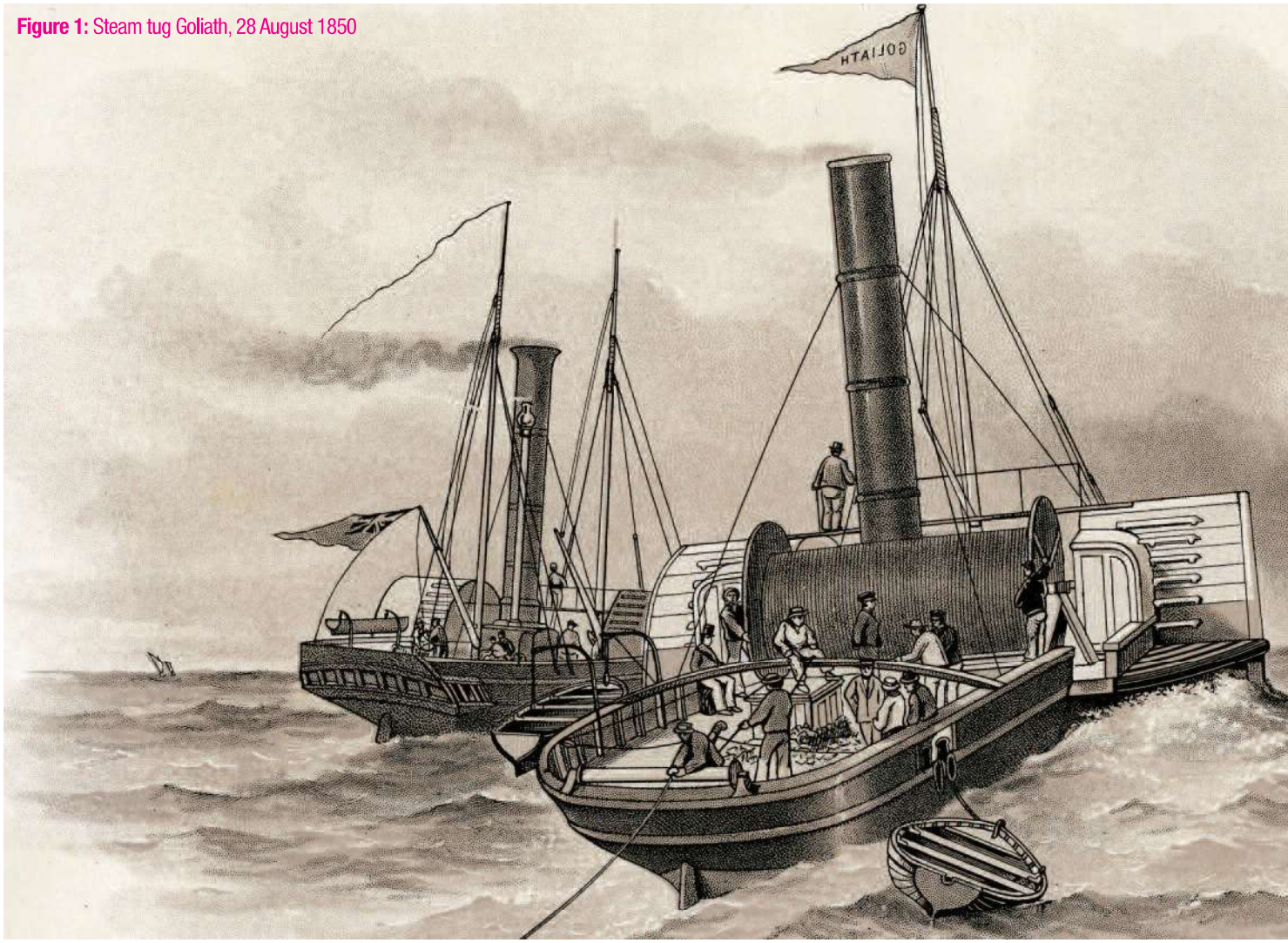

Figure 1: Steam tug Goliath, 28 August 1850

THE MAN WHO PUT A GIRDLE AROUND THE EARTH

At the beginning of the Victorian era, the introduction of two technologies altered the fabric of society and increased the pace of life beyond all recognition – the railway and the electric telegraph. Author Stewart Ash pays tribute to John Pender, pioneer of the global communications network based on submarine telegraph cables.

The first company in the world to use steam locomotives was the Stockton and Darlington railway, which opened on 27 September 1825, hauling coal. Passenger transport began with the opening of the Liverpool to Manchester railway in 1830 and, over the next two decades, a nationwide network grew up that brought with it changes in the distribution of raw materials, produce and products. It was also responsible for the birth of commuting, the growth of leisure activities, tourism for the masses and, by 1847, the need for a national time zone. The second was the electric telegraph. William Fothergill Cooke (1806-79) and Charles Wheatstone (1802-75) introduced their telegraph system in 1838 and it went into full commercial service under the Electric Telegraph Co in 1845. The expansion of the terrestrial telegraph system and the rail network went hand-in-hand, as many of the telegraph lines ran alongside the railway tracks. It was the sensation of the age and it is said that it caused Charles Dickens to comment that 'the world changed for ever once information could travel faster than a man on a horse'. The ability to correspond over long distances

STEWART ASH

A tribute to John Pender

in relatively short periods of time changed the way business and governments operated. On 28 August 1850, John Watkins Brett (1805-63) and his brother Jacob (1808-93) laid the first experimental submarine telegraph cable between Dover and Calais from the steam tug Goliath (Figure 1).

Although it did not work for long, this event is universally accepted as the start of the submarine cable industry, an industry that the UK would dominate for the next 100 years. British companies would create a global network of submarine cables to increase international trade and, at the same time, expand the colonies that then made up the British Empire. Dubbed 'The Victorian Internet', it was built largely on commercial investment, with very little or no government support. This network of telegraph cables was the forerunner of a global network of fibre optic submarine cables that now carry terabits of data under the oceans and support the internet. If there was one man who could be said to have had the vision to see the benefits to trade and diplomacy of building a global communications network based on submarine telegraph cables, to have the courage to risk his entire fortune in pursuit of his dream, and the tenacity to see it through to fruition, despite many set-backs and personal tragedies, that man was Sir John Pender GCMG (1816-96).

Early years and career

John Pender was born in the village of Bonhill in West Dunbartonshire, Scotland in 1816 and was the middle of seven surviving children of James Pender (1783-1860) and Marion née Mason (1780-1855). Marion was the daughter of a cattle dealer, but James's lineage is more obscure; he was probably the natural child of a cloth bleacher. James seems to have been well educated and came to Bonhill to find work in the bleaching and calico printing industry that became established there in the first quarter of the 19th century. He appears to have worked at the Bonhill Print Works, owned by Gilbert Lang & Co, but in 1824 Lang sold the business and around this time the Pender family moved to the Gorbals, then an area of up-market residences to the south-west of Glasgow. Clearly James had prospered in Bonhill enabling him to establish his own calico printing works in Glasgow with business premises in Broad Street.

John started his formal education at the village school in Bonhill, then attended the High School of Glasgow, where he not only demonstrated an aptitude for figures but he distinguished himself in drawing classes and was awarded a gold medal for an original design. He left school at the age of fourteen and started an apprenticeship as a pattern designer, one of the highest-paid artisan trades in the textile industry at that time. It has never been established precisely where John served his apprenticeship, but there is strong circumstantial evidence to suggest that it was at the Croftengea factory in Bonhill.

Little is known about John's apprenticeship years, but they appear to have been split into two distinct phases. Up until 1835 he concentrated on developing his pattern making skills and is said to have visited Paris on several occasions where he studied the production of cottons and cambrics. However, John Orr Ewing (1809-78) and his partner Robert Alexander (1820-76) acquired Croftengea in 1835 and, from then on, he was groomed for a role in management. In 1837, aged twenty-one, he took control of Croftengea.

On 24 November 1840, John married Marion Cairns (b. 1819), the daughter of a Glasgow merchant tailor and they were soon blessed with a son, James (1841-1921). Tragically there were complications with the birth and Marion died on 16 December 1841, her twenty-second birthday. Marion's death followed shortly after the news reached the family that John's elder brother, James (1808-41), had died in Port au Prince when there on business.

This double tragedy affected John profoundly. He had become the heir to his father's business, and with a young son to support, he threw himself into his work, selling the company's products to Manchester, the centre of the growing export trade to China and India. In the process, he made Alexander and Orr Ewing very rich men. When in 1843 Orr Ewing decided to sell-up and retire, John left Croftengea and in January 1844 he moved south to establish his own business in Manchester.

John Pender & Co Commission Agents initially had modest offices where he acted as an export agent, selling calico print and Turkey Red cloths to India and China. He

also traded the base material, called 'grey cloth', between the manufacturers, bleachers and printers, earning commission on each transaction. At that time, this middleman role was an unusual and niche market, in which Pender made a lot of money very quickly and within two years he was able to move to larger offices at 29 Dale Street, in the business centre of Manchester. This building was replaced by the current Grade II listed building (Figure 2), early in the 20th Century. By 1850, he had become a respected figure in the Manchester Cotton Exchange and was able to take a lease on the Bredbury Hall estate, near Stockport.

The growth of export sales of textiles to India and China had made John Pender (Figure 3) a very wealthy but lonely man. He had been a widower for a decade but, early in 1851, he met Emma Denison (1816-90) (Figure 3), the eldest daughter of Henry Denison (1783-1856) a Liverpool lawyer and Anne née Goulding (1797-1877) and they were married on 12 June 1851. Emma came from the landed gentry and was an heiress to a considerable fortune, most of which was tied up in Chancery. As far as the social hierarchy of the Victorians was concerned, Emma's status was far above that of John. He was a 'self-made man', new money and dismissed by Emma's mother as 'Trade'. Nevertheless, it was a long and successful union, from which there were four children; Henry (1852-81), Anne (1853-1892), John (1855-1929) and Marion (1856-1955). In earlu1856, Pender gave up the lease on Bredbury Hall and purchased the Crumpsall House estate to the north of Manchester.

Engagement in submarine cable telegraphy

John Pender's introduction to submarine cable telegraphy came in 1852, when the Liverpool-based Magnetic Telegraph Co restructured as the English & Irish Magnetic Telegraph Co in order to raise new capital to fund a cable across the Irish Sea. Up to this time, John's entire fortune had been invested in his textile business. However, since their marriage, Emma, who was very astute when it came to money matters, had encouraged him to diversify his investment portfolio and

Figure 2: 29 Dale Street, Manchester

Figure 3: Emma Pender née Denison and John Pender

she recommended this company to him as a good opportunity. John was not as convinced but, trusting his wife's judgement, made a large stock purchase and was invited to join the board. As was his practice, he looked deeply into the company's affairs and followed closely the installation of the Irish Sea cable. This was when he first encountered the company's young chief engineer, Charles Tilston Bright (1832-88). It was the success of this project and the implementation of the telegraph service between London and Dublin that triggered Pender's life-long commitment to submarine cables. In 1857, John Pender was instrumental in the merger of the English & Irish Magnetic Telegraph Co with the British Telegraph Co to form the British & Irish Magnetic Telegraph Co. He became this new company's chairman, a position he held until the company was nationalised in 1870. This company would provide the vital link between London and the west coast of Ireland for the Atlantic Telegraph.

