Andreas Wittel, Nottingham Trent University

Marek Korczynski, University of Nottingham

**After-Progress: Commoning in Degrowth**

## Abstract

What does it mean to live with the threat of extinction? We make a case that living with the threat of extinction logically can only mean that we have to abandon the modernist ideology of progress. We review ideas of societal progress and note the decline in arguments relating to progress in the writings of political and social commentators. However, alive and well, and hidden in plain sight, is the current dominant ideology of progress – the central policy goal of governments to achieve growth in Gross Domestic Product. We must abandon this twisted ideology of progress. We point to two interrelated elements of a political economy of after-progress – degrowth and commoning. Currently, there are rich and vital literatures on degrowth and on commoning, but rarely do writers in these fields come into explicit dialogue with each other to see and develop a shared logic. We outline a political economy of degrowth as one centred on sustaining the commons, and contrast this with current arguments for green capitalism, centred on the idea of a Green New Deal. Competitive individualism is the central social relationship of capitalism, and is a social relationship that leads to the destruction of the commons. By contrast, commoning should be seen as the central social relationship of a degrowth economy. It is simultaneously a social relationship and an ecological relationship. It is a social ecological relationship to sustain the commons within a degrowth economy.

## After-Progress: Commoning in Degrowth

The matsutake mushroom is a Japanese delicacy and one of the most valuable mushrooms on our planet. It is also an organism with extraordinary survival skills. It was the first known living thing to emerge after an atomic bomb destroyed Hiroshima in 1945. Furthermore, this is a mushroom that cannot be cultivated, it escapes human control. It has to be found. Following the commodity chain of this mushroom, Anna Tsing (2015) suggests that we humans can learn a lot from this organism. In particular, we can learn from it how to live and work together in the ruins of capitalism. Tsing demonstrates in great detail that the collaborative efforts to harvest matsutake involve as much gift-giving as they involve commodified exchange. Her ethnography goes beyond a mere critique of modernisation and progress. Tsing invites us to use imagination as a way out of the crisis. Our ability to find a way forward as a human species will depend on our ability to imagine alternatives. 'If we open ourselves to their fungal attractions, matsutake can catapult us into the curiosity that seems to me the first requirement of collaborative survival in precarious times.' (p2)

In this article, we write in the spirit of Tsing's suggestion. Living with extinction means rejecting the final vestiges of ideas of progress, which are currently enshrined in governments' almost universal focus on growth in Gross Domestic Product.

It is easy to say what we must reject, but harder to suggest what we must embrace. Here, we make a case that a political economy of after-progress should be centred on commoning in degrowth. The mycorrhizal thread running through the article  is the need for a reconsideration of key tenets of political economy.

### After-Progress

Climate change is with us and is now irreversible. It is a crisis that will overshadow all other crises, it will force us to rethink the world and every aspect of our life. While the political class pays lip service to avoiding a rise of temperatures over 1.5C above pre-industrial levels it seems increasingly unlikely that such a target can be achieved. Let's assume however against all odds that it is still possible to achieve this goal. What would it mean? Glaciers will melt further, sea ice will continue to contract, sea levels will rise, topsoil will continue to lose fertility, the acidification of the sea will increase and destroy ocean life even more, wildfires will become more frequent and more intense, the extinction of wildlife will increase and weather changes will become even more extreme. Feedback loops of these processes will create catastrophic tipping points and

further intensify ecological destruction (Lenton et al 2020; Lenton et al 2021; Kemp et al 2022). In short, there can be little doubt that humanity will have to live on a less inhabitable planet.

Extinction is not a singular event, it is a process and it has already begun. Both animal species and plant species have significantly decreased over the last half century. The Intergovernmental Panel on Climate Change (IPCC) which has a history of underestimating the real pace of climate change predicts in their Sixth Assessment Report from 2022 that it is likely that global temperatures will exceed 1.5 degrees pre-industrial levels in the next two decades and that this will likely lead to a further extinction of 20 to 30 per cent of the remaining animal and plant species. The report also makes clear that climate change has already harmed human physical and mental health and has increased human mortality and morbidity. While there is a possibility of avoiding human extinction, it is too early to make assumptions. After all, this question will depend on how we (the human race) act during the coming decades. However, from a logical point of view, there is not much doubt that the future of humanity will not be a desirable one. It is a future that will be shaped by decline and decay. It is a future where for many people life will turn into sheer survival. *It is a future where the idea of progress becomes absurd*.

Progress can be thought of as a forward movement (Fortschritt) toward a more desirable state of affairs. Progress refers to an improvement in the human condition. Often, such improvements are perceived to be of a scientific, economic, technological, or organisational nature. Historically the idea of progress is a child of modernity and Enlightenment philosophy. The idea of progress was a profound break from the mediaeval belief in God's will, providence, and divine intervention.

While humans have always been concerned with progress, they have also witnessed decline. They were aware that progress was temporary and that everything that can be improved can also deteriorate again. This awareness of progress was ultimately based on subjective collective experience. This awareness of the temporal nature of progress fundamentally changed with Enlightenment philosophy. Peter Wagner (2016), in his attempt to reconstruct the idea of progress, theorises this moment as the 'invention of progress' (p5). During the 17th and 18th centuries, a belief emerged that progress can be forever, that an eternal improvement was possible and that it could be sustained over time. For this to happen, Wagner argues, Enlightenment philosophers disconnected the idea of progress from human agency and human experience. Instead, they used abstractions and generalisations. Their belief in reason, freedom and autonomy led them to conclude that humanity is on an unstoppable path to eternal improvement.

To give a prominent example, in 1784 Immanuel Kant wrote a short text called *Idea for a Universal History from a Cosmopolitan Point of View*. His take on

progress is based on a distinction between single individuals and the whole human race. 'What seems complex and chaotic in the single individual may be seen from the standpoint of the human race as a whole to be a steady and progressive though slow evolution of its original endowment.' (quote from Wagner, p77). For Kant, progress is about the development of taste or, in his words, about a development from 'rawness to culture'. (cf. Elias 2000) It is also reflected in the development of values and ethics. His belief in progress stands on two pillars of Enlightenment philosophy, on the idea of freedom and autonomy on the one hand, and on the idea of reason on the other hand. Wagner points out that 'there is a relation between autonomy and reason' (p80) that is central to an understanding of Kant's take on progress. Freedom itself can have different outcomes. It is only when freedom is coupled with reason that a positive development for the human race is a likely outcome because, after all, the progress of the human race is constituted by the actions of human beings.

Hegel and Marx are also prominent theorists of progress. While they differed in terms of Hegel's idealist philosophy and Marx's historical materialism, they shared the view of a dialectical progression in the journey of history. For both of them, progress was far from linear. It occurred through stages of contradiction through the opposition of thesis and anti-thesis, giving rise to a new synthesis. While this approach to seeing 'broken lines' (Carr, 1961: 155) in progress suggests that Hegel and Marx had a rather tempered view of history as progress, another aspect of their (economic and) political philosophies positions them as extreme in their approaches to history as progress. Hegel and Marx were both teleological in their vision of history. They understood history as leading to an ultimate end-goal. Hegel projected the end state of history within the heightened spirit manifest within the Prussian monarchy. Marx saw the end state of the dialectical contradictions in the historical development of class society as the emergence of the classless society, which he termed communism.

After WW1 and the subsequent dictatorships in Europe the idea of progress lost much of its appeal. We can think of this as the first crisis of the idea of progress. Walter Benjamin's take on progress is a complete reversion of this idea. What is progress for others is really decline. In *Theses on the Philosophy of History* (first published in 1940) he contemplates a Paul Klee painting titled Angelus Novus:

> This is how one pictures the angel of history. His face is turned toward the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing from Paradise; it has got caught in his wings with such violence that the angel can no longer close them. The storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we

call progress.

Perhaps the most significant critique of progress was developed by Theodor Adorno and Max Horkheimer. *Dialectic of Enlightenment* (first published in 1947) is profoundly pessimistic about the possibilities of human emancipation. It fundamentally challenges the assumption that reason combined with autonomy tends to produce improvements. Reason and freedom have ultimately led to new forms of social domination, they have led to fascism. The dark side of instrumental rationality culminated in an infrastructure that made Auschwitz possible. Where Kant was excited about the possibilities of emancipation, Horkheimer/Adorno reflected on their consequences. One of the consequences of instrumental thinking highlighted by Horkheimer/Adorno is the subjugation and control of nature.

Shortly before the publication of Horkheimer/Adorno's *Dialectic of Enlightenment* and Benjamin's *Theses on the Philosophy of History* Norbert Elias published *The Civilising Process* (1939). Analysing long-term changes of psychological and social structures since 800 AC Elias develops a theory of a civilising process. For Elias technological progress has brought about more complex social structures which in turn affect psychological structures and the behaviour of individuals. Most of these changes, such as a stronger development of feelings of shame and embarrassment and a repressed sexuality result from an increase of self-control and self-discipline. While Elias does not use the term progress to describe these changes there is little doubt that the civilising process that he outlines is something we should celebrate. After all, this is a process from violent barbarism to the development of culture and the refinement of taste. His concept is very much in the tradition of Kant (from 'rawness to culture'). Elias' theory has been contested vigorously by German anthropologist Hans Peter Duerr. *The Myth of the Civilising Process* contains four volumes (published between 1988 and 1997) and more than 3500 pages of empirical evidence to refute the interpretations and conclusions made by Elias. According to Duerr, Elias theory is leaning towards positivism in that he fails to contextualise his observations. For example he would conflate nudity with a lower development of shame. Ultimately, for Duerr, Elias theorises historical developments in a way that displays the lives of indigenous peoples as less civilised. Arguably Elias' concept of the civilising process was the last explicit attempt to theorise the history of human development as a story of progress.

The first crisis of progress emerged a century ago with the rise of fascism in Europe and, as a consequence of this, WW2. We can think of the current environmental extinctions and disasters happening and about to happen as the second crisis to confront ideas of progress. But what are the remaining ideas of progress? Have we not been arguing that ideas of progress, born of the Enlightenment, have already withered so as to be barely discernible? We have so far been discussing political-philosophical and political economic approaches to progress. The last great idea of progress has been placed before us not by

political philosophers nor by political economists, but rather by economists. It is materially more important than any other for it has been taken up, almost universally by governments. The last great idea of progress is the focus on growth in Gross Domestic Product (GDP).

William Davies (2017) argues that neoliberalism fundamentally replaces political judgement with economic measurements and evaluations, but it is in the rise of marginalism and neo-classical economics that we see the origins of this process. As Clarke (1982) and Polanyi (2001) point out, it was the splitting of economics from political economy that laid the foundation stones for the presentation of economics as technocratic, and value-free. It was in this conceptual space that the presentation of the value-free measure of GDP, and the embrace of the focus on GDP growth took place.

GDP has become the 'universal yardstick' (Schmelzer 2015, p. 263) through which economists determine public policies – whether these economists are laissez-faire economists, or left-leaning Keynesians. It was after the Second World War that governments focused on GDP growth as *the* fundamental policy goal. Technically, GDP is the monetary value of goods and services produced within a country. In effect, GDP has come to be understood as a proxy for the welfare of societies. As Fioramonti (2017) argues, GDP is much more than a simple statistic. GDP growth has become the overarching benchmark of success and a powerful ordering principle at the heart of the global economy.

Although the focus on GDP growth was rarely explicitly discussed in terms of progress, implicitly governments, with their ubiquitous, technocratic primary policy focus on GDP growth, have come to enact the last great myth of progress. In 1957, UK prime minister, Harold MacMillan, used and made famous a 1952 USA Democratic Party slogan of progress: 'you never had it so good'. Fundamentally, this slogan was based on the fact that GDP per capita was at a higher level than ever previously recorded. Since WW2, most elections have centred on different political parties trying to persuade voters that they are the ones that can better generate progress in the form of GDP growth.

But we can now see that a focus on GDP growth is a deeply harmful way of understanding and seeking to enact progress. In October 2021 complexity theorist and physics Nobel prize winner Giorgio Parisi addressed the Chamber of Deputies, and cut to the heart of the matter: 'Allow me to add an economic consideration. The gross domestic product of individual countries is the basis of political decisions, and the mission of governments seems to be to increase GDP as much as possible, an objective that is in profound contrast with the arrest of climate change.' Crucially, the measure of GDP in seeking to capture economic activity ends up internalising economic activity's failure to consider externalities (Pilling 2018; Coyle 2015; Hamilton 2004). An externality is an indirect cost or benefit to an uninvolved third party that arises as an effect of another party's activity. GDP has never acknowledged externalities on the environment. While

there are attempts to calculate the economic value of ecosystems - this is one of the key objectives of the journal *Ecosystem Services* - these externalities are ultimately beyond measure. It is impossible to measure the impact of Amazonian deforestation on our economic wealth or our future well-being. All we know is that deforestation will accelerate extinction. It is impossible to measure the impact of allowing water companies to discharge raw sewage into water courses. All we know is that we and other living species will have to pay a price for this policy. Furthermore, GDP has never taken into account the high amount of unpaid labour such as housework or child care that keeps the economy going. If we believe in GDP as a measure of growth we assume that unpaid labour comes without a price attached. Finally Marxists would argue that a rise of GDP cannot be separated from primitive accumulation or the capture of common goods by capital. In order to grow we have to create more goods and services. We have to sell stuff that once was free. The latest example of such a capture of the commons would be the commodification of our data by social media platforms.

To avoid human extinction we must move beyond the deeply harmful obsession with GDP growth. In Fioramonti's (2017) terms, we need to consider 'the world after GDP'. In our terms, the second crisis of progress, the crisis of the environment, confronts and discredits the last great, but unnamed, idea of progress, this focus on GDP growth. We need a political economy of after-progress. Central to that political economy are degrowth and commoning.

**Degrowth**

Two significant initiatives have emerged that respond to the challenges of climate change by demanding profound changes for capitalist economies. One is the Green New Deal, the other initiative is the degrowth movement. Both demand system change instead of climate change. Both acknowledge the link between capitalism and ecological breakdown. Both are radical in the sense of addressing the root causes of environmental collapse. Apart from these commonalities the two initiatives offer rather different forms, approaches and solutions to tackle the crisis.

*Different forms*: The Green New Deal (GND) is a plan conceived by experts in their field, degrowth is both a theoretical concept and a political, economic, and ecological movement. The GND has been set out first by academics in the UK (mostly by economists and environmentalists) who gathered after the financial crisis of 2008 to draft a plan for a new economic system to protect the environment. Ten years later a group around Alexandria Ocasio-Cortez started to campaign for a GND. This, in turn, inspired the Labour Party under the leadership of Jeremy Corbyn to campaign for a GND in the UK. The degrowth movement does not have prominent politicians arguing their cause. While the concept originated through scholarly work, it has mutated into a largely bottom-

up initiative. It emerged in the 1970s as a niche concept by French academics such as Andre Gorz and Nicholas Georgescu-Roegen, gained further traction by a special issue of S!lence (in 1993) on the work of Georgescu-Roegen, attracted the attention of an Adbuster activist group, and turned into an international movement with conferences in Paris (2008), Barcelona (2010), Venice and Montreal (2012) Leipzig (2014) and Budapest (2017). This resulted in a rapidly growing body of literature such as Barlow et al (2022), Hickel 2020), Liegey and Nelson (2020), Kallis (2017; 2018), Kallis et al (2018), Schmelzer (2016), Schmelzer et al (2022), and Soper (2020). It is hardly a coincidence that the degrowth movement came out of its shell after the financial crisis of 2008.

*Different approaches*: The GND needs political power, needs parliament and government to act on these suggestions. While a GND looks unlikely to be implemented in the short term in the UK or the US, as the crisis deepens it is likely that the GND will be implemented in the medium term in some form by parliaments in western societies. The degrowth movement has a broader scope. It seeks to influence the public sphere, most of all it aims to deconstruct mythical thinking related to economic growth. It aims to initiate debates. These debates are not about explicit and detailed measures, they are about values and about a radically different understanding of the realm of the economy. These are values that are based on an appreciation of qualities rather than quantities, values that produce concepts such as 'small is beautiful' (Schumacher 1973) and 'less is more' (Hickel 2020). Schumacher's degrowth classic with the beautiful subtitle 'a study of economics as if people mattered' connects ecological with economic concepts, warns of the dangers of large-scale systems, and advocates an economy based on enoughness and an appropriate use of technology.

*Different solutions*: The GND is a plan to implement profound economic and ecological changes. Its key policies aim to develop technological and financial infrastructures to move away from fossil fuels and to facilitate a transition to net-zero greenhouse gas emissions, to invest in natural energies such as wind and solar power, to create new industries and jobs that implement this transition, to promote clean air and healthy food, to rewild the environment, and to restructure global finance. Ann Pettifor (2019), a British economist, who was part of a group of early adopters and promoters of the GND in the UK, outlines some differences between the US and the UK version of the GND. For her, the US version is more nationalist, the UK version more internationalist, the UK version focuses more on monetary policies, the US version more on green technologies and infrastructures, the UK version aims to protect low-income households, whereas the US GND seeks to remake not just a broken planet but a broken society. In short, while there are different versions of the GND, both can be understood as a 'blueprint …for bringing about system-wide reorganisation within a short time period' (p22).

In contrast, the degrowth movement does not promote specific policies. It does not aim to develop sustainable or green solutions, it does not aim to fix the

ecological crisis with monetary or technological means. Its main principle is to live 'within Earth's regenerative limits in socially equitable and collectively supportive ways' (Liegey and Nelson 2020: 3). The key focus is on the notion of economic growth. More growth means more demand and more demand means more energy consumption. More energy consumption makes the transition from fossil fuels to renewable energies even more difficult. Ultimately the degrowth movement challenges the assumption that growth has any intrinsic value. It questions that growth, measured in quantitative terms such as GDP is compatible with the ways the Earth creates equilibrium. It argues for a reduction of both production and consumption. André Gorz is one of the theorists who pioneered a critical approach toward growth. In 1972 he contributed to a debate organised by the Club du Nouvel Observateur in Paris. He asked the following critical question: 'Is global equilibrium compatible with the survival of the capitalist system given that the Earth's balance requires no-growth or even degrowth of material production'? (Liegey and Nelson 2020: 7)

The question that Gorz raised in 1972 is indeed eye opening. While there is growth in nature, there is no unlimited growth in nature. Trees can grow high, but eventually they will stop growing. In nature there are cycles of growth, stagnation and decay. The idea of infinite growth has become the biggest threat to life itself. Why do we think that an economic system, any economic system, can produce growth forever? How is it possible that such an imaginary has not been considered a form of madness and has, instead, turned into an economic orthodoxy?

From a degrowth perspective the GND cannot be the ultimate solution to the threat of ecological collapse. Green technologies alone will not save us (Hickel 2021). While the GND is urgently needed, it does not go far enough. It argues from an economic perspective that recognises the importance of jobs and wage labour. It does not advocate a reduction of global consumption. Ultimately, it does not argue against capital as the root cause of climate change, it merely proposes a green and sustainable capitalism. However, for the degrowth movement the notion of sustainable development is a contradiction and an oxymoron, as any development that is based on increase of GDP is logically unsustainable.

There is another way to think about why the GND and green capitalism is offering an impossible answer to the wrong question. This involves turning to Hardin's (1968) famous discussion of 'the tragedy of the commons' and pointing to an important sleight of hand by Hardin in the construction of his argument. Hardin presents us with a timeless picture of a piece of common land: he begins by asking the reader to 'picture a pasture open to all'. For a while, this timeless pasture is able to sustain all the cattle that graze there – but eventually, the pasture's capacity for cattle-grazing is reached. If any more cattle are put on the pasture, the pasture will be over-grazed. It will not be able to reproduce, and will face long-term decline. Now the tragedy begins. Hardin has a nice way of

telling us what we feel we already know – although it might be bad for the overall pasture to bring some extra cattle on to the pasture to graze, for each individual herdsman (sic), it makes sense to sneak a few extra cattle on to graze. After all, it will really benefit him, and will only lead to the slightest decline in the overall well-being of the pasture. And so, he sneaks a few extra cattle on to the pasture. But this is the individual thought-process and action of multiple individual herdsmen. Thus, the tragedy plays out, and the commons pasture is ruined.

Usually, this tale is interpreted in a way that points to the importance and legitimacy of enclosure and private property. However, we argue that without realising it, what Hardin explores in this parable is the central tension between, and ultimately, the incompatibility of, capitalism and the environment. But where is capitalism in this timeless tale, the reader may ask. This is where we must expose Hardin's skilful sleight of hand. Hardin naturalises the herdsman's individual competitive self-interest. He presents it as timeless, so obvious as to be taken as a given, without the need for explanation:

> As a rational being, each herdsman seeks to maximise his gain. Explicitly or implicitly, more or less consciously, he asks. "What is the utility to me of adding one more animal to my herd?"

He sees that the potential benefit of sneaking in more cattle to graze outweighs the small cost to him of a slight decline in the overall sustainability of the pasture.

But, individual competitive self-interest should not be taken as a timeless natural way of thinking and behaving. Rather, *we should think of individual competitive self-interest as the key social relationship of capitalism*. Indeed, Adam Smith had already intimated as much some two centuries earlier (1776: 31):

> It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages.

So when Hardin tells us of the tragic consequences of the pursuit of individual competitive self-interest upon the commons, he is actually telling us not a timeless tragedy, but a specific parable about what the key social relationship of capitalism does to the common-environment. It is the tension between, on the one hand, an economic system, capitalism, based on, legitimising, sustaining and rewarding individual competitive self-interest, and, on the other hand, the maintenance of a sustainable environment that arguments for a Green New Deal and green capitalism cannot brook.

There are arguments that it is not capitalism *per se* that is the problem but rather that there are specific forms of capitalism that lead to environmental

degradation and extinction. For instance, Ann Pettifor (2019) develops a strong critique of the devastating ecological consequences of financial capitalism. However, we continue to argue that it is neither neoliberal capitalism nor financial capitalism that is at the root of environmental breakdown, but capitalism itself. Capitalism and profit-making are both the cause and the biggest obstacle to change. We have two further steps to develop this argument: First we will briefly make a point about humans' changing relationship with their environment. Secondly, we will outline how capital took advantage of this change. In pointing the finger at capitalism, we are making the case for the need for an alternative economic system, centred on degrowth.

In the first step, we will use Charles Eisenstein's concept of separation (2007; 2011). The age of separation has produced two developments, a separation of human beings from nature and a separation from each other as human beings. While it is difficult to point to a specific moment in time when the age of separation has begun, Eisenstein is clear that it has become fully developed during modernity, with the scientific and technological revolutions of Galileo, Newton, Bacon, and Darwin, with the 'I am' Enlightenment philosophy in the footsteps of Descartes, and with the economic thinking of Adam Smith. The age of separation is an age when human beings did not see themselves as part of nature anymore but as the masters of nature, as a species that has the power to control and manipulate nature according to its needs and desires. Very much like the myth of progress by Enlightenment philosophers, the ascent of humanity was perceived as an ascent from the depths of superstition and ignorance to the light of scientific reason and a mastery of the natural world.

The age of separation has also led to a separation between human beings, to an acknowledgement of the self as an entity and to a continuous process of individuation at the expense of an appreciation of togetherness. In fact, this process of individuation celebrates self-interest, competition between human beings and the Darwinian survival of the fittest. It has led to a marginalisation of gift-giving and to a disintegration of community and mutual aid. It has also led to a specific economic form, to capitalism, to property rights, monetary exchange, the measurement of value, and the unlimited accumulation of profit. Without going into great detail, there is a clear link between his concept of separation and Karl Marx's theory of alienation, as outlined in his *Economic and Philosophic Manuscipts of 1844*, especially Marx's third and fourth types of alienation, the alienation from their species-being and the alienation from other workers. However, while for Marx alienation is a product of capitalism, for Eisenstein capitalism is not necessarily the cause of separation but certainly a symptom of it. For Eisenstein, capitalism is an economic form that provides the perfect framework to take separation to an extreme level. He argues that the age of separation has now reached its limit and is coming to an end. Separation is a story that rings more and more shallow. We humans are increasingly aware that we are part of nature, that we suffer, when our environment suffers, and

that we are better off together.

Let's move on to the next step in our argument, and consider how capital took advantage of the separation outlined by Eisenstein. We will first introduce Jason Moore's concept of 'cheap nature' and then discuss Andreas Malm's history of 'fossil capitalism. Both authors develop a Marxist critique of capitalism's political economy and its implications for ecological breakdown. Moore (2015) develops his critique of capital from a similar perspective to Eisenstein. He insists that the dualism of nature and society is a dangerous misconception as it suggests that humans are part of society but not part of nature. He sees the myth that nature is external to society as a fundamental condition for the accumulation of capital. In order to overcome this myth he develops the concept of 'double internality'. Double internality makes two arguments. It insists that the exteriorisation and thereby the neglect of the environmental cost to wealth creation has now reached its limits and that this neglect never made sense in the first place. It also points to the fact that the relationship between human beings and their non-human environment is a two-way-street. Humans make environments and environments make humans. One of the key criticisms of what Moore calls 'green thought' - a good example would be the proponents of the GND - is that it has privileged one direction of traffic in this two way street. It has been more interested in the (damaging) influence of humans on their environments and has largely ignored the effects of a damaged environment on the human species.

Obviously, the main objective of capital is the accumulation of profit or surplus value. For Marx surplus value is created via the exploitation of labour. Moore adds another dimension to an understanding of the origin of profit. Capitalism's way to work through nature is to organise nature, to appropriate nature to create an ecological surplus value. The main objective for capital, therefore, is to produce what he calls 'cheap nature'. The more capital can appropriate nature's free gifts, the higher the ecological surplus. For Moore capitalism has been coherent from the 16th century onwards in how it co-produces human and extra human nature in the web of life. It has been guided by a 'law of value' which is synonymous with a 'law of cheap nature'. 'At the core of this law is the ongoing, radically expansive, and relentlessly innovative quest to turn the work/energy of the biosphere into capital.' (p14) The aim of capital is not to destroy nature but to compel nature to work harder and harder, for free or at a very low cost. 'In metals and mining, shipbuilding, agriculture, textiles, and many other strategic sectors of early capitalism, labour productivity advanced dramatically through new techniques and procedures of harnessing nature's bounty.' (p16)

He distinguishes between four forms of cheap nature: cheap labour-power (as humans are part of nature), cheap food, cheap energy and cheap raw materials. The more efficiently capital organises nature the more it faces an exhaustion in the appropriation of nature. There is a limit to putting nature to work. Today it is becoming increasingly difficult to get nature - of any kind - to work harder in order to increase the accumulation of value. Echoing Marx's concept of the

falling rate of profit Moore calls this the tendency of the ecological surplus to fall. The core problem capital faces today is: How can nature still be transformed into value? Since Moore rejects the Cartesian dualism between nature and humans he doesn't have much appreciation for the concept of the anthropocene as it reduces human activity in the web of life to an abstract Humanity as a homogeneous acting unit. The concept of the anthropocene does not challenge inequalities, alienation and violence inscribed in the process of appropriation. It ignores imperialism, commodification, patriarchy, and racial relations. It suggests that indigenous peoples are as involved in this process as oil companies. Therefore Moore suggests replacing the concept of anthropocene with that of capitalocene.

Andreas Malm (2016) reinforces Moore's argument with a more specific focus on energy. Connecting environmental history with labour history Malm tells the story of fossils as a source for the creation of energy. As we all know, the burning of fossil fuels is by far the most important cause for climate change. Malm's main objective is a critical interrogation of the conventional view (or what he calls the Ricardian-Malthusian paradigm) that industrialisation has created climate change and that the shift from water mills to steam engines happened because fossil fuels were a superior technology that represent progress - cheaper, more efficient, more productive, and more abundant. Malm starts his argument with a famous quote from Marx (in The Poverty of Philosophy), in which he theorises social change in general and changes in the capitalist mode of production in particular: 'The hand-mill gives you society with a feudal lord; the steam-mill, society with the industrial capitalist.' Different modes of production create different social relations. It is not capital that begets technology, it is the other way round: technology (the steam engine) begets capital. Marx:

> In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living they change all their social relations.

In order to challenge the view that a superior form of technology emerged with the steam engine as a myth Malm asks a number of questions: what if the steam engine was neither cheaper nor more abundant than the energy produced from water mills? What if the transition to the steam engine happened without any knowledge that the steam engine would be more efficient? Finally, what if the steam engine was not celebrated as technological progress by all parts of society, what if, in fact, it was introduced against the explicit resistance of some parts of society, namely the working class? (p36) His historical exploration of how the steam engine became the dominant source of energy in the North of England during the 19th century doesn't leave much room for doubt. Steam power, which relied on the mining of coal, which was an extremely dangerous job, was neither cheaper nor more abundant. The transition from water mills to the steam engine had nothing to do with Smith's invisible hand of the

marketplace. Fossil fuels were not an answer to energy scarcity. Steam had one advantage only: it offered capital a choice of the most convenient production sites. A reliance on water mills would not have handed power to coal mining companies. Right from the beginning, fossil fuels were all about competition. Therefore, fossil fuels provided a superior form for controlling labour power. A superior form for accumulating capital and making profit. Ultimately steam power became a flagship technology for the creation of class and the domination of capital over labour. As is well known, workers paid a high price for the industrial mining of coal.

The concept of ecosocialism and debates on Marx's alleged neglect of environmental aspects in his political economy have gained much traction over the last few decades (Foster 1999; Foster 2000, Foster et al 2010; Saito 2017, Butler 2019). This debate shows that it is imperative to rethink political economy from an ecological perspective. In the first section of the paper, we pointed to the foundational problem in the separation of neo-classical economics from political economy. Here, we are pointing to a fundamental problem in the founding even of political economy – its separation from the environment. In the 21st century, political economy must turn into pol-ecological economy. Degrowth is the first pillar of a pol-ecological economy of after-progress. Commoning is the second pillar.

## Commoning

The degrowth movement has its origins as an opposition to the fetishisation of growth, and to capitalism because of its immanent attachment to growth. If it is to be a way forward, rather than just a critique of present and past, we must develop more fungi from its spores. It must be *for* something, not just against things. We have already noted the key principle of Gorz – that of seeking to live in equilibrium with nature. We have noted earlier that individual, competitive self-interest is the key social relationship of capitalism. Why did this social relationship become so dominant in capitalist economies? For Eisenstein (2007; 2011), the rise of individualism is closely connected with the modern idea of freedom, which is most of all associated with property and possession. Under capitalism the right to own things has become absolute in that the possession of things could be used in any way the owner wants. Unlike in Roman law or Feudalism property became dissociated from social obligations and from a commitment to care for others.

Human existence has never been an individual affair. Humans become individuals through their interactions with others. It is not hard to see the damage that the destructive ideology of individualism and competitive self-interest has fostered. The modern understanding of property has laid the foundations for our contemporary ethos of unlimited consumerism and

commodity fetishism. Even worse, it has laid the foundation for a social acceptance of extreme economic inequality. It has led to a rise in narcissism (Lasch 1979) and to a cult of the self, to a destruction of community life (Riesman et al 1950, Bellah 1986, Putman 2000), to rising levels of loneliness, depression and other mental illnesses. It has also led to a reduction of loyalty in personal relationships and institutional settings (Sennett 1999, Bauman 2000).

More than a century ago Peter Kropotkin (2006, first published 1902) made a powerful case against an interpretation of Darwin's work that exaggerates the importance of rivalry and underestimates mutual aid as a factor of human and non-human evolution. He demonstrates that cooperation and reciprocity play a far greater role than competition and the survival of the fittest. For him, evolution is most of all based on solidarity - not because of an assumed morality but because collaboration is more powerful in the fight for survival. It is urgent to be reminded of his insights as the logic and the rhetoric of competition has come to dominate all aspects of our lives.

To develop an alternative pol-ecological economy of degrowth further, we must ask first-principle questions. What is the antidote to Eisenstein's diagnose of seperation (the separation between humans) and Marx's third and fourth type of alienation? What can we think of as the key social relationship of degrowth? What social relationship can underpin a functioning non-capitalist economy, which acts in equilibrium with nature? Our answer is that *commoning* can and should be the key social relationship of a degrowth economy. Commoning is the polar opposite to individualism, separation, and alienation. To explain what we mean by commoning, we need to show how understandings of commoning as a social-ecological relationship have developed from the political economy discussions of the commons. We need to take a step back, and revisit that timeless pasture in which Hardin set the tragedy of the commons to play out.

Led by Elinor Ostrom, a group of scholars have critiqued Hardin from within the tradition of liberal philosophy. While there is much to be commended in this scholarship, ultimately, there are also substantial limitations. This scholarship has examined cases where there are common pool resources, and where the common pool resources are managed in a sustainable manner. Common pool resources are defined as consisting of a natural or human-made resource system, where it is costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use, e.g. Hardin's pasture, irrigation systems, forests, and fisheries. Ostrom (1990) has put forward 8 key design principles which underpin the sustainable management of common pool resources. Broadly, these principles are for a locally-based, participative form of governance. The principles are about rule-making by commoners, for commoners - including forms of penalties for those who seek to free-ride on the commons. Cox et al. (2015) conducted an overview study of 91 case studies of common pool resource sites and found that Ostrom's principles were well supported empirically. Ostrom was awarded the Nobel Prize for Economics in

2009.

Clearly, Ostrom's work is important, but let us be clear on what it does and does not show. It shows that there are cases in the context of contemporary capitalism where the tragedy of the commons has been averted. And it shows the common points of governance that are present when the tragedy of the commons is avoided. Crucially, what it does not consider is how capitalism operates to make these cases of sustainable commons the *exceptions*. We need to say this loudly – sustainable commons are not the norm, they are outliers. This points to the elephant in the room in the otherwise-laudable Ostrom-led scholarship – the lack of consideration of the impact of the wider economic system of capitalism on what happens to cases of the commons.

We can point to two important elements that mean that Ostrom's principles may remain relevant for exceptional cases, and cannot be imported as lone-standing design principles to allow for the sustainable management of the commons of the natural world. First, there is the unstated pressure from the key social relationship of capitalism – of commoners becoming dominated by individual, competitive self-interest. Second, we can point to specific ways in which the operation of capitalism will tend to undermine the workings of Ostrom's design principles. There is an assumption that there are dispersed individual community members around the common pool resource. However, the dynamic process of market activities in capitalism tends to lead to the creation of large firms, and often monopolies. So the longer-term effect of existing within capitalism is that the dispersed individual community members will come to face large firms competing for the use of the common pool resources. A limited form of equitable, participative democracy in the governance of the common pool resources is unlikely to prevail in these circumstances. Indeed, the limitations of Ostrom are analogous to the limitations of the GND that we considered in the preceding section. Both Ostrom and the GND try to offer ways forward to better sustain the natural environment without considering the fundamental ways in which central elements immanent to capitalism lead to the corrosion of the natural environment. De Angelis' acute critique of the limitations of Ostrom could also have been written about the limitations of the Green New Deal:

> Ostrom… is not taking a political stance, but an economist's stance that, without problematising the historical relations between commons and capital, conceives the cohabitation of these different forms as unproblematic (2017: 156).

Thankfully, in the new theorising concerning the commons, a more radical approach has been developed through a central focus not on the governance of common pool resources, but rather on the active social, and *simultaneously ecological*, relationship of commoning. (Barbagallo et al., 2019; Bollier, 2002, 2014; Bollier and Helfrich, 2012, 2019; Caffentzis, 2013; Dardot and Laval, 2014; De Angelis, 2017; Federici, 2018; Hardt and Negri, 2009; Harvie, 2004;

Holloway, 2010; Linebaugh, 2008, 2014). Here, we concentrate on the key contribution of De Angelis (2017). De Angelis makes a decisive break from Ostrom's approach by arguing that commoning does not have to be linked to a special type of good that is the common pool resource (upon which Ostrom focuses). He highlights that Caffentzis' (2004) discussion of the history of property regimes concludes that it is difficult to decide what types of goods are 'conducive' to private or common property. This implies that we should look beyond the specific qualities of good, and focus rather on the social and power relations around those goods. If there is a plurality for whom a good could have value, there is also a plurality who can organise the production and reproduction of that good.

De Angelis explicitly considers commoning as part of a collective path towards an exit from capitalist production:

> I believe there is a social revolution in the making that, if recognised and able to attract more energies from people around the world, could give us a chance to embark on a process of transformation towards postcapitalist society (...) Commons are not just resources held in common, or commonwealth, but social systems whose elements are commonwealth, a community of commoners, and the ongoing interactions, phases of decision-making and communal labour process that together are called commoning. (2017: 11)

Although he does not make this point explicit, his arguments position commoning as both a social and an ecological relationship. For De Angelis, a commons should be thought of as a social system consisting of three elements: what is held in common, who is doing the commoning, and what are the relational practices of commoning. What is held in common are pooled material or immaterial resources (which he refers to as commonwealth). These could include the natural environment, digital information, skills, values, knowledge, etc.. These resources do not have to have the specific qualities that Ostrom looks for in a common pool resource. De Angelis refers to those doing the commoning as a community of commoners, who are defined by their willingness to share, pool, and (implicitly) claim commonwealth. De Angelis terms the relational practices of commoning simply as commoning (p.121). Commoning is the 'social labour (activity, praxis), through which commonwealth and the community of commoners are (re)produced together.' Commoning is characterised by 'modes of production, distribution and governance of the commons that are participatory and non-hierarchical, motivated by the values of the commons (re)production, [and] of the (re)production of commoners' commonwealth' (p.121). It is De Angelis' emphasis on commoning as involving reproduction of the commons as much as production linked to that commons that means that commoning is as much an ecological relationship as it is a social

relationship. It is simultaneously both an ecological activity and a social activity.

De Angelis only implicitly makes the case that commoning is a grounded social ecology. Further, although he has brilliantly developed the concept of commoning as linked to a post-capitalist economy, not once in his 2017 masterpiece, *Ominia Sunt Communia*, does he reference a degrowth economy, or consider how commoning can link to degrowth. But we can make the implicit, explicit. We can develop his arguments to make the link between commoning and degrowth. For De Angelis, the commoners are immediately concerned with the direct pasture, or commons, rather than the whole of nature as a commons. De Angelis sees commoners only looking outside of their commons '*if* their preoccupation includes ecological sustainability' (emphasis added, p.128). This 'if' is problematic. When commoning is linked to degrowth as an overall pol-ecological economy, then this 'if' becomes 'because'. For commoning to be the social relationship of a degrowth economy, commoners must be concerned not only with the reproduction of the micro-commons where they act, but also of the macro-commons, the natural environment, in which the micro-commons is nested.

Overall, therefore, we are arguing that just as individual, competitive self-interest is the key social relationship of capitalism, so commoning stands as the logical key social-ecological relationship of a degrowth economy. A degrowth economy needs to have a logic at its heart that is simultaneously about altered social relationships and about altered ecological relationships. This broad invocation points to the need for writers and thinkers of the commons and commoning to come into urgent dialogue with the writers and thinkers of degrowth. At present, although there has been some small direct linking of degrowth to commoning (e.g. Schmelzer et al 2022), these two movements have largely danced past each other. It is time for these literatures to come together to develop, seeing their shared direction and logic, and building the details (for instance regarding strategies for degrowth, see Barlow et al 2022) that are necessary for commoning and degrowth to work in tandem in concrete ways.

## The Mushrooms and Us

Although there has been a decline in arguments for progress in the writings of political and social commentators, economists have propagated the current dominant ideology of progress – the central policy goal of governments to achieve growth in GDP. We have argued for the abandonment of this last ideology of progress. We have outlined two interrelated elements of a political economy of after-progress – degrowth and commoning. A political economy of degrowth is at the same time a political economy that is centred on sustaining the commons. Commoning should be seen as the central social relationship of a

degrowth economy. It is simultaneously a social relationship and an ecological relationship. It is a social ecological relationship to sustain the commons.

That thick, musty aroma being swept to us by the winds of the future is the smell of mushrooms. Whether those mushrooms grow in the ruins left behind by an extinct human race, or in the commons under the stewardship of the commoners is now up to us.

**References**


Adorno, Theodor W. and Max Horkheimer. *Dialectic of Enlightenment*. London: Verso, 1997.

Barbagallo, Camille, Nicholas Beuret, and David Harvie. *Commoning with George Caffentzis and Silvia Federici*. London: Pluto Press, 2019.

Barlow, Nathan, Livia Regen, Noemie Cadiou, Ekaterina Chertkovskaya, Max Hollweg, Christina Plank, Merle Schulken, and Verena Wolf, eds. *Degrowth & Strategy: How to Bring about Social-Ecological Transformation*: Mayfly Books, 2022.

Bauman, Zygmunt. *Liquid Modernity*. Cambridge: Polity Press, 2000.

Bellah, Robert, Richard Madsen, William Sullivan, Ann Swidler, and Steven Tipton. *Habits of the Heart: Individualism and Commitment in American Life*. Berkeley: University of California Press, 1986.

Benjamin, Walter. *Illuminations: Essays and Reflections*. Translated by Zohn, Harry, edited by Hannah Arendt. New York: Schocken Books, 1968.

Bollier, David. *Silent Theft: The Private Plunder of our Common Wealth*. New York: Routledge, 2003.

Bollier, David. *Think Like a Commoner*. Gabriola Island: New Society Publishers, 2014.

Bollier, David and Sike Helfrich. *The Wealth of the Commons: A World Beyond Market and State* Levellers Press, 2012.

Bollier, David and Silke Helfrich. *Free, Fair and Alive. the Insurgent Power of the Commons* New Society Publishers, 2019.

Butler, Judith. "The Inorganic Body in the Early Marx: A Limit-Concept of Anthropocentrism." *Radical Philosophy* no. 2 (2019).

Caffentzsis, George. *In Letters of Blood and Fire: Work, Machines, and Value*. Oakland: PM Press, 2013.

Caffentzsis, George. "A Tale of Two Conferences: Globalisation, the Crisis of Neoliberalism and the Question of the Commons." *The Commoner* (2004).

Carr, Edward H. *What is History?* London: Penguin Books, 1961.

Chomsky, Noam and Robert Pollin. *Climate Crisis and the Global Green New Deal: The Political Economy of Saving the Planet*. London: Verso, 2020.

Clark, John. "Marx's Inorganic Body." *Environmental Ethics* no. 11 (1989): 243-58.

Clarke, Simon. *Marx, Marginalism and Modern Sociology: From Adam Smith to Max Weber*. London: Palgrave Macmillan UK, 1991.

Cox, Michael, Gwen Arnold, and Sergio Villamayor Tomás. "A Review of Design Principles for Community-Based Natural Resource Management." *Ecology and Society* 15, no. 4 (2010): 38.

Coyle, Diane. *GDP. A Brief but Affectionate History. Revised and Expanded Edition. Princeton, New Jersey, Woodstock, Oxfordshire:* Princeton: Princeton University Press, 2015.

Dardot, Pierre and Christian Laval. *Common: On Revolution in the 21st Century*. London, New York: Bloomsbury Academic, 2019.

Davies, William. *The Limits of Neoliberalism: Authority, Sovereignty, and the Logic of Competition*. London: Sage, 2017.

De Angelis, Massimo. *Omnia Sunt Communia: On the Commons and the Transformation to Postcapitalism*. London: Zed Books, 2017.

Duerr, Hans-Peter. *Der Mythos Vom Zivilisationsprozess: Vol. 1, Nacktheit Und Scham, (1988), Vol. 2, Intimität (1994) , Vol. 3, Obszönität Und Gewalt (1995), Vol. 4, Der Erotische Leib (1997)*. Frankfurt/Main: Suhrkamp,.

Eisenstein, Charles. *The Ascent of Humanity: The Age of Separation, the Age of Reunion, and the Convergence of Crises that is Birthing the Transition*. Harrisburg, PA: Panentha Press, 2007.

Eisenstein, Charles. *Sacred Economics: Money, Gift, and Society in the Age of Transition* North Atlantic Books, 2011.

Elias, Norbert. *The Civilizing Process: Sociogenetic and Psychogenetic Investigations*, edited by Dunning, Eric, Johan Goudsblom and Stephen Mennell. Oxford: Blackwell, 2000.

Federici, Silvia. *Re-Enchanting the World: Feminism and the Politics of the Commons*. Oakland, CA: Kairos/PM Press, 2018.

Fioramonti, Lorenzo. *The World After GDP: Economics, Politics and International Relations in the Post-Growth Era* Cambridge: Polity Press, 2017, 2017.

Foster, John B. "Degrow Or Die?" http://www.redpepper.org.uk/degrow-or-die/

Foster, John Bellamy. *The Ecological Rift: Capitalism's War on the Earth*, edited by Clark, Brett, Richard York and ProQuest (Firm). New York: Monthly Review Press, 2010.

Foster, John Bellamy. *Marx's Ecology: Materialism and Nature* NYU Press, 2000.

Foster, John Bellamy. *The Vulnerable Planet*. New York: Monthly Review Press, 1999.

Hamilton, Clive. *Growth Fetish*. London: Pluto Press, 2004.

Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, (1968): 1243-1248.

Hardt, Michael and Antonio Negri. *Commonwealth*. Harvard: Harvard University Press, 2009.

Harvie, David. "Commons and Community in the University: Some Notes and some Examples." *The Commoner* (2004).

Hickel, Jason. *Less is More: How Degrowth Will Save the World*. London: Penguin Books, 2021.

Holloway, John. *Crack Capitalism*. London: Pluto Press, 2010.

Kallis, Giorgos. *Degrowth* Agenda Publishing, 2018.

Kallis, Giorgos. *In Defense of Degrowth: Opinions and Manifestos* Uneven Earth Press, 2017.

Kallis, Giorgos, Vasilis Kostakis, Steffen Lange, Barbara Muraca, Susan Paulson, and Matthias Schmelzer. "Research on Degrowth." *Annual Review of Environment and Resources* 43, (2018): 291-316.

Kemp, Luke, Chi Xu, Joanna Depledge, Kristie L. Ebi, Goodwin Gibbins, Timothy A. Kohler, Johan Rockström, et al. "Climate Endgame: Exploring Catastrophic Climate Change Scenarios." *Proceedings of the National Academy of Sciences - PNAS* 119, no. 34 (2022).

Kropotkin, Peter. *Mutual Aid: A Factor of Evolution / Peter Kropotkin*. Mineola, NY: Dover Publications, 2006.

Lasch, Christopher. *Culture of Narcissism: American Life in an Age of Diminishing Expectations*. New York; London: W.W.Norton, 1991.

Lenton, Timothy M. "Tipping Points in the Climate System." *Weather* 76, no. 10 (2021).

Liegey, Vincent and Anitra Nelson. *Exploring Degrowth: A Critical Guide*. London: Pluto Press, 2020.

Linebaugh, Peter. *The Magna Carta Manifesto*. Berkeley: Univ. of California Press, 2008. doi:10.1525/j.ctt1pp4q2.

Linebaugh, Peter. *Stop, Thief: The Commons, Enclosures, and Resistance*. Oakland, CA: PM, 2014.

Malm, Andreas. *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso, 2016.

Marx, Karl, Economic and Philosophic Manuscripts of 1844. [1844] 1932.

Moore, Jason. *Capitalism and the Web of Life: Ecology and the Accumulation of Capital*. London: Verso, 2015.

Ostrom, Elinor. *Governing the Commons: The Evolution of Institutions for Collective Action*. Vol. The Political economy of institutions and decisions. New York: Cambridge University Press, 1990.

Pettifor, Ann. *The Case for the Green New Deal*. London: Verso, 2019.

Pilling, David. *The Growth Delusion:  Wealth, Poverty, and the Well-being of Nations.* . New York: Crown/Archetype, 2018.

Polanyi, Karl. *The Great Transformation: The Political and Economic Origins of our Time*. Boston: Beacon Press, 2001.

Putnam, Robert D. *Bowling Alone: The Collapse and Revival of American Community*. London: Simon & Schuster, 2000.

Riesman, David, Nathan Glazer, Reuel Denney, and Todd Gitlin. *The Lonely Crowd*. New Haven, Conn.: Yale Univ. Press, 1950.

Saito, Kohei. *Karl Marx's Ecosocialism: Capital, Nature, and the Unfinished Critique of Political Economy*. New York: Monthly Review Press, 2017.

Schmelzer, Matthias. "The Growth Paradigm: History, Hegemony, and the Contested Making of Economic Growthmanship." *Ecological Economics* 118, (2015): 262-271.

Schmelzer, Matthias. *The Hegemony of Growth: The OECD and the Making of the Economic Growth Paradigm*. Cambridge: Cambridge University Press, 2016.

Schmelzer, Matthias, Andrea Vetter, and Aaron Vansintjan. *The Future of Degrowth* Verso, 2022.

Schumacher, Ernst Friedrich. *Small is Beautiful: A Study of Economics as if People Mattered*. London: Abacus, 1973.

Sennett, Richard. *The Culture of the New Capitalism*. New Haven, Conn: 2006.

Smith, Adam. *The Wealth of Nations*. London: J. M. Dent, 1910.

Soper, Kate. *Post-Growth Living: For an Alternative Hedonism.* Verso, 2020.

Timothy, M. Lenton, Sébastien Dutreuil, and Bruno Latour. "Life on Earth is Hard to Spot." *The Anthropocene Review* 7, no. 3 (2020): 248-272.

Tsing, Anna L. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press, 2015.

Wagner, Peter. *Progress: A Reconstruction*. Cambridge: Polity, 2016.