Arnold Toynbee and the Industrial Revolution

The Science of History, Political Economy and the Machine Past

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Arnold Toynbee's lectures on the Industrial Revolution (published in 1884) were the first—and the most influential—attempt to historicize Britain's radical transition to a machine-based economy. This article locates the lectures in the context of the increasing disciplinary specialization of late-nineteenth-century Britain. Toynbee's intellectual character and political commitments shaped an approach to the machinery question which was holist and thus placed him at odds with emerging specialists in history and economics. Despite various shortcomings, the lectures suggest the generative potential of the machinery question for an integrated economic and historical science, at which Toynbee's unfinished work only hinted.

> *We have not, here and now, to deal with the history of this revolution, nor with its vast importance for the present and the future. Such a delineation must be reserved for a future, more comprehensive work.*
>
> Friedrich Engels, 1845

> *Finally he would say to those great manufacturers who had studied inventions and machines that if they would turn away a little from the dead mechanism of the factory to the contemplation of the living mechanism of the social system, if they would give their attention to the evils of the industrial system ... England might lead the nations in solving the greatest industrial problem the world had ever seen.*
>
> Arnold Toynbee, 1880[1]

It would be an exaggeration to suggest that Arnold Toynbee's *Lectures on the Industrial Revolution* could have satisfied Engels's call in 1845 for a "future, more comprehensive work" which would explain the history of this event, whose "vast importance for the present" continues to be debated. Nonetheless, Toynbee's unfinished lecture series—published posthumously in 1884 and which first popularized the phrase in its title—was the most influential account of the Industrial Revolution produced in English during the nineteenth century. In particular, Toynbee's lectures helped to establish the framework through which the story of industrialization has been told; a framework that is of interest less for understanding the dynamic of industrial change in itself than for considering the formation of historical myth and memory around this so-called "revolution."

The question of the Industrial Revolution remains a fraught issue with an exceptionally complex historiography, in which many thinkers have a political and intellectual investment. Historical claims about the origins of industrialization have often stemmed from an aspiration to influence public policy in such fields as economics, trade, scientific research, intellectual property and international development. Such hopes can be found today in the continuing sequence of studies that purport to identify the cultural, intellectual and—surprisingly—even the genetic sources of British success.[2] Alternative narratives have focused on the role of the state, on natural resources and on empire; not least when approaching the question from the perspective of Asian economic growth—a perspective that, for different reasons, emphasizes Britain's exception to the rule.[3] Quite apart from such ideological issues there are more fundamental difficulties facing historical research on the causal sequence of industrialization. Source material is partial, complex and requires for its interpretation a range of expertise not always coincident in a single individual. Even the work of respected economic historians sometimes involves claims—for example on energy use, technical processes, and causation—that can be shown to rest on assumptions whose quality is "frankly beyond belief" when given the merest scrutiny by historians of technology.[4] It will, therefore, be a key aim of this article to explore the role of disciplinarity in producing the Industrial Revolution as a related *set* of historical problems in economic, cultural and political thought.

Given the general diversity of these historical accounts it should be no surprise that cultural myths have grown up and proliferated around the

story of Britain's transformation into the world's first industrial society. An initial attempt to sort through these narratives was offered by David Cannadine's historiography in 1984, which marked the centenary of the publication of Toynbee's lectures.[5] It is now thirty years since Cannadine's avowedly preliminary analysis and this article aims to return to Toynbee and his context in order to consider more closely the foundational ways in which the problem coalesced in his thought. The framing of the Industrial Revolution as both a historical theory and an event, which would generate a continuous literature of explanation and interpretation (as it was being preserved as a part of national heritage) only began in Britain from the late nineteenth century; and so, it is only by building a finer-grained picture of that moment that we can understand the origins of this peculiarly combustible historiographical tradition.

Within such a framework it is important to remember that Arnold Toynbee's motivation for writing history was to produce reform and that his style was, at heart, affective. Toynbee (1852–83) understood the rhetorical dimension of political economy: he was willing to speak of the "evils of the industrial system" and made it a necessary condition of its reform to understand its origins. The "mechanism," as Toynbee called it, needed a history, and this narrative was bound up with the role of machinery. Toynbee did not attempt to theorize machinery explicitly, yet it took on a double aspect in his writing: on the one hand as the phenomenon under explanation and on the other as a figure of speech for describing change itself. The idea of the machine thus figures repeatedly in Toynbee's text and emerges with a temporal quality as both the cause and effect of change. Writing the history of the Industrial Revolution required endowing machinery—by now ubiquitous in 1880s Britain—with a sense of its past. It is the contention of this article that Toynbee's focus on machines required a holistic perspective on history, and that the holism of his thought can illuminate the nature of the historiographical problem more generally.

Toynbee's lectures thus raise a substantive question about genre and, consequently, about the disciplinary matrix connecting political economy, science and history. Intended as an intervention in political economy—itself frequently aspiring to a self-consciously scientific presentation—the lectures were nonetheless delivered to students of Modern History at Oxford. Toynbee's attempts to analyze the changing relationship of industry to

society have been judged by critics as "catastrophist." Such a verdict may derive from his engagement with memories of the pre-industrial past, which can perhaps more rightly be applied to his successors in the twentieth century than to Toynbee himself. As well as considering this charge, this article examines the lag between the Industrial Revolution and its explicit conceptualization in Britain, perhaps a half-century later. Moreover, Toynbee's foundational lectures not only established a template for certain of his followers, but outlined a key context in which ideas about machines would continue to develop around the turn of the twentieth century. Much has been written about the religious and the idealist contexts in which Toynbee operated.[6] This article seeks to complement such perspectives by focusing on a different dimension of Toynbee's project, locating him in a tradition of political economy that extends back to earlier discussions of the machinery question, conducted in a holist style which was seldom adopted thereafter. As Maxine Berg has written, "The machinery question in early nineteenth-century Britain was the question of the sources of technical progress and the impact of the introduction of the new technology of the period on the total economy and society." It was a set of debates whose participants "speculated on, and then either welcomed or dreaded, the changes the machine would bring to social relations."[7]

A POLITICAL ECONOMY

Arnold Toynbee was formed by the experiences of his university holidays spent in the slums of east London, where he worked (albeit fleetingly) with the reforming Oxford cleric Samuel Barnett. This firsthand experience of deprivation—both material as well as moral—had a decisive influence on Toynbee. The remainder of his short life would be devoted to understanding the origins of east London's urban squalor from his position teaching Modern History at Balliol College.[8]

In the 1870s Toynbee became part of a growing movement in Oxford that sought to engage with the conditions of what would become known as Outcast London. The Settlement Movement sought to forge a set of connections, both personal and institutional, between the universities and this notoriously deprived part of the country. Toynbee joined many others including J. R. Green (who worked as a chaplain in the East End

but was better known as a popular historian) in this program of social reform. Following Toynbee's premature death, Samuel Barnett claimed that a settlement in Whitechapel (named in his honor) would "keep alive and consolidate the interest between a centre of education and a centre of industry."[9] This connection of "education" and "industry" was apposite since Toynbee sought both to learn and to teach what the impact of industry had been on the people of the East End. Writing of Toynbee in 1889, Philip Gell described how Oxbridge Dons "were startled into a feeling of responsibility towards the toiling millions whose labor makes possible the academic life."[10] The general sense of outrage at the plight of the East End—being only a short distance from the heart of Britain's Empire—was therefore compounded with a particular sense of responsibility on the part of academics.

Toynbee delivered his lectures on the Industrial Revolution during the academic year 1881–82 and they were followed by a whirl of touring and public speaking. The strain of lecturing at intimidating venues was considered by contemporaries to have precipitated Toynbee's early death in 1883.[11] Two of Toynbee's students, W. J. Ashley and Bolton King, undertook to prepare a text of the lectures which could be published posthumously. Based on a comparison of their own notes with those of other students, and then with Toynbee's own manuscripts, the lectures were published in 1884 after their single outing at Oxford.[12] In the time between the lectures and their eventual publication a national scandal unfolded, provoked by the publication and reception of the pamphlet "The Bitter Cry of Outcast London," which outlined in graphic detail the plight of the urban, industrial poor.[13] By the time Toynbee's lectures were published, there could be little excuse for complacency among an intelligentsia whose engagement with civics had not always been wholehearted.

Toynbee's death had been preceded by that of T. H. Green, his philosophical mentor. At a debate on the proper relation between Oxford and the outside world, the prevailing atmosphere was described as follows:

> The most living interest of Oxford now is that in social questions. We have turned from playing at the Middle Ages in churches, or at a Re-Renaissance in cupboards; and a new faith, with Professor Green for its founder, Arnold Toynbee for its martyr, and various societies for its propaganda, is alive among us.[14]

This announcement was reported by the *Pall Mall Gazette* to represent a "remarkable confession of faith" and was followed by the foundation of Toynbee Hall in Whitechapel. Toynbee's lectures on the Industrial Revolution were central to the philanthropic atmosphere; however, the new focus on London's poor at the end of the nineteenth century marked a geographical shift from an earlier emphasis on Manchester.[15] There were important continuities in approach but, for Toynbee, the plight of the Londoners he witnessed in the 1870s could only be explained by recourse to the history of those in the Midlands and the North whose grandparents had experienced industrialism the first time around.[16]

Alfred Milner traced his friend's political and intellectual journey when he said of Toynbee that "For the sake of religion he had become a social reformer; for the sake of social reform he became an economist."[17] Toynbee's lectures would today be classed as a form of social history but were intended as an intervention in political economy. Despite the pessimism often implied by Carlyle's depiction of it as a dismal science, political economy was taken up by critics of laissez-faire as a tool for attacking its consequences.[18] In a letter written to his friend John Falk while an undergraduate, Toynbee outlined his resolve to take on political economy on its own terrain during the course of a seemingly insoluble strike:

> I waited with real anxiety to hear the result of this trade dispute ... because, you know, I am going to devote my life to political economy, and am therefore a little eager to pick up any facts or opinions I can, that I may escape the [illegible] scorn of practical men like you.... [W]hen I have the opportunity [I] shall gladly sit at your feet and learn all you have to tell me about wages, men and commerce.... Just now I must do my work for my degree. I hope to take it in the summer.... After that my life as a political economist and social agitator and philanthropist begins.[19]

While the letter ends with self-deprecating humor, it clearly shows Toynbee's precocity, as well as his early commitment to understanding the knotty workings of political economy. Toynbee fantasized about solving the disputes between capital and labor, as he put it, "with glorious visions of a strike averted through my eloquence." This heroic task was, therefore, twofold: beginning with the hard intellectual work of a historical political

economy, but being realized through the power of the rhetoric which would convey its findings.

To pursue with diligent eye

It was in this critical tradition that Toynbee had initially been introduced to political economy by John Ruskin. Toynbee's encounter with Ruskin began when he joined the road-digging scheme at Hinksey Road, which was initiated as a means for students to experience the pleasure of physical work. Unlike certain other diggers, Toynbee was no acolyte, and he disagreed with Ruskin in important ways. Ruskin believed in an economic system under which supply and demand were strictly controlled by the state in order to achieve the most desirable outcomes. Toynbee saw this as paternalistic and undemocratic and, most crucially, it left no room for self-help. Toynbee's view was that political economy had gone awry and needed to be reformed, yet he remained convinced of the need for individuals to rise to the challenges they faced. Toynbee also diverged from Ruskin's more general diagnoses of the problems with modern society and was free from nostalgia. Unlike Ruskin, he "did not condemn industrialization as a perversion of natural economic and social relations [and] rejected the 'golden age' argument that called for the restoration of a bygone system."[20]

This point should be emphasized since Toynbee has been placed at the head of a tradition of historians who abhorred the effects of industrialism. David Cannadine ascribes to Toynbee the view of the Industrial Revolution that "It was rapid; it was terrible," but Toynbee could alternate between such a judgment and one that was more measured and, in any case, it is unclear whether he meant "terrible" in the sense of "inspiring terror" or "bad."[21] Toynbee's analysis was more nuanced than is often suggested, and having investigated the "old system of manufacture," he did not lament its passing. Along with his better-known criticisms of the factory system, Toynbee highlighted the oppressive nature of the old relation between master and workman, superseded by factory production.

> The old life, as described by Owen and Cobbett … is at first sight most attractive … but this close relationship had its bad side. There

> was often great brutality and gross vice. The workman was at his employer's mercy: in Norfolk the farmer used to horse-whip his labouring men, and his wife the women.[22]

Toynbee was careful to highlight both the "dark and light sides" of the Industrial Revolution, but even the benefits of industrialization were overshadowed by the pernicious effects of the machine, presented as the autonomous agent of irreversible change.

> The close relationship was distinctly the result of the small system of industry, and hence it was shattered by the power-loom and the steam-engine. When huge factories were established there could no longer be a close tie between the master and his men; the workman hated his employer, and the employer looked on his workmen simply as hands … but Carlyle was wrong in supposing that the old conditions of labour could be re-established.[23]

Toynbee was pragmatic and, according to Alon Kadish, "differed from Ruskin in his understanding of what constituted a viable solution to an economic problem. Ruskin contended that wherever change was required it must be preceded by a transformation in moral attitudes."[24] In this sense Ruskin set the standard too high: his belief that it was employers' moral duty to pay a fair wage was rejected by Toynbee, who believed in the need for some form of coercion. As Kadish puts it, Toynbee "did not seek the abolition of industrial society but rather its further development so that by developing some of its inherent characteristics and by changing others it would overcome its own faults."[25] Using history in conjunction with political economy, Toynbee attacked Adam Smith on his own terms; he criticized the unquestioned belief in competition on the part of orthodox economists which had created "the greatest impulse to socialistic speculation in England" and invited the opprobrium that labeled their science a "cruel, inhuman, infant killer."[26]

According to Toynbee, in one of the few lectures he transcribed himself for publication, not only did political economy carry an unwarranted commitment to laissez-faire, but it was excessively directed by the practical concerns and the "prejudice" of politicians and businessmen. Addressing an audience of working men, Toynbee recognized the temptation to counter such factionalism with passion. Yet he urged any would-be economists to

put their feelings aside and to take an objective attitude, represented by the image of an ideal researcher he portrayed as "the student." Disinterested, reflective and so able to form a panoptic view, the student

> lives retired, watches the world from afar, and discerns many thing unnoticed by those who are too often borne along in the tumult they seek to guide. From his watch-tower he looks before and after, pursues with diligent eye the preceding past, and with anxious expectation forecasts the future.[27]

The neutrality that was seen to follow from this approach was linked explicitly to the possibility of using the past to forecast the future. In this way we can see Toynbee straining to contain his interests within the boundaries of a single discipline. To understand the history of the Industrial Revolution required not only a skeptical, scientific objectivity towards certain suppositions of political economy, but also a historical approach whose present-centered concerns would orient the idealized "student" towards a reflection on possible futures.

This was a far cry from the efforts of political economists, who had been hurriedly pressed into action before a consensus had emerged on the soundness of their method. Political economy was guilty of a willful conflation of natural and social laws which was masked by the veneer of science that it displayed. Whether from bad faith or faulty reasoning, political economy was marked by a "fatal confusion between laws and precepts" which produced a social pessimism that was unjustified and corrosive.[28] Toynbee objected to the widespread acceptance of such conclusions, for instance, about the limits of association and legislation, if they were presented as scientific truths. The maxims of political economy assumed law-like status despite being based on assumptions about human nature that remained violently contested: "as a matter of fact," said Toynbee about this disjuncture, "while affecting the reserved and serious air of students, political economists have all the time been found brawling in the market-place."[29] This represented a dereliction of duty for Toynbee, who had earmarked for his idealized figure of the student the role of healing the rift between workers and employers, which he took to be the single most pernicious result of the Industrial Revolution.[30]

Toynbee eschewed simple or dogmatic explanations for the deterioration in workplace relations under industrialism; rather, he sought to introduce

additional material factors into the story of human economic development. The problem of industrial unrest dominated the lecture on "Industry and Democracy" (delivered in various manufacturing towns in early 1881) in which the role of the machine looms ominously in the background. When explaining industrial conflict, Toynbee's general commitment to the free-trade system left him little scope for maneuver, since he could blame neither free trade itself nor peculiar cases of intransigence on the part of workers or employers, which would have been the alternative point of view. Toynbee recognized that the huge increase in domestic and international trade (under the system of free trade) had to be considered a major cause in any account of the Industrial Revolution. However, alongside this explanation Toynbee introduced a view of machines as a determining force of history. In an essay on workers' education, Toynbee's account of the origins of the contemporary malaise reprised the theme: "The slowly dissolving framework of mediaeval industrial life was suddenly broken in pieces by the mighty blows of the steam-engine and the power-loom."[31] Toynbee depicted the machine as having shaped the Industrial Revolution as well as the subsequent crisis in industrial relations, and he struck the same note in his discussion of Adam Smith's intervention on the part of James Watt in Glasgow. In allowing Watt the space to work on his steam engine, Smith indirectly unleashed a power whose effects defied explanation, and which was a new and decisive agent on the historical stage. Toynbee noted the irony that Smith could not have imagined "that by the invention of the steam-engine Watt would make possible the realization of that freedom which Adam Smith looked upon as a dream, a utopia."[32] The promise that technology will allow increasingly perfect operation of the market has long tantalized economists. Toynbee noted that it was thanks to the development of patents, of water frames, power looms, and mules—by "these new discoveries," that the rural "population was drawn out of cottages in distant valleys by secluded streams and driven together into factories and cities"; however, with a few exceptions, economists had been less interested in resolving the social and political difficulties that ensued.[33]

The emergence of the British "industrial revolution"

Although Toynbee popularized the term "Industrial Revolution," it was Engels who created the singular sense in which we understand it today.[34] The importance of Engels lies in his polemical conjoining of description with judgment, but since *The Condition of the Working Class in England* was not translated into English until 1887, it was through Marx that the term "industrial revolution" was transmitted to British writers such as Toynbee. It is likely that Toynbee read Marx in the French translation of 1872 and, as with many of his contemporaries such as William Morris and H. M. Hyndman, it appears to have had a transformative effect.[35] Indeed Hyndman published a vulgarized version of Marx and Engels's claims of a British industrial revolution in 1883, in which he failed to credit Marx's idea while passing up the chance to purloin Engels's arresting and memorable phrase, which was thus left free for Toynbee's posthumous editors to adopt when titling his book the following year.[36]

If the Industrial Revolution took place in Britain between 1760 and 1830, why did the expression remain absent from English usage until so much later? There are at least two answers to this question. The first attributes Toynbee's achievement to his intellectual style, which was the product of unique circumstances: he was born in 1852 at the apex of Victorian Britain, and his sense of social mission was of a piece with that of the great social critics, who were by 1880, however, fading from the scene; he went on to be educated largely outside of traditional pedagogical structures and thus mastered a diverse range of subjects.[37] This formation contributed to the breadth of Toynbee's perspective which would be coupled to the new empirical researches of historicist political economy. Although informed by the *Methodenstreit* taking place within the discipline, Toynbee was working before the ossification of economic thought into its two branches after 1890 and could thus combine the theoretical, historical and reforming elements that distinguish his work. If analyzing the social problems of industrialization demanded thinking across received categories, there was a small window of opportunity for doing so as a political economist, which Toynbee was attempting to grasp. This holism gave him a privileged perspective on the question of the Industrial Revolution, while giving his writing an urgent popular appeal. The posthumous lectures reached a wide audience, as they ran through multiple

editions and reprints in the thirty years between 1884 and 1914. Other attempts to tackle industrialization as a topic have tended to originate in individuals able to take cross-disciplinary perspectives: the first historical study of the expression "Industrial Revolution" itself—a detective work of literary scholarship—was made by Anna Bezanson, an economist rather than a historian.[38] First-order historical investigations into industrial capitalism have been undertaken by those able to straddle traditional British disciplinary formations, like Toynbee himself but also by such figures as the economist and sociologist J. A. Hobson who would approach the question from a heterodox point of view at the end of the century.[39] To this list of analysts could be added Paul Mantoux, the French historian whose path-breaking history of the Industrial Revolution of 1906 was its first dedicated investigation since Toynbee's halting efforts of 1881.[40] The fact that a French writer was the first to do so, at a time when British history and economics were alive with questions deriving from the impact of the industrial system—the role of machines in the workplace, the labor question, the merits of free trade—suggests something of the ongoing difficulty of collecting its historical origins under a single heading.[41]

The second reason for the lag is perhaps more obvious, but important nonetheless. In his account of the Industrial Revolution myth in the twentieth century, Donald Coleman attends in particular to the importance of the 1950s. The postwar boom witnessed a new interest in the Industrial Revolution, whose history was then written as the heroic precedent for the contemporary technological take-off. Alongside the obvious context of the cold war, Coleman rightly sees the interest of such 1950s writers as W. W. Rostow as expressions of a renewed faith in the power of technology to remake society. "It was not perhaps accidental that the extension of this usage [of the Industrial Revolution as modern miracle] coincided with the proliferation of sundry innovations affecting everyday life."[42] New forms of manufacture, product design and town planning impacted not only upon the homes, workplaces and cities of the 1950s but also on the historiography of the Industrial Revolution. By the same token, the enormous technical advances of the second industrial revolution, beginning in the 1870s, impacted upon these earlier historiographic perspectives. From the British standpoint, the new technologies of electricity, chemicals and plastics, which gave many people the experience of wholly new forms of heat, light, food, medicine, communication and transportation, helped

prompt the first historical reflection upon the original Industrial Revolution. The British perspective was unique: as the first steam-powered economy, Britain had spent a half-century alone at the "paleo-technic" stage of development. The second industrial revolution of the 1870s onwards, and the transition to the "neo-technic" stage in Britain, was paralleled in Europe and the United States by industrial revolutions which took Britain's rivals in one step to a comparable level of development.[43] The possibility of this new, comparative perspective caused a degree of national introspection. For the most part this focused on the relative weakness of Britain's industrial and commercial prospects; an anxiety that increased with such opportunities for comparison as the international exhibitions held in France and the United States, highlighting the burgeoning levels of foreign expertise.[44]

These anxieties could be heard regularly in the growing frustrations of the practically minded. Scientists, engineers and businessmen were preoccupied with Britain's apparent malaise, producing a discourse that crystallized in the form of Royal Commissions on technical education (1871–75) and on the Depression of Trade and Industry (1886), which looked for explicit solutions.[45] In addition to this future-oriented attention to policy, the awareness that Britain's industrial dominance was waning caused the more historically minded to ask how it had come about in the first place. Since the topic had not been well treated by the professionals, self-made histories of ingenuity sprang up in a range of other places.[46] Such heroic analyses which stressed British moral or cultural exceptionalism—and which have their echoes in parts of the twenty-first century historiography—nonetheless flew in the face of the complex, synthetic narrative that had been crafted and refined since the 1880s by historians such as William Cunningham, who had sought by contrast to emphasize the role of the state in industrialization through its policies of "Parliamentary Colbertism."[47] In a methodological reflection of 1907, W. J. Ashley—Toynbee's erstwhile student who had risen to take the first Chair in Economic History in the English-speaking world—recalled how the "Ricardian orthodoxy" of the 1870s had been superseded, not least because of Toynbee's lectures, which had opened a new and better era by "showing how impartial investigation of the past could be combined with ardent enthusiasm for social improvement," and yet Ashley lamented how little opportunity there was for such work in British universities.[48]

When the idea of the Industrial Revolution emerged in 1880s Britain, it was analytically useful in order to criticize and then, also, to praise the changes of the early nineteenth century. On the one hand, it was claimed that the preconditions leading to the industrialization of c.1800 should be emulated for Britain to maintain its lead over other nations; but on the other, that the damaging experience of the paleo-technic, steam-based phase of industrial development was the direct cause of the malaise on which the condition of England question now centered. In considering the impact of the new technologies of the second industrial revolution, contemporaries turned to history as a guide, but its lessons were unclear. Would the electric possibilities of the neo-technic help to ameliorate social problems, or would they simply create more of the same by subjecting humans to ever more machines?

Much of Toynbee's subject, therefore, concerned what would today be called "technology"; yet this umbrella or family concept was not available to him in 1881. Later, once incorporated by this bland signifier, the complex web of technical forces that include invention, the use of natural resources, production, distribution and consumption would tend to be considered by thinkers and theorists in isolation from Toynbee's core questions regarding human behavior and ethics, regulation, competition, the changing relation of labor to capital, and social reform. It has been argued that the emergence of the concept of "technology" in early-twentieth-century discourse thus served to obscure the political dimensions of material change by focusing attention on its specific materiality at the expense of its entanglement in the social world.[49] Such an approach contrasts with the holistic one adopted by Toynbee, whose analysis of capitalism could not easily be disentangled from the question of the machine.

The Historical Method at Work

The range of linguistic traditions that contributed to the idea of an industrial revolution, from Engels back to his French and German predecessors and from Marx forward to Britain in the 1880s, might be considered as a disparate semantic field which Arnold Toynbee unified in one phrase.[50] It is ironic that Toynbee is remembered for positing industrialism as revolutionary since the idea of revolution in any sense was not something

he felt comfortable with. It was a peculiar choice of title for lectures which stressed the gradual replacement of the feudal system with industrialism, as much as its suddenness. While Toynbee considered himself a socialist, he distanced himself from its uncritical varieties: both from Continental socialists—advocates of revolution—and also from what he considered the paternalist or "Tory" version espoused by certain British politicians.[51] A notoriously variegated category in the late Victorian context, Toynbee's brand of socialism has been delineated by Kadish as lacking any greater specificity than a general desire to help the poor, yet from the socialist analysis of society Toynbee borrowed a breadth of perspective which he conjoined to a liberal view of progress. The resulting fusion, therefore, produced an account of the Industrial Revolution much like Macaulay's view of the Glorious Revolution: it was yet another marker on the road of gradual, imperfect, English progress.[52]

In formulating a critique of political economy to address specifically industrial problems, Toynbee turned to history as the appropriate explanatory tool. What Toynbee called "the old political economy" had constructed an "industrial philosophy" on the foundations of a belief in laissez-faire.[53] The *prima facie* nature of the creed of competition appeared unsound to Toynbee, who preferred to submit it to empirical assessment: "We think it neither good nor evil, but seek to analyse it, and ascertain when it produces good and when it produces bad results." Such a critique, both pragmatic and yet radical, gathered force from the erosion of received historical roots as Toynbee joined other critics in pointing out that laissez-faire was an idea pertaining to a particular time and place.[54] "Political Economy is better understood … when studied in relation to the facts which were before the writer at the time when he formulated them.… Ricardo becomes painfully interesting when we read the history of his time."[55] By situating the emergence of laissez-faire in the context of the Industrial Revolution, it could be shown to have been a contingent development rather than the inevitable economic philosophy to be followed in late-nineteenth-century Britain—a society by then struggling to deal with its outcast populations. What Toynbee offered in this regard was an intellectual history of an idea which found its highest expression in Ricardo, but whose debt to a set of natural-theological assumptions was as unwarranted as it was unacknowledged.[56] Ricardo's sanctification of competition was a secular version of Adam Smith's belief in the power

of the individual, itself rendered a theodicy by Malthus, who had praised the counterintuitive yet "wise provision" of the Creator, which "by making the passion of self-love beyond comparison stronger than the passion of benevolence, the more ignorant are led to pursue the general happiness, an end which they would have totally failed to attain if the moving principle of their conduct had been benevolence."[57] Toynbee's skepticism about such a philosophy was driven by a broad-based historical inquiry, which in its more concrete form, he argued, provided the only way to understand radical social inequality: "Without the aid of the Historical Method it would be impossible, for instance, to understand why one-half of the land in the United Kingdom is owned by 2512 persons."[58] The received state of affairs was thus reframed by Toynbee as a historical puzzle.

In attempting to provide an account of the Industrial Revolution Toynbee was undertaking an immense task, for which no single discipline was adequate. He needed no reminding of John Robert Seeley's injunction to historians to begin by "knowing the present" because for him, things already flowed in that direction: history was only a tool in the service of his present concerns.[59] In his lectures Toynbee went further than Seeley: he urged historians to familiarize themselves with economic data and theory, not only in order that they be able to "look out for the right kind of facts," in the present, but also because it would enable them "to explain many phenomena like those attending the introduction of enclosures and machinery."[60] Toynbee's call for his colleagues to broaden the scope of their enquiries attests to the profound generic problems he faced but which have been insufficiently appreciated. Toynbee was swimming against a powerful current, which tended towards specialization. Subjects of enquiry fragmented along lines of increasing expertise: a trend most visible in the natural sciences, but one that applied to history and the human sciences as well.[61] This settlement of research questions into discrete, smaller compartments militated against the method that Toynbee envisaged, in which a holistic approach would allow convincing normative judgments to be formed about intractable historical problems.

Before and after revolution

A perpetually vexed question in the literature on the Industrial Revolution is how to describe the world beforehand. Two rather extreme views on this question include G. M. Trevelyan and Friedrich Engels. Trevelyan lamented "the quiet old England of the eighteenth century before the machines destroyed it," believing that machines imposed a particular logic and, indeed, determined the nature of the new society: "the Industrial Revolution," he claimed, "destroys, in town and country, the forms and pieties of the old English life, that could not be harnessed to the new machinery."[62] Engels, on the other hand, famously derided the condition of the English agricultural laborer before industrialism as one of "silent vegetation." In a peculiar inversion of the typical imagery Engels acknowledged that although the lives of such pre-industrial workers had a certain Romantic virtue, their routine was deadening and "not worthy of human beings. In truth," he continued, "they were not human beings; they were merely toiling machines in the service of a few aristocrats."[63] The image of the machine was, by that time, so uniformly pejorative as to be applicable, not without irony, as an insult to people whose work was not yet mechanized. Engels went on to say that industrialization merely carried this dehumanizing process to its logical end. This analysis identifies the catastrophe partly with machines in themselves, but also locates them as agents which served to consolidate trends already seen as pernicious. This question of the true state of the prelapsarian England of the eighteenth century has been central to arguments about the merits of the Industrial Revolution. This has been the case to such an extent that it has become difficult to say anything positive about eighteenth-century life without being labeled as nostalgic.

Arnold Toynbee's treatment of the pre-industrial era can be located somewhere between the extremes of Trevelyan on the one hand and Engels on the other. His lectures II–VII deal with England before the revolution and Kadish has given a thorough account of the text and its inconsistencies.[64] In lecture VI, for example, Toynbee attempted to walk an intermediary line, recognizing that although wages may have risen on the whole as a result of industrialization, the era beforehand was a time in which the "distribution of wealth was, indeed in all respects more equal."[65] Kadish uses this to highlight Toynbee's tendency towards a "golden-age

view of pre-industrialization" which he later had to "qualify."[66] There may be evidence of this but in the same passage Toynbee also described the way in which property was already highly concentrated in the early modern period. In this way Toynbee was wrestling with the meaning of the revolution he had set out to understand. Kadish sums up by saying that Toynbee appeared to have "an instinctive objection" to any account of pre-industrial England as "a system morally unjust and economically unsound," while "he rejected the golden-age image, hence his somewhat confused and not entirely consistent narrative."[67] It seems unfair to castigate Toynbee for inconsistency when it might be better to speak of his complexity. Wealth may have been distributed relatively more fairly before the Industrial Revolution but that does not necessarily imply that property was not already in highly concentrated ownership, in absolute terms. Toynbee valued some things about the pre-industrial world but rejected others and was unable (or unwilling) to arrive at a final judgment.

In another passage, Toynbee discussed the idea of competition as "still the dominant idea of our time; though since the publication of the *Origin of Species* [*sic*] we hear more of it under the name of the 'struggle for existence'."[68] Toynbee criticized the naturalization of competition and rejected the neoclassical view which saw any form of intervention as aberrant: "To that I answer that the whole meaning of civilization is interference with the brute struggle."[69] In a deft move Toynbee pointed out the fallacy that fails to recognize the "great difference between a struggle for mere existence and a struggle for a particular kind of existence."[70] This attention to the qualitative as well as the quantitative aspects of life and work is what recalls the terms of the machinery question of the earlier nineteenth century. Toynbee recognized that even if industrial workers survived the radical change in their employment caused by mechanization, they would still have lost a way of life. This was one among the many issues at stake during the 1820s and '30s, when machinery first loomed large in the cultural and political imagination, if not yet in the economy itself.[71] As Maxine Berg puts it, while the majority of those participants in the debates over mechanization "hailed the release it provided from limits to growth, [they] disagreed over the impact it would have on wages, employment, and skill."[72] This great, national controversy was the crucible in which the language and also the credibility of political economy would be forged, although the machinery question was never settled one way or

the other; hostilities were merely postponed, and the question remained open. Political economy, however, emerged as the middle-class science which could both explain and direct the forces of machinery even though it was not until Toynbee's time that machinery would make its great strides through the economy at large.[73]

In returning to the propositions advanced by Ricardo and others a half-century earlier, among them, that prices would come down as the result of mechanization and that the technologically unemployed would be redeployed elsewhere in the economy, Toynbee reopened the question of machinery, now refracted through the lens of historical inquiry. Toynbee was not in a position, nor was he concerned, to offer a detailed empirical assessment of the promises made by machine advocates; rather, his focus was on reconfiguring a practical political economy such that workers could be included substantively within it rather than remaining at its periphery, as they had been in the 1820s. Toynbee's vision of this process is outlined in his lecture "Industry and Democracy," in which an educated and enfranchised working class would benefit from a historical understanding of the Industrial Revolution and the consequences of mechanization. The dangerous "gulf" which brought a "growing estrangement" between workmen and employers, brought on by "the introduction of machine tools," could be reversed by respectful and equitable negotiation between the parties.[74] The seemingly prosaic suggestion of "reconcilation boards" within industry seemed utopian to Toynbee when he proposed that they provided a template for the future, and "should in the light of the principles of social and industrial science, deal with those great problems of the fluctuations of wages, of over-production and the regulation of trade, which workmen and employers together alone can settle."[75] Toynbee was, of course, unable to give a comprehensive account of the relation between capitalism, social progress and technology; yet, he remained a pioneer in grappling with this constellation of heterogeneous causes and effects until his untimely death, not least in his recognition that an understanding of its diachronic emergence was a prerequisite to any political solution.

After Toynbee

In order to assess Toynbee's contribution one must begin with his immediate historicization by contemporaries. In his summation of the field in 1887, the historical economist H. S. Foxwell lauded Toynbee's sympathetic skills as a historian in "making details significant, and of awakening the past until it becomes more living and interesting than the present itself."[76] In an extended elegy, Toynbee's memory takes on a mythical, saintly quality which could almost represent the good conscience of economists, as a repository of "humanistic feelings." Toynbee was eulogized as "Sensitive, intensely sympathetic, altruistic almost to asceticism [he] seemed like one inspired."[77] However, due to the premature death of its exponent, this method remained at a safe distance from economists' actual practice. Toynbee's effort at producing a unified political economy—theoretical, historical and humanistic—was reduced to a wistful character sketch by Foxwell, who concluded that its legacy was to be found, not so much in political economy itself as in the various charitable organizations and the settlement movement. The obligatory mention of Toynbee Hall—named in his honor, but which had little to do with Toynbee's work—epitomized the way in which it was easier to commemorate Toynbee than to follow his example.

If the impact of the historical method upon political economy was critical rather than constructive, it helped nonetheless to produce a more circumspect discipline, whose scientific claims would be restricted only to "particular polities."[78] In this way political economy maneuvered to accept certain criticisms from historicist critics while avoiding the more far-reaching ones hinted at by Toynbee, if never fully articulated by him. By the twentieth century the fissure between different approaches had become institutionalized, as the historical critique was "peacefully diverted into the creation of the separate field of economic history" which could then be divorced from political and contemporary concerns.[79]

The manuscripts accompanying Toynbee's lecture notes are divided according to topics, and under the heading "Wages, 1776–1876" are written a few lines about the world before the Industrial Revolution. This small fragment is a comment on the social and political organization of life and stresses the loss—in the nineteenth century—of a holistic approach to politics:

> Different world of different [illegible]/then – Politics not yet separated from Religion, nor economics – The state still [illegible] of as Religious institution, with ends embracing the whole of human life – Legal Rates of interest – fair wages – honest wares. As the Guild had as it were embraced man's life as a whole, so the state watched over the life of the individual citizen not only to protect him from force and fraud, but to [illegible] his eternal welfare. This may help us to realize our conceptions of what the state ought to do.[80]

Instead of a minimal version of the state as nothing more than the adjudicator between disputatious parties, Toynbee imagined a benevolent state, whose intervention would be needed to provide for "man's life a whole," a concern ill-served by the separation of politics and economics into separate domains.[81] Toynbee sought a political, economic and historical understanding of industrialization and the coming of the machine. Such an understanding required a degree of sophistication beyond the capacities of a political economy under the influence of Ricardo.

In addition to popularizing the "Industrial Revolution" Toynbee's contribution was, therefore, to forge an approach which would be taken up by his students and contemporaries to greater effect than he was able to achieve in his own lifetime. Most notably, W. J. Ashley and William Cunningham continued to produce analyses of industrialization self-consciously in Toynbee's tradition, and took their points of view to the major sites of disciplinary controversy, as it were, on his behalf.[82] Toynbee was optimistic about healing the rifts that had caused the industrial disputes of his time, and while less naïve than Ruskin, he retained a utopian view of humankind's future prospects. The most pernicious result of the Industrial Revolution, to his mind, was the increasing division between capital and labor. The essence of Toynbee's intellectual style, though, was his belief in a historical process of continual division and union. The divisions he found to have occurred in history were aberrations which would be overcome, creating new forms of union.

In a loosely sketched set of metaphysical speculations, Toynbee outlined a dialectical philosophy which reveals the arc of his thought. Describing his idea, Toynbee wrote that divisions of function were mere surface phenomena which could be underscored by a deep unity of spirit: "Differentiation only takes place in order that a higher unity may be

reached. Differentiation of functions and not differentiation of spirit is what we desire."[83] Taking a set of examples, Toynbee elaborated this religious notion, claiming that the emancipation of women allowed a reunion with man in a higher communion. The same held for the relationship of workman and employer, who would achieve together a renewed sense of industrial purpose, transcending a debased individualism. In the case of human history, this idea of a unity of spirit allowed Toynbee to imagine a progressive teleology, which would culminate for humankind in the return to a final, civilized form of communality yet to be determined.[84]

This belief in continuity-through-change marked all of Toynbee's thought, whether he imagined healing the rifts between individual and society, man and woman, or worker and employer. This last relationship had been stretched to breaking point by machinery. The political gains of the period risked being lost, because of the

> conditions of industrial life which seem to exhaust [the worker's] energies and dull his intelligence. A law of political development has slowly raised him from the position of a serf to that of a citizen; a law of industrial development has degraded him, by division of labour, from a man into a machine.[85]

Mechanization threatened workers' burgeoning political consciousness, but Toynbee was optimistic that this problem would be overcome through greater democracy and education, the aim of which was to allow an adequate description of their present industrial condition.[86] However, a prerequisite for achieving these goals was a convincing historical account of what had taken place in the Industrial Revolution; an account that would register both qualitative and quantitative changes. Toynbee's lectures were acknowledged as the inspiration for subsequent studies of industrialization and hinted at the possibility of a unified science of history and economics, but one that would seldom be realized.

Notes

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1. Friedrich Engels, *The Condition of the Working Class in England in 1844*, ed. Florence Kelley Wischnewetzky (London: Swan Sonnenschein, 1892), 1; "The Industrial Future of England," cited in Albert Mansbridge, *Arnold Toynbee* (London: Daniel, 1905), 11.

2. For example, respectively, Deirdre N. McCloskey, *Bourgeois Dignity: Why Economics Can't Explain the Modern World* (Chicago: Chicago University Press, 2010); David Landes, *The Wealth and Poverty of Nations: Why Some Are Rich and Some Poor* (London: Abacus 1990), 56; Gregory Clark, *A Farewell to Alms: A Brief Economic History of the World* (Princeton: Princeton University Press, 2007), 271.

3. The relation between nineteenth-century British (and Western) growth and the longer trend of Asian power is explored with respect to China and India respectively by Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2000), and by Prasannan Parthasarathi, *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600–1850* (Cambridge: Cambridge University Press, 2011). The bibliography with regard to the role of the state and natural resources is enormous, but would also include, respectively, William Ashworth, *The British Industrial Revolution: Debt, Global Trade and Knowledge* (Princeton: Princeton University Press, forthcoming), and Robert Allen, *The British Industrial Revolution in Global Perspective* (Cambridge: Cambridge University Press, 2009).

4. This point was amply demonstrated by Crosbie Smith in his Rausing Lecture in the History of Technology, "Coal, Steam and Ships," University of Cambridge, May 23, 2013) in which he questioned certain assumptions in Allen's *British Industrial Revolution*.

5. David Cannadine "The Present and the Past in the English Industrial Revolution 1880–1980," *Past & Present*, no. 103 (1984): 131–72.