In 1854, when John Watkins Brett, Charles Tilston Bright and Cyrus West Field (1819-92) (Figure 4) came to Manchester to raise capital for the Atlantic Telegraph Co, John Pender was one of the first to invest £1,000 and he encouraged other Manchester men to invest, helping greatly in raising the required £350K. For this he was invited to join the board of directors although he did not take an active role in the 1857 and 1858 Atlantic cable attempts. After the failure of the 1858 cable he resigned his directorship to concentrate on his textiles business, the Lancashire cotton famine and his wife's declining health. However, after John Watkins Brett's death, Field turned to Pender to take the lead with the British investors and invited him to re-join the board where he remained until its merger with the Anglo-American Telegraph Co in 1873.

It was Richard Atwood Glass (1820-73) (Figure 5), the managing director of Glass, Elliot & Co, who conceived the idea that a successful Atlantic Telegraph would need



Figure 4: Left to right: John Watkins Brett, Charles Tilston Bright and Cyrus West Field



Figure 5: Left to right: Richard Atwood Glass, Daniel Gooch and James Anderson

one company responsible for all aspects of the project, but he did not have the wherewithal to make this happen. It was Pender who took on the task, merging the Gutta Percha Co with Glass, Elliot & Co to form the Telegraph Construction & Maintenance Co (Telcon). To convince the directors of these two companies, he put up a personal guarantee of £250K. He became Telcon's first Chairman, until he stood down and was replaced by Daniel Gooch (1815-89) (Figure 5) in 1868.

John Pender and Thomas Brassey (1805-70) assisted Gooch with the purchase of the SS Great Eastern, the setting up of the Great Eastern Steamship Co in 1864, and the conversion of the ship for cable work. Pender was a company director until the ship was decommissioned in 1878. It was also Pender who personally approached Cunard and secured the services of James Anderson (Figure 5) (1824-93) as master of the Great Eastern.

In 1865, when the Great Eastern failed to complete the cable lay between Ireland and Newfoundland, and the Atlantic Telegraph Co was unable to raise new capital for another attempt, it was Pender and Gooch who raised the £650K to launch the Anglo-American Telegraph Co and complete the project. Each of them invested £10K and became directors, along with Richard Attwood Glass, who became the company's first chairman. When Glass retired due to ill health in March 1867, John Pender replaced him as chairman, a position he held until his death.

Recognition and honours

To recognise the 1866 success of the Atlantic Telegraph, Queen Victoria bestowed honours on six of the leading directors. Daniel Gooch, Chairman of the Great Eastern Steamship Co and Chief Engineer/ Director of Telcon, and Curtis Miranda Lampson, Deputy Chairman of the Atlantic Telegraph Co and board member of the Anglo-American Telegraph Co, were made baronets. Knighthoods were conferred on James Anderson, Captain of the SS Great Eastern, Professor William Thomson, Chief Scientist of the Atlantic Telegraph Co, Richard Atwood Glass, Chairman of Anglo-American and Managing Director of Telcon, and Samuel Canning, Chief Engineer of Telcon. Cyrus Field was given an honourable mention but, as an American citizen, he could not receive a British decoration. John Pender, the man who had contributed more than any other individual, was not recognised in any way.

To understand why John Pender was overlooked, we need to consider the early part of his political career. During the Lancashire cotton famine, John Pender was one of a group of Manchester merchants that lobbied the government for increased cotton production in India, to compensate for the loss of supplies from the United States as a result of the American Civil War. To bolster their cause, Pender stood for and was elected as Liberal MP for Totnes in an 1862 by-election. He stood again at the 1865 general election, retaining his seat. However, as with other boroughs, the losing Conservative candidates complained about corrupt practices; eventually the Liberal government gave in and agreed to look into the allegations. The select committee that investigated Totnes was chaired by Liberal MP Edward Pleydell Bouverie, a man who had crossed swords with Pender in business on several occasions and had come off the worst in each encounter. Bouverie accepted evidence from a convicted perjurer that Pender had attempted to bribe him for his vote and then denied Pender the right to give evidence and defend himself. On 1 May 1866, Bouverie took the unprecedented step, under the protection of Parliamentary Privilege, of naming Pender in his report to the House. His speech was reported by The Times the following day. Pender was proclaimed guilty of bribery and his election declared void. Although, he was cleared of the bribery charge by a Royal Commission in January 1867, the damage had already been done. When the Queen's Honours list was published on 15 November 1866, the public record showed that Pender was guilty of bribery. Bouverie had had his revenge and it would be over twenty years before John Pender's contribution to the growth and prosperity of the Empire was recognised by the establishment.

