

## ARTICLE

# European Histories of the Economic and Environmental: Introduction

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## Environmental Crisis as Mystery

Five decades after the United Nation's first conference on the environment in 1972, the IPCC warned that 'any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all'.<sup>1</sup> Faced with steeply rising greenhouse gas emissions, accelerating biodiversity loss and continued degradation of oceans, forests and soil, the situation appears increasingly baffling.<sup>2</sup> Why do we not see effective measures to turn these developments around? As the situation grows dire, it becomes more mysterious: what exactly is this crisis and why has it proven so difficult to solve? If the problem persists, is it because it is not properly understood? Yet, the environmental question has been studied for decades and diagnoses are legion: capitalism, colonialism, overpopulation, economic growth, humanity's inherent short-sightedness, patriarchy, the private property system – or the tragedy of the commons, the disconnect from nature in Western culture, corporate anti-environmental campaigns, the Neolithic adoption of agriculture – or its more recent industrialisation, the miscommunication of environmentalists and scientists, Christianity and neoliberalism have all been proposed as fundamental causes of the crisis. Despite this long and rich history of debate, it may be, as Pierre Charbonnier argues, that we need a more precise understanding of the 'ecological question' to find a way out of the present impasse.<sup>3</sup> In line with Katrina Forrester and Sophie Smith's argument, we are convinced that such rethinking of the environmental must be historical, but also that it must pay special attention to economic aspects. Since the end of the Second World War, economics has risen to prominence as a form of expertise in governance at the expense of other kinds of knowledge, and the environment has become closely intertwined with the economic in the ways it has been governed.<sup>4</sup> In that light, it is not surprising that current discussions among scholars, climate scientists,

<sup>1</sup> IPCC, *Climate Change 2022: Impacts, Adaptation and Vulnerabilities. Summary for Policymakers* (2022), 33.

<sup>2</sup> IPCC, *Climate Change 2022*; IPBES, *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (2019), xv.

<sup>3</sup> Pierre Charbonnier, *Affluence and Freedom: An Environmental History of Political Ideas* (Cambridge: Polity Press, 2021), 21–9. It serves to illustrate this point that even the terminology of these issues is blurry, as in the difference between the terms 'ecological' and 'environmental' in a societal and political context has not yet been made clear. Some historical inquiry has been done to trace the history of such terms, e.g. Paul Warde, Libby Robin and Sverker Sörlin, *The Environment: A History of the Idea* (Baltimore, MD: Johns Hopkins University Press, 2018). In this introduction, we use the term 'environmental' in a general way.

<sup>4</sup> Katrina Forrester and Sophie Smith, 'History, Theory and the Environment', in Katrina Forrester and Sophie Smith, eds., *Nature, Action and the Future: Political Thought and the Environment* (Cambridge: Cambridge University Press, 2018). Roger Backhouse, *The Puzzle of Modern Economics: Science or Ideology?* (New York: Cambridge University Press, 2010);

politicians and social movements hold that the environmental crisis calls for a reevaluation of the economic.<sup>5</sup> History is central to this endeavour and can be ‘usable’ in the current crisis, as it, in Deborah Coen’s words, can ‘reveal the contingent and often contradictory traces of the past in the present – and to provide clarity for the future’.<sup>6</sup> In this introduction we discuss three partially overlapping ways in which historical perspectives can be helpful to the effort of constructing an ecologically stable society. In contrast to the general tendency in the twenty-first century academy to divide into ever more specialised fields, we call for a broader conversation among historians of the economic and of the environmental to reveal the paths that brought us here – and the ones not taken. We need new histories of thought, institutions, movements and governance that combine the economic and the environmental to reach a better understanding of the present crisis, decode the specific mechanisms of inaction in the face of looming catastrophe, and strive towards more apt formulations of the environmental.<sup>7</sup> We wish to contribute to an emerging conversation located at the intersection of history of economic thought, intellectual history and political history more generally by pointing to strands of research that could be drawn together and that this special issue is meant to engage in dialogue.<sup>8</sup>

The contributions in this issue focus on the interaction of the environmental and economic within European history. While scholars of these issues have tended to study developments in the United States, we are convinced that Europe is central to understanding the economic and ecological paths that have taken us to the present, and believe that the essays in this issue justify that conviction. Coal undergirded European imperial power, its industrialisation and arguably its democracy both nationally and in its unique intergovernmental formation – the European Union. In these ways, central subjects of European history are inextricably linked to the history of coal and to the climate crisis.<sup>9</sup> The chemical composition of the atmosphere is a material manifestation of Europe’s historical global power in the form of 353 billion tonnes of carbon dioxide, 22 per cent of all the greenhouse gases emitted thus far.<sup>10</sup> In the twenty-first century, Europe (or rather, the EU) instead aspires to boost its role on the global arena by taking the lead in progressive climate politics (especially through its emissions reduction targets and system of emissions trading). Historically, many of the economic thinkers (e.g. Thomas Malthus, Arthur Pigou, E.F. Schumacher and Barbara Ward), intergovernmental institutions (e.g. the Stockholm conference and the Paris agreement) and political projects (Germany’s *Energiewende*) that lie at the intersection of the environmental and the economic

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Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (Cambridge: Cambridge University Press, 2002); Elizabeth Popp Berman, *Thinking like an Economist: How Efficiency Replaced Equality in U.S. Public Policy* (Princeton: Princeton University Press, 2022).

<sup>5</sup> In IPCC’s 2022 report, the issue of whether environmental impacts can be decoupled from economic growth is discussed but also described as controversial. IPCC, ‘The Mitigation of Climate Change’, 2022, chapter 2, 37. See also Maja Göpel, *The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations go Hand in Hand* (Berlin: Springer Open, 2016); Franz Mauelshagen, ‘The Waning of Neoliberalism: Global Climate Governance in Transition’, *Centre for Global Cooperation Research Quarterly Magazine*, 2021, available at [www.gcr21.org/publications/gcr/gcr-quarterly-magazine/qm-3-4/2021-articles/qm-3-4-2021-mauelshagen-the-waning-of-neoliberalism-global-climate-governance-in-transition](http://www.gcr21.org/publications/gcr/gcr-quarterly-magazine/qm-3-4/2021-articles/qm-3-4-2021-mauelshagen-the-waning-of-neoliberalism-global-climate-governance-in-transition) (last visited 18 Aug. 2022).

<sup>6</sup> Deborah R. Coen, ‘A Brief History of Usable Climate Science’, *Climatic Change*, 167, 3–4 (2021), 51.

<sup>7</sup> An important aspect of this has been elucidated in histories of reactions to environmental alarm. See for example Jean-Baptiste Fressoz, *L’apocalypse joyeuse: Une histoire du risque technologique* (Paris: Éditions du Seuil, 2020); Christophe Bonneuil and Jean-Baptiste Fressoz, *L’événement Anthropocène: La terre, l’histoire et nous* (Paris: Éditions du Seuil, 2016); Elodie Vieille-Blanchard, ‘Les limites à la croissance dans un monde global: Modélisations, prospectives, réfutations’, PhD Thesis, EHESS, Paris, 2011.

<sup>8</sup> This is a conversation that connects well established scholarly fields with newer ones. Other interesting attempts to delineate this conversation have been made, for example in Hester Cecilia van Hensbergen, ‘Finite Earth Visionaries: Economics, Time and Environmental Crisis in the United States, c.1945–1980’, PhD Thesis, King’s College, 2021. See also Béatrice Cherrier’s ambitious twitter thread (!), available at [twitter.com/Undercoverhist/status/1531931630327283715](https://twitter.com/Undercoverhist/status/1531931630327283715) (last visited 18 Aug. 2022).

<sup>9</sup> Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011).

<sup>10</sup> Europe is here to be understood as EU-28, i.e. including the United Kingdom. [ourworldindata.org/co2-emissions](https://ourworldindata.org/co2-emissions) (last visited 18 Aug. 2022).

originated in Europe. Therefore careful and critical histories of Europe are needed to understand the past, present and future of the global crisis.

### Historicising the Economic and Environmental

What does rethinking our environmental predicament mean? And in what ways can history help us do that? First, history helps us understand how the economic and the environmental are configured in various cultures. Although things economic and ecological are two fundamental aspects of social life and the struggle for subsistence, the ways in which they are conceptualised and the relation between them are themselves historical. To rethink the environmental it is vital to examine ideas of the relationship between the economic and the environmental from the past, for example through language circulated between the fields, such as the application of cost-benefit analysis in ethology, game theory in evolutionary biology, or the plethora of biological metaphors for the market.<sup>11</sup> In an illuminating way, Paul Erickson's article in this issue shows us how a distinctly biological imagery of the economy was cultivated within the British Empire Marketing Board during a critical time in its history. Erickson studies how the Empire Marketing Board experimented with film during the interwar period to project the British empire as a 'living organism' replete with natural resources and diverse biomes.

The issue of the configuration of the environmental and the economic also involves how these aspects are institutionalised and governed on different levels. It is well established by historians that there was a shift in international environmental political ideology between the UN environmental conferences in Stockholm in 1972 and Rio in 1992. While the 1960s and 1970s Malthusian and counter-cultural environmental discussions centred on the perils of unharnessed economic and population growth, the international environmental discourse went through profound changes in the 1980s and 1990s. The new international political framework, the 'sustainable development' paradigm or liberal environmentalism, rejected the idea of fundamental contradictions between growth-centred economic development and the protection of nature.<sup>12</sup> Economic development went from being identified as the cause of environmental degradation to being prescribed as its cure. As Benjamin Huf, Glenda Sluga and Sabine Selchow point out in their contribution to this special issue, it has not been well understood when, how and why this happened. Their work contributes to an ongoing effort to map the role of business, via actors like oil industry veteran Maurice Strong and institutions like the International Chamber of Commerce (ICC), in shaping international environmental regulation.<sup>13</sup> As it turns out, business involvement began considerably earlier than what has previously been thought, being already formative during the Stockholm conference.

In addition to the historical examination of how the institutional framework and ideology of environmental governance has changed in the last fifty years, the concepts underpinning governance are

<sup>11</sup> Paul Erickson, 'Theorizing Application: The Case of Evolutionary Biology's Theory of Games', *History of Political Economy* 49, supplement (2017); Philip Mirowski, ed., *Natural Images in Economic Thought: Markets Read in Tooth and Claw* (Cambridge: Cambridge University Press, 1994).

<sup>12</sup> Thomas Robertson, *The Malthusian Moment: Global Population Growth and the Birth of American Environmentalism* (New Brunswick: Rutgers University Press, 2012); Iris Borowy, *Defining Sustainable Development for Our Common Future: A History of the World Commission on Environment and Development (Brundtland Commission)* (London: Routledge, 2014); Steven F. Bernstein, *The Compromise of Liberal Environmentalism* (New York: Columbia University Press, 2001); Matthias Schmelzer, *The Hegemony of Growth: The OECD and the Making of the Economic Growth Paradigm* (Cambridge: Cambridge University Press, 2016); Maria Ivanova, *The Untold Story of the World's Leading Environmental Institution: UNEP at Fifty* (Cambridge, MA: MIT Press, 2021); Perrin Selcer, *The Postwar Origins of Global Environment: How the United Nations Built Spaceship Earth* (New York: Columbia University Press, 2018); Stephen J. Macekura, *The Mismeasure of Progress: Economic Growth and Its Critics* (Chicago: University of Chicago Press, 2020).

<sup>13</sup> See also Ann-Kristin Bergquist and Thomas David, 'The Business Invention of Sustainable Development: The International Chamber of Commerce and the Rise of Neoliberalism in Global Environmental Governance', *Business History Review* (forthcoming).

also a worthwhile object of historicisation. It comes as no surprise to the trained historian that even fundamental categories such as ‘nature’ or ‘environment’ are not constants but historically specific constellations and thus the result of interests, traditions, intellectual trends and power relations. We believe that there is more insight to be gained from synthesising historians’ work on conceptualisations of environmental degradation, for example as pollution, loss of natural capital, crisis or risk.<sup>14</sup> The way in which environmental disturbances are institutionalised today, for example as climate change and biodiversity loss (each with their own scientific-political UN panel and policy area within the EU), should not be taken for granted, but as an aspect of the current configuration of the environmental and economic, and thus as an aspect of the crisis itself.

To trace the histories of today’s configurations of the economic and environmental, and those lost, several of the contributors to this special issue have creatively melded approaches from various historical subfields, including economic, environmental and political history. The histories of the economic and environmental reach beyond academic debates, encompassing the activities of scientists, politicians, think tankers and civil servants who have contributed to shaping societies’ relation to the environment. In his contribution to this issue, Stephen Milder focuses on entrepreneurs in West Germany’s *Mittelstand* who, rather than economists, were at the forefront of the campaign for the renewable energy feed-in tariff. Daniela Russ’s essay shows the importance of non-economists – in her case biochemists, planners, and futurologists – to understand economic environmental debates on the other side of the Iron Curtain. She invites the reader to explore fantastical plans for a renewable energy system in the 1920s Soviet Union and draws on these to inform contemporary discussions of the ‘planetary’ as a new political category.

In light of economics’ dominating position in public life, it also becomes critical to understand how it has treated environmental issues, and how that treatment has shaped governance. The academic field that studies how economists have approached environmental issues (and also – importantly – failed to do so) is expanding and transforming. In the introductory essay of a special issue of *Cahiers d’économie politique* (2021), Nathalie Berta, Romain Debref and Franck-Dominique Vivien surveyed the major trends and conflict lines in the field of environmental themes in economics since 1950.<sup>15</sup> Here, such issues as growth and limits, valuation of nature and the relationship between subfields in the discipline are central. Some of this work is focused on particular concepts, but there are also works that trace the environment as a problem in economics over longer periods of time, including environmental critiques of economic thought.<sup>16</sup> Much of this research has been done by French

<sup>14</sup> Etienne S. Benson, *Surroundings: A History of Environments and Environmentalisms* (Chicago: University of Chicago Press, 2020); Maria Åkerman, ‘What Does “Natural Capital” Do? The Role of Metaphor in Economic Understanding of the Environment’, *Environmental Values*, 12, 4 (2003); Antoine Missemer, ‘Natural Capital as an Economic Concept, History and Contemporary Issues’, *Ecological Economics*, 143 (2018); Clive L. Spash, ‘The Contested Conceptualisation of Pollution in Economics: Market Failure or Cost Shifting Success?’, *Cahiers d’économie politique*, 79 (2021); Jean-Baptiste Fressoz, ‘Payer pour polluer: L’industrie chimique et la compensation des dommages environnementaux, 1800–1850’, *Histoire & mesure*, XXVIII (2013); Julia Nordblad, ‘On the Difference between Anthropocene and Climate Change Temporalities’, *Critical Inquiry*, 47, 2 (2021).

<sup>15</sup> For a detailed discussion of how economists have approached environmental themes see Nathalie Berta, Romain Debref and Franck-Dominique Vivien, ‘Economics and the Environment since the 1950s: An Overview’, *Cahiers d’économie politique*, 79 (2021). See also Ève Chiapello, Antoine Missemer and Antonin Pottier, eds., *Faire l’économie de l’environnement* (Paris: Presses des Mines, 2020).

<sup>16</sup> Most prominent in the literature on particular concepts is probably the idea of economic growth. See Macekura, *Of Limits and Growth*; Schmelzer, *The Hegemony of Growth*; Diane Coyle, *GDP: A Brief But Affectionate History* (Princeton: Princeton University Press, 2015); Robert M. Collins, *More: The Politics of Economic Growth in Postwar America* (Oxford: Oxford University Press, 2000). Charles Maier, ‘The Two Postwar Eras and the Conditions for Stability in Twentieth-Century Western Europe’, *American Historical Review* 86, 2 (1981). For broader histories on environmental and economic thought see for example Juan Martínez-Alier and Klaus Schlüppmann, *Ecological Economics: Energy, Environment and Society* (Oxford: Blackwell, 1987); Iris Borowy and Matthias Schmelzer, eds., *History of the Future of Economic Growth: Historical Roots of Current Debates on Sustainable Degrowth* (Oxford: Routledge, 2017).

researchers and is published in French. Fortunately, there is now increasing dialogue and co-operation between practitioners in this field and their Anglophone counterparts.<sup>17</sup>

An important theme in this historiography has been the development of climate economics, an issue that has also reached audiences beyond specialists, especially since William Nordhaus was awarded the Sveriges Riksbank Prize in 2018.<sup>18</sup> Historians have done important work in demonstrating what kinds of presumptions are built into climate economics, such as the increasingly criticised temporal discount rates that presuppose that people in the future will be richer and have access to more advanced technology than us. This in turn, critics argue, builds on an unfounded presumption of climate change as a linear and predictable process, and underestimates the risks of catastrophic destabilisation of the climate system, but also dresses up profoundly political questions as solvable by mere calculation.<sup>19</sup>

In what may seem like a narrow question for specialists, the contested relationship between ecological economics and environmental economics has indeed been revelatory of the larger issue of to what degree the discipline of economics has integrated the environmental debates that emerged in the postwar period.<sup>20</sup> Although many histories still present a narrative of a gradual but steady greening of the discipline, new and forthcoming histories instead propose a history of struggle for radical change inside the discipline spurred by the environmental debates of the 'Malthusian moment' of the 1960s and 1970s.<sup>21</sup> According to these histories, the efforts to change mainstream economics in this direction ultimately failed, and the discipline has remained largely unmoved by any environmental issue that threatened to destabilise its core premises.<sup>22</sup> Rather than a gradual integration of environmental issues into mainstream economics, ecological economics could thus be seen as the remnants of a lost struggle for profound ecological reckoning within the discipline. The histories of environmental themes in economics have only lately ventured beyond the narrow focus on doctrines and internal debates, and there is now a growing body of scholarship that interprets economic thought on the environment in relation to broader intellectual, institutional and societal contexts.<sup>23</sup> As a more rigorous historiography develops, the history of economic thought on the environment should become

<sup>17</sup> The strong position of French researchers in this field is partly explained by the institutional foundation of the CIREDE (*Centre International de Recherche sur l'Environnement et le Développement*) in the 1970s, which sponsored an approach to environmental issues as intertwined with questions of economic development and global inequality. Today, researchers at CIREDE include historians of these issues. Christophe Cassen and Antoine Missemmer, 'La structuration de l'économie de l'environnement et du développement en France: le cas du CIREDE (1968–1986)', *Economia*, 10, 1 (2020), available at <http://journals.openedition.org/oeconomia/7801> (last visited 14 June 2022).

<sup>18</sup> Antonin Pottier, *Comment les économistes réchauffent la planète* (Paris: Seuil, 2016); Geoff Mann, 'Check Your Spillover', *London Review of Books*, 44, 3 (2022).

<sup>19</sup> Dale Jamieson, *Reason in a Dark Time: Why the Struggle against Climate Change Failed and What It Means for Our Future* (Oxford: Oxford University Press, 2014); Julia Nordblad, 'Concepts of Future Generations: Four Contemporary Examples', in Jenny Andersson and Sandra Kemp, eds., *Futures* (Oxford: Oxford University Press, 2021).

<sup>20</sup> More precisely, this discussion treats the relationship between the fields of environmental economics and ecological economics, a division based on the former's adherence to the neoclassical mainstream and the latter's self-understanding as politically radical. The relationship between these two fields is still debated, and the issue is not settled as to whether they are both indeed part of the same field, are two perspectives on environmental themes in economics in the process of converging over time, or are actually divided into three, not two, different paradigms. David Pearce, 'An Intellectual History of Environmental Economics', *Annual Review of Energy and the Environment* 27 (2002); Clive L. Spash, 'The Development of Environmental Thinking in Economics', *Environmental Values*, 8, 4 (1999), 413–35; Clive L. Spash, 'A Tale of Three Paradigms: Realising the Revolutionary Potential of Ecological Economics', *Ecological Economics*, 169 (2020).

<sup>21</sup> Robertson, *The Malthusian Moment*.

<sup>22</sup> This perspective is suggested in Dominique Pestre, 'Comment l'environnement a été géré depuis 50 ans: Anatomie d'un échec', in Ève Chiapello, Antoine Missemmer and Antonin Pottier, eds., *Faire l'économie de l'environnement* (Paris: Presses des Mines, 2020), 22–3. Hester van Hensbergen suggests a framework along similar lines in 'Finite Earth Visionaries'. See also Clive Spash's forthcoming work *Foundations for Social Ecological Economics*.

<sup>23</sup> The internalism that has dominated the historiography can probably in part be explained by the fact that many of the histories of ecological economics have been written by economists rather than historians. See for example Pearce, 'An Intellectual History of Environmental Economics'; Inge Røpke, 'The Early History of Modern Ecological Economics',



more accessible to historians of other fields.<sup>24</sup> Robert Leonard's essay in this issue contributes to this strand of research by drawing an intriguing intellectual portrait of E.F. Schumacher, an important heterodox figure in the history of economic thought. Leonard's study portrays how Schumacher experienced the contradictions between a modern industrial economy and the preservation of cultures and ecosystems as a protracted existential crisis, until finally, late in life, this resolved into Schumacher's advocacy for a simpler, more ecological economic system.

The history of how environmental themes have been treated in economics could be seen in light of the overall feeble engagement on the part of mainstream economists with environmental issues, and especially climate change. As pointed out in a recent intervention by two prominent economists, the most-cited journal in the discipline, the *Quarterly Journal of Economics*, had as of 2019 not published a single article on climate change.<sup>25</sup> The general development of economics in the post-war era has instead been characterised by a marginalisation of political economy and critical reflection on the economy's political and social foundations.<sup>26</sup> Economists' weak engagement with pressing questions like climate change can be connected to the historical argument about the long-term historical trajectory of economic thought separating itself from the natural world. Several historians have pointed out that classical political economy broke away from eighteenth-century economic schools of thought such as the Physiocrats, who took the workings and restraints of the natural world as its basis.<sup>27</sup> This gradual 'disembedding' of economic thought, to use Karl Polanyi's term, was accelerated by the rise of fossil energy sources.<sup>28</sup> What disembedding meant for economics as a discipline is also a question requiring further scholarly reflection. Lately, historians have told the history of economic thought and governance emphatically from the vantage point of the environmental miscalculations that have accompanied it and the complex environmental crisis it has contributed to, or with a focus on how fossil fuels and the constant spectre of their demise have shaped economic thought. The general development of economics as a body of thought is all the more pertinent when seen in the light of its trajectory in governance on different levels. The period when the environment became a political category and separate policy area (between the late 1960s and 1980, around 150 environmental agencies and ministries were created) was also a period when, in influential institutions such as the OECD,

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*Ecological Economics*, 50, 3 (2004); Inge Røpke, 'Trends in the Development of Ecological Economics from the late 1980s to the early 2000s', *Ecological Economics*, 55, 2 (2005).

<sup>24</sup> See for example John O'Neill and Thomas Uebel, 'Between Frankfurt and Vienna: Two Traditions of Political Ecology', in Katrina Forrester and Sophie Smith, eds., *Nature, Action and the Future: Political Thought and the Environment* (Cambridge: Cambridge University Press); Hensbergen, 'Finite Earth Visionaries'; Spencer Banzhaf, 'The Environmental Turn in Natural Resource Economics', *Journal of the History of Economic Thought*, 41, 1 (2019). This new turn has also led to some more critical assessments of concepts. See Troy Vettese, 'Against Steady-State Economics', *The Ecological Citizen*, 3, Suppl B (2020).

<sup>25</sup> Andrew Oswald and Nicholas Stern, 'Why Does the Economics of Climate Change Matter So Much – and Why Has the Engagement of Economists Been So Weak?', *Royal Economic Society Newsletter* (2019), available at [www.res.org.uk/resources-page/october-2019-newsletter-why-does-the-economics-of-climate-change-matter-so-much-and-why-has-the-engagement-of-economists-been-so-weak.html](http://www.res.org.uk/resources-page/october-2019-newsletter-why-does-the-economics-of-climate-change-matter-so-much-and-why-has-the-engagement-of-economists-been-so-weak.html) (last visited 15 Aug. 2022).

<sup>26</sup> Pauline Huet, 'Émergence et structuration de l'Économie des changements climatiques (1975–2013): Analyse socio-historique d'un nouveau domaine de recherche', PhD Thesis, Université du Québec à Montréal/Ecole des Hautes Etudes en Sciences Sociales, 2015; Robert Skidelsky, *What's Wrong with Economics?: A Primer for the Perplexed* (New Haven: Yale University Press, 2020); Roger E. Backhouse and Béatrice Cherrier, 'The Age of the Applied Economist: The Transformation of Economics since the 1970s', *History of Political Economy*, 49 annual suppl. (2017).

<sup>27</sup> Margaret Schabas, *The Natural Origins of Economics* (Chicago: University of Chicago Press, 2005); Catherine Larrère, *L'Invention de l'économie au XVIII<sup>e</sup> siècle: Du droit naturel à la physiocratie* (Paris: Presses Universitaires de France, 1992), 5–6; Paul Warde, *The Invention of Sustainability: Nature and Destiny, c. 1500–1870* (Cambridge: Cambridge University Press, 2018), 266; Fredrik Albritton Jonsson, 'Adam Smith in the Forest', in Susanna B. Hecht, Kathleen D. Morrison and Christine Padoch, eds., *The Social Lives of Forests: Past, Present and Future of Woodland Resurgence* (Chicago: University of Chicago Press, 2013), 52; Nathaniel Wolloch, *Nature in the History of Economic Thought: How Natural Resources Became an Economic Concept* (Oxford: Routledge, 2017).

<sup>28</sup> Karl Polanyi, *The Great Transformation* (New York: Farrar & Rinehart, 1944); Carl Wennerlind and Fredrik Albritton Jonsson, *Scarcity: Economy and Nature in the Age of Capitalism* (Cambridge, MA: Harvard University Press, 2023).

economists were promoted to leading positions on environmental issues while natural scientists often lost their positions as experts.<sup>29</sup>

Taken together, these historiographies suggest a picture in which the long-term trend of economics is of general disengagement with environmental problems in its knowledge production, while rising to a central position in the management of such issues in society. The centrality of economics in environmental governance calls for further historical perspectives on the economic theories, models and actors that have influenced institution design and policy-making.

### Historicising the Knowledge of Environmental Change

A second way in which history can help us make better sense of the environmental crisis is by elucidating the way in which knowledge about environmental disturbances has been produced, communicated and distorted in our time. The discourses of environmental change all matter to how the crisis is understood and acted upon. We therefore need to understand the production and institutional origins of the science of global environmental change, and thereby better understand what it is telling us about our changing world – and for that historical perspectives are necessary.<sup>30</sup> For example, there are widespread but unfounded ideas about climate science in the public sphere and social scientists, not least historians, have proven well placed to detect them.<sup>31</sup> In this vein, Béatrice Cointe and Christophe Cassen demonstrate in this issue how expectations of specific economic and technological futures are integrated in climate models, expectations that have been challenged and debated among climate scientists and modellers but that remain invisible for the public, politicians and social movements who often perceive climate models as ‘pure’ positive science.

One of the mysterious aspects of the ecological crisis is the stunningly consequential lack of effective action to stabilise the climate.<sup>32</sup> This problem has often, and continues to be, explained on the basis of some version of human nature. More than a decade ago, Erik M. Conway and Naomi Oreskes changed this conversation by mapping out several systematic corporate disinformation campaigns.<sup>33</sup> In this way, they created a new subfield on the history of deliberate distortions of climate science (including economic consultants paid to disseminate data that play down the risks) and of the evidence of climate change available to and even produced by fossil-fuel industries.<sup>34</sup> This historiography has provided fuel for the climate movement. Kristoffer Ekberg and Victor Pressfeldt’s contribution to this issue

<sup>29</sup> Marion Fourcade, ‘Cents and Sensibility: Economic Valuation and the Nature of “Nature”’, *American Journal of Sociology*, 116, 6 (2011); Pestre, ‘Comment l’environnement a été géré depuis 50 ans: Anatomie d’un échec’.

<sup>30</sup> Spencer R. Weart, *The Discovery of Global Warming* (Cambridge, MA: Harvard University Press, 2003); Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (Cambridge, MA: MIT Press, 2010); Deborah R. Coen, *Climate in Motion: Science, Empire, and the Problem of Scale* (Chicago: University of Chicago Press, 2018); Joshua P. Howe, *Behind the Curve: Science and the Politics of Global Warming* (Seattle: University of Washington Press, 2014).

<sup>31</sup> One much discussed example of this is the premises of so-called ‘negative emissions’ in climate models. Negative emissions refer to removal of carbon dioxide from the atmosphere by means of technologies that remain to be developed. Critics have argued that there is considerable risk involved in this as the technologies might not materialise or be scalable. This, they argue, must be made clear to the public and politicians to make possible a reasonable debate on different climate scenarios. See Oliver Geden, ‘The Paris Agreement and the Inherent Inconsistency of Climate Policymaking’, *WIREs Climate Change*, 7 (2016); Kevin Anderson and Glen Peters, ‘The Trouble with Negative Emissions’, *Science*, 354, 6309 (2016).

<sup>32</sup> For a discussion of this question that draws on intellectual history see Quentin Skinner, ‘Afterword: Climate Change in the Light of the Past’, in Katrina Forrester and Sophie Smith, eds., *Nature, Action and the Future: Political Thought and the Environment* (Cambridge: Cambridge University Press, 2018).

<sup>33</sup> Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London: Bloomsbury Press, 2010).

<sup>34</sup> Benjamin Franta, ‘Early Oil Industry Knowledge of CO<sub>2</sub> and Global Warming’, *Nature Climate Change*, 8, 12 (2018); Kristoffer Ekberg, Bernhard Forchtner, Martin Hultman and Kirsti M. Jylhä, *Climate Obstruction: How Denial, Delay and Inaction Are Heating the Planet* (Oxford: Routledge, 2023).

adds to this field and joins the effort to look beyond the United States.<sup>35</sup> They trace how neoliberal networks in Sweden developed new tactics to thwart the climate movement. Notably, Pressfeldt and Ekberg's study is one of the few examples of research on neoliberal environmental thought. While there is work on neoliberal campaigns for climate denial, the literature on neoliberal conceptions of the environment is only just emerging.<sup>36</sup> Hopefully, this field will connect to the new historiographies of neoliberalism that have stressed the political importance of this 'thought collective'.<sup>37</sup> Explaining the global rise of neoliberalism is not just a parallel project to understanding how the environmental crisis emerged but is connected to it, since neoliberals have fought against meaningful climate change mitigation for decades.

There is a well-established field of historicisation of climate science that has shown the discipline's links to Cold War militarism, but also its Soviet branch where planning theorists, who were stymied at reforming the Soviet Union's economy, applied their methods to earth-systems science at the International Institute for Applied Systems Analysis in Austria.<sup>38</sup> (Indeed, more could be done to connect histories of the environmental and economic to the history of socialism.) One of the most important tools climate scientists have at their disposal is Integrated Assessment Models (IAMs), which are long-term projections of carbon emissions, ecological feedback loops and global economic developments. IAMs provide the foundation for understanding the consequences of 'business as usual' by 2100, or negotiations over how to limit warming to 1.5 °C or 2 °C. Cointe and Cassen's history of scenario planning is intended to link up the separate historiographies on forecasts in the 1970s, such as *The Limits to Growth*, and IAMs used by climate modellers from the 1990s onwards. Cointe and Cassen argue that the heart of such debates was the question of modelling technological innovation, which at first was ignored but was later integrated endogenously in the models. This shift, they argue, depoliticised the unruly field of futurology into the staid science of IAMs as we know it today.

The history of IAMs is part of a larger history of scenario planning (which in turn is inseparable from histories of the fossil fuel industry).<sup>39</sup> Thomas Turnbull's essay in this special issue delves into a different practice of forecasting. He reminds the reader of scenario planning's unlikely links to European interest in eastern spirituality in the mid-twentieth century. A leading scenario maker, Pierre Wack, worked at Royal Dutch Shell and combined spirituality with oil industry prognostications. In some ways, Wack, much like Schumacher in Leonard's essay, combined spirituality with work in the fossil energy sector, but in contrast to Schumacher he found no contradictions in such

<sup>35</sup> See also Christophe Bonneuil, Pierre-Louis Choquet, and Benjamin Franta, 'Early Warnings and Emerging Accountability: Total's Responses to Global Warming, 1971–2021', *Global Environmental Change*, 71 (2021).

<sup>36</sup> Rebecca Lave, *Fields and Streams: Stream Restoration, Neoliberalism, and the Future of Environmental Science* (Athens, GA: University of Georgia Press, 2012); Philip Mirowski, *Never Let a Serious Crisis Go to Waste: How Neoliberalism Survived the Financial Meltdown* (London: Verso, 2013); Jeremy Walker, *More Heat than Life: The Tangled Roots of Ecology, Energy and Economics* (Singapore: Palgrave Macmillan, 2020); Frédéric Thomas and Valérie Boisvert, eds., *Le pouvoir de la biodiversité: Néolibéralisation de la nature dans les pays émergents* (Paris: Quae, 2015).

<sup>37</sup> Philip Mirowski and Dieter Plehwe, eds., *The Road from Mont Pèlerin: The Making of the Neoliberal Thought Collective* (Cambridge, MA: Harvard University Press, 2009); Serge Audier, *L'âge productiviste: Hégémonie prométhéenne, brèches et alternatives écologiques* (Paris: La Découverte, 2019); Quinn Slobodian, *Globalists: The End of Empire and the Birth of Neoliberalism* (Cambridge, MA: Harvard University Press, 2018); Jessica Whyte, *The Morals of the Market: Human Rights and the Rise of Neoliberalism* (London: Verso, 2019).

<sup>38</sup> Edwards, *A Vast Machine*; Leah Aronowsky, 'Gas Guzzling Gaia, or: A Prehistory of Climate Change Denialism', *Critical Inquiry*, 47, 2 (2021), 306–27; Sébastien Dutreuil, 'Gaia: Hypothèse, programme de recherche pour le système terre, ou philosophie de la nature?', PhD Thesis, Université Paris 1 Panthéon-Sorbonne, 2016; Eglė Rindzevičiūtė, *The Power of Systems: How Policy Sciences Opened up the Cold War World* (Ithaca: Cornell University Press, 2016).

<sup>39</sup> Bretton Fosbrook, 'How Scenarios Became Corporate Strategies: Alternative Futures and Uncertainty in Strategic Management', PhD Thesis, York University, 2017; Thomas Chermack, *Foundations of Scenario Planning: The Story of Pierre Wack* (Oxford: Routledge, 2018); R. J. Williams, 'World Futures', *Critical Inquiry*, 42, 3 (2016), 473–56; Jenny Andersson, *The Future of the World: Futurology, Futurists, and the Struggle for the Post War Cold War Imagination* (Oxford: Oxford University Press, 2018); Jenny Andersson, 'Ghost in a Shell: The Scenario Tool and the World Making of Royal Dutch Shell', *Business History Review*, 94, 4 (2020); Thomas Turnbull in this issue.



a life. Turnbull's contribution is to set out the role scenario forecasting had in the 'proto-neoliberal' privatisation of the United Kingdom's energy industries during the 1970s energy crisis.

### Historicising a Way Forward

A third use of history to clarify the current crisis is to let it inform what options are available for halting the degradation of the natural world. Many of the purportedly new solutions that are being proposed have been put forward before, developed before, criticised before – and even tried before. Environmental histories of the economic can elucidate the successes and failures of earlier attempts to deal with environmental crisis, and are thus central to understanding their potential utility.<sup>40</sup> For example, as historians (including contributors to this issue) have been able to show, corporations have played active parts in shaping climate governance from the very beginning of the institutionalisation of international environmental governance in the 1970s.<sup>41</sup> Discussions of market solutions to climate change today need to take into account that markets and corporations have been fundamentally formative of the current climate regime, and do not represent a novel alternative in that regard.

An inextricable part of any solution to the climate crisis is a rapid transition to renewable energy. In a large-scale and fast societal transformation any related experience is valuable. The more unprecedented the project, the more pressing the need for historical knowledge to find a passable path forward. Milder's essay on the *Energiewende* is an example of that sort of history. While German energy policy has its limits – the country, after all, remains the world's largest producer of lignite – the feed-in tariff succeeded in greatly expanding Germany's renewable energy infrastructure. Milder's study shows how a political coalition between wind, solar and hydropower producers might appear natural in hindsight, but was not obvious at the time. This contingency reminds us that new alliances are both possible and galvanising in processes of societal transformation.

Today, climate scientists speak in less and less convoluted language about the dangers that environmental crises pose, of which the quote at the beginning of this essay is an example. Increasingly, calls are heard for more political engagement on the part of climate scientists and scholars.<sup>42</sup> Delving into the history of the economic and environmental reveals that politically embedded science is hardly a new phenomenon.<sup>43</sup> Coite and Cassen survey a range of forecasting studies in the last three decades of the twentieth century, with each one representing a different set of political commitments. Scientists and scholars have a long history of engaging in movements and in public arenas.<sup>44</sup> Today, historians of the economic and environmental are among those who engage directly in or close to environmental movements, for example by providing the degrowth movement with an understanding of the contingency of economic growth as a goal for politics, or to offer to climate movements and politicians an understanding of the early and extensive knowledge about climate change that was available and even produced by the fossil-fuel industry.<sup>45</sup> Alongside the calls for more engagement from the academic communities in the climate movement, historians have a part to play through their particular trade. As this essay has given numerous examples of, histories of the economic and the environmental will be necessary in the trying times ahead.

<sup>40</sup> Thomas Turnbull, 'Toward Histories of Saving Energy: Erich Walter Zimmermann and the Struggle against "One-Sided Materialistic Determinism"', *Journal of Energy History/Revue d'Histoire de l'Énergie*, 4 (2021), available at [energyhistory.eu/en/node/180](https://energyhistory.eu/en/node/180) (last visited 18 Aug. 2022).

<sup>41</sup> See footnotes 12 and 13.

<sup>42</sup> See for example XR Scientists, [www.scientistsforxr.earth/](http://www.scientistsforxr.earth/) (last visited 18 Aug. 2022).

<sup>43</sup> Coen, 'A Brief History of Usable Climate Science'.

<sup>44</sup> See also for example the 1986 National Forum on Biodiversity, or NASA scientist James Hansen's testimony for the US Congress in 1988.

<sup>45</sup> Matthias Schmelzer, Andrea Vetter and Aaron Vansintjan, *The Future is Degrowth: A Guide to a World Beyond Capitalism* (London: Verso, 2022); Franta, 'Early Oil Industry Knowledge of CO<sub>2</sub> and Global Warming'; Andreas Malm, *How to Blow up a Pipeline: Learning to Fight in a World on Fire* (London: Verso, 2021).

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