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# Out of the blue : the Seacombe Smalt Works

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## THE SEACOMBE SMALT WORKS

*Andrew Radford and Ian Miller*

Smalt is not a commodity that attracts much demand in the modern world, but it was a crucial raw material to several 19th-century industries as an intense colouring agent. Smalt is an inorganic pigment that contains between 2-18% cobalt oxide and 66-72% silica, and was manufactured by mixing cobalt oxide with molten glass and then ground into a coarse pigment with a distinctive deep blue colour.

The finer details of the 19th-century smalt-manufacturing process is largely undocumented, however, and the current poor understanding of the industry is exacerbated by a paucity of archaeological investigations of smalt works. A unique opportunity to redress this knowledge gap arose with the redevelopment of disused land along the docks at Birkenhead as an initial phase of a major regeneration scheme known as Wirral Waters. This triggered an archaeological investigation of the site by Salford Archaeology within the University of Salford, which was focused on the footprint of several 19th-century industrial sites, including the former Seacombe Smalt Works (centred on NGR SJ 32045 90180).

The Seacombe Smalt Works was established on a small scale in c. 1808 although its early years of production were beset by financial difficulty and insurmountable technological challenges, until it was taken over in the 1820s by Messrs Mawdsley and Smith. Thereafter, it operated successfully until the death of one of the partners in 1860, which led to the closure of the works and its subsequently demolition. The only survey at a reasonable scale to capture the Seacombe Works is a tithe map of c. 1841, which provides a block plan but no indication of the uses of the component buildings.

Excavation revealed that the manufacturing processes had been focused within a single, irregular-shaped building in the centre of the works. Structures of particular note included four circular brick floors, that probably represented the bases of ovens in which the cobalt ore was roasted to drive off unwanted contaminants. This was then mixed with potassium carbonate, saltpetre and fine sand as a source of silica in the long wooden tanks that were exposed immediately to the south of the ovens. The resultant batch would then have been fused together via exposure to high temperatures in a furnace, the foundations of which were excavated at the eastern end of the building. The hot glass would then have been immersed in water, causing it to shatter into small pieces that were then ground to powder.

The southern part of the excavation area contained the foundations of workers' housing. At least 15 houses were identified, which corresponds with the 1841 and 1851 census returns.

These had been built by Messrs Mawdsley and Smith to create was essentially a 'factory colony'.