A global network of submarine telegraph cables

In 1868, Benjamin Disraeli introduced his Telegraph Act, which nationalised all the terrestrial telegraph companies and put them under the control of the General Post Office. John Pender stood down as chairman of the British & Irish Magnetic Telegraph Co and sold his shares before they could be compulsorily purchased. He also stepped down from the chairmanship of Telcon although he retained his large stake in the company. He then set about realising his vision of a global network of submarine telegraph cables operated by a single company. Pender's approach was to form separate limited companies for each section

of the route to mitigate the financial exposure, then, once the cables were operational, merge these companies into larger entities. Over the next 25 years, Pender used this business model to build his global network. In each case, the supply contract was given to Telcon, except where there were strategic reasons not to do so. In most of these cases, Telcon was given the main contract and it subcontracted the work to another supplier.

Pender's first cable ran from Porthcurno in Cornwall via Portugal, Gibraltar, Malta, Egypt and Yemen to India. It entered service in June 1870, an event celebrated by a soiree held at John Pender's London home, 18 Arlington Street (Figure 6). The guest of honour was Albert Edward Prince of Wales.

By 1872, the network was extended to China and Australia, with a link to New Zealand added in 1876. Cables to Brazil, Uruguay and Argentina were completed by 1878. The following year the network was extended down the east coast of Africa from Yemen to Durban, with a land line extending to Cape Town. Cables down the west coast of Africa were laid in 1885 and were connected to Cape Town in early 1889. Finally, submarine cables connecting Peru and Chile, that had been laid in 1875, were connected to the Eastern network by a land line system across Chile and Argentina, allowing telegraph service between London and Lima by 1893.

Pender's retirement

In 1894, John Pender handed over the day-to-day control of his business empire to his son John and went into semi-retirement. In recognition of his great achievements the company held an extravagant banquet in Sir John Pender's honour on 16 November. After many speeches and toasts Pender was presented with two lavish gifts, an illuminated scroll, signed by the 20 members of the organising committee, in a silver casket and a massive 42kg solid silver trophy (Figure 7) with an embossed portrait of Sir John Pender (GCMG), above which was a globe displaying the four main continents, around which Puck and his

