

Paul Warde, *The Invention of Sustainability: Nature and Destiny c. 1500–1870*. Cambridge: Cambridge University Press, 2018. HB £34.99 / PB £22.99. ISBN 9781316584767.

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Paul Warde's latest book, *The Invention of Sustainability*, constitutes an important landmark for environmental historians wishing to analyse the complex evolution of ecological thought in relation to ideas such as sustainability, improvement and progress. As the author admits in the book's conclusion, his research does not attempt to produce a linear historical narrative on the birth of the concept of sustainability and its ideological roots. Striving not to 'cherry-pick' across historical sources and moulding his narrative according to his argument, Warde courageously engages in writing a book about an historical *problem*, rather than a fully-fledged *description* (p. 358). The result is a dense narrative that illustrates with accuracy and scientific rigour the multiple sets of ideas produced by several historical actors from the early sixteenth century to the end of the nineteenth century. The protagonists of Warde's book are a heterogeneous group of historical characters, who at some point in their lives engaged with ideas related to the concept of sustainability, such as husbandry, land improvement, long-term wood supply and fixing soils. They are scientific researchers, political administrators, economic theorists, forest managers, colonial agents, noblemen and farmers. Notably, they were not necessarily vanguard thinkers, visionaries or environmentalist *ante-litteram*. In most cases, they were historical actors who had to confront the socio-ecological challenges of their times and became preoccupied with discourses related to environmental sustainability because these directly impacted their lives. This historical paradox is at the core of Warde's narrative, and a founding element of a controversial concept such as sustainability:

the idea of sustainability is not 'discovered', as if its principles are obvious and one simply requires wise and well-informed people to come upon them ... such arguments tend to imply that truths exist for all time and their uptake at particular times is explained by *interests*, in the sense of the search for advantage, a category altogether less flattening and honourable than truth. (p. 356)

Although one need not necessarily agree with this statement, there is no doubt that the idea of sustainability did not magically emerge with the Brundtland report *Our Common Future* (1987), but was the result of a long historical trajectory in which ideas of nature, scientific knowledge, economic interests and social demands converged. Warde's book undertakes the difficult task of retracing the historical roots of the concept, proposing a study at the crossroads between intellectual and environmental history.

The first chapter, 'Living from the Land, c. 1500–1620', tackles the issue of food supply since the fifteenth century in the context of early Renaissance Europe, as rulers were confronted with the obligation 'to ensure the products of the land reached those who needed them' (p. 21). While these arising needs produced responses varying according to authority and degree of perceived wealth, the general outcome in most cases was increasing agricultural output through intensive land tillage. Both at home and in the emerging overseas colonies, the rallying cry was perfectly resumed by Thomas Moor's *Utopia*, 'a manifesto for a coming whirlwind of colonization, force migrations and subjugation' (p. 24). In practice, it meant the capillary intensification of the enclosure movement in Europe, as well as the suppression of native ecology and traditional agriculture in overseas colonies. As these ideas began to germinate in national discourses, they were accompanied by a steady increase in the production of treatises and manuscripts concerned with agricultural husbandry, inspired by traditional works of classic authors such as Xenophon, Cato, Varro and Virgil. While in the works of authors such as Agostino Gallo, Oliver de Serres, Charles Estienne, Hugh Plat, Gervase Markham and Cornad Hersbach husbandry was still more concerned with the idea of 'good' or 'bad' practices than with the understanding of ecological processes, these authors began to introduce the idea of fertility as an active agent and to engineer strategies on how to preserve and guarantee it.

While discourses on tillage and husbandry began to generate issues of land preservation and fertility, in England contemporary notions of forest management began explicitly to deal with issues of sustainability and the need to guarantee resources to future generations. As Warde demonstrates in the second chapter of the book 'Governing the Woods, c. 1500-1700', 'the politics of wood also foreshadowed the modern politics of sustainability: sustainability of what? And for whom?' (p. 59) Confronted with issues related to forest management and wood supply in order to satisfy increasingly energy-intensive European societies, policymakers, intellectuals and royalists (e.g. John Evelyn, John Manwood, Samuel Hartlib and Timothy Nourse) began to debate forest conservation, scarcity and strategies to secure wood supplies while at the same time ensuring that 'the whole nation were furnish'd for posterity'.<sup>1</sup> While these debates did not produce conclusive results, they paved the way for the development of administrative and jurisdictional policies all over Europe during the eighteenth century. However, as the third chapter 'Ambition and Experiment c. 1590–1740' demonstrates, the debates on the land use and progress that began to proliferate during the enlightenment were indebted to the work of the so-called 'improvers'. This group of thinkers, led by Francis Bacon, helped dignify the work of people actively engaged in improving agricultural practices through the combination of knowledge of nature and good policies. Thanks to the

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<sup>1</sup> John Evelyn, quoted in Warde, *The Invention of Sustainability*, 92.

improvers, issues of knowledge became indissolubly bound up with the process of colonisation and plantation. In this context, traditional customary practices were increasingly regarded as ‘backward’ and criminalised; common rights were abolished, common lands enclosed and royal forests experienced progressive deforestation. As what Karl Polanyi would define as ‘the great transformation’ began to intensify amidst social unrest and riots, the first debates about the relationship between good agricultural practices and localised climatic factors began to arise among improvers, adding yet another layer of complexity in agricultural debates and propelling the emergence of new theories of soil that would germinate in the ‘enlightened’ century.

Picking up the baton of these intriguing debates, the fourth chapter, ‘Paths to Sustained Growth, c. 1650–1760’, demonstrates how by the middle of the seventeenth century the idea that enhanced knowledge of natural process could improve people’s lifestyle began to take root all over Europe. This was tantamount to the consolidation of modern notions of ‘state’, ‘commonwealth’, ‘public’ and ‘public good’, all essentially linked to the idea of a governing polity dictating the main guidelines of social and environmental management to a body of consciously participating citizens willing to improve their living conditions. This naturally also led to a more unified idea of ‘land’ as a factor of production, while people represented by the state increasingly became a ‘population’. As state centralisation consolidated, issues of land improvement were increasingly regarded as a matter for central and sovereign direction, especially among the so-called *cameralist thinkers*, according to whom ‘states, were after all not much different from a very large private estate’ (p. 155). As cameralism consolidated in European academies, so did debates about the role of state, property rights, customs and civil laws, championed by philosophers such as Hobbes, Montesquieu and Hume. Concurrently, other cameralist thinkers such as such as Han Carl von Carlowitz and William Petty discussed issues of resource allocation, economic protectionism and commerce, attempting to understand how states could improve their economic revenues while at the same time guaranteeing food security control and demographic growth. How to adjust patterns of land use to economic growth, guaranteeing an over time balance between revenues and resource reproduction? As Warde notices, sustainability now began to permeate both political discourses and management practices. A first step in the improvement of environmental management was a progressive drive towards the institutionalised mapping and cataloguing of forest resources, as illustrated in chapter five, ‘Nature Translated, c. 1670–1830’. Naturally, this also corresponded to the development of new techniques and languages for describing and understanding nature. While early regulations emphasised issues of resource access in the attempt to extract the maximum revenues from each forest or field, quantification efforts produced during this period allowed reflections about the relationship between land and people in the production of welfare. This growing enthusiasm for mathematics – especially

in the field of forestry, now renamed ‘scientific forestry’ – allowed governments to run reliable surveys on natural resources during the nineteenth century. Although these efforts were not explicitly animated by the search of an environmentally sustainable model, in looking for best practices for woodlands management, scientific forestry ended up providing valuable models in order to approach the issue. As demonstrated by chapter six, ‘Theories of Circulation, c. 1740–1800’, a similar emphasis on quantification technologies also began to be associated with agricultural practices, thanks to the works of contemporary chemists. While early botanists and naturalists had catalogued different species, scientists of the time pushed ecological knowledge forward, beginning to unveil chemical processes of the soil. By continuously exchanging knowledge and new scientific discoveries, these ‘civic cameralists’ circulated notions on plant nourishment and reproduction. As these arguments grew increasingly refined by the end of the eighteenth century, chemical research followed, formulating different theories on organic circulation at the core of plant cycles. Accordingly, terms such as ‘scientific farmer’ and ‘systematic agriculture’ began to emerge, propelled by the discoveries of figures such as Richard Kirwan and John Sinclair.

As forest science and agronomy advanced, fears and concerns over wood shortages and the management of circulatory flows spread among contemporary thinkers. Yet, as Warde demonstrates in the seventh chapter, ‘Political Economies of Nature, c. 1760–1840’, paradoxically political economists of the time did not take these concerns into account in their analyses. While the energy transition to fossil fuels would ‘liberate’ humanity from photosynthetic energy sources during the mid-nineteenth century, earlier political economists were not preoccupied with the limits of organic economies. Although they exchanged personal correspondence with contemporary agricultural chemists and model farmers, their preoccupations were mainly directed towards the optimisation of agricultural yields in order to increase economic revenues and maximise the production of wealth. Stemming from John Locke’s property theories, political economists of the time reinforced the notion of property as the result of labour efforts towards the transformation of nature. Different schools of thought recalled these principles. From Francois Quesnay’s economic movement known as the Physiocrats, to Adam Smith and David Ricardo’s theories of value, environmental pressures were considered as potential stimulations to overcome current limits. A stronger emphasis on the limits of natural cycles began with Thomas Malthus’s theory of population of 1798, setting limits to agricultural production in relation to population growth. However, just like his contemporaries, Malthus placed no emphasis on earth degradation. A different perspective was brought by contemporary chemists, such as Justus Liebig, whose works on plant nutrition and soil fertility began to raise concrete concerns related to issues of sustainability and ecological metabolisms. As

Warde demonstrates in the book's last chapter, 'History and Destiny, c. 1700–1870', enhanced understanding of ecological metabolisms began to raise concerns about the functioning of increasingly industrialised and urbanised societies, associated with issues of economic protectionism and marginal returns to labour on the land. As the problem of sustainability began to consolidate during the mid-nineteenth century, debates on economic progress were indissolubly related to the governance of nature. Organic metaphors began to be utilised in order to describe historical processes, especially in regard to the relation between climates and civilisations, while the philosophical notions of vitalism peaked. As environmental issues began stably to permeate public debates thanks to scientific discoveries, they were associated with social issues, as in the case of soil degradation and slavery in the American South. However, economic theories continued to touch upon environmental issues only superficially, as demonstrated by Marx, whose alleged preoccupation with a metabolic rift occurring between humans and nature was not explicitly attributed to capital-labour relations, but to a specific issue of industrial sewage in growing urbanised contexts.

As Warde concludes, it is precisely from the rather controversial combination of all these ecological concerns, environmental anxieties and economic preoccupations that the issue of sustainability progressively emerged in public debates. This was not a linear process, but the result of different scientific, economic and political narratives that began to touch upon similar points as human societies evolved, although in many cases animated by different aims and concerns. Ultimately, one could agree with his statement that

there was no one genius invented the dilemma of sustainability; nor do we even find the perennial head-scratcher of simultaneous invention, when a good idea's time really does seem to have come ... There was no eureka moment, which is a partial explanation of why people came to find themselves debating in this domain without giving it a name, 'sustainability' in English being coined much, much later. (p. 133)

This is perhaps the main merit of Warde's book –its capacity to build a non-linear yet coherent historical narrative, demonstrating how a concept so topical today emerged as the result of 'many micro-innovations and technologies, and often the bringing together of what were established and banal things in other domains' (p. 334) In striving to write a history of such a complex concept, *The Invention of Sustainability* makes a case for an academic scholarship able to come to terms with its own flaws and limits. The result is a landmark work that could surely contribute to redesigning the methods and boundaries of environmental history and related fields. Just as ecological systems are characterised by discordant harmonies, so the history of human interactions with the environment

and its related epistemological processes must address these complexities, although this might mean prioritising content over form.