The ‘industrial revolution’: interpretations from 1830 to the present.

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Industrial Revolution: a rapid development in industry … the development which took place in England in the late eighteenth and early nineteenth centuries, chiefly owing to the introduction of new or improved machinery and large-scale production methods (Oxford English Dictionary).

Whilst few have disputed that the world’s first ‘industrial revolution’ took place in Britain, that expression – the ‘industrial revolution’ – was not a British invention. The precise roots of the term are unclear, but it seems to have been coined in France in the early nineteenth century, by political economists struck by the tremendous economic and social advances that had recently been made across the Channel. A révolution industrielle had occurred, they declared, an economic counterpart to the political révolution française that had occurred at home half a century earlier, with social consequences every bit as far reaching. In the first few decades of the nineteenth century, the expression ‘révolution industrielle’ became firmly rooted in the French language, and although it was deployed somewhat loosely, it nonetheless had a meaning clearly recognisable today: namely significant economic growth achieved through the use of new technology and machines. By the second half of the nineteenth century, French commentators were debating the extent to which a French, rather than British, industrial revolution had occurred, and writers from the provinces were starting to write about the industrial revolutions that were taking place in their parts. In the overwhelmingly rural region of Brittany, a commentator at the end of the century thought he could discern the germ of an évolution rather than a révolution industrielle, but was forced to concede that even that was proceeding ‘lentement’.

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1 A good example is to be found in: Natalis Briavoinne, De l’industrie en Belgique. Sa situation actuelle. Causes de décadence et de prospérité (Brussels, 1839), p.185-210.
3 See, for example, Académie royale des sciences, belles-lettres et arts de Bordeaux, 1825, p. 91; Mémoires de la société d’horticulture de Seine-et-Oise, ix, 1852, p. xvi.
Whilst the linguistic origins of the ‘industrial revolution’ doubtless lie in France, it was a German writer, the great Prussian philosopher, Friedrich Engels, who developed the meaning of the expression most fully. ‘Die industrielle Revolution’ was a pivotal event in Engel’s monumental study of the labouring poor in Manchester – *The Condition of the Working Classes in England* – signifying a crucial period of transition in British history. For Engels the industrial revolution was the culmination of a series of technical improvements in the textiles industry, small improvements individually but collectively giving rise to profound and far-reaching change. The process started with James Hargreaves’ spinning jenny, invented in 1764. Engels explained

> This invention made it possible to deliver more yarn than heretofore. Whereas, though one weaver had employed three spinners, there had never been enough yarn, and the weaver had often been obliged to wait for it, there was now more yarn to be had than could be woven by the available workers... Now that the weaver could earn more at his loom, he gradually abandoned his farming, and gave his whole time to weaving... By degrees the class of farming weavers wholly disappeared, and was merged in the newly arising class of weavers who lived wholly upon wages, had no property whatever ... and so became working men, proletarians.\(^5\)

This process was accelerated by a series of subsequent inventions. The spinning jenny was quickly followed by Richards Arkwright’s spinning throttle and carding engine, Crompton’s mule, Cartwright’s power loom, and James Watt’s steam-engine, and this succession of inventions led in turn to the industrial revolution – ‘the victory of machine-work over hand-work’.\(^6\)

Like contemporaneous French writers, Engels both highlighted both the transformative role played by new machinery and drew parallels between England’s and France’s very different revolutions. ‘The industrial revolution,’ he wrote, ‘is of the same importance for England as the political revolution for France ... the difference between England in 1760 and in 1844 is at least as great as that between

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\(^6\) Ibid., p.20.
France under the *ancien régime* and during the revolution of July’. But the character of the Engels’ industrial revolution was also quite different from that of French intellectuals, owing to the emphasis he placed upon the emergence of a new class of landless workers with nothing to their name but the wages they were able to earn by their own labour. This was, he argued, ‘a revolution which altered the whole civil society’. Admittedly, this account of ‘revolution’ within British society was built upon a somewhat rosy description of life for the workers prior to mechanisation – according to Engels, they had lived ‘a passably comfortable existence, leading a righteous and peaceful life in all piety and probity’. Nonetheless, Engels’ account amounted to a complete interpretation of the British industrial revolution, emphasising the transformative role played by technology.

But the influence of Engels on mid-nineteenth-century conceptions of industrialisation was in fact extremely limited. Though his work, in time, has cast a very long shadow over interpretations of the industrial revolution, and of its social consequences in particular, it initially had little impact in Britain. None of his work was translated from the German until the 1880s, and until that date, was largely passed over by British political economists and social commentators, who remained blissfully unaware of their industrial revolution and newly created industrial proletariat.

So whilst French and German commentators became increasingly confident in their use of the term ‘industrial revolution’, in England, where this revolution was widely believed to have occurred first, the concept was slow to take root. It was not until the 1840s that the expression began to filter into the English language, and its meaning when it did so was unsettled. The term was picked up and used by a few British economists in much the same sense as their French colleagues. The political economist Sir Travers Twiss, for example, declared that at the same time as the ‘great social experiments, to which the Political Revolution of France had given rise to on the continent … an industrial revolution was silently operating in England, leading

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7 Ibid., p. 29.
8 Ibid., p. 15.
9 Ibid., p. 16.
to results still more remarkable’. At just the same time, John Stuart Mill referred to the possibility that the opening of foreign trade might usher in an ‘industrial revolution’ in a country ‘whose resources were previously undeveloped for want of energy or ambition in the people’. But whilst some use of the expression in the English language can certainly be detected, it is also fair to conclude that it was used only occasionally and without much consistency. Through most of the nineteenth century, British commentators preferred to speak of manufactures rather than industry, and of progression and advance, rather than revolutions. By the middle of the century, the expression had largely dropped out of the language. Political economists and social commentators managed to make sense of dramatic recent economic and industrial developments without recourse to the special phrase coined by their European neighbours.

This is not to suggest, however, that British commentators were unaware of the unprecedented economic change and advance that was occurring in their own country. As early as 1814, Patrick Colquhoun found it ‘impossible to contemplate the progress of manufactures in Great Britain within the last thirty years without wonder and astonishment. Its rapidity … exceeds all credibility’, and over the next few decades similar sentiments were echoed over and over again by all those with any interest in Britain’s economic growth. In line with most European commentary, discussions of Britain’s growing economy tended to focus upon invention, machinery, and factories. For example, Andrew Ure, the Scottish chemist turned social commentator, declared in his Philosophy of Manufactures, published in 1835: ‘This island is pre-eminent among civilized nations for the prodigious development of its factory wealth’. By 1849, Chambers’ Encyclopaedia could simply state: ‘In point of national industry, England stands unrivalled by any other country on the globe’.

11 John Stuart Mill, Principles of Political Economy: With Some of Their Applications to Social Philosophy, ii (London, 3rd edn., 1852), p. 120.
The spectacularly successful Great Exhibition, held in the newly erected Crystal Palace in Hyde Park, London, epitomised this widely held sense of progress and achievement. The tens of thousands of artefacts, displayed by 14,000 exhibitors from 28 different countries testified both to the nation, and to the world, the exceptionally productive and sophisticated nature of the British economy. In 1851, Britain was undoubtedly the richest nation in the world: both its economy and population were growing rapidly, and it had the largest and most technologically advanced manufacturing sector. This, then, was not a nation unaware of the profound economic changes that had been wrought in its recent history; it was indeed in no doubt that the rapid growth in manufactures in recent decades marked an epochal moment in British history. The Victorians simply did not turn to the metaphor of revolution in order to understand these developments.

It was not until the end of the nineteenth century, with the work of the social reformer and historian, Arthur Toynbee, that the term an ‘industrial revolution’ decisively entered the English language. Toynbee’s lectures, originally delivered to Oxford undergraduates between October 1881 and May 1882 under the title ‘On the economic history of England, 1760-1840’ were re-titled *Lectures on the Industrial Revolution in England* for publication. They proved immensely popular, going through no fewer than five editions in the following two decades and remaining in print until 1927. Nor was the substitution of the words ‘industrial revolution’ at the moment of publication merely accidental; the idea of ‘revolution’ lay at the heart of Toynbee’s book. In his view, the period 1760-1840 marked a fundamental transformation of the English economy, comprehending changes in population, agriculture and industry, as well as in the social lives of the poor. The ‘essence of the industrial revolution’, he concluded, was the replacement of medieval guilds and regulation with capitalist competition. In emphasising that industrialisation

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brought in its wake a number of deleterious consequences for the labouring poor, Toynbee shared considerable common ground with Engels, though there is no evidence that he had ever read Engels’, as yet untranslated, _Condition of the Working Classes_.\(^{18}\) Within a few decades the expression had entered the vocabulary of historians, undergraduates, and even members of the chattering classes and workers’ educational movements. The industrial revolution was a pivotal concept, for example, in the immensely popular works of John and Barbara Hammond, read widely both within and without the academy.\(^{19}\) Although the language of revolution had not seemed apposite to those living through the unprecedented industrial change of the late eighteenth and early nineteenth centuries, for the following generation, looking at the same events at the remove of several decades, the metaphor of revolution was compelling.

But no sooner had the newly re-found expression began to gain a degree of popular currency, than the academic community began to question the existence of this supposed ‘industrial revolution’. In the early twentieth century, a new generation of scholars began questioning whether the industrial revolution was so ‘revolutionary’, or indeed so located in ‘industry’, as the ebullient Toynbee had declared, and many avoided using the term altogether. The critique came from both theorists and historians. The influential economist Joseph Schumpeter, writing prolifically through the 1920s and 1930s, emphasised long cyclical movements in economic history rather than turning points and watersheds. His ideas were most clearly expressed in his 1942 work, _Capitalism, Socialism, and Democracy_, where he wrote of the ‘long waves of economic activity… Each of them consists of an “industrial revolution”’.\(^{20}\) In Britain he perceived no fewer than five ‘industrial revolutions’, and placed the classic period of Toynbee’s industrial revolution ‘on a par with at least two similar events which preceded it and at least two more which followed it’.\(^{21}\)

Throughout the inter-war years, British economic historians were likewise sceptical of a transformative ‘industrial revolution’ occurring in the late eighteenth century.

\(^{18}\) X See Coleman, ‘Myth, History’, p.?
\(^{19}\) J. L. Hammond and Barbara Hammond, _The Town Labourer, 1760-1832_ (London, 1917); Idem., _The Skilled Labourer, 1760-1832_ (London, 1919).
\(^{20}\) X Joseph Schumpeter, _Capitalism, Socialism, and Democracy_. 1942. 1960 edn. p. 67. Try UEA. JC 5 SCH. The ref. is given in Lloyd Jones, British Ind. Cap., p.15. DAE 65 LLO
Their critique rested upon a reassessment of the pace and extent to which any British industries were revolutionised. H. Heaton, for example, drew attention to the long term origins of change and to the slow duration of industrialisation once it actually begun, declaring that a revolution taking so long to occur ‘may well seem to need a new label’. Sir John Clapham, writing from the distinguished position of a chair in economic history at the University of Cambridge, noted that even the cotton industry was only partially revolutionised by 1850, whilst whole sectors of the economy remained virtually unchanged. He observed that in 1850, fully half of the population was still employed in areas wholly untouched by industrialisation. The emphasis was firmly on the gradual rather than revolutionary nature of nineteenth-century economic change.

At the same time as historians of eighteenth- and nineteenth-century Britain played down the extent and pace of economic change during that period, specialists in other periods were busy identifying new ‘industrial revolutions’ of their own. So, for example, E. M. Carus-Wilson argued that innovations to the fulling mill in the thirteenth century amounted to an ‘industrial revolution … destined to alter the face of medieval England’. John Nef’s researches on the coal industry led him to conclude that an ‘industrial revolution’ had occurred there in the century between 1540 and 1640. He later expanded this theory into a broader account of technological change throughout the economy in the century after 1540. The developments he discerned in this period were so striking, it led him to reject the eighteenth-century historians’ claim to an ‘industrial revolution’: ‘the concept of an “industrial revolution”’, he argued, ‘would seem to be especially inappropriate as an explanation of the triumph of industrial civilization in Great Britain. It gives the impression that the process was especially sudden, when it was in all probability more continuous than in any other country’. Though not all writers followed Nef in dismissing the concept of an eighteenth-century industrial revolution, these

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contributions by scholars working outside the traditional time-frame of industrialisation, certainly helped to provide a fundamental revision of the concept that Toynbee had developed. In some ways it marked a return to the ‘industrial revolution’ employed by some French writers a century earlier – a rapid advance, usually led by technological change, but in just one industry, one place, or at one time, rather than a single, national event, a more fundamental reorganisation of an entire economy. Historians therefore spoke of industrial revolutions rather than industrial revolution and of an extensive and piecemeal process of change rather than of an intensive and transformative one. It is interesting to note that this reinterpretation of the extent and significance of the industrial revolution occurred at a time that the British economy was generally in the doldrums and Britain’s relative decline to other industrial nations was unmistakable. Perhaps from this perspective of economic slow down, it seemed more apposite to view Britain’s economic success between 1750 and 1850 as part of a much larger cycle of rise and fall of different nations’ economy rather than as a transformative and uniquely British event.

Yet the writing of history rarely stands still. No sooner had scholars shaped a process of gradual and piecemeal industrialisation, then interpretative fashions changed once again, and the fast-paced ‘revolution’ that Toynbee had postulated, seemed to be back in vogue once more. Once again, both theorists and historians seemed to speak a shared language, identifying a relatively short, and certainly dramatic, event occurring on a national stage – not to be confused with local revolutions or piecemeal revolutions in single industries. The Yale-educated economic theorist Walt Rostow’s *The Stages of Economic Growth* was hugely influential on post-war conceptions of industrialisation. Rostow not only held that an industrial revolution, the world’s first, had occurred in Britain somewhere between 1790 and 1850, but even argued that it represented the lynchpin of modern history: the economic step-change that all nations had to emulate in order to thrive. Rostow defined the industrial revolution as a period of rapid economic growth, or ‘take off’ – he dated ‘take-off’ in Britain between 1783 and 1802 – followed by sustained higher levels of economic growth.27 This model formed a sharp contrast to Schumpeter’s account of long patterns of cyclical growth. Here was an altogether

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punchier story, with the industrial revolution marking a watershed in not just British but in world history.

His account was not of course simply swallowed wholesale by British economic historians, but it did seem to provide them with a meaningful framework for the study of industrialisation, and in the years that followed, the focus switched from downplaying the significance of change during the period to identifying the moment of ‘take-off’. The most influential work in this vein was produced by the economic historians Phyllis Deane and W. A. Cole, who returned to the economic records collected at the time in order to provide groundbreaking estimates for the size and rate of growth of the economy between the late seventeenth and mid-twentieth centuries. Whilst considering the concept of take-off to be a ‘dramatic simplification’ and taking great care to stress the deep roots of economic change, Deane and Cole nonetheless spoke of a ‘crucial breakthrough’, and it was this theme that seemed to resonate most widely amongst scholars.28 Throughout the 1960s and 1970s, the existence of an ‘industrial revolution’ was widely held as an article of faith. One of the leading historians of the 1960s, Eric Hobsbawm, saw fit to declare that the ‘Industrial Revolution marks the most fundamental transformation of human life in the history of the world recorded in written document’.29 Elsewhere, the nation’s pre-eminent historians spoke of ‘one of the great watersheds in the history of human society’; a ‘great upheaval’; and a ‘great discontinuity’.30 It all amounted to a total revision of the pre-war generation’s account of industrialisation.

Nor was this new account of the rapidity of economic growth between the late eighteenth and middle of the nineteenth centuries confined to the pages of economic history textbooks and journals. This great watershed in the economic sphere was presumed to have spilled over from the economic to the social, transforming wide areas of social life as it did so. For example, Edward Thompson’s seminal account of the formation of the ‘working class’ was predicated upon the existence of

widespread mechanisation and the rise of the factory. The emergence of Chartism and other working-class political movements was explained in terms of the dramatic – and largely pernicious – industrial revolution that workers were forced to live through. Even areas of cultural, personal and recreational life, topics that might appear largely unconnected with the worlds of industry and work, were interpreted against the backdrop of a rapid and deep-rooted industrial revolution. Thus studies of religion, for example, sought to link a presumed decline in religious belief with the rise of the factories and cities. Research into family life debated the thesis that the rise of the cotton industry and technological changes in work organisation created a crisis in family relations. Even patterns of recreation were left permanently altered by industrialisation. According to Robert Malcolmson, popular sports and pastimes were first undermined and finally destroyed by the industrial revolution, leaving a vacuum in place of the rigorous recreational calendar that had existed in the eighteenth century. There was, of course, endless disagreement amongst historians over the fine details of change in all of these areas, yet most were working within a recognisably shared framework. These interpretations of social and cultural life were embedded in a cataclysmic interpretation of the period. For two full decades, the focus was on the dramatic social change ushered in by the world’s first industrial revolution, which was now clearly identified as a momentous turning point in both economic and social life.

Once again, it is interesting to note the contemporary social and economic context for these interpretations of the industrial revolution. This dramatic reinterpretation of industrialisation occurred at a time of sustained economic growth in western Capitalist economies. Post-war reconstruction with its record levels of investment, near full employment, and new public services such as subsidized housing, free

32 John Foster, *Class Struggle and the Industrial Revolution. Early Industrial Capitalism in three English Towns*. 1974
health care, and improved access to secondary schooling and university education, had ushered in an undeniable rise in western living standards. It also made apparent the very stark difference between the prosperous industrialised west and the impoverished, non-industrialised ‘Third World’. For scholars writing in the 1970s, it no longer seemed appropriate to relegate British economic growth around the turn of the eighteenth century to the status of just another economic upturn, a glorious, but ultimately short-lived, moment of triumph in the British economy. From this perspective, it appeared to mark a much more significant turning point in the transition to modern society.  

But as should already be abundantly clear, historical interpretations rarely stand still for long, and so proved the case for this dramatic account of industrialisation. No sooner had the ink dried on the latest accounts of the revolutionary social changes wrought by industrialisation, than a new challenge to the concept was made – issuing, once again, from those presumed to know best in such matters: the economist historians. In the late 1970s, E. A. Musson’s textbook on the *Growth of British Industry* declared that the notion of a short and cataclysmic industrial revolution was ‘clearly no longer tenable’. This account was led further, highly influential, support in the 1980s by a new breed of economic historians, preoccupied with measuring the various indicators of national economic growth – growth in industrial output, gross domestic product, productivity, and so forth – and armed with an impressive command of economic theory and complex statistical methods. First Knick Harley provided a critique of Deane and Cole’s estimates for economic growth, suggesting they had over-estimated growth during the crucial years 1770-1815. The revision was completed shortly after by Nick Crafts, an economist based in Oxford, who reworked growth rates in the period 1970-1830 indicating much slower growth than the concept of rapid take-off permitted.

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36 See also Cannadine, ‘Present and past’, pp.149-157.
This research inevitably had a profound impact on the existing literature, for by this point the industrial revolution was not simply an economic event, it was also, to quote Hobsbawm once more, ‘the most fundamental transformation of human life in the history of the world’. If there had, in fact, been no dramatic economic revolution, where did this leave all those social transformations, watersheds, and discontinuities that two decades of social, as well as economic, history had described? As ever, reinterpretation of the economic sphere spilled into the social, and this revision to the dramatic interpretation of the period 1760-1850 that dominated both economic and social histories raised a certain degree of alarm amongst the historical profession. Patrick O’Brien observed that ‘the British Industrial Revolution is once again under attack as a “misnomer”, a “myth” … and dismissed as one among a “spurious list of revolutions”’. And in their highly influential response to Crafts’ work, Maxine Berg and Pat Hudson declared that ‘the notion of industrial revolution has been dethroned almost entirely’.

But the consequences of these new estimates for economic growth were more complicated than the notion of a ‘dethroning’ of the industrial revolution admits. It is certainly true that one or two maverick voices questioned the use of the term, but in reality one needs to search the literature long and hard to find scholars who used Crafts’ new statistics to argue that the concept of an industrial revolution was no longer valid. In fact, what Crafts did was not dethrone the industrial revolution, but force scholars to question more deeply what exactly the ‘industrial revolution’ was. It was a problem with no easy answers, and we are arguably still witnessing the full unfolding of responses to this question.

The historians’ initial response was to challenge the validity of this new set of statistics. A number of historians picked over the records Crafts had exploited, the assumptions he had made, and the methods he had used. By looking in detail at

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every element of these figures, critics sought to demonstrate not only that Crafts’ figures were subject to a considerable margin or error, but also that many of these errors were likely to underestimate, rather than exaggerate, the overall rate of growth. We will review both Crafts’ figures, and these criticisms, more fully in the chapter that follows, for the present, however, it is important to note that this critique ultimately resulted in a modification, rather than an outright rejection, of the new estimates provided. For all the dissatisfaction that historians expressed with the new estimates, there was no desire to return to the older idea of short period of dramatic economic growth. Instead, within less than a decade, it was clear that most economic historians begrudgingly accepted that during the classic period of the industrial revolution, economic growth, if not quite so slow as Crafts argued, was nonetheless considerably slower than an earlier generation had imagined.

But for most historians evidence of slow economic growth simply did not provide compelling grounds for dismissing the concept of an industrial revolution. The general consensus was that growth rates were no way to measure the existence (or otherwise) of a phenomenon so complex as the industrial revolution. In this line of argument, the growth rates are not so much inaccurate as simply irrelevant, since they measured phenomena that had little do with the industrial revolution. Yet in pursuing this line of argument the ground between Crafts and his critics was much less than was sometimes implied. Though Crafts never described his figures as ‘irrelevant’, he certainly did use them to argue it was time to redefine the ‘industrial revolution’. Crafts found evidence of both slow national growth and a significant restructuring of the workforce – marked above all by the transfer of workers from agriculture to new industrial occupations – a restructuring that he considered to be amply sufficient to justify the continued use of the term ‘industrial revolution’. In the event, this alternative definition of the industrial revolution offered by Crafts received very much less attention than his statistics had. With a newly shared consensus that national growth rates were not pivotal to understanding the industrial revolution, the ground was levelled for new interpretations and assessments. Specialists of different areas of the early industrial economy were quick to re-emphasise the significance of their particular area of interest.
The role of inventions, for example, once again received critical attention. New technologies of course had long held a central position in interpretations of the industrial revolution. They had lain at the heart of French and German definitions of the industrial revolution in the nineteenth century, and had also been integral to English uses of the expression, once it became commonplace in the early twentieth century. The 1926 edition of the Oxford English Dictionary (the earliest to include a definition of the industrial revolution) described it as: ‘rapid development of industry owing to the employment of machinery’. In the late 1940s, T. S Ashton memorably equated the industrial revolution with a ‘wave of gadgets’ and David Landes’ influential work of the 1960s echoed the view that technological change had played a vital role in powering the industrial revolution. In true revisionist fashion, the stress that previous generations of historians had placed upon technology was out of fashion by the 1980s. The highly respected French historian Fernand Braudel, for example, considered that ‘if there is one factor which has lost ground as a key explanation of the Industrial Revolution, it is technology’. Yet Crafts’ new estimates for national growth coincided with renewed interest in the role of technology, innovation, and creativity in the manufacturing sector. Although Crafts rejected the notion of widespread technological change, slower growth rates did not in themselves disprove the importance of technology, since the large investments required to purchase new technologies may result in several years elapsing before significant gains are realised, and several historians consequently sought to demonstrate the breathtaking range and extent of inventive creativity that lay beneath Crafts’ rather flat growth curves. So significant was inventive activity in the century after 1750 that Joel Mokyr, has concluded, ‘it is appropriate to think about the Industrial Revolution primarily in terms of accelerating and unprecedented technological change’.

Maxine Berg focussed attention on areas of the industrial economy that had traditionally received rather little attention: the worlds of female and child labour, of domestic work and artisan workshops, handheld tools, small machines, and skilled

43 Quoted in Mokyr, ‘Editor’s introduction’, p.17.
labour – what she called ‘the other Industrial Revolution’.\textsuperscript{46} Despite looking beyond the steam engines and factories that long formed the mainstay of industrial history, Berg found evidence of a ‘transformation of production processes and regions … and restructuring of industry over the course of the eighteenth and nineteenth centuries’, and was left in no doubt that these changes amounted to an industrial revolution.\textsuperscript{47}

Meanwhile, Tony Wrigley placed critical emphasis on the emergence of a new source of fuel: coal. Prior to the industrial revolution the economy was dependent upon the power provided by wood, wind, water, horses, and humans, and only limited growth was achievable by these means. Power provided by the wind was unreliable and water power could only be provided by fast-flowing rivers, which effectively restricted its use to a finite number of locations. The power provided by horses and wood could be more actively expanded, but increasing power from either of these sources required land, either to grow the fodder for the horses, or to grow woodlands to provide the timber. Yet, as Wrigley points out, the landmass of Britain was fixed, so extending the amount of land to be put to industrial purposes effectively required taking it out of cultivation for human consumption, and that in turn would restrict the possibilities of demographic growth. You could therefore have either industrial growth or population growth: you could not have both. Yet we know that at some point during the period 1700-1850, Britain entered a new era of sustained economic growth combined with population growth, breaking free from this centuries’ old pattern of limited growth. According to Wrigley, the switch to coal provides the key to understanding this process. Switching to coal tapped a massive new source of energy that enabled industry to grow to a previously unimaginable extent, growth moreover which did not occur at the expense of feeding and housing the population. This process, he argued, provides the key to understanding the British industrial revolution.\textsuperscript{48}

\textsuperscript{46} Maxine Berg, \textit{Age of Manufactures, 1700-1820. Industry, Innovation and Work in Britain} (London, 2\textsuperscript{nd} edn., 1994), p.xiii.
\textsuperscript{47} Ibid., p.281.
Most analyses of the British industrial revolution have tended to look at supply – to focus upon how improvements in technology or increases in capital, energy, or raw material enabled the economy to grow. In a departure from this tradition, Jan de Vries has argued that it is necessary to consider rising demand along side changes in supply in order to understand British industrialisation.\(^49\) According to de Vries, this rise in demand stemmed from a twofold change in the way in which families earned and spent their income. Firstly, workers had traditionally exhibited a preference for leisure over goods, that is, they had worked just so long as was necessary in order to procure life’s essentials – housing, food and clothing – and then abandoned work (and the possibility of buying small luxuries with those extra wages) for leisure. In the second half of the seventeenth century, this traditional working pattern gave way to a more recognisably ‘modern’ pattern, in which individuals worked longer hours in order to earn the wherewithal to purchase a few luxuries – tea, sugar, new cotton clothing, a decorative plate, or whatever else the consumer desired. Secondly, early modern workers had tended to produce much of what they consumed within the home rather than buying it at the market place: so a household got by by growing a few potatoes in the garden, baking their own bread, brewing their own beer, and making their own clothes – cheaper alternatives to buying such goods and services from others. At the same time as families began to work harder in order to purchase small consumer goods, they also abandoned this domestic production in favour of buying goods readymade at the market, or even in one of the nation’s rapidly growing number of shops. Although this change in household behaviour proceeded slowly, it gradually led to a rise in demand over the eighteenth century, which helped in turn to stimulate industrial growth. It constituted, de Vries argued, an “industrious revolution” … which preceded and prepared the way for the industrial revolution’.\(^50\)


What followed Crafts’ new figures, therefore, was far from a ‘dethroning’ of the industrial revolution. To the contrary, by the end of the 1990s, we had far more industrial revolutions than ever before. By the same token, however, by the time the historians had finished ‘rehabilitating’ the industrial revolution confusion over the term was also greater than ever before. Whilst most agreed that an industrial revolution had taken place, none could agree over exactly what it was. The possibilities of ‘take-off’, or rapid economic growth had been safely ruled out, but this still left plenty of possibilities. Was it, as Crafts had suggested, a switch of economic activity from agriculture to industry and services? What was the role of those great inventors and their inventions – the steam engine, the power loom, the railways? Was the focus on the more dramatic technological innovations misplaced; should the industrial revolution be located instead in the sphere of domestic industry and female and child labour? How did the switch from wood to coal fit into the picture? And how did changes in household demand over the eighteenth century feed into the process of industrialisation? By the close of the twentieth century, the centrality of the industrial revolution to Britain’s history was firmly established, but an embarrassment of definitions undermined its value as a concept more powerfully than any of the more overt attacks it had had to endure in the preceding one hundred years.

As ever, it is interesting to probe the social and economic context within which historians provided these interpretations of the industrial revolution. Historians began to criticise the dramatic interpretation of the industrial revolution at the end of the 1970s; their critique emerged at the end of the unparalleled growth and prosperity of the post-war years and coincided with high inflation, high levels of unemployment and considerable social and economic discontent. At the same time, however, Britain’s economic difficulties in the 1970s could be readily understood as just one of the economic downturns that a free market economy was sure to experience periodically, and whilst the nation’s decline relative to other industrial neighbours was likely to continue, the continuation of absolute growth and rising living standards was not thrown into doubt. The difference between those countries that had undergone industrialisation and those that had yet to do so remained as clear as it had done twenty years earlier, and this economic slow down did not call for a fundamental rethink of the world’s first industrial revolution.
The parallels between the historians’ own times and their accounts of British industrialisation was noted a quarter of a century ago by the historian David Cannadine: ‘each generation of economic historians,’ he observed, ‘has evolved a dominant interpretation of the Industrial Revolution which bears so strong an affinity with contemporary circumstances that it cannot be merely accidental’. Cannadine made this observation before historians had fully considered the implications of Crafts’ new statistics indicating slow rate of growth, and fresh interpretations of the industrial revolution have abounded since then. Yet it is an insight that bears repeating. In this book we shall survey the ideas of a new generation of historians, yet there is no reason to think that because they are recent they are any less likely to bear the imprint of their own times.

The expression ‘industrial revolution’ has a long and chequered history and has moved in and out of fashion with historians during the past century. There is more certainty today over the existence of an ‘industrial revolution’ than ever before, but there is also far greater confusion over what the well-worn expression actually means. It is with this question – what was the industrial revolution? – that this book is centrally concerned. In the pages that follow, we shall consider recent interpretations of the industrial revolution in greater detail. We begin, however, with Nick Crafts and his estimates for national economic growth, path-breaking research that sparked much of the recent rethinking about the nature of British industrialisation.