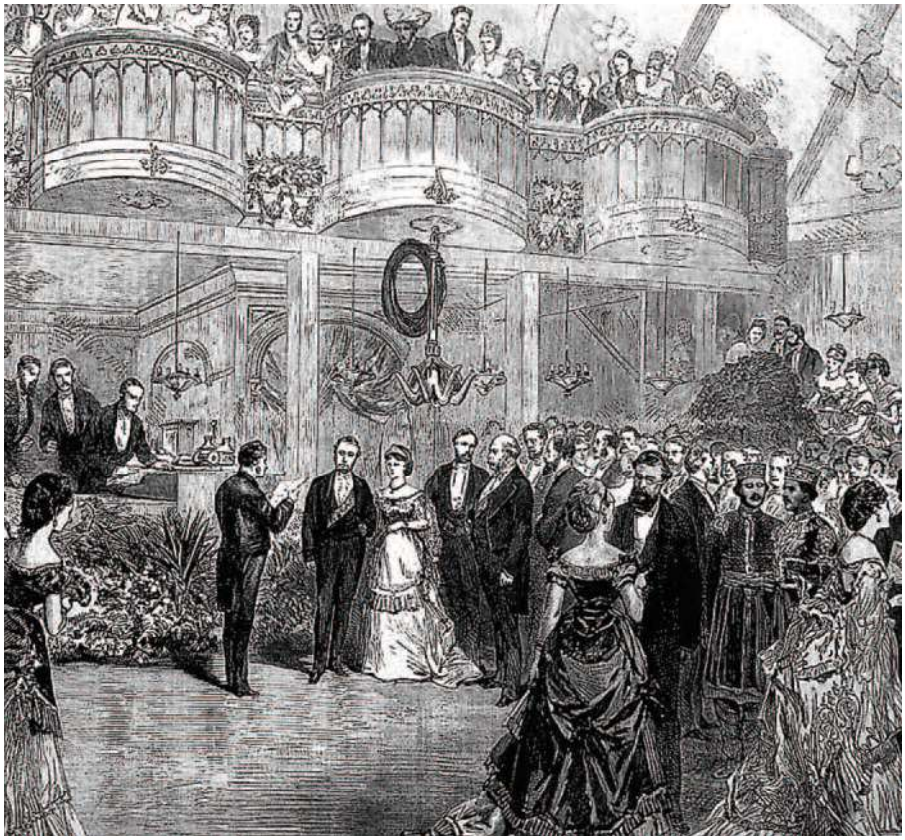

Figure 6: Soiree at 18 Arlington Street

Figure 7: John Pender's silver trophy

Figure 8: Bust of Sir John Pender

sprites carried telegraph lines depicting the quotation from Shakespeare's *A Midsummer Night's Dream*: 'I'll put a Girdle Round the Earth in Forty Minutes'

John Pender died at his county home, Foots Cray Place in Kent, on 7 July 1896 and is buried in the family tomb in the graveyard of All Saints Church. On top of the tomb is a 5m high Celtic cross, which is the only public memorial to this great man.

After his death, a Memorial Committee was formed with the lofty ambition of creating a national monument to Pender. The funds raised were used to set up a trust that endowed a new electrical engineering laboratory at University College London. This was called the Pender laboratory and the chair of the electrical engineering department was also renamed the 'Pender Chair'. The first person to be appointed to the Pender Chair was Sir John Ambrose Fleming (1849-1945). The Pender Laboratory was officially opened by his son, John Denison-Pender in 1902. The remainder of the fund was used to

