

Institute of Physics – London & South East Branch – Retired Members Section

London Museum of Water and Steam (Kew): The Technical Tour on Thursday 25th September 2014

This visit has been organised by John Belling.

Description

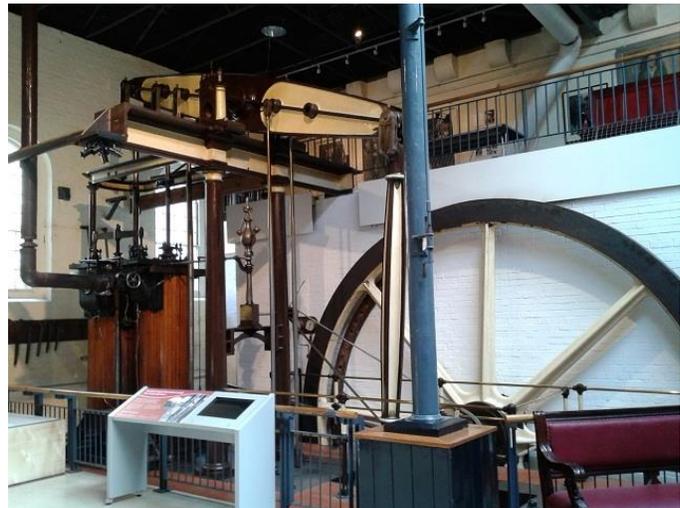


The London Museum of Water and Steam reopened after a major £2.3million re-development in March 2014. Situated on the site of the old Kew Bridge Pumping Station near Kew Bridge, the Museum is centred around a collection of stationary water pumping steam engines dating from 1820 to 1910. It is the home of the world's largest collection of working Cornish engines, including the Grand Junction 90 inch (1846), the largest working beam engine in the world. The site is an anchor point on the European Route of Industrial Heritage (ERIH).

The pumping station was built to draw water from the Thames for West London's water supply, and began operation in 1838. It was expanded over the years as the demand for water grew, and was only superseded by new facilities in 1944, although two engines were kept on standby until 1958.



Vertical triple expansion engine, Hathorn Davey, Leeds



Compound beam engine, Easton & Amos. Southwark

There are five non-rotative Cornish cycle engines still in their working positions, with cylinder diameters 64, 65, 70, 90 and 100 inches. There are also four large rotative water pumps brought in from other sites.

In the morning, after coffee and a brief introduction to the museum, we will tour some of the engines in the museum, of which two rotative engines will be demonstrated in steam. These will be 1910 vertical triple expansion engine built by Hathorn Davey & Co. of Leeds (picture above left) and the 1863 compound beam engine built by Easton & Amos of Southwark (above right).

After lunch, John Porter, an acknowledged expert on steam engines, who has been closely associated with the museum for many years, will tell us about the design of the Cornish engines and how these have evolved from the earlier Newcomen and Watt designs.



John will then demonstrate for us the 1820 Boulton & Watt single acting beam engine (pictured left), converted to the more efficient Cornish method in 1847/8. This engine started life in the GJWW site at Chelsea, and on its closure in 1840, was moved to its present location in Kew, where it continued working for over 100 years, until 1943. The cylinder diameter is 64 inches, the beam weighs 15 tons, and water output is 130 gallons per stroke. A Lancashire boiler built in 1927 provides steam at 40psi

It is the oldest pumping engine at Kew.

The term "Cornish" refers to the operating cycle of these engines. Some were made in Cornwall and many were used to pump out the constant ingress of water that affected Cornish mines. The main characteristic of a Cornish engine is that pumping is done by a falling weight which is lifted by the engine. This weight is positioned above the pump, which is linked to a beam, with the piston attached to the opposite end of this beam. The weight is lifted by a combination of steam pressure above, and vacuum below, the piston.

We finish up with coffee with some of the staff, and will have opportunities for further discussions. We finish with free time in the museum until closing time.

The museum's website is <http://www.kbsm.org/> where you can read about the history of the museum and the engines.

Where and when to meet

Meet in the *Stokers Café* just inside the main entrance to the Museum for refreshments from 10:30. The tour starts at 11:00.

Getting there:

The museum is just a few minutes' walk from Kew Bridge Station. Turn right out of the station and walk 100 metres along Kew Bridge Road, turn right at Green Dragon Lane. The entrance to the museum is 50 metres on the left. At the time of writing, there are four 'fast' trains per hour from Waterloo (28 minutes to Kew Bridge), calling at Clapham Junction (18 minutes to Kew Bridge).

There is a car park which can hold 50 cars. As the museum does not open until 11:00 (note – the café opens at 10:00), the car park should be relatively empty if you arrive around 10:30.

Lunch

The museum will provide a buffet lunch for us, which will comprise a selection of sandwiches (tuna mayo, cajun chicken, ham & mustard and cheese & pickle), quiche (roasted veg or salmon & dill), steak pasties, home-made sausage rolls (the apple and boar is very tasty), cakes (red velvet, coffee & walnut or cake of the day), and tea/coffee. The cost will be around £10, payable on the day. This is optional, and if you intend to take the buffet lunch, please answer YES to the relevant question on the booking form. 'Steam beer' is available at cost.

If there is insufficient demand for a buffet lunch, then members will need to purchase items individually.

Timetable

10:30	Assemble for tea/coffee in the café
11:00	Introductory talk: history of the site, major exhibits
11:15	Tour of exhibits and demonstration of two rotative engines in steam, pictures above
12:30	Lunch
13:30	Technical talk by John Porter with time for questions: cumulative improvements in steam engine design since Newcomen, with focus on the Cornish design
14:30	Demonstration of the Boulton & Watt 64 inch Cornish engine, which will be in steam
15:00	Refreshments in the café, and opportunity for informal chat with staff, browse the shop, and free time in museum
16:00	End of visit (museum closes)

Size of party: min 20, max 25

Cost £25

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Late arrivals: John Belling, mobile 07986 379935, or Tony Colclough, mobile 07930 171307.

Map: showing route by foot (in green) from Kew Bridge Station

