

Our Emsworth Gas Holder

You either love it or hate it but you certainly cannot ignore it when it is 'up'. But it must never be called a Gasometer, as only cricket commentators are allowed this technological inexactitude. The gasholder was invented by Lavoisier in 1782; it was simply a metal bell inverted in a tank of water. It was thought dangerous to store gas because of the fear of explosion and in the early 1800s the surplus was just discharged into the air!

In 1813 it was recommended by the Royal Society that gasholders should be limited to 6,000 cubic feet capacity and should be surrounded by walls. The idea was soon abandoned when it was realised that every brick in a wall would become a missile in the event of an explosion. In the 1820s large canvas bags were tried as a means for storing gas but this was not a success due to the ease with which they caught fire.

The first telescopic holder in this country was erected in Leeds in 1826; a water seal was used to make the joint gas tight. It was an enormous cylindrical tank which floated in a large cistern of water and rose and fell according to the amount of gas it contained. This type was supported by columns which guided the holder as it rose. A very fine example being the one that used to be at Rudmore, Portsmouth, which had splendid cast iron columns and was a beautiful example of Victorian engineering.

The spiral holder was invented in 1888. This worked by each section rising and being supported on a form of screw thread fixed to the tank. It became the generally accepted design. In 1916 the Germans invented a gas holder which did not require a water tank. These appeared in Britain in 1925. They consisted of an outer shell containing a large "piston", sealed by "flowing tar", which rose and fell with the gas content. This action however cannot be seen as the structure itself remains the same size. There is an example of this type at Bognor Regis.

The very latest type of gas holder can be seen at Chichester beside the by-pass. It was formed of long sausage shaped metal cylinders lying horizontally on the ground. It is understood that this type has not been very successful.

Town gas consisted of a mixture of several gases. mainly hydrogen and methane, and was produced by heating coal in closed vessels, out of contact with the air, and collecting the gas and the liquors produced. Natural gas replaced town gas in 1970 but the old holders are still retained for storage.

When a survey was taken in Emsworth in the early 1980s a majority considered the gasholder to be an eyesore but far fewer people thought that it should be removed. Have a closer look at it some time. It is a fine piece of engineering; and next year it will be 78 years since it was first commissioned. It represents one of the few historic industrial artefacts relics remaining in Emsworth recalling when Emsworth had its own gas works and made its own gas from coal.

Because of the continued development in the Emsworth and Havant areas, and the necessity of obtaining the constant pressure of gas in the growing district, the Gas Company directors had for

some time contemplated the erection of a gas holder at Emsworth. Specifications were, accordingly, prepared and tenders invited early in 1933. The successful contractors were Messrs' Robert Dempster and Sons Limited of Yelland, Yorkshire, a very old and established firm with considerable experience in this particular type of work.

The new gas holder was to be built on the site of the disused gas works. It was of modern design, being what is known as the "spiral guided" type and for the present requirements was fitted with two lifts, provision having been made for a third to be added when the necessity arose. A series of trial holes were made to determine the nature of the subsoil which proved entirely unsuitable for the slab foundation required. It became necessary to pile the site using the "Vibro" system of piles cast in situ. A 16 inch diameter steel tube was driven to the ground by a 21 ton steam piling hammer until the required resistance was found. A cage of reinforcement was then lowered into the tube and the latter filled with concrete. The tube was then withdrawn in short jerks and this has the effect of ramming down the concrete and completely filling the hole made by the tube. It also gives a corrugated effect to the side of the pile which adds to its bearing value. Altogether 396 piles were driven about 30 feet into the ground.

Having a diameter of about 150 feet, the circular slab of concrete on which the holder rests was seven inches thick at the centre, increasing to one foot eight inches at the edge. The importance of this foundation work was evident when it was realised that the total weight of the holder, including over 16,000 tons of water in the tank, was at least 17,000 tons. No framing was required to support this type of holder, the whole of the stresses being taken up by the guide rails and carriages. This effected a large saving in materials and labour, compared with the old "column guided" type. The work found employment for an average of 20 men daily, of which 14 were local.

Gas was to be supplied to the holder from the Hilsea Gas works at Portsmouth by a 15 inch diameter trunk main, a distance of about nine miles, to be delivered at a pressure of approximately 12 inch water gauge, to overcome the resistance of the holder. The pipes leading into and out of the holder were 20 inch diameter.

Adjacent to the holder was the Governor House, in which is housed the governor for controlling the pressure of the gas, ensuring a satisfactory and even supply to all customers in the district. An instrument panel was also provided in the same building, having pressure gauges and recorders connected various parts of the distribution system.

Our gasholder was manufactured by Messrs Robert Dempster at their factory in Yorkshire works and each plate was numbered to show its construction position. It was then dismantled and the plates transported by rail to Emsworth station where they were then carted to the site by Messrs Lashley of Westbourne.

The gasholder is an enormous cylindrical tank which floats in a large cistern of water (a steel tank above ground, 150 ft. diameter and 33 ft. deep, with two spirally guided lifts) and rises and falls according to the amount of gas it contains.

The gas holder was built on piles, which were sunk using a hydraulic pile-driver. The steel piles were then, filled with cement and the steel tube was withdrawn leaving the concrete pile in position.

The new gas holder at the Emsworth Gas Works was commissioned on 31st July 1934 by John Lewis, J.P., chairman of the Havant and Waterloo U.D.C. in the presence of a representative gathering which included Sir Harold and Lady Pink (Lord Mayor and Lady Mayoress of Portsmouth), Mr. T.H.F. Laphorn, J.P. (Chairman of the Portsmouth Gas Company), several directors and officials of the company and a number of local councillors, business and professional residents and their wives.

Councillor Lewis said he had a special desire to participate in this ceremony as he was present at the closing down of the old Emsworth Gasworks in 1927, when the Portsmouth Gas Company took over Emsworth Gas Works, and so had very great pleasure in turning the valve and in wishing the undertaking every success. He mentioned that since then there had been an increase of over 130 per cent in the consumption of gas in the district, and this meant that the mains at Hilsea had been taxed to their utmost capacity, so that a new gas-holder at Emsworth became a necessity. The party then inspected the works and the gas-holder, several of the visitors mounting the stairways and viewing the new erection from aloft.

Afterwards the party adjourned to the Church Hall where a palatable tea was served. Later Mr. Laphorn rose and said that Councillor Lewis had told them how sad he felt when he closed the old Emsworth gas works six or seven years ago, so the Portsmouth Gas Company thought the least they could do was to return thanks to him for his kindness in opening the new works that afternoon, and to ask him to accept a silver salver, suitably inscribed, as a memento of the occasion. A third spiral lift was added in 1946 to the gas holder increasing its capacity to 1,525,000 cu. ft.

1993: At about 10pm on Thursday 13 May 1993 a Group 4 security van doing a routine check in Palmers Road discovered two suspicious looking packages close to the gasholder. Police were called and 50 households, about 160 people, were evacuated and the area sealed off by the police. People were accommodated in the St James Church Hall and the Cottage Hospital. Bomb disposal experts examined the parcels and found them to be hoax objects. It was not until after 4.30am in the morning that the residents were allowed to return to their homes. One of those evacuated was my Great-Aunt, Mrs Marjery Parsons.

Jane and Tony Yoward

NB Eight construction photographs accompany this text but are not printed here.