

## Engineering in Gateshead

The earliest instance of metal manufacture in Gateshead was 1528 when attempts were made to smelt Weardale lead and extract silver on the instruction of Thomas Wolsey, then Bishop of Durham. The experiment was a failure and the furnace far from efficient, molten metal leaked out 'at every side'. The next venture was more successful. In 1721, William Cotesworth, lord of the manor, leased an iron and brass foundry at Pipewellgate to Isaac Cookson. This business prospered and lasted until the early 1850s when the foundry closed and the premises were used to refine antimony.

The famous ironmaster, Sir Ambrose Crowley, established factories in old water mills at High and Low Teams in 1755 as extensions to his premises at Swalwell and Winlaton. Nails, locks, spades and general iron products were made there but the workforce was relatively small when compared with the more famous premises on the Derwent. The firm declined at the end of the eighteenth century but the Gateshead factories were in use until 1860. Low Team forge was afterwards used as a paper mill while High Team forge was incorporated in the farm buildings of the Teams estate.

The best known heavy engineering firm of old Gateshead was, of course, Hawks, Crawshay & Sons. The firm was started in 1748 by William Hawks; at New Greenwich, at the South Shore. Hawks had been a foreman blacksmith at Crowley's works and he named his first factory after Crowley's old premises at Greenwich on the Thames. William Hawks II took control of the firm in 1775 and expanded his premises and trade, foundries were bought and steam introduced. By 1801 the firm produced several kinds of ordnance, anchors, chains, bolts, spades and many other metal products. Government contracts were taken over from the declining firm of Crowley and the stage was set for a successful period of trade, helped by the Napoleonic wars and therefore a constant demand for weapons. The new premises were known as New Deptford and New Woolwich, built to the west of the older works. (Hawks' had warehouses on the Thames at these places.) By the end of the eighteenth century this by now prosperous concern had its own ships to transport its goods.

In 1839, Hawks' employed approximately 800 men and boys. Skilled tradesmen earned 22 shillings per week while labourers were paid 2 shillings per day. An investigation was made into the working conditions of children in the works in 1842; the following example illustrates the hard life these children led. One twelve-year-old boy had already worked at Hawks' factory for 3 years. His hours were 6.00 a.m. to 6.00 p.m. (summer; one and a half hours for meals), and 6.00 a.m. to 5.00 p.m. (winter; 45 minutes for meals). On Saturdays work ended at 4.00 p.m. This particular boy was paid 4/- per week for carrying iron to furnaces and his ambition was to be apprenticed as a chain-maker at a wage of 6/- per week. The only holidays were 2 days at Christmas and 2 half days at Easter and Whitsuntide. As at Crowley's, the employees of Hawks had certain benefits; schools for workers and

their children, houses provided by the firm and a code of rules with fines for swearing, betting and drinking. Despite the hard work, very low wages and long hours (all were typical of the period), 'Haaks' men' were apparently contented workers.

The firm began to design and build many different products ranging from paddle steamers to dredgers and from bridges to lighthouses. Everyone has heard of the High Level Bridge, built by Hawks' 1846-49; but they also constructed iron bridges as far afield as Constantinople and India. However impressive these achievements may sound they were the cause of the closure of the company, coupled with the incompetence of George Crawshay, a partner in the firm. Specialist manufacturers expanded and were more successful than a firm such as Hawks which tried to make everything; the Armstrong works at Elswick were divided into specialist departments while William Galloway, the nail manufacturer, became a force to be reckoned with in that branch of the iron trade.

Hawks, Crawshay and Sons (the firm had many changes of name and this was the last) closed suddenly in September 1889, but every creditor was paid in full and today this name remains a proud reminder of Gateshead's industrial past.

John Abbot & Co. was the only other Gateshead engineering firm to approach the size of Hawks and met a similar fate. From a small firm which had existed for some years, Abbot's grew in the 1820s and 1830s until in 1841, 640 men and boys were employed in factories to the east of Oakwellgate known as Park Works. The output diversified considerably until they produced everything from tin-tacks to railway engines, but the decline was as fast as the growth and the firm went into liquidation in 1909.

William Galloway was a nail manufacturer with premises at the end of Sunderland Road, established in the late 1850s. His firm only employed about 25 to 50 people by 1900, many of them women, but, nevertheless, it took business from the giants of Hawks and Abbot. One interesting aspect of this business is the fact that it held an agency for French and American steam cars. Galloway's moved to Blaydon in 1952 and was taken over by the industrial giant G.K.N. in 1965.

Today many do not realise that Gateshead was a railway town with workshops employing 3,300 men in 1909, but the first engine was seen in Gateshead more than one hundred years before this. John Winfield, who had a foundry in Pipewellgate, became an agent for Richard Trevethick's railway engine and by May 1805 a prototype was built in the town. It was never used outside; its only movements were on a short track within the foundry. Thomas Waters of Gateshead acquired the agency and built another engine in 1813. These were small-scale operations, but the next locomotive builder, Coulthard and Co. of Oakwellgate, was a bigger concern, actually building engines for use by railway companies during the years 1839~65. The premises were taken over by Black, Hawthorn and Co., an even bigger firm who manufactured engines

for ships and steam trams as well as railways. In 1889 there were about 1,000 employees but the business went into liquidation in 1896.

The cause of the decline of Coulthard's and Black, Hawthorn's was the steady expansion of the Greenesfield workshops by the North Eastern Railway Company, the greatest employer of labour in Gateshead in 1900, which built and repaired railway locomotives. Unfortunately, the site at Greenesfield was rather small and the N.E.R. decided to transfer the engine building part of the works to Darlington in 1909 and in 1932 the rest of the works were closed. Both these dates represented heavy blows to the economy of Gateshead, many were made redundant, less money was spent in the town and more had to be spent on unemployment relief. Railway workers moved to Darlington, causing a sharp drop in population. Greenesfield shops did re-open during the war but closed once again in 1959.

The only large engineering firm to survive the trade depressions of the 1880s and 1930s was Clarke, Chapman. This firm was started on the South Shore in the early 1860s by William Clarke; an engineer who had worked for Armstrong at Elswick. New premises were taken on St James Road in 1874. In the same year, Captain William Chapman, a new partner, joined the firm, followed three years later by C. A. Parsons. The manufacture of winches was the mainstay of the firm at first but Parsons experimented with turbines developing electricity and the firm also helped develop the carbon filament light bulb with J. W. Swan. Parsons left the firm in 1889. This now world famous firm concentrated on the production of marine auxiliary equipment until recent years when work on power stations led into nuclear engineering. Following a recent merger with John Thompson Ltd., the group is now one of the largest in the United Kingdom.



High Level and Tyne Bridge, c1865

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