

Water and Electricity for Coombe (Combe) Abbey

Four Features in the East Park and an Electric Power House



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John Brace . October 2018.

Overview

By the late 19th century most country houses would have piped water and either gas or electric lighting. Very often these services came from private sources. Very little is known about facilities at Coombe Abbey or of their date of introduction however there are four features in the East Park which are likely to have been constituent parts of a private water supply for the house whilst this investigation has given a new insight into the introduction of electric lighting

The earliest feature in the East Park is a Substantial Reservoir on Wood Hill above East Lodge. Apparently built to supply water to the house this seems to have been built some time between 1823 and 1849¹. Now apparently abandoned it remains unclear where the water came from but that it is so large and has been placed so far distant from the house suggests that some small, seasonal, water source was exploited.

The second item is a Very Derelict Pressed Steel Sectional Tank about 100m west of the reservoir. The detailing of this tank identifies the manufacturer as being Braithwaite who have been manufacturing such pressed steel sectional tanks since the earliest years of the 20th century. Unfortunately, for dating purposes, I can not say if the very early Braithwaite Tanks had the same distinctive appearance as their more modern counterparts.

The third structure is the substantial concrete foundation for a Wind Pump some 200m east of the house first shown by the O.S. in 1905 and subsequently annotated as abandoned in 1925. This would have been a Multivane Wind Pump of which there were a great many by the end of the 19th Century. The superstructure was anchored to the base by stub Rolled Steel Joists (RSJ's) cast into the base. RSJ's were not introduced until the 1880's and so this Wind Pump is of much later date than the reservoir. Where the water went to is unclear – it may have been to the reservoir, directly to the house, or to have had some other use.

The final structure in the East Park is a Pump (or Engine) House close by the Wind Pump. This is also first known of from the 1905 O.S. map. Internally the 3-phase electric drive is clearly not original and the motor can certainly not pre date 1912 and is most unlikely to have been manufactured after 1924. As to the original prime mover this seems most likely to have also been electric but of this no evidence remains. Again it is unclear where the water went – it's certainly possible that it pumped directly to the Reservoir or to the Braithwaite Tank on Wood Hill although, again, other options can not be excluded. In its final incarnation it seems to have been used to fill bowzers.

In the 19th century the house had gas lighting with the gas produced in its own works which stood on the edge of the park some 200m south of Hill Fields Farm. By 1923 the gas works was redundant with the house being lit by electricity¹. At that time there was a small Electric Power Station on, or somewhere about, the original gas works site but it unclear whether this was still in use or redundant. The electric power was almost certainly taken to the Pump House. Thus if the Pump House pre-dates 1905 then so does the Power

House!

The fourth Lord Craven died in 1921 and the house contents and estate were auctioned off in 1922 and 1923 respectively. It is the auction catalogues² that give some clues to the services about the estate. A reservoir and pipework are mentioned as are electric lighting fittings and a Power House.

A credible sequence of events is:-

- That a Reservoir was built on Wood Hill some time before 1849 to supply the house with piped water.
- That to improve the supply a Wind Pump was installed towards the end of the 19th century with that water taken up to the Reservoir.
- That both an Electric Power House and an Electric Pump House were built some time before 1905.
- That when Mains Electricity came to the house not only was the Electric Pump House converted to mains power but a Braithwaite Tank erected, on Wood Hill, to replace the Reservoir.
- Finally the Electric Pump House was, some time after the arrival of mains water, modified to enable water bowsers to be filled.

The Reservoir (MWA 6859, SP415 795)

A large open reservoir was built on the hillside above East Lodge some time between 1823 and 1849¹. I have not been able to reach this reservoir but some basic details can be determined from a mixture of OS Mapping , Aerial and Satellite Photography. It is an earth bunded tank with a rectangular pool about 73m X 21m. The depth is unknown but it clearly held a great quantity of water. The water seems to have been collected from about the hill top – perhaps through an array of subsurface drainage pipes.

Originally built to supply water to the house it seems excessively large for that single purpose until it is realised that it probably provided seasonal storage for any water about the hill top was likely to run dry over the summer.