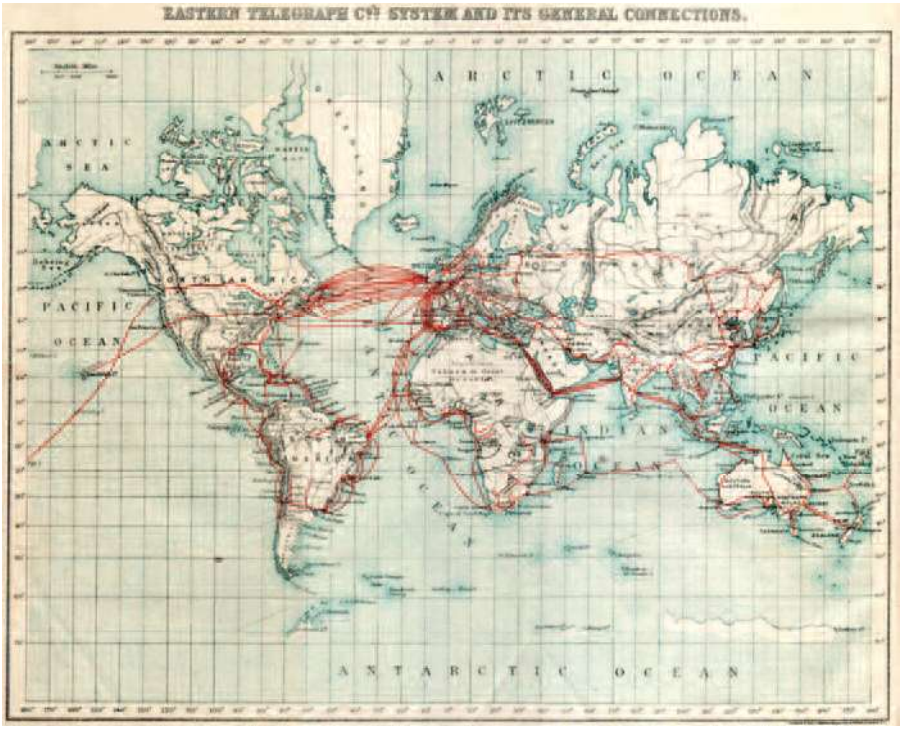

Figure 9: Eastern Telegraph cable map 1901

commission a marble bust (Figure 8). It was put on permanent display at UCL when the Pender Laboratory was officially opened. It remained there for over 100 years but is now in the possession of the Denison-Pender family and is no longer on public display.

Legacy

Shortly after his death, the companies that Pender founded, Telcon and the Eastern & Associated Telegraph Companies, completed the encircling of the globe with cables when Telcon laid the first telegraph cables across the Pacific in 1901 (Figure 9).

These companies continue to provide global telecommunications, through submarine cables to this day. Eastern Telegraph became Cable & Wireless and was only broken up in the first decade of this century. The company now known as Alcatel Submarine Networks (ASN), owned by Nokia, continues to manufacture submarine cable systems on part of the original Telcon site on the Greenwich Peninsula. Today we take for granted that we have almost instant access to a wealth of information, but none of this would have been possible without the vision, courage and tenacity of a Scotsman who was born over two hundred years ago and in his own lifetime was dubbed 'The Cable King'. However, very few people have ever heard of him or understand the debt the world owes him for the legacy he left us.

ABOUT THE AUTHOR

Stewart Ash spent his entire career in the submarine cable industry. He joined STC Submarine Systems in 1970 working on the development of coaxial transmission equipment and submarine repeater design before transferring to installing submarine cable systems around the world. In 1985 he established a new division to install fibre optic submarine systems. In 1993 he joined Cable & Wireless Marine as an account director for, among others, the parent company, C&W. When Cable & Wireless Marine became Global Marine Systems Ltd in 1999, he became General Manager of the engineering division. He left Global Marine in 2005 to become an independent consultant advising clients on all aspects of system procurement, operations, maintenance and repair. Stewart's engagement in the history of submarine cables began in 2000, when he project-managed a celebration of the 150th anniversary of the submarine cable industry. He has contributed to and authored a number of books related to the history of the submarine cable industry including the biography of Sir John Pender GCMG The Cable King, published by Amazon in April 2018.

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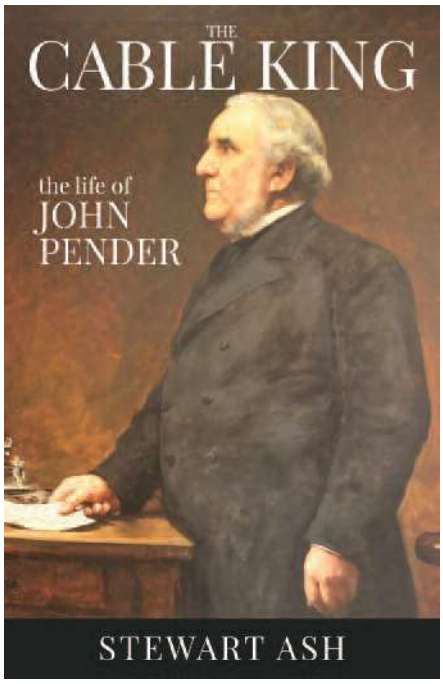

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