

CASE STUDY

CRAGSIDE, UK



Cragside was one of the first private houses in the world to have electric supply produced by hydropower. At the heart of this engineering development was a Gilbert Gilkes & Gordon turbine that was installed in 1856.

The famous Cragside House is situated on the rugged hillside above Rothbury in Northumberland. Back in the 1880's the house had hot and cold running water, central heating, fire alarms, telephones, a Turkish bath suite and a passenger lift, but most remarkable of all was the fact it was the first house in the world to be lit by Hydroelectricity.

The house belonged to the 1st Lord Sir William Armstrong and was used as a weekend retreat, it was one of the most modern and surprising houses of its time in the county and was described as, 'the place of a "Modern Magician"'. It is now owned by the National Trust. The Victorian building was designed by R. Norman Shaw for the 1st Lord Armstrong. It had a system of man-made lakes and underground piping that was developed by Armstrong to heat and power the house. The power circuit, a 1 mile walk along side Debden Burn, includes the Ram and Power houses in which hydraulic and hydroelectric machinery is displayed.



The turbine used was manufactured by Gilkes who used the design of an inward flow Vortex turbine. This turbine needed to be replaced when it fell into need of repair. The original vortex type of turbine is no longer manufactured therefore Gilbert Gilkes and Gordon Ltd replaced the original turbine with a new Pelton model.

The turbine was originally manufactured under the name of the Williamson Bros, who were the original founders of Gilkes in 1853, it was one of the last turbines ever manufactured under the name of the Williamson Bros as the company was then bought by Gilbert Gilkes in 1881. He changed the name to Gilbert Gilkes & Co which then later became Gilbert Gilkes and Gordon Ltd when the company bought James Gordon & Co leaving us with the well know name of today.

Sir William Armstrong was a legend in innovation not only for the design and imagination put into the house at Cragside but also for the massive restoration task undertaken at Bamburgh Castle where he later moved to and is still in the ownership of the Armstrong family today.

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