When the reservoir fell out of use is unknown but it might well have been superseded by the Braithwaite Tank, described below, in the early 20th century.

The Braithwaite Tank (MWA 31005, SP414 795).

About 100m west of the Reservoir can be seen the remains of a Pressed Steel Sectional Tank which, by its design, is clearly by Braithwaite. It is at ground level, one panel high, five panels on the long side and four on the shorter i.e. 20ft. X 16ft. X 4ft. high (about 6.1m X 4.9m X 1.2m high). The tank was roofed with corrugated steel and the floor is concrete although neither of these features can be confirmed to be original. The inlet is screwed steel pipework terminating in a conventional ball valve. However both the ball and the lever arm were missing when seen in 2018. This could just be the depredations of time but a ball valve would be incompatible with the type of positive displacement pump seen in the pump house.



Braithwaite manufactured such tanks from the first years of the 20th century until modern times although now GRP has replaced steel as the preferred panelling. Unfortunately although modern Pressed Steel Braithwaite Tanks have a very distinctive appearance I can not say whether the earliest tanks were so easily identifiable.

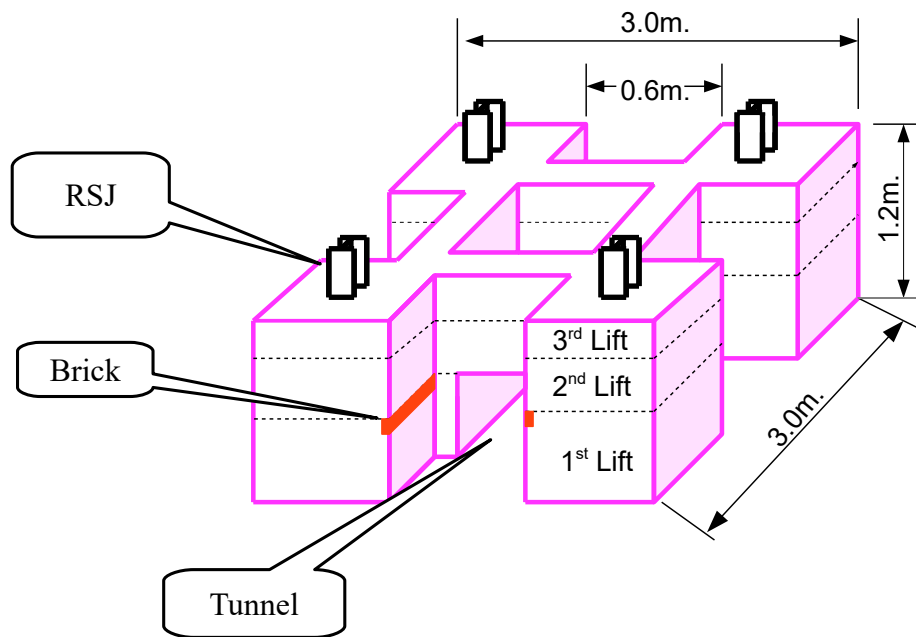
As a curiosity so far as I can see this tank has never been shown by the Ordnance Survey.

The Wind Pump. (MWA31006, SP407 802).

The O.S. First identified a Wind Pump some 200m east of the house in 1905. The substantial concrete base of this remains in situ and is illustrated in the following sketch. It consists of a hollow concrete block some 1.2m. high and 3m. square with rebates in all four sides as shown. In the hollow of the block can be seen some galvanised steel pipework and four short Rolled Steel Joists (RSJ's) protrude from the top with clear evidence remaining that they supported wooden legs. The block is of a true hard concrete and has clearly been cast in three layers – without other evidence I assume that there was only a single phase of construction. *Note this base is strikingly similar to that of some modern multivane wind pumps.*

Although this feature does not appear on the first large scale O.S. Mapping (1887) everything is consistent with a late 19th century date – whilst hard concrete would have been very uncommon 1850 it was well established by the 1880's. RSJ's were first manufactured in the 1880's whilst there were a great number of Multivane Wind Pumps about by the late 19th century.