6. Alon Kadish, *Apostle Arnold: The Life and Death of Arnold Toynbee, 1852–1883* (Durham, NC: Duke University Press, 1986); Melvin Richter, *The Politics of Conscience: T.H. Green and His Age* (London: Weidenfeld and Nicolson, 1964).

7. Maxine Berg, *The Machinery Question and the Making of Political Economy, 1815–1848* (Cambridge: Cambridge University Press, 1980) 9, 10.

8. Toynbee was not a fellow, but a tutor in political economy; however, his famous lecture series was delivered to students in the School of Modern History. This interdisciplinarity was a critical feature of his approach.

9. Barnett speaking at a public meeting in Oxford, reported in the *Oxford Magazine* on November 21, 1883, 387, cited in Anne Ockwell and Harold Pollins, "Settlement in All Its Forms," in M. G Brock and M. C. Curthoys, eds. *Nineteenth-Century Oxford, Part 2: The History of the University of Oxford*, 8 vols. (Oxford: Clarendon, 2000), 7:671.

10. F. C. Montague, *Arnold Toynbee* (Baltimore: Johns Hopkins University Press, 1889). Gell's letter is appended, 58–59.

11. Lord Milner, "Reminiscence," in Arnold Toynbee, *Lectures on the Industrial Revolution in England: Popular Addresses, Notes and Other Fragments* (London: Longmans, Green, and Co., 1908), xii.

12. Arnold Toynbee, *Lectures on the Industrial Revolution in England: Popular Addresses, Notes and Other Fragments* (London: Rivingtons, 1884). The monumental task of producing this edition has, perhaps, not been sufficiently recognized in most of the commentary. Toynbee's lecture notes combine bullet points, with doodles and working-out copied from his research notes. While most of the material is legible, much of it is extremely difficult to decipher and the text that emerged is a tribute to Ashley, King and Charlotte Toynbee. Toynbee Papers, Balliol College Library, Oxford. (References henceforth are to the 1908 edition.)

13. Andrew Mearns, *The Bitter Cry of Outcast London: An Inquiry into the Conditions of the Abject Poor* (London: James Clarke, 1883).

14. "Occasional Notes," *The Pall Mall Gazette,* November 22, 1883, reporting the contents of the *Oxford Magazine* from the day before.

15. Echoing this shift, see also Engels's preface to the English edition of *The Conditions of the Working Class in England*, published a little while later, in 1892, in which he revisited the question of England's revolutionary potential. Engels considered that the new interest in socialism among certain of the elite was nothing as compared to the potential strength of London as a locus of working-class organization: "far more important than this momentary fashion among bourgeois circles of affecting a mild dilution of Socialism, and even more than the actual progress Socialism has made in England generally, that is the revival of the East End of London. That immense haunt of misery is no longer the stagnant pool it was six years ago. It has shaken off its torpid despair, has returned to life" (34). See also, David Feldman "The Importance of Being English: Jewish Immigration and the Decay of Liberal England," in David Feldman and Gareth Stedman Jones, eds. *Metropolis – London: Histories and Representations since 1800* (London: Routledge, 1989).

16. The question of whether the interest in the East End was motivated more by guilt or fear of "Outcast London" does not have quite the same purchase in thinking about the act of historical enquiry as it does in that of the formation of social policy. In the case of Toynbee, even if he feared the results of a working-class revolt, his historical research was a different sort of enterprise. See Gareth Stedman Jones, *Outcast London: A Study in the Relationship Between Classes in Victorian Society* (New York: Pantheon, 1984).

17. Milner, "Reminiscence," xxi.

18. Indeed the meaning of Carlyle's epithet itself has been open to misunderstanding, since its intention was not as a criticism of Malthusianism and its sink-or-swim philosophy; rather, Carlyle sought to question the presumption of human equality on which liberal political economy was founded. See Joseph Persky "Retrospectives: A Dismal Romantic," *The Journal of Economic Perspectives* 4, no. 4 (1990): 165–72.

19. Arnold Toynbee to John Falk, December 20, 1876, Toynbee Papers.

20. Kadish, *Apostle Arnold*, 38.

21. Cannadine, "The Present and the Past," 136.

22. Toynbee, "The Industrial Revolution," in *Lectures*, 131–32.

23. Ibid., 132.

24. Kadish, *Apostle Arnold*, 37.

25. Ibid., 38.

26. Toynbee, "The Industrial Revolution," 157.

27. Toynbee, "Industry and Democracy," in *Lectures*, 193.

28. Toynbee, "The Industrial Revolution," 161.

29. Ibid.

30. Toynbee would later modulate this view, recognizing the need for a more activist or passionate approach in the political arena; see "Are Radicals Socialist?" in *Lectures*, 219–38.

31. Toynbee, "The Education of Co-operators," in *Lectures*, 243.

32. Toynbee, "The Industrial Revolution," 151–52.

33. Ibid., 152.

34. Engels, *Condition*, passim.

35. See Karl Marx, *Capital*, trans. M. J. Roy (Paris: Lachâtre, 1872), 161ff; Kadish, *Apostle Arnold*, 106; Donald Coleman, *Myth, History and the Industrial Revolution* (London: Hambledon, 1992) 18. For Marx's reception in Britain, see E. J. Hobsbawm "Dr. Marx and the Victorian Critics," in Hobsbawm, *Labouring Men: Studies in the History of Labour* (London: Weidenfeld and Nicolson, 1964).

36. H. M. Hyndman, *The Historical Basis of Socialism in England* (London: Kegan, Paul, Trench & co., 1883), 18.

37. For a succinct account, see Alon Kadish "Toynbee, Arnold (1852–1883)," in *Oxford Dictionary of National Biography* (Oxford University Press, 2004), http://dx.doi.org/10.1093/ref:odnb/27646 (accessed February 16, 2012).

38. Anna Bezanson "The Early Use of the Term Industrial Revolution," *Quarterly Journal of Economics* 36, no. 2 (1922): 343–49.

39. See Daniel C. S. Wilson, "Machine Past, Machine Future: Technology in British Thought, 1870–1914" (PhD diss., University of London, 2010), chap. 4.

40. Paul Mantoux *La Révolution industrielle au XVIIIe siècle; essai sur les commencements de la grande industrie moderne en Angleterre* (Paris: Bellais, 1906), notwithstanding the work of William Cunningham, whose scope was much broader.

41. Although Mantoux's book was reviewed favorably in the *EHR*, it would be over twenty years before an English translation appeared. L. L. Price, "Book Review," *English Historical Review* 21, no. 83 (1906): 594–96. In 1907 W. J. Ashley, speaking to Section F of the British Association, lamented the fact that it had taken a foreigner to develop the work started by Toynbee twenty years earlier. *Annual Report of the Meeting of the British Association for the Advancement of Science* (London: John Murray, 1907), 588 (hereafter *BAR*).

42. Coleman, *Myth*, 31.

43. The terms, "paleo-" and "neo-technic" were coined by Patrick Geddes and popularized by his disciple Lewis Mumford to describe the stages of development from economies based on steam to those based on electricity.

44. It is the widespread perception rather than any actual decline which is at issue in this context, and while such perceptions have been effectively rebutted by David Edgerton in a series of works (beginning for example with his *England and the Aeroplane: An Essay on a Militant and Technological Nation* [Basingstoke: Macmillan, 1991]), the work of historians such as Martin J. Wiener and Corelli Barnett continues to nourish the ongoing mythologies about the Industrial Revolution and its consequences for the modern British economy. See respectively *English Culture and the Decline of the Industrial Spirit, 1850–1980* (Cambridge: Cambridge University Press, 1981) and *The Collapse of British Power* (London: Pan, 2002).

45. The Devonshire Commission concluded in 1875 and was followed by a series of others in the 1880s on related issues of science and technical instruction. See, for example, *Report of the Royal Commission Appointed to Inquire into the Depression of Trade and Industry* (London: HMSO, 1887).

46. See, for example, the address given by the engineer Silvanus P. Thompson to Section G of the British Association in 1907, *BAR* (1907): 608–20; see also Christine Macleod, *Heroes of Invention: Technology, Liberalism and British Identity, 1750–1914* (Cambridge: Cambridge University Press, 2007); and also Wilson, "Machine Past, Machine Future," chap. 1.

47. William Cunningham, *The Growth of English Industry and Commerce* (Cambridge: Cambridge University Press, 1921).

48. This was, in fact, an address delivered at the same Leicester meeting of the British Association mentioned above. *BAR* (1907): 583, 587, 589.

49. Leo Marx, "*Technology:* The Emergence of a Hazardous Concept," *Technology and Culture* 51, no. 3 (2010): 561–77.

50. In a series of recent works, Gareth Stedman Jones has extended analyses of Toynbee's European antecedents backwards while criticizing Coleman's account. Gareth Stedman Jones, "National Bankruptcy and Social Revolution: European Observers on Britain, 1831–1844," in Donald Winch and Patrick O'Brien, eds. *The Political Economy of British Historical Experience, 1688–1914* (Oxford: Oxford University Press, 2002); Gareth Stedman Jones "Engels and the Invention of the Catastrophist Conception of the Industrial Revolution," in Douglas Moggach, ed. *The New Hegelians: Politics and Philosophy in the Hegelian School* (New York: Cambridge University Press, 2006).

51. Toynbee, "Are Radicals Socialists?"

52. Kadish, *Apostle Arnold*, 105 and chap. 5, passim.

53. Toynbee, "The Industrial Revolution," 151.

54. A. W. Coats, "The Historist Reaction in English Political Economy 1870–90," *Economica* 21, no. 82 (1954): 143–53.

55. Toynbee, "The Industrial Revolution," 2.

56. Ibid., 148–55. Toynbee deftly traces this lineage back from Ricardo through Malthus to Smith, notwithstanding the disagreements of the former two on other matters.

57. Ibid., 149, citing Malthus's *Essay on Population*, 7th ed. (London: Reeves & Turner, 1872), 492.

58. Ibid., 4.

59. In his inaugural address as Cambridge Regius Professor, Seeley (1834–95) broke ground in attempting to foment a moral and political historical practice that was inspired in the present. John Robert Seeley, *The Teaching of Politics* (London: Macmillan, 1870).

60. Toynbee, "The Industrial Revolution," 2.

61. The case of economics and history is demonstrated, as Donald Winch has shown, during this period by the birth of economic history, and today by the multitude of specialized forms of historical enquiry; Donald Winch "That Disputatious Pair: Economic History and the History of Economics" (discussion paper, the Centre for History and Economics, King's College, Cambridge, 1997). For a discussion of this trend with regard to technology see Wilson, "Machine Past, Machine Future."

62. George Macaulay Trevelyan, *British History in the Nineteenth Century (1782–1901)* (London: Longmans, 1922), viii, xvi.

63. Engels, *Condition*, 3–4.

64. Kadish, *Apostle Arnold*, 130.

65. Toynbee, "The Industrial Revolution," 50.

66. Kadish, *Apostle Arnold*, 132.

67. Ibid., 133.

68. Toynbee, "The Industrial Revolution," 65.

69. Ibid., 66. This attempt to restrict the scope of Darwinism was common to several contemporaries, and is found explicitly in the work of the anarchist Kropotkin and implicitly in H.G. Wells. See also, Peter Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades Around 1900* (Baltimore: Johns Hopkins University Press, 1983).

70. Toynbee, "The Industrial Revolution," 65–66.

71. For a discussion of how considerations of machinery shaped political economy earlier in the century, see Berg, *Machinery Question*.

72. Ibid., 10.

73. The economic literature on this issue is enormous; the pertinence of "late onset mechanization" for historians is outlined in Raphael Samuel, "Workshop of the World: Steam Power and Hand Technology in Mid-Victorian Britain," *History Workshop Journal* 3 (1977): 6–72.

74. Toynbee, "Industry and Democracy," 212 and passim.

75. Ibid., 217.

76. H. S. Foxwell, "The Economic Movement in England," *Quarterly Journal of Economics* 2, no. 1 (1887): 87.

77. Foxwell's depiction of Tonbee as a heroic and Romantic figure was echoed by other contemporary contemporary accounts that focused on his "good looks and sweet voice." See Seth Koven's reading of East End philanthropy as libidinal, in his Slumming: Sexual and Social Politics in Victorian London (London: Princeton University Press, 2004), 239–40, 360 n. 52.

78. Coats, "Historist Reaction," 150–52. This trend culminates in the process charted by Stefan Collini, Donald Winch and John Burrow, "Particular Polities: Political Economy and the Historical Method," in Collini, Winch and Burrow, *That Noble Science of Politics: A Study in Nineteenth-Century Intellectual History* (Cambridge: Cambridge University Press, 1983), 247–76.

79. Ibid., 274. For more context, see Winch, "Disputatious Pair." For a "blow by blow account" of the emergence of economic history see Alon Kadish, *Historians, Economists and Economic History* (London: Routledge: 1989).

80. Unnumbered manuscript accompanying lecture notes, Toynbee Papers.

81. Toynbee's religion is treated at length in Kadish, *Apostle Arnold*, but a fuller consideration of how the religious perspective has shaped considerations of technology—both in Toynbee's case and more generally—would be welcome.

82. As well as in the two specialist economic journals of the 1890s; see also the addresses regularly delivered to Section F of the British Association by Ashley and Cunningham, discussed further in Daniel C. S. Wilson, "Mechanical Narratives; or, How We Got Here," in Adelene Buckland and Sadiah Qureshi eds., *Time Travellers* (Chicago: University of Chicago Press, forthcoming).

83. Toynbee, "Notes and Jottings," in *Lectures*, 269.

84. Ibid. In this regard Toynbee was following T. H. Green, whose influence on Toynbee's religious thought is discussed in Kadish, *Apostle Arnold*, chap. 4; while the broader context of British neo-Hegelianism or Idealism is given in Richter, *Politics of Conscience*.

85. Toynbee, "The Education of Co-operators," 245.

86. Toynbee, "Industry and Democracy," 215.