

SIR FRANCIS RONALDS



Sir Francis Ronalds was a well-known nineteenth-century scientist who came to live at Battle; he died there and is buried in the cemetery. He was the brother in law of Samuel Carter, who built Telham Court, (*see Houses and families*) and like him a Unitarian.

Ronalds's family was based in Brentford, Middlesex, with its first known male moving there from Moidart in Invernessshire by 1754 and living as a nurseryman. He was the grandfather of Sir Francis, who was born on 21 February 1788. The records show Francis's father as a London merchant, which is a term needing much elaboration to determine his social position. Another report states that he was a cheesemonger. Francis was born in Middlesex on 21 February 1788.

It is probably not now well-known just how revolutionary the electric telegraph was. It allowed people to communicate almost instantly across any distance and in all weathers, in codes easily translatable into written languages. Before then the only such method was by semaphore signalling, a laborious, line-of-sight system relying on each signaller being able clearly to see the next one in line; this was the process by which urgent messages were sent between London and Portsmouth, for example, during the Napoleonic wars. It was, however, preferable to the earlier use of simple beacons, which would indicate only that there was some form of emergency. The heliograph, which made use of sunlight signals from mirrors, appeared only in the 1820s. The telegraph was the marvel of the age. In 1845, for example, a suspected murderer caught the train at Slough but was noticed; by the time that he arrived at Paddington the police were waiting for him.

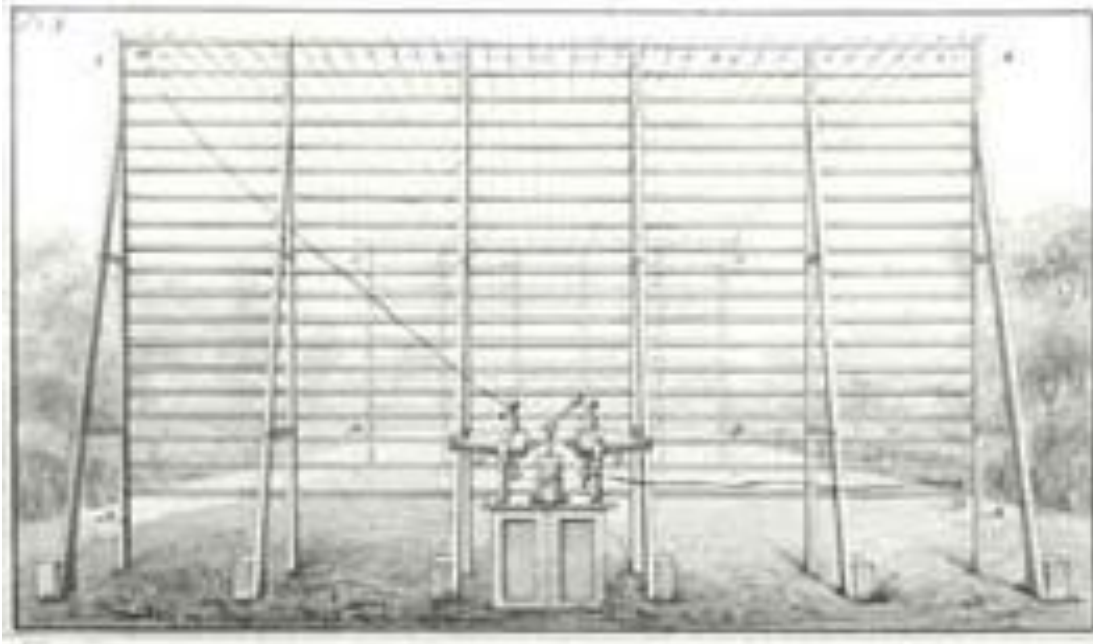
By the early nineteenth century electricity was beginning to be understood. The existence of positive and negative charges was known – the basis of all subsequent developments – and there were copper/zinc batteries. But its practical use was barely exploited. Faraday did not produce an electric motor until 1821; circuitry was not understood until rather later.

Ronalds was therefore a very early exponent. He created his telegraph in 1816, when he was 28. It was crude but it worked.

He built in his back garden at Upper Mall, Hammersmith, two frames to accommodate eight miles of wire for his new invention of an electrostatic telegraph based on synchronously revolving discs. For the past three or four years, encouraged by the octogenarian Swiss meteorologist, Jean Andre De Luc, Ronalds had been enthusiastically experimenting with electrostatic clockwork devices.

After sending messages along his wires on the frame, he developed another version in which the wires were enclosed in glass tubes buried in the ground. At each end of the line a clockwork mechanism turned synchronously revolving discs with letters on them. A frictional electricity machine kept the wire continuously charged, while at each end two pith balls hung from the wire on silk threads, and since they were similarly charged from the wire they stayed apart.

When someone desired to send a message he earthed the wire at his end at the moment when the dial indicated the desired letter. At the receiving end the pith balls would fall together when earthed and the recipient noted the letter showing on his dial at that moment. The system was slow and depended on the two dials staying in step, but Ronalds demonstrated that it would work over 150 metres of wire.



[In his day his house was Kelmscott House. It is now 26 Upper Mall and carries a blue plaque to his memory.]

Being convinced of the potential usefulness of his telegraph, he asked the Admiralty for support. It was the wrong moment. The Napoleonic wars had just ended, and it is likely that the Admiralty could see no way in which a wire-based model could communicate with ships though it might replace the semaphore system on land. There were some who thought that, with the war ended, *telegraphs of any kind are now wholly unnecessary*. (One is put in mind of those senior army officers who a century later associated tanks with the peculiar conditions of trench warfare and believed that the future, like the past, belonged to the horse.) Given the primitive state of electrical knowledge at that point, including ignorance of power generation, his invention would have had very limited uses.



Another man is reported to have seen the device in action, however, and was inspired by it. He was the young Charles Wheatstone, who developed the first generally workable and affordable model twenty years after Ronalds's first demonstration.

There is no doubt that this was the first electric telegraph, though barely workable by later standards. It predated work by Ampère, Gauss and others by a considerable margin.

Portrait of Sir Francis Ronalds about 1870, by Hugh Carter his nephew

Ronalds's interests were much wider than telegraphy. He produced an electric clock and a device (used into the twentieth century) to record air temperature and geomagnetic forces, as well as several other useful devices: the hinged tripod stand for theodolites (and now cameras), a device for identifying the location of a fire and a combined propeller and rudder for boats, among other things.

He collected a large library of books and pamphlets on scientific and technological subjects, which he later presented to the Institution of Electrical Engineers. He was a notable student of meteorology, and in 1843 became the first honorary director and superintendent of the Kew Observatory. He was elected FRS in 1844.

Ronalds retired in 1852, with a pension of £75 per annum, and it was only after much effort by his supporters that in 1870 he was knighted for his telegraphy work. By then he was in Battle, to which he had come to be close to his sister Maria at Telham Court. Ronalds never married, and in his last years was cared for by his niece Julia Christiana. She achieved a small fame of her own by being one of the 499 people who signed the 1866 petition to Parliament in favour of the women's franchise. She died at Bedford on 5 January 1921, having seen the partial achievement of the petition after 54 years, leaving under £3000. Francis too had left under £3000, and had therefore not been a man of great wealth.

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See also Telham Court and its families

Sources

<http://www.theiet.org/resources/library/archives/featured/francis-ronalds.cfm>

<http://www.sirfrancisronalds.co.uk/ancestry.co.uk>