An Imperfect, and Much Simplified, Sketch
of
That Part of the Wind Pump Foundation Block
to be seen
Above Ground
In the Eastern Part of Coombe Abbey Park about GR SP 40668020
with a Photograph of Same



John Brace July 2018

The Electric Pump House (MWA31007, SP407 802).

The Pump House is close by the remains of the Wind Pump and is also first seen on the 1905 mapping. It is a brick building with a pitched roof. It has a single entrance, windows at both ends and has two roof lights although these are not of the same size. At one end is a workbench and an oil tank. Most likely the oil tank held lubricating oil. Internally it is 9.1m. X 3.6m. X 2.8m. to the underside of the roof trusses. The detailing of the brickwork is of the highest quality. The floor is tiled, the walls were painted and there is a well in the floor.



The machinery consists of a belt driven 'Tangye' single cylinder and double acting pump driven by a three phase motor by 'Higgs Motors of Witton' through a lay shaft and flat belting. The drive is clearly not original although the pump fits its base so well that it must be. The lay shaft has Wooden Pulleys and thus sits uncomfortably amongst the other machinery whilst a clutch is provided to slip the pump from the drive.



Water is drawn from a well in the floor and delivered, at head height, through a side wall – a most curious arrangement for there seems no where for the water to go to. There is no evidence of a tank, either surface or elevated, on the ground or on any mapping that I have seen. Another option is that the water was used to fill a bowser - an option supported by the farm continuing to take water from a nearby hollow. If so this is very unlikely to have been the original purpose of the Hump House and may, or may not be contemporary with the installation of the Higgs Motor. There are also unexplained bits of pipework around and my guess is that one of these went underground to either the Reservoir or to the Tank.



The motor starter is by 'GEC'. There is no evidence of there ever having been electric lighting or small power.

The original machinery bases are of brick and edged with Bull Nosed Engineering Bricks. The later bases are of well finished concrete.

Can any of this be dated? Tangye have been supplying hydraulic machinery from the mid nineteenth century until modern times whilst Higg's manufactured electric motors at Witton from 1912 until 1924 when they moved a short distance to Parry Bar. As for the switchgear GEC have been in business since 1889.

Thus, and assuming that the Higgs motor was the first replacement of the original drive, the earliest date for this installation is 1912 whilst the latest, assuming only that Higgs did not retain the Witton address after 1924 and that the motor was new when installed, would be 1925.

An unexplained feature is small concrete base close by the door.

The Electric Power House (MWA6725, SP400 804).

The sale catalogue of 1923² describes a small Power House somewhere about what has more recently been known as 'Gas Works Cottages'. The entry reads:-

Gardeners Cottage and Chauffeur's Cottage

THE ENGINE and ELECTRIC POWER HOUSE contains "Crossley's" duplicate Plant for suction gas, with 55 – HP Engines, petrol starters, charging and discharging switchboards, with amp and volt meters, accumulators, 57 cells, E.P.S. Battery, O.K. type, for the supply of electric light to the Abbey and Premises. Petrol Store Pit.

This was a 110V (or perhaps 120V) Direct Current (DC) Power Station with an installed capacity of about 60kW. Normally it would run only during the day when the Lead Acid Batteries, used to maintain the supply overnight, were recharged. The Crossley Engines ran on Suction Gas (sometimes call Producer Gas or Water Gas) which which came from the gasification of Anthracite, or more likely Gas Works Coke, in a compact plant which would have been within the engine room i.e. coke in electricity out.

This was undoubtedly the power source for the Pumping Station and thus must date from at least 1905. When the Powerhouse became redundant is unclear. The evidence from the motor in the Pump House suggests not later than the mid 1920's but it was clearly all there in 1923. However the sale catalogue allows for the plant to be excluded from the sale of the house and grounds! Perhaps an indication that mains electricity had already arrived and that the Power Station was redundant.

References.

1. A History of Coombe Abbey by Robin Moore.
2. Sale Catalogue of the Coombe Abbey Estate. e.g. WRO ref. EAC308.

Finally. Thanks to Mike Skinner who first drew my attention to the pump house.

Location Plan

