Standardized Footwear, Invalid Labour, and the Technology of Production
Marc Isambard Brunel and the Battersea Shoe Factory
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Marc Isambard Brunel
Famous as an engineering pioneer, Marc Isambard Brunel left France for America during the French Revolution after serving in the French Navy. During his time in New York, he became aware of the Royal Navy’s pulley block problem and travelled to England to propose a mechanised solution in 1799. Over the course of the French Wars, Brunel aided the British military through both this project and his shoe factory. The surrender of Napoleon at Waterloo collapsed the demand for mass-produced shoes, however, and Brunel was sentenced to debtor’s prison in Southwark in 1821, accompanied by his wife, Sophia Kingdom. During this time, Brunel entered into discussions with Alexander of Russia about moving to St. Petersburg, but the British government intervened at the behest of the Duke of Wellington, clearing his £5000 debt. Part of Brunel’s discussions with Alexander included constructing a tunnel under the River Neva, and in 1818 Brunel had patented a tunnelling shield. After he was released from debtor’s prison, he began the Thames Tunnel Company in 1824, to finish a tunnel begun in 1804 between Limehouse and Rotherhithe. The tunnel was completed in 1843 and opened for pedestrian traffic, until it was purchased by the East London Railway in 1865. Brunel died in 1849.

The Battersea Shoe Factory
After the success of the block-making factory at Portsmouth, Brunel moved on to another project at Battersea, understanding the importance of a continued effort to streamline military production. This time he would be concerned with contracted slops—various shoes and boots for the Army and Navy—instead of changing the manufacture of something which the Navy produced for themselves, as with the blocks. Taking on a process that was normally contracted, and was produced mainly through cottage industry during this period, was ambitious. Richard Beamish, Brunel’s partner and biographer, notes that Brunel “had witnessed at Portsmouth in 1805, the disembarkation of some remnants of that gallant band [from the Battle of Corunna]. He had learnt how greatly the want of shoes had contributed to the losses which the army had sustained, and his kindest, deepest sympathies were at once enlisted” (129). Furthermore, Brunel was to learn that contracted footwear, because of fragility and deception, had clay inserted between the soles to make them seem heavier and therefore more durable. Very little use was necessary to cause this design to fail. Brunel’s main goal for his Battersea shoe factory was to produce 400 shoes a day using the labour of 24 invalid soldiers. Nine sizes and five different types of footwear were proposed. Unfortunately, Brunel’s shoe scheme did not survive the war’s conclusion in 1814, or even the brief addition of Napoleon’s One Hundred Days.

Contracts and Supplying the Military
Brunel’s success with blocks and his failure with footwear need to be grappled with together. Both were projects to mechanize important not-necessarily military projects during a period of military production which was intense but not yet total. Indeed, Brunel’s mechanization projects were attempts to replace an early modern system which was tailoring in the face of a global military conflict like the French Revolutionary and Napoleonic Wars. Skilled hand-production could not produce goods quickly enough, cheap enough, or at a sufficiently superior or consistent quality enough to satisfy the needs of the Navy or Army. In the case of blocks, Portsmouth was one of the primary dockyards of the Royal Navy and his equipment found a champion immediately in Samuel Bentham. By his scheme with the Battersea Factory, Brunel had lost his ally at the “Letter from Mr. Brunel attributing the failure of his shoes to the inexperience of the Invalid Soldiers whom he has employed in making them.”

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Royal Navy (Bentham moved to Russia in 1805). I would argue he also did not understand how military silk clothing worked or how men expected their garments to function. Beamish admits that Brunel’s shoes could not be repaired, and this seems to have decreased their desirability from the public. I would also suggest that this decreased their desirability the farther from England troops were stationed. Frequent letters from Australia and the West Indies at this time ask for shipments of cloth and leather so that sailors and marines could produce their own clothing and shoes. The Admiralty was not easily able to adapt contracts for the light apparel needed for working warm weather stations. Sending too few supplies infrequently to extremely distant outposts, like Hobart, Van Diemen’s Land, meant that troops were forced to wear shoes made of Kangaroo. Furthermore, returning to Portsmouth for shoes was not always necessary, as when 20,000 pairs were bought in Sicily for the Mediterranean fleet in 1801 (at between 4/1 and 4/10 each).

Further information
The block factory at the Portsmouth Dockyards can still be visited in Portsmouth and much of the extant machinery can be viewed at the Science Museum in Kensington, London. The Battersea Shoe Factory was torn down in the late 1870s to make way for a housing development.

Literature cited
ADM 12/162; ADM 12/173; ADM BP/30B; ADM 1/405

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Shoe Prices (Beamish)

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<thead>
<tr>
<th>Description</th>
<th>s. d. (c. 1814)</th>
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<tbody>
<tr>
<td>Common Shoe</td>
<td>9/- 6d.</td>
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<tr>
<td>Water Boots</td>
<td>10/-</td>
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<tr>
<td>Half Boots</td>
<td>12/-</td>
</tr>
<tr>
<td>Superior Boots</td>
<td>16/-</td>
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<td>Wellington Boots</td>
<td>20/-</td>
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