1 Introduction
Ladders and Trees

In 1771 the *philosophe* Louis-Sébastien Mercier published his *L'an deux mille quatre cent quarante* (*The Year 2440*), the first utopia set not on an imaginary island but in the future. He thus rates a whole chapter in J. B. Bury's classic survey of the history of the idea of progress. Mercier's imaginary time-traveller awakes to find a Paris transformed for the better. Thanks to the application of reason, society has been brought to a state of perfection in which everyone can live a comfortable life. There is a hint that the new state of affairs is not a static 'end of history' that will perpetuate itself without further change. Progress in science and technology will continue, and further discoveries will open up unimaginable potential for change. Mercier makes no attempt to guess what might be achieved, but his brief speculation highlights a crucial tension in the basic idea of progress.[1]

Predicting a future utopia certainly implies progress, but Mercier made no attempt to link this to a progressive trend that can be seen in the past history of civilization. The true idea of progress as a built-in historical trend that will continue into the future was consolidated a little later in the century by the marquis de Condorcet and others. From that point on the hope of further social and moral improvement was increasingly promoted as something to be expected precisely because history tells us that there is an inevitable trend in that direction. All too often, however, those who appealed to the idea disagreed over both the goal to be achieved and the driving force at work.

As Bury notes in his introduction, any definition of progress requires a value judgement as to the desirability of what is unfolding. The highly structured state proposed by socialists is anathema to liberals who see human liberty as crucial for happiness. Bury goes on to suggest that there are two versions of the idea: socialists know exactly what they want to achieve and thus imagine their future utopia as a final goal for social development, while libertarians are more likely to see progress as continuing indefinitely because free individuals can come up with new ideas. But even those looking for an expansion of liberty

[1] Mercier, *L'an deux mille quatre cent quarante*, chap. 31; see Bury, *The Idea of Progress*, chap. 10.

have a trajectory in mind which assumes that progress will produce the kind of benefits they value. Underlying Mercier's suggestion of unpredictable new developments in technology lies a very different model of progress, one that sees history itself as inherently unpredictable and open-ended. This makes progress a much more slippery concept because there can be no final goal to achieve and the past cannot be used to predict the future. The crucial insight is the recognition that there are always more ways than one of achieving greater complexity.

Rethinking the Shape of Progress

Imagining a utopia does not require a theory of historical progress: Sir Thomas More's vision placed utopia in some unknown part of the world, not in the future. Utopias are intended as critiques of the existing state of affairs. Even when an imaginary perfect society is described as emerging at some point in the future, if there is no attempt to explain how we get there, and no connection to trends perceived in past history, the suggestion doesn't function as a form of progressionism. A goal-directed view of progress does require the postulation of a perfect state towards which events are moving. But once the idea of an 'end of history' is abandoned, progress has a looser connections with utopianism: if there is no single goal in prospect, there is less inclination to describe any future state as 'perfect'. It is just supposed to be better than what went before according to certain criteria.[2]

The transition from a model of progress as a predictable ascent towards a predetermined goal to a more open-ended vision of history is the focus of this book. It's a distinction all too frequently ignored by historians of the idea; even Bury's division between the 'end of history' approach and the hope of indefinite progress doesn't quite capture it. The transition cuts across debates about the cause and purpose of progress because it involves two very different concepts of the 'shape' of historical development. It applies equally well to any theory of evolution, biological, social or technological, so we have to bring in changes in how we understand history in the broadest sense in order to appreciate its ramifications. In the end there is a crucial distinction that needs to be recognized: do you see development as the ascent of a linear scale, a ladder of perfection leading towards a predetermined goal, or as an open-ended process best represented by a branching tree?

In his account of science in the year 2440 Mercier claimed that naturalists had confirmed the validity of the ancient concept of the 'chain of being'. As described in Arthur O. Lovejoy's classic history, this was the belief that all

[2] On utopianism see for instance Claeys, *Searching for Utopia*, which does cover some areas that overlap with progressionism.

natural forms can be arranged into a linear sequence running from minerals through an ascending scale of organic complexity up to the human race. (In its medieval form it also continued up through a spiritual hierarchy to God Himself.) The notion that the world is based on a linear pattern established by the Creator had an enduring fascination, in part because it gave a rational structure to the natural world. In the late eighteenth century the chain was (in Lovejoy's terminology) 'temporalized' to make it a ladder of progress mounted by life in the course of the earth's history. When Condorcet and others created the idea of social progress, they defined the trend in terms of a similarly predetermined sequence of developmental stages. The parallel with the chain of being was noted at the time, and comparisons between biological and social progress continued to be made through into the modern era.[3]

