Chapter Eight
Factories and Machinery

[T]he agglomeration of workers into factories was a natural outgrowth of the putting-out system (a result, if you will, of its internal contradictions) whose success had little or nothing to do with the technological superiority of large-scale machinery. The key to the success of the factory, as well as its inspiration, was the substitution of capitalists’ for workers’ control of the production process; discipline and supervision could and did reduce costs without being technologically superior.

Stephen Marglin

Machines and new techniques alone are not the Industrial Revolution, they meant gains in productivity, a shift in the relative importance of the factors of production from labour to capital. But by revolution we mean a transformation of the organization as well as the means of production. In particular, we mean the assemblage of large bodies of workers in one place, where to accomplish their tasks under supervision and discipline; we mean, in short, what has come to be known as the factory system.

David Landes

The winding down of operations in America and the resignation of Lord North were followed by a period of political instability prior to the ascension of the Younger Pitt to office. It was also a period of recovery

---

1. Marglin 1974, p. 84.
as economic resources that had been diverted toward the war were now turned once again to domestic purposes. Parliamentary enclosures were renewed. And starting in 1782, ‘almost every statistical series of production shows a sharp upward turn’. 1782 also coincides with the beginnings of a rapid expansion of the factory system and the use of new machinery, the jenny in particular, in domestic production of textiles. A spinner in 1812 is said to have been able to produce as much yarn as two hundred spinners prior to the invention of the jenny. Clearly machinery played an important role in the Industrial Revolution by making dramatic increases in productivity possible, but in the emergence of industrial capitalism, was machinery more cause or more effect?

Mokyr, like Toynbee, puts the turning point at 1760: ‘before 1760’, he writes, ‘stability was the rule and inventions the exception; afterwards, it was the other way around’. Yet as we have seen, there was plenty of innovation to go around before 1760. Furthermore, even if Mokyr’s sweeping statement were in some sense accurate, placing the emphasis on innovation begs the question of why the pace of innovation increased in the latter half of the eighteenth century. In textiles, some machines such as the fulling mill and gig mill had been in use for centuries, whilst the designs necessary for mechanising other stages of the textile-production process had been worked out as early as the sixteenth century. Landes’s metaphor of a ‘harvest of inventions’ is therefore somewhat misleading. One might suggest that the Industrial Revolution was not so much a harvest of inventions but rather a harvest in the ways in which both old and new technologies were applied to production. The question then becomes not one of explaining any sudden burst of technology, but how to explain this virtual explosion of productive output and productivity in specific branches of industry toward the end of the eighteenth century, particularly after 1782. Since on the one hand there was a broad upswing in output across most industries in Britain, while on the other hand the spread of machine-driven production and of factories was limited to certain industries in the last decades of the eighteenth century, it is clear that there were other factors besides machinery and technology which contributed to this increase.

A relatively small number of factories appeared in the period between the Glorious Revolution of 1688 and the 1780s, when the factory system began to spread. Nevertheless, during this century a kind of fever for mechanical invention caught hold. There were many examples of failed inventors that we know of, but there were surely many more innovations of which no record survives. Wadsworth notes that: