

### MALCOLM VEITCH

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#### 1. The Grazebrook Beam Engine, Dartmouth Circus, B7

Usually, you find relics of industrial past in places like Ironbridge or the old Birmingham Science Museum, where they might be restored and brought back to life or they may adapted to run on electricity so you can at least see them working in some form or other.

At steam rallies, all kinds of working steam vehicles are proudly displayed and clusters of enthusiasts can be found showing off their pieces of machinery like they were venerated pets and discussing all the data they had accrued over the years.

Static steam engines, by their nature don't move, so are left out of these meetings. Whilst some were taken apart and shipped to USA, where they were displayed in private collections, others were restored in-situ or like this one, planted into the Dartmouth Circus around the time the A38 was converted into the A38M Aston Expressway as it travelled the 2 miles to the Gravelly Hill Interchange with the M6, in what we now call Spaghetti Junction.

Originally, where Dartmouth Circus is, was previously the place where Aston Road met with Dartmouth Street, Bracebridge Street and Allesley Street, and the White Hart public house nearby.

Looking at the SidebySide maps 1888 – 1913 (where you can see two views of an old map with an up to date 'Bing' view together), when you compare it with the current one, you see wholesale changes with the roads, housing, replaced by the motorway and much recent light industry in the Aston area. Notably Aston Hall, the 'Villa' and the L&NWR (Cross Country) still remain.

In the 60s and 70s the City Council wanted to ensure the city had good access to the M6 with link to London via the M1 and to the North. So, building the 2 mile A38M Expressway was the essential road to connect the city to the M6. It was to be the first motorway to use tidal flow, to control the flow of traffic into the city in the mornings and out of the City in the evenings. The route starts in a cutting and then becomes a large viaduct carrying it over the streets below, curving round the Ansell's brewery, before meeting the iconic and seriously multi-level and multi-junctional Spaghetti Junction.

As may have been expected the high cost to Aston was the loss of many houses which were demolished along the route to the A38M Expressway. So, was it an anachronism to plant a 1817 beam engine in the middle of a very modern 20th century Dartmouth Circus or did it remind people of the area's heritage installing a beam engine of 19th century iron making reflecting how such machines fired the great industrial revolution that fuelled the prosperity of the City?

Whilst it was intended for the beam engine to stand as a piece of industrial sculpture overlooking the A38 and the A38M it still is something of great interest and curiosity. The pity is very few people driving passed it daily know what it is. Those driving up the Expressway will be in a cutting, so it will be out of sight altogether.

## **2. What is this piece of machinery**

The beam engine is technically a steam blowing engine and possibly the oldest surviving example of its type in the world. It started its life in 1817, when it was commissioned by M. & W. Grazebrook, who started up in Stourbridge around 1640s, with a glassworks and later, a forge in Halesowen, colliery in Coseley and concentrated on iron production and fabrication in Netherton in 1800, where they had an old square blast furnace.

Soon after this was replaced by two blast furnaces, with a cold blast, to produce iron. In 1817 the firm purchased a Boulton and Watt blowing engine, whose foundry in the Soho district of Birmingham to provide air for two blast furnaces to blow air over the hot coals of a blast furnace to increase the heat. So, it continued for nearly 100 years, when it was retired but kept going and maintained as a standby until 1964 when it was dismantled.

By 1931 M. & W. Grazebrook was into engineering, welding and had foundry shops, during WWII helped develop block buster bombs. In 1961 the business was acquired by N. Hingley & Sons and was listed as a general heavy engineering company and iron producer.

What you see today is the re-erected parts of the original beam engine, with its rocking beam, two cylinders and their pistons and some pipework and some rods that could regulate the motion of the engine.

Today, many trees have grown up inside the area of the beam engine and you cannot see it as you approach it from the south. Coming from the M6 travelling towards the City, if you want to turn off the motorway, you would leave via the slip road and just at the roundabout ahead at Dartmouth Circus the Beam Engine would be straight ahead. Set behind blue painted crash barriers you would see end on a brick-built, arched structure, inside which is the green

painted 19th century iron making steam blowing engine. Basically, the machine is held by three parallel walls in dark engineering bricks 6 m high, with a steel frame sitting on top. The very long and heavy cast iron beam (8m long and 10 tonnes heavy) pivots from the central wall, with one end of the beam set at the top and the other at the bottom of its arc. Now fixed in time and place, it stands there as an historic sentinel and is believed to be the largest steam engine used in Birmingham.

### **3. The technical Stuff**

It was an early nineteenth century engine, it comprises a vertical double acting steam cylinder coupled via an 8 metres (26 ft) rocking beam to a double acting air cylinder. The steam cylinder is 42 inches (1,100 mm) in diameter and has a stroke of 8 feet (2.4 m). It was designed to run at between 12 and 16 strokes per minute. Steam was provided by a bank of six Lancashire boilers. A pressure regulator vessel was fitted to smooth out the air flow. It provided air at 5 pounds per square inch (34 kPa) to two blast furnaces. It is interesting to note, the engine house was specially built using lime mortar so that the structure could 'flex' with the movement of the engine.

### **4. Why I chose this beam engine as one of my landmarks**

For one thing, I love all steam engines, whether trains, other steam vehicles, or static engines. Ever since my wife and I started being interested in industrial archaeology, we have been interested in the ingenuity of the people building and working with early machinery of all kinds. Whilst from a political and social perspective, machines have caused a massive shift of the people living and working from hard crafted to mechanised methods of making things. Many people were dispossessed of their livelihoods and their homes. The Industrial Revolution brought with it much pollution and overcrowding, which the City Council spent half of last century trying to resolve. Additionally, as a city that had as one of its major trades, car making, in 21st century is trying to increase our use of public transport. But this beam engine may have to expect vehicles passing by it for at least the next half of this century.

The second reason I want this to be the Landmark that marked the point on our journey back from Scotland when we would be leaving behind the motorway network over the last few days and it would be welcoming us back home only half an hour away.