Joseph Bazalgette CB 28th Mar 1819 -15th Mar 1891

Sir Joseph William Bazalgette was an English civil engineer of the 19th century. As chief engineer of London's Metropolitan Board of Works his major achievement was the creation (in response to the "Great Stink" of 1858) of a sewer network for central London which was instrumental in relieving the city from cholera epidemics, while beginning the cleansing of the River Thames.
He was born in Enfield, London, the son of a retired captain of the Royal Navy and grandson of a French Protestant immigrant.
Bazalgette began his career working on railway projects, articled to engineer Sir John MacNeill and gaining sufficient experience (some in Ireland) in land drainage and reclamation works for him to set up his own London consulting practice in 1842. By the time he married, in 1845, Bazalgette was deeply involved in the expansion of the railway network, working so hard that he suffered a nervous breakdown two years later.

While he was recovering, London's short-lived Metropolitan Commission of Sewers ordered that all cesspits should be closed and that house drains should connect to sewers and empty into the Thames. As a direct result, a cholera epidemic (1848-49) killed 14,137 Londoners.

Bazalgette was appointed assistant surveyor to the Commission in 1849, taking over as Engineer in 1852. Soon after, another cholera epidemic struck, in 1853, killing 10,738. Medical opinion at the time held that cholera was caused by foul air: a so-called miasma. Physician John Snow had earlier advanced a different explanation, which is now known to be correct: cholera was spread by contaminated water. His view was not generally accepted at the time.

Championed by fellow engineer Brunel, Bazalgette was appointed chief engineer of the Commission's successor, the Metropolitan Board of Works, in 1856 (a post which he retained until the MBW was abolished and replaced by the London County Council in 1889).
In 1858, the year of the Great Stink, Parliament passed an enabling act, in spite of the colossal expense of the project, and Bazalgette's proposals to revolutionise London's sewerage system began to be implemented. The expectation was that enclosed sewers would eliminate the stink ('miasma'), and that this would then reduce the incidence of cholera.

At the time, the Thames was little more than an open sewer, devoid of any fish or other wildlife, and an obvious health hazard to Londoners. Bazalgette's solution was to construct 82 miles of underground brick main sewers to intercept sewage outflows, and 1,100 miles of street sewers, to intercept the

raw sewage which up until then flowed freely through the streets and thoroughfares of London. The outflows were diverted downstream where they were dumped, untreated, into the Thames. Extensive sewage treatment facilities were not built until decades later.

The scheme involved major pumping stations at Deptford (1864) and at Crossness (1865) on the Erith marshes, both on the south side of the Thames, and at Abbey Mills (in the River Lea valley, 1868) and on the Chelsea Embankment (close to Grosvenor Bridge; 1875), north of the river.

The Old Abbey Mills Pumping Station

The system was opened by Edward, Prince of Wales in 1865, although the whole project was not actually completed for another ten years.

Interior of the Octagon at Crossness Pumping Station showing its elaborate decorative ironwork.

Bazalgette's foresight is seen in the diameter of the sewers. When planning the network he took the densest population, gave every person the most generous allowance of sewage production and came up with a diameter of pipe needed. He then said 'Well, we're only going to do this once and there's always the unforeseen' and doubled the diameter to be used. His foresight allowed for the then unforeseen increase in population density with the introduction of the tower block; with the original, smaller pipe diameter the sewer could well have overflowed in the 1960s, rather than coping until the present day as it has.

The unintended consequence of the new sewer system was to eliminate cholera not only in places that no longer stank, but wherever water supplies ceased to be contaminated by sewage. The basic premise of this expensive

project, that miasma spread cholera infection, was wrong; however, instead of this causing the project to fail, the new sewers succeeded in virtually eliminating the disease by removing the contamination.

Bazalgette's capacity for hard work was remarkable; every connection to the sewerage system by the various Vestry Councils had to be checked and Bazalgette did this himself and the records contain thousands of linen tracings with handwritten comments in Indian ink on them

> "Approved JWB" "I do not like 6" used here and 9" should be used. JWB"

and so on. It is perhaps not surprising that his health suffered as a result.

Bazalgette lived in St John's Wood, later moving to Morden, then in 1873, with his wife, Maria, (née Kough, 1819-1902), six sons and four daughters, to Wimbledon, where he died in 1891.
He was buried in the nearby churchyard at St Mary's Church.

Bazalgette was knighted in 1875, and elected President of the Institution of Civil Engineers in 1883.

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75 Years ago

1938 Role of Machinery Praised
DETROIT, Mich. - William J. Cameron, of the Ford Motor Company, speaking over the Columbia Broadcasting System, explained how modern machinery creates employment by increasing the volume of production at costs which the consumers are able to pay. He cited as an example the exhibit which the Ford Company is preparing for the New York World's Fair of 1939, in which a man pounding out a hub cap with tools costing $24 will be contrasted with a machine costing $30,770 pressing out 2,160 hub caps in the same length of time.

1938 Runaway Train Speeds to Paris
PARIS - A runaway train of forty freight cars speeding toward Paris from the suburban town of Creil nearly provoked a serious accident yesterday morning. During shunting operations at Creil, the forty cars became detached from the remainder of the convoy, and began to go toward Paris on the main suburban line which is also the main track for the London boat-train. As the land slopes, the cars gathered speed as they went. A brakeman aboard the caboose was unable to make the brakes function. The alarm was passed along the line, and switchmen finally succeeded in switching the convoy on a siding. The cars ran into a bumper at the end of the track, some of them telescoping and most being damaged. *(Ed. note American English in NY Times)*