

How Tightly Is the Human Political Society Anchored in Nature?

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Pierre Charbonnier: *Affluence and Freedom. An Environmental History of Political Ideas.* Polity Press, 2021.

Preface

Charbonnier's book is an impressive achievement with hugely important implications. In a nutshell: Affluence and liberty (or its synonym: autonomy) are the guiding political ideals of the contemporary society. They are supposed to develop in mutual harmony, promoting the advancement of one another. This, however, is a tragic misperception, for two reasons: First, affluence in itself leads to increasing human heteronomy instead of autonomy; modern heteronomy means increasing dependence on nature and on the internal coherence of the society. Second, an exclusive focus on affluence has caused increasing inequality, as has been well documented over the recent decades, and nothing is visible in the near future that would reverse the trend. Affluence has brought autonomy to some, social deprivation to others.

Charbonnier's analysis shows that nature has allowed, if not supported this tragic misperception. In a historical perspective the secret is nature's pliability; nature has supported human-induced modifications to an amazing extent. But while such malleability was possible on relatively restricted spatial scales in the past, the situation has changed when human-induced modifications reach planetary extensions.

The question is: How to overcome the legacy, and what to do next?

Introduction: The Powers of Nature and Political Economy

For a number of years I have been convinced that environmental history provides invaluable empirical material for analysing the dynamics of environmental problems: where problems came from, who became aware of them and how, and what people have tried to do about them. However, with an afterthought, this ideal scheme is simplistic. It is all too easy to remain tied to our current understanding and subsume the history of environmental ideas under a Whiggish story about how ethical sensibility gradually deepened and

reached finally the level on which it is today – a story of increasing enlightenment, if you wish. Instead, to learn about relevant social dynamics that characterize the origin of environmental awareness we have to get behind our current understanding of the humanity-nature relationship.

Excellent works abound on the history of the concept of nature from several mutually complementary perspectives, but an implicit belief in progressive enlightenment is hidden in most of them. The literature tends to regard the environment as an external object and compile a *history of environmental ideas*. In his book *Affluence and Freedom*, French philosopher Pierre Charbonnier turns the perspective around; he places the environment into a subject position and pursues an *environmental history of ideas*. In other words, he asks a question that may seem paradoxical: In which ways has nature offered her help to support political ideas in the past? The subject in this question is not 'nature' as we understand it today; the subject is 'nature' as it was understood in respective times in the past.

This is a radical question, indeed. An underlying assumption is that people have always known that their subsistence depends on nature; ideas about human place in the world have been molded by real practical relationships with elements in their surroundings. This assumption is, of course, utterly credible, and it motivates a more down-to-earth question: How have human historical experiences of the environment influenced ideas about what possibilities humans have to improve their lives? – There is a deeper paradox in this setting, however: while people have been aware of their dependence on nature, they have not faced nature "untouched by humans" but nature modified by the work of previous generations; indeed, how could anything else be possible? That the material world humans are facing in their daily activities has been largely constructed by the work of previous generations was clearly articulated by Cicero; he dubbed it 'second nature'[1]:

We sow corn and plant trees. We fertilize the soil by irrigation. We dam the rivers, to guide them where we will. One may say that we seek with our human hands to create a second nature in the natural world.

'Second nature' as envisaged by Cicero has been the *real material nature* that has molded human experience of sustenance across the millennia. As a consequence, an experience *that humans are able to modify nature* to better fit their needs is an integral element in human historical legacy. This experience builds upon the success of practical actions such

as establishing a garden, for instance: A harvest from a garden is a proof that nature allows gardens; indeed, nature welcomes a garden provided the gardener does the right things at the right time to support it.[2]

Charbonnier's aim is to show that the historical experience supported by 'second nature' has been important in social and political understanding as well. Human subsistence is not an individual affair; quite to the contrary, human communities have depended on collective ways of utilizing goods that nature in the surroundings offers. Successes in this regard have offered guidelines on what to do next; failures have indicated what to avoid. But a natural follow-up question is: *What have real successes been like?* This difficult question lacks straightforward answers. One thing is clear, however: the human material success, absolutely staggering in its scale, was not possible if humans had not done something right over the millennia. In other words, nature has been successfully modified throughout human history on the scale of social sustenance.[3]

Charbonnier's question concerning this historical experience is: How has the legacy of successful modification of nature affected political thought as it has stabilized in modern societies? In what form has nature been articulated to support political ideas? His focus is on two key terms that have dominated modern political ideals: *freedom* and *affluence*. Human freedom (or alternatively: autonomy) is considered *the supreme goal* that the political society should strive for and affluence *the enabling lever* that makes freedom (autonomy) possible. Charbonnier does not accept "nature" as something already known; thus, he defines the goal as follows (p. 16):

Rather than writing a brief, continuous history of environmental awareness, therefore, I shall be writing the long, frequently interrupted history of the relationship between political thought and forms of subsistence, territoriality and ecological understanding. If the invention of modern political legitimacy coincides with a specific way of dealing with the world, it is riven by numerous controversies and crises.

In this passage Charbonnier defines three elements on which political understanding of what nature demands and allows has to be built: "forms of subsistence, territoriality and ecological understanding". He condenses these into three simple terms: *subsisting*, *dwelling* and *knowing*. These are verbs, which is to be noted; they refer to actual human practices and have real material weight in this sense. Also, the practices these terms refer

to have their own preconditions which have been assimilated into political thought in variable forms, depending on prevailing modes of subsistence at different times.

Then he moves to describing "the dead end to which our historical legacy has brought us" (p. 21-2):

While it goes without saying that the social body must always borrow something from the outside world in order to reproduce, the demand of emancipation long dreamed of freeing itself from these servitudes, in the name of the fight against all forms of heteronomy. But this was not done in a naïve and unambiguous way: modern political thought has formed a judgement on the collective relationships with nature that it considers possible, valid and preferable, and the current ecological imperative is merely the form that the tension constituting the historical trajectory of industrialized societies takes today.

Thus, underlying "the dead end" of modern industrial society of today is a previous optimism which created a tension between the key ideals, freedom and affluence: instead of providing means for human liberation from all constraints, increasing affluence brings about ever tightening dependence on nature in which human societies are embedded. Climate change is a prime demonstration of this historical fact; a zoonotic pandemic such as Covid-19 is another one. Identifying ideational roots of the simplistic and internally contradictory view dominating modern political thought is an important task, long overdue.

Charbonnier takes up in the introductory chapter one more point that is seldom discussed in histories of environmental understanding: the *labour question*. He defines the task as follows (p. 11-12):

The labour question is the search for the right balance between enrichment and equality, between growth and the distribution of its benefits. Forged semantically in the nineteenth century, this term refers to all the pathologies affecting industrial societies and the measures taken to mitigate or compensate for them: the transformation of the division of labour and, in particular, the way it has been shaped as a market exposes society to the risk of fragmentation. Institutions respond to this risk by protecting the socializing nature of labour. To put it another way, poverty poses a specific problem in an economy of abundance: it becomes, as it were, even more scandalous than it was in a subsistence regime (where it appeared as, if not

permanent, at least as structural), because it now affects not only people's lives, but also and above all their civic status.

The labour question implies that not only averages on the level of whole societies – aggregated estimates – matter, but also concrete issues of inequality and uneven distribution of the fruits of material production. In a sense, the labour question brings forth a third dimension that cuts through the two-dimensional field defined by liberty and affluence. Grand ideals do not matter much in themselves; real historical experience takes shape in the folds of this three-dimensional matrix.

Charbonnier's book is a rich overview of layers of Western political philosophy since the early modern times; it is impossible to do justice in this review to all the detail and nuance. A specific positive aspect is that continental European experience, both French and German, gets more coverage than what most of us are accustomed to. In the next sections, I introduce the historical layers of thought upon which he builds his argument and finish with comments on what this all matters for our current understanding of environmental issues. I use longish citations to convey the richness of Charbonnier's arguments.

From Affordances of Soil and Land to Modern Economic Thinking

The first historical layer Charbonnier takes up dates back to the early modern period in Europe; the themes are *sovereignty* and *property*. He presents Hugo Grotius (1583-1645) and John Locke (1632-1704) as the main actors who introduced these terms to political thought. Grotius laid the basis (p. 35):

Grotius is undoubtedly the one who best expresses the connection between the regulation of the conflicts that break out in the sphere of individual interests, the genesis of a state that is sovereign over its territory and its people, and the establishment of a cosmopolitan order.

To characterize the dominating political mood of the times, Charbonnier uses the term *political affordances of the land*. Affordance is a concept introduced by ecological psychologist James Gibson to describe relationships of organisms to their environment but in a "reversed" order compared with accustomed ways of thinking. In the Gibsonian view of the relation, elements of the environment are thought of as affordances that organisms

can, or cannot utilize; affordances are not "pure facts," affordances are elements of the ambience that are available, or not available, depending on the abilities of the organisms in question.[4]

This idea has a direct parallel to political economy: elements of the environment are available for humans to use depending on what means and abilities they have to make use of them; as "resources" elements of the environment have to be measured *relative to the abilities of humans* to use them (to paraphrase Gibson). In Charbonnier's view, 'affordances of the land' organized classical political thought precisely in this sense. He notes that the material horizon of Grotius, Locke and their followers built upon three overwhelming collective experiences: [1] civil war, [2] exploration and plunder of newly found distant lands, and [3] agricultural subsistence. These experiences shaped their views on what was possible and what was not (p. 48):

Political societies, at the time, were defined by the way they occupied a soil: enclosures and the various techniques of territorial inclusion and exclusion, agrarian improvement, the identification of individuals with their place of life and subsistence, and the definition of spaces interior and exterior to the space of state jurisdiction – all these techniques separated these political societies from the so-called primitive societies supposedly unaware of law, i.e., the possibility of a peaceful settlement of conflict, and provided material support for internal hierarchies and asymmetries.

Important in this assessment is the link between *soil* and *land*, i.e., *agricultural subsistence on soil* on the one hand, and *political government of land* on the other hand; 'affordances of land' had two major dimensions: working the soil and governing the land. *Sovereignty* is the term Charbonnier uses to underline this link. In this context sovereignty has a relatively strict, albeit double-tiered meaning: the increasingly tight control by the early modern state over a delimited territory on the one hand, and command by land owners over their property on the other hand. Private property became the key of governing land; the feudal system was fading away.

Economics was gradually taking shape as an important semi-independent sector of social thought. The roots of economic thought extend, of course, to Antiquity, Aristotle being a prominent writer on the subject, but during the eighteenth century economics "acquired the status of a recognized field of tooled knowledge", in Joseph Schumpeter's words.[5] Importantly for our theme, Schumpeter characterized the main actors as follows:

The men who wrote it [economic literature], unlike the philosophers of natural law, form no homogeneous group. Nevertheless there is a link between them all which it is necessary to emphasize: they discussed immediately practical problems of economic policy, and these problems were the problems of the rising National State.

Schumpeter called these new specialists "consultant administrators"; he held them in high esteem. Essentially, economic dynamics gathered speed simultaneously as environmental conditions of European societies were enriched with new drivers promoted by acceleration of industrialization and economic growth, and expansion of markets; "consultant administrators" assimilated these new phenomena into social thought. Charbonnier characterizes the ideological climate as follows (p. 50):

The eighteenth century was, in fact, the moment when one of the most powerful and lasting beliefs to which history has given birth gained momentum and began to guide the prevailing symbolizations and political practices of the West. This belief consisted in establishing a bond of mutual reinforcement between the conquest of prosperity by the optimization of the apparatuses of production, on the one hand, and the protection of individual and collective rights by the limitation of political arbitrariness, on the other. Destined to become free, equal and prosperous under the guarantee of the political entities that represented them, modern human beings embarked on the adventure of development, which would soon start to speed up when its revolutionary dimension became evident at the end of the century.

In a word, modern economy began to take shape. What is known as the Physiocratic movement in France pioneered in forming a novel conception of the dynamics of economy on the level of the gradually consolidating nation state. Charbonnier uses the general attribute "substantialism" to characterize the movement. His reference is the Physiocratic view that national economies are built by flows of matter in and through social formation, and the origin of the flows can in principle be traced back to their origin in the product of land. The Physiocratic social view was simultaneously modern and conservative (p. 56):

The Physiocratic project turns out to be inseparably economic and political, scholarly and normative knowledge about the economy is used to actualise the vitality of the soils and the people who are distributed across them, under the guarantee of a state identified with the exercise of agrarian sovereignty. The aim is to maintain a land-

owning elite, to keep a cadastre for fiscal ends and to encourage investment in arable farming.

The Physiocratic doctrine was thus conservative as it supported the social status of the land-owning elite. However, the analytic method developed by the main representative of the school, François Quesnay (1694-1774) established a view of economy as a semi-autonomous basis of human societal existence. Quesnay was a physician by background and used physiology of the body as an analogue of the national economy. Through this model, the productivity of the soil was integrated into a holistic picture of the social "body"; agricultural production was regarded as the basis of human sustenance. Many later economists, Karl Marx among them, appreciated the Physiocratic system as the first effort to think of social economy as a circular movement of stuff through the social body.

A bit later, new economic thinking of the English variety departed from a strict dependence on land. Adam Smith (1723-1790), himself a Scotsman, was the best-known representative although he had several important precursors, particularly philosopher David Hume (1711-1776). Adam Smith is not known for an interest in how economy is grounded in natural conditions, but actually he regarded scarcity of land as a potentially serious constraint on economic development and was well aware of the importance of agricultural production. This view was partially a heritage from Physiocrats and was later made famous by Thomas Malthus (1766-1834).

Smith's vision held the division of labour and the development of technology as means to overcome the constraint of shortage of land. To a certain extent this was a jump into the dark; In Smith's times, the efficient division of labour took early steps in contemporaneous industries. But historical experience has confirmed that Smith's solution works: the division of labour with the help of refined machinery did boost economic growth. Charbonnier calls this new framework of economy *intensive growth* (p. 63-4):

Intensive growth, which maximizes the implementation of labour and the introduction of value into things through organizational and technological apparatuses, represented both the main prospect for concrete improvement of the men and women of the eighteenth century and the implicit paradigm of classical liberalism – behind its economic dimension, which promotes free market, and in its political dimension, which highlights the virtues of economic selfishness and the protection of the rights of the individual engaged in those interdependencies.

The Smithian emphasis on the division of labour and efficient technologies offered prospects for an emancipation from the cul-de-sac of the scarcity of productive land. This is what gradually happened, first in England and a bit later also on continental Europe; European societies escaped from the "Malthusian trap". Securing agricultural product remained high on the political agenda, however, in parallel with industrialization. Charbonnier refers to the thesis defended by historian Jan de Vries that a transformation of demand toward favouring manufactured goods was a decisive factor behind the take-off of economic growth in the 18th–19th centuries (pp. 64-65).

However, this is not the whole story: in reality, European economic growth was increasingly dependent on *extensive growth*, which gained speed thanks to the plunder of resources from colonies on other continents. The result was an internal contradiction in the "big picture" of the new liberal economic creed: Smithian growth promised autonomy, but extensive growth, i.e., dependence on "ghost hectares" in the colonies was a necessary condition for its success. This is a historical fact seldom acknowledged.[6] Charbonnier formulates the conflict as follows (p. 66):

The whole problem, in fact, lies in the coherence or incoherence between, on the one hand, the project of individual and collective autonomy – i.e., the political rationality that tends to impose itself in a movement that culminates with the Enlightenment – and, on the other, the acquisitive orientation of the main nations engaged in the game of globalized commercial competition.

A New Ecological Regime and Its Discontents

Economic growth speeded up remarkably in Europe during the nineteenth century, first in England, somewhat later in continental Europe. This gave birth to the modern society as we know it today. Charbonnier argues for a view that modern society was born twice (p. 73-4): In his view, the roots of modernity were formed in the aftermath of the Renaissance, the main factors being "the long process of maturation of anti-absolutist, republican and egalitarian ideals, their inclusion in the evolution of intellectual and commercial exchange". The real break-through came with industrialization and the conquest of colonies which allowed "the opening up of material possibilities through access to new energies and spaces." As a consequence of the second step, modern liberalism was consolidated in England-Scotland, but from the very beginning it was haunted by an internal contradiction

between the ideal of 'intensive growth' and the reality of 'extensive growth'; more efficient use of domestic resources was possible only with an ample support with resources imported from the colonies. As Charbonnier notes (p. 72):

[T]he development of liberalism is inseparable from the strategies of conquest deployed in the eighteenth and nineteenth centuries and one can go so far as to see the heteronomy imposed on the rest of the world by the West, and notably by the British Empire, as one of the central problems facing the progressivist matrix. The legal universalism propounded by the liberal Enlightenment, for example, was made compatible with a double political standard which considered the colonized as subjects, and not citizens.

Charbonnier analyses the material background of the shift as a transition from an 'advanced organic economy' to a 'mineral-based energy economy'; we owe the terms to the economic historian Anthony Wrigley, they are self-explanatory.[7] Charbonnier articulates the tension underlying this new stage of economic development by putting the views of French historian and statesman François Guizot (1787-1874) and English economist William Stanley Jevons (1835-82) against one another (p. 76):

On the one hand, with Guizot, we will come back to the project of constructing political entities in control of their laws and their destiny, of which the democratic ideal is the main expression; on the other hand, with Jevons, we will focus on the physical forces and the sources of energy that drive industrial civilization and represent a paradoxically increased servitude of societies that seek to be free.

Guizot' view can be characterized as "radical revolutionary voluntarism"; similar views were widely shared in France in the aftermath of the French Revolution. As Charbonnier notes, several classical liberals such as John Stuart Mill essentially endorsed the view in spirit if not in letter; society equipped with the new means of producing wealth seemed in their view to be able to realize the goals of total autonomy. It was easy to believe that "the ideal of the social body's sovereignty over itself could maintain the project of sovereignty over nature, as its external concretization" (p. 79). In reality this perspective of "total autonomy" was weakened by increasing dependence on nature's goods but such doubts were pushed aside; the perspective rose into dominance in post-revolutionary France in the 19th century, as Charbonnier documents with examples from new legislation.

Jevons, as an economist, analysed in more detail the material basis of social subsistence and ended up with a diametrically opposite view to Guizot's "revolutionary optimism". The society had become richer, indeed, but this was possible thanks to ample resources and efficient technical means; instead of increasing autonomy this process actually brought about increasing dependence on natural conditions, particularly on the plentiful availability of coal. England got rich on coal, but this was a double-edged sword: other sectors of the economy were neglected. Charbonnier concludes (p. 85):

[T]he political autonomy of a community dependent on coal is both greater and more majestic than that of a community mired in old organic limitations, but it also comes up against another type of ceiling, another type of dependence. Once again, it is impossible to completely and ideally separate the political conquest of liberty, as an endogenous process, from the conquest of affluence: they inevitably intermingle.

Economic development in Europe was also crucially dependent on resources plundered from the colonies. The relationship between autonomy and freedom in Europe was integrally connected to asymmetric relations between Europe and other nations on other continents. Charbonnier characterizes the resulting concept with the term *extraction-autonomy*: new geo-ecological conditions were necessary for the stabilization of the ideal of liberal economy *in Europe*. He uses French diplomat and political scientist Alexis de Tocqueville's applauded work *Democracy in America* (published originally in France in two parts, 1835 and 1840) as a test case to explore this conflict in the former European colony in North America. Tocqueville's work is famous as a praise of American democratic society but Tocqueville takes up, in passing, "a radically different hypothesis" as Charbonnier calls it (pp. 90-91): perhaps equality and liberty in America depended on an ecological basis that included the availability of apparently unlimited resources, the elimination of the native populations, and the import of millions of slaves to carry out heavy work. Thus, as Charbonnier concludes (p. 91), "Tocqueville's reflections on the relationship between democratization and affluence clearly express the extractive concept of liberty", i.e., that liberty is possible only under the condition that material goods are first provided for. In his theoretical interpretation, by contrast, Tocqueville reversed the causal order and defended the established liberal view that democracy comes first and facilitates the availability of material goods.

'Affordances of the land' were apparently pushed backstage in the political and economic thought that took shape in the new ecological regime; the liberal ideal of total autonomy of

the people took the overhand. However, a critical element supporting the material reality of early modern society was hidden from sight, namely, the new geo-ecological conditions that were built upon colonialism and created new types of affordances from a widening geographic realm; such novelties facilitated prosperity in core areas. At this point, European societies reached a historical turning point after which nature has apparently allowed human freedom from scarcity; Charbonnier concludes (p. 93):

The concealment of the material dimension of liberty, which would need the rise of the socialist movement to be understood, was therefore not due to the all-powerful ideology of domination and control of nature, as most environmental historiography asserts. It was, more precisely, the inability to give political meaning to the interdependencies between modern society and its world, its resources, its environments, and its spaces, which left the field open to ecological predation. The political question of ecology is thus deeply rooted in the tensions and contradictions of the modern project, and not only in the initial error that apparently constitutes the instrumental, domineering attitude.

Would Industrial Democracy Solve the Contradictions of Liberalism?

[1] The Labour Question

The labour question rose onto the agenda in social and political philosophy in the course of the 19th century for reasons that seem quite natural today: the squalor of the living conditions of the working masses as documented by both social critics (Friedrich Engels: *The Condition of the Working Class in England*) and literary authors (Charles Dickens; *Hard Times*, *Oliver Twist*, among others). Social realities of the times created cracks in the complacent liberal climate. Charbonnier analyses this stage through the works of Pierre-Joseph Proudhon (1809-1865) and Emile Durkheim (1858-1917), a socialist and a sociologist; he detects interesting similarities in their works. As an introduction, he takes up an idealized version of liberty that he calls *integration-autonomy* and contrasts it with *extraction-autonomy* that he used to describe Tocqueville's position (see above); as follows (p. 95; emphasis added):

If sociology can assert the consistency of an object of study called 'society', it is first of all because this object has revealed itself to itself in the experience of the revolutionary break and transformations of labour. This new kind of political question, which would preside over the birth of a new science, presented itself as a break with the liberal conception of liberty, i.e., *extraction-autonomy*. Proudhon and Durkheim have industrial liberty as the base and horizon of their thought, and the new paradigm they promote is that of *integration-autonomy*: a politicization of collective relations with the material world that effects an essential reversal of modern political grammar.

In other words, actors such as Proudhon and Durkheim who strived for communality and solidarity in social life promoted 'integration-autonomy' as an alternative to 'extraction-autonomy'. Early socialist Proudhon has been known to us particularly through his aphorism "property is theft". Charbonnier connects this aphorism with Proudhon's vision that the preservation and utilization of property is based on labour, but the relationship between property and labour is asymmetrical, the fruits of labour do not reach the labourers. Proudhon's socialism stemmed from a conviction that due to the unequal access to the fruits of labour, the liberal tradition was in an irremediable contrast with freedom. The legal rules confirming the institution of private property cemented the complete exclusion of other interests from ways of using land and other material resources. Ultimately, exclusive privacy of material wealth would extend its effects also to the relations between human beings. This was the lie of liberalism that Proudhon strived to expose; as Charbonnier notes (p. 100):

[N]ot only do poverty and wealth develop at the same time and from the same causes, but the unequal distribution of the benefits of progress compromises access to the nonmaterial, social good of autonomy. What is affected, over and above the physical state of the lower classes, is the association between freedom and wealth that had been established by liberal thought in the eighteenth century, and it is the symbiosis between two tendencies which, at the time, everyone thought of as one: progress under the law of property.

Next, Charbonnier moves to the work of French sociologist Emile Durkheim. This seems surprising, as he notes, as Durkheim is commonly regarded as having been completely detached from the natural basis of social subsistence. This, however, is a misperception: Durkheim realized that technology and industries formed the foundations of the modern

society. Charbonnier cites a passage from Durkheim's book *Suicide* in which he emphasized the critical role of material social infrastructure for the existence of society (p. 107): "[I]t is not true that society is made up only of individuals; it also includes material things, which play an essential role in the common life. The social fact is sometimes so far materialised as to become an element of the external world." – This comment talks directly to our contemporary interest in material ontology; it also brings in mind Cicero's 'second nature'. [8]

To pay homage to Durkheim's insight on the significance of the material basis of society Charbonnier uses the term *carbon sociology*; the concept refers to Durkheim's analysis of the technical-industrial infrastructure that potentially makes communality possible by facilitating increasing affluence. [9] However, in reality the setting was not so simple. Durkheim was critical of the promise of the liberal pact that affluence would automatically lead to harmonious autonomy; instead, he suspected that the result might be increasing individualism and erosion of social coherence. This ambiguity captures the binary of 'mechanical' vs 'organic' solidarity of which Durkheim is known to us; the binary spells out two contrasting ways of viewing the potential of integration in the modern society.

Using Proudhon and Durkheim as representative agents, Charbonnier aims to locate the labour question in a setting illuminated by socialist idealism on the one hand, and sociological analysis on the other hand. The point is not that either of them were "good" or "bad" on contemporary modern standards; the point is that both viewed the natural potentiality of modern society to strengthen communality and solidarity through the lenses available in their own times. Paradoxically from our perspective, however, both Proudhon and Durkheim were thoroughly optimistic as regards the potential to increase human material affluence. Charbonnier cites a passage from Durkheim's *Division of Labour in Society* (p. 109): "No rational limit can be assigned to the productive power of work. To be sure, it depends upon technique, capital, etc. But these obstacles are never anything but provisional, as experience proves, and each generation pushes ever further back the boundary which stopped the preceding generation."

[2] *Technology – a Saviour that Sold Out*

As another stream of thought that viewed the efficiency of industrial productive machinery as potentially supporting harmonious societal integration, Charbonnier takes up "the

technocratic hypothesis.” He uses the views of French philosopher Henri de Saint-Simon (1760-1825) and American sociologist Thorstein Veblen (1857-1929) as his prism. Charbonnier names two features of the liberal creed that inspired both authors (p. 119): First, “virtues attributed to trade” which supported the autonomy of individual property owners; second, “a project of a rationalized, efficient large-scale and abundantly equipped conduct of common affairs.” These elements together were assumed by proponents of the technocratic hypothesis to facilitate virtuous social integration.

Charbonnier’s presentation of the work of these key authors is illuminating; he succeeds in introducing Saint-Simon and Veblen as (nearly) contemporaries although they were separated from one another by next to a century. This confirms the strength of technocratic optimism as an undercurrent of modern social thought. The realization of the technocratic vision shared by these authors presupposed an agent; as Charbonnier notes (p. 121):

This plan of social organization involves the identification of a key player, the repository of practical and moral skills both emblematic of the modern spirit and capable of leading the march of progress in a fair and egalitarian manner: the engineer. He is the designer and prime contractor of power over the material conditions of existence. So he reigns in the factories and in the planning of transport networks, but he also plays a part in the regulatory bodies of the state since he is at the intersection of the nation’s legal, executive and economic systems.