The image of a ladder of creation could be related to the process of embryological development. The modern view (established by the early nineteenth century) is that the embryo starts as a single cell and gradually acquires the complex structures that turn it into an adult organism. The development of the embryo is goal-directed and takes place in a predetermined sequence of stages adding new levels of complexity. One way of understanding that sequence was to represent it as analogous to the chain of being, so that the 'lower' animals could be seen as immature stages of the human form. When exploration of the fossil record revealed a similar ascent of the scale through geological time, naturalists could argue that the historical process was goal-directed just like embryological development. Humanity was the goal of the whole process, prefigured from the very beginning.

This teleological vision was analogous to the foundation underlying the first ideas of social progress – the assumption that what will be achieved is the fulfilment of God's expectations for humankind. Traditional Christianity insisted that after the Fall, sinful humanity had no hope of redemption in this world. But a more liberal viewpoint gradually emerged offering the hope that – guided by Christ's example – we can gradually recover the state of felicity enjoyed by Adam and Eve immediately after their creation. Progress was goal-directed because the end-point had been specified from the beginning. Adding the development of life on earth into the sequence both extended the range of this model and allowed it to be seen as a parallel to the development of the embryo to maturity.

Bury notes that this 'genetic' world-view underpinned the linear and teleological interpretations of human social progress. For generations of late eighteenth-century and early nineteenth-century naturalists and historians, the world exhibited a predesigned ascent of a hierarchy of perfection designed by

[3] Lovejoy, *The Great Chain of Being*, esp. chap. 9.

God. The chain of being observed in God's creation of nature served as the blueprint for this linear model of development through time, both in nature and in society. My title *Progress Unchained* is meant to indicate that this model would soon be challenged by a far less structured view of historical development. This new approach was also mirrored in a model of change derived from nature itself, in this case the theory of evolution that came to be associated with the name of Charles Darwin. I shall argue that the new vision of organic evolution played a significant role in transforming ideas about progress in general.

Those committed to the linear model did not necessarily think that the same processes drove all phases of the ascent. This is why a focus on the 'shape' of progress is important: the chain of being represents a deeper foundation, based on a conviction that the world must have a simple hierarchical structure. Thinkers such as Condorcet who did not accept the religious faith in a divine purpose for the world nevertheless adopted the linear model, shifting the definition of the perfect society to be achieved into one based on material prosperity and happiness.

There was, however, a very different approach emerging, one which had less faith in the expectation that everything was governed by a divine order. The materialists who pioneered the modern idea of evolution saw that the laws of nature worked without reference to a predetermined plan. If there was progress, it was because those laws interacted in a way that at least sometimes allowed more complex structures to emerge. For Herbert Spencer and the Darwinians, biological and social progress were indeed the result of the same laws, but there was no reason to suppose that there was only one route leading to the most advanced state of animal or social evolution. Soon even thinkers who rejected materialism jumped onto the bandwagon. Henri Bergson's anti-mechanistic theory of 'creative evolution' helped to convince early twentieth-century thinkers that the direction of progress was not predetermined. The 'shape' of evolution could be uncoupled from the particular ideology which had given rise to its original manifestation.

The new approach encouraged the emergence of similar models of both biological and social progress. Darwinian evolution is a branching, ever-divergent and for all practical purposes unpredictable process driven by the complex interactions between organisms and their changing environments. When faced with a new environmental challenge species adapt by developing new characters that enable them to survive and flourish. If a species becomes exposed to two different environments it will evolve in two different directions, producing a node in the constantly branching 'tree of life' that became characteristic of Darwin's thinking about organic relationships. Progress towards more complex states is certainly possible, but it is not inevitable because most adaptations have only local significance, and there can be no

one goal towards which evolution as a whole is directed. The tree replaces the ladder as the 'shape' of evolution, and progress has to be defined as a general but haphazard increase in complexity or sophistication rather than an advance towards a predetermined goal.

The development of a new adaptation by a species is in some respects analogous to the invention of a new technology (physical or social) by a human population. This parallel was explicitly recognized by Darwin himself and by twentieth-century thinkers such as H. G. Wells, which suggests that it was no accident that the idea of open-ended progress emerged just as the modern Darwinian synthesis was being consolidated in biology. In a few cases, an adaptive innovation has more than local value: the new structure has entirely new functions that can trigger a phase of rapid expansion, as when a 'higher' class such as the mammals or the birds enters onto the scene. Biological progress in the Darwinian world is opportunistic, unpredictable and to some extent episodic – as was the new understanding of human progress. New ideas about the emergence of humanity from an ape ancestry stressed that it was impossible to treat our species as the predictable goal of evolution. Humans were a contingent outcome of a complex process that had produced all the other species. Small wonder, then, that our own efforts to improve ourselves showed a similar lack of direction.

Social progress may not be driven by the same mechanism as its biological equivalent, but if there are many ways of developing a more complex society or culture, no one species or culture (not even one's own) can be seen as the high point towards which all are progressing. Cultural relativism is the social science equivalent of the evolutionary biologists' tree of life, and there are many examples of analogies being drawn between the two areas. And if the past can be seen an ever-branching tree, the future for any society becomes unpredictable because we cannot be sure what new inventions will be devised that will impinge on the way people live. Even in today's globalized world, it is by no means certain that all nations are evolving in the same direction.

As the implications of the new visions of progress became apparent, new impetus was given to those who had always doubted whether there was any realistic hope of the human race achieving universal happiness. There have always been pessimists, not all of them evangelical Christians, who think that human nature is so imperfect that any effort to improve things is doomed to fail. The genetic model of history itself was open to a less optimistic view of the future: a society might develop towards maturity, but in the natural course of things that state is always followed by a decline to senility and death. This way of understanding historical development drove the early twentieth century's most widely recognized critic of progress, Oswald Spengler.

Spengler's concerns about the future were echoed by numerous critics of modern culture's increasing dependence on technological innovation. In some

cases a form of technological determinism created a new and nightmarish vision of a final 'end of history'. Aldous Huxley's *Brave New World* parodied the rationally ordered World State proposed by H. G. Wells and others. His future's nightmarish qualities derived from the applications of biological technology predicted in J. B. S. Haldane's *Daedelus*, published eight years earlier in 1924. Like Wells, Haldane was no simple-minded optimist, and he foresaw reproductive technologies that could change society for ever and perhaps even create new versions of the human race. Here was a more optimistic vision of progress in which innovation continued to offer new opportunities: there could be no static future state, whether utopian or otherwise. The problem for the optimists was that no one could be sure whether the results would be beneficial or harmful to our aspirations. The developments that Wells and Haldane welcomed were seen by their critics as destructive of all traditional human values. The optimists' utopias were the pessimists' nightmares, all the more worrying because no one could be sure what new innovation might catch on next.

The new visions of the future depended not only on a more complex model of social development but also on a new definition of what constitutes progress. In the linear view of history the goal of progress was a society that maximized human happiness. There were ideological differences over how this would best be achieved, but all could agree on the moral value of what they were aiming at. Once achieved, the utopian society would be static or it would no longer be utopian. If utopia is the mature phase of social evolution, no one would want to go beyond it. There was no expectation that social organization might be upset by further developments in technology, once an adequate physical environment could be ensured for all.

When progress was reconfigured as a branching tree of opportunities, progress had to be defined in utilitarian terms. Better control of the environment was the key – as in biological evolution – and there was much more room for disagreement over the moral value of what would emerge. Enthusiasts proclaimed the richness of the opportunities for personal fulfilment that would become available, but pessimists foresaw that the search for purely material satisfactions might have disastrous consequences for everything they valued. The best the technophiles had to offer was the prospect of a transformation of humanity, perhaps into forms that would allow an expansion out into the cosmos by space travel. Science fiction predicted that even that might not really ensure the elimination of conflict and hardship.

In my *A History of the Future* I outlined many of the forecasts made by scientists and science-fiction writers during the early twentieth century. By the 1960s the issue was becoming crucial as the pace of innovation increased, allowing futurology to become a central feature of public concern. The RAND Corporation was but one organization seeking to predict and direct what might

happen, while books such as Alvin Toffler's *Future Shock* became bestsellers. In our own time scientists compete to predict what might happen, and Yuval Noah Harari's *Homo Deus* has brought home to many the enormous potential for technology to transform not just society but human nature itself. Significantly, Harari's book was a follow-up to an earlier survey of how technology has changed our world in the course of history.[4]

We have come to realize that progress is not a step-by-step ascent towards utopia but an open-ended process that can produce any number of potentially more sophisticated futures. The hope that globalization might bring our cultures together has withered away as tribal, ethnic and religious differences prove as divisive as ever. Even if there might come to be a future global civilization, the West can no longer assume that anything other than its invention of the scientific method will lie at its heart. Critics who worry about the dangerous implications of the new technologies on offer are emboldened by the very fact that the enthusiasts cannot agree on which new gadget or technique will be most influential in shaping the more exciting world they expect to emerge. Defining progress in terms of complexity or sophistication makes more sense in the real world, but has undermined any hope of agreement over the moral implications of what might be produced.

Since the first drafts of this book were completed our society has been rocked by the impact of the global heath pandemic, leading to dire predictions of economic catastrophe. Yet optimists still think that it is technological innovation that will deal with both the medical issues and a much wider range of problems that we were already facing before the outbreak. This new situation perhaps helps to drive home the Darwinian aspects of how we can think about change: we seek to control our environment for our own benefit but the environment itself is unpredictable, and opportunities and innovations have often emerged in response to external challenges.

Historians and the Idea of Progress

The transition from the linear to the open-ended vision of progress was not a simple replacement of one idea by another. The linear, teleological model is certainly the original, yet it survived in one form or another through into the late twentieth-century expectations that liberal capitalism might represent the end of history. Recognition of diversity was a later development, routinely subverted by efforts to give the branching tree of evolution a central trunk representing the main line of progress. Small wonder that historians of the idea

[4] Bowler, *A History of the Future*; see the epilogue on the intensification of debate in the 1960s. For a modern example of scientists' predictions see Al-Khalili, ed., *What's Next?* Harari's *Homo Deus* was preceded by his *Sapiens: A Brief History of Humankind*.

of progress have not been able to offer a coherent account of the debates it has engendered. They have recognized many different versions of the idea, but have seldom understood that beneath the disagreements lies a more fundamental transition from a linear to a less-structured vision of how the world might become more complex.

For as long as I can remember my library has contained an (increasingly battered) copy of the 1955 reprint of Bury's *The Idea of Progress*. While noting the links to theology, Bury argued that a fully fledged idea of progress could not emerge until Enlightenment thinkers became convinced that Western civilization had advanced beyond the achievements of antiquity. He saw the many different versions of what the optimists thought might be the goal of human progress. Most wanted more happiness but disagreed over whether this could be brought about by freedom, a more orderly state or enforced economic equality. Bury did see a difference between those who knew exactly what the final goal should be and those who thought there might be ongoing progress towards ever-greater felicity. Yet he ended his survey with the late nineteenth century, when the idea had become an 'article of faith' – as though there was by then a unified vision of what to expect. His epilogue notes only a growing lack of enthusiasm for the idea: it was originally published in 1920, when war and economic depression had undermined the enthusiasm of the late Victorian era. Bury himself had by this time given up on any hope of seeing a pattern in history, comparing it to Darwinian evolution on the grounds that both areas had to allow for chance events brought about by the intersection of independent causal chains. Curiously, he suggested that the increasing role played by science would limit the opportunity for such chance events to affect the course of history.[5]

This last point is certainly not valid for science-based technology. The later edition of Bury's book has an extensive introduction by another historian, Charles A. Beard, who had edited two volumes seeking to predict the future. *Whither Mankind?* of 1928 had articulated the concerns of literary figures and moralists who shared Bury's pessimism. But *Towards Civilization* two years later brought out the hopes of scientists and inventors, including Lee De Forest, who hailed radio as a vehicle for worldwide cooperation. Bury had made limited references to the role of technology and industrial innovation as components of progress, but his remarks about science seem to imply that the direction of change is increasingly restricted by this factor. Beard appreciated that while invention exploits scientific information, it is by no means constrained by it because so many opportunities are opened up by the increasing

[5] Bury's *Idea of Progress* originally appeared in 1920; the Dover reprint is of a later edition published in 1932. His 'Darwinism in History' and 'Cleopatra's Nose' are reprinted in his *Selected Essays*, pp. 23–42 and 60–9.

breadth of research. His introduction to Bury's book builds on the insights in his edited volume to acknowledge the ever-increasing diversity and impact of new inventions.

The 1955 edition of Bury's book fits into a wave of publications on the topic in the mid- to late twentieth century. A short account by Morris Ginsberg in 1953 stresses how the goal-directed visions of progress that treated Western civilization as the goal were challenged by the growing willingness to admit that other civilizations were unique products shaped by different circumstances. R. V. Sampson's *Progress in the Age of Reason* stressed that all theories based on the hope of perfecting human nature or society must include some notion of a goal, or at least of the way forward, and are hence teleological.[6]

Two later accounts by Sidney Pollard and Robert Nisbet included chapters on the rejection of the idea of progress in the twentieth century, Pollard's entitled 'Doubters and Pessimists' and Nisbet's 'Progress at Bay'. There was an increased willingness to accept that where progress was endorsed by twentieth-century thinkers it was in a context that made it less obvious what the future might bring. Nisbet included discussions of futurological predictions by figures such as Herman Kahn and Julian Huxley. He also noted the cosmic vision of human spiritual progress popularized by Pierre Teilhard de Chardin, a late manifestation of the view that the goal is marked out in advance by our Creator. Against this revival of teleology Nisbet notes a growing focus on the uncertainty of the future, but his commentary does not suggest a transformation in the very idea of progress in history. A more perceptive analysis by Charles Van Doren anticipated Nisbet by showing an awareness of the complexity of modern ideas of progress, including the hopes for a technologically enhanced future expressed by science-fiction writers such as Arthur C. Clarke.

More seriously, Van Doren invoked Karl Popper's attack on historicism in which he argued that our inability to predict technological inventions made it impossible to see how society might evolve in the future. Here we see emerging something like the approach I want to take: we cannot anticipate the future, which in turn means that we need to appreciate the contingent nature of our present situation. If there is no pattern in history there can be no linear sequence of progressive states in social evolution, and the uncertainty of technological invention suggests at least one reason why that is so. My argument is that we need to generalize this point by recognizing that the linear, teleological model of progress has increasingly been challenged not by a complete loss of faith but by a redefinition of progress to allow for an open-

[6] Ginsberg, *The Idea of Progress*; Pollard, *The Idea of Progress*; Van Doren, *The Idea of Progress*; Nisbet, *History of the Idea of Progress*.

ended and unpredictable advance towards a more complex situation. The emergence of the modern Darwinian synthesis and new ideas about human origins paralleled the redefinition of human progress. Thinkers in both areas routinely interchanged ideas, metaphors and analogies.

The most detailed study of later ideas of progress is that of W. Warren Wagar. He sees the idea as a 'thought form' or what Lovejoy called a 'unit idea' – a concept so basic that it can be exploited by many different ideologies and belief systems. Wagar outlines an even wider range of applications than those noted by Bury, along with the reasons advanced by critics for rejecting any form of the model. More than the other authors he forces us to appreciate just how slippery the faith in progress became as it was expressed by idealists, materialists, rationalists and socialists – to say nothing of those who still saw it as the unfolding of a divine plan. He also asks whether progress must be seen as unilinear, or whether it might be discontinuous or spiraliform (I prefer the term 'cyclical'). There is a hint that it might even be irregular, but despite the inclusion of Darwin in the subtitle his analysis of the early twentieth century doesn't bring out the possibility that a new, open-ended vision of progress has emerged.[7]

Wagar shares Bury's view that the true idea of progress is a modern invention, with only limited connections to earlier theological visions. This position is shared by several detailed studies of the Enlightenment manifestations of the idea, although early modernists are more inclined to note the role of liberal religion in the thoughts of Francis Bacon and other seventeenth-century precursors. Carl Becker's classic (although highly controversial) *Heavenly City of the Eighteenth-Century Philosophers* also reminds us that it is still possible to see relics of the theological viewpoint even here.[8]

Detailed studies of nineteenth-century interpretations of progress tend to focus on the key figures: Comte, Hegel, Marx and Spencer. National studies include Arthur A. Ekirch on America and my own *The Invention of Progress*, which demonstrated parallels between Victorian ideas on the development of life on earth and the progress of human societies. I was aware of the continued influence of the linear, developmental model (even if in the form of a series of discrete steps) long after the Darwinian 'branching tree' was introduced, but I did not follow this insight through to examine the eventual proliferation of open-ended models of social progress. There are numerous studies of social Darwinism which assume that the ideology was associated with progress, but

[7] Wagar, *Good Tidings.* On pessimistic visions of the future see the same author's *Terminal Visions*.

[8] In addition to Becker's *The Heavenly City of the Eighteenth-Century Philosophers*, see Tuveson, *Millenianism and Utopia*; Frankel, *The Faith of Reason*; Sampson, *Progress in the Age of Reason*; and Manuel, *The Prophets of Paris*.