As a techno-optimist, Saint-Simon is a familiar figure. He was thoroughly aware of the history of technology and envisaged nature as a participant in technical innovations. He admired the historical experience of Italian republics of the late Middle Ages and the Renaissance; Charbonnier cites (p. 126) from his writings a passage claiming that in them, government was concerned “solely with acting on nature, so as to modify it as much as possible in the most advantageous manner for the human species; it would tend to exert action on human beings only to impel them to contribute to this general action on things.”

Charbonnier assumes that Saint-Simon’s main models of socially progressive technology were not machinery in factories but rather network infrastructures such as canals, railroads and means of communication. On this assumption he builds an interesting scheme of factors that Saint-Simon emphasized as elements of a functional material infrastructure of the society; the list has a distinctly modern ring (pp. 128-130). He assumed that increasing rationality and efficiency of the productive apparatus would support societal integration and

harmonious conditions of ordinary life. Saint-Simon was a prominent early socialist; Proudhon followed him in the next generation.

Sociologist Thorstein Veblen is mainly familiar through his concept of "conspicuous consumption", made famous by his book *The Theory of the Leisure Class*, but he wrote actively on problems of technology and industrial organization and became posthumously a leading figure in the technocratic movement in the U.S. which was influential in the aftermath of the Great Depression in the 1930s.

The technocratic imagination came across unsurmountable difficulties, however; it is not possible to focus merely on the efficiency of production because this is always tied up with three social dimensions which Charbonnier calls "vectors" (p. 140):

First, the vector that strives to maintain a fragile balance between the various components, human and technological, of the industrial infrastructure; second, the vector embodied in the common fund of knowledge and productive know-how; and third, the vector of pure and simple efficiency, i.e., the rational and sustainable use of resources. Efficiency, conceived as one of the three points of a triangle, is therefore not an unequivocal submission of society to the motive for growth, but rather the integration – as harmoniously as possible – of the objective of growth with expectations of social integration and justice, as well as the specific requirements of modern infrastructure and the proper use of resources and territory. All this entails connecting multiple parts, spaces and functions into a coherent whole.

In other words, technological optimism demands of "efficiency" something that efficiency pure and simple cannot possibly provide; efficiency is not a neutral descriptive term, quite to the contrary, it is deeply embedded in structural dynamics of the society as a whole. Veblen as a sociologist understood this well and tried to find a balance between the conflicting tensions inherent in technological progress, with questionable success. Interestingly, however, Charbonnier connects his legacy to the origin of ecological economics half a century later. While the original "technocratic hypothesis" faded away, the stream of thought it stood for "has led to many highly influential developments in the formation of ecological thought, of which Veblen is the unknown pioneer" (p. 141).

[3] Can Nature Be Integrated Harmoniously into the Market Society?

Another powerful stream of criticism of classical liberalism has focused on the assumption that markets could automatically guarantee the convergence of affluence and freedom; Charbonnier names Karl Marx (1818-1883) and Karl Polanyi (1886-1964) as the main actors developing this perspective. The environmental legacy of Marx has given rise to a huge secondary literature. Charbonnier does not review any of it but focuses mainly on Marx's views on autonomy; as follows (p. 145):

[W]e need to explore Marx's thinking from the perspective of the problem of the institutionalization of natural environments through law, technology and science. Marx was extremely attentive throughout his life to the political problems posed by the physical and living characteristics of the world in which the market ideology unfolds, and he partly conceived the communist response as a transformation in the relations between these characteristics and social organization. This does not make him a proto-ecologist, any more than were Proudhon or Saint-Simon, but it is enough to give him an important place in the history of material reflexivity.

As Charbonnier narrates, Marx paid attention to social dimensions of resource use from his early writings in *Rheinische Zeitung* in the 1840s to his main work *Capital*. He was actively following the works of pioneering technicians and engineers; this knowledge he used to form a view on the potential of technological development. He was also enthusiastic about the works of agricultural chemist Justus von Liebig and viewed the exploitation of labour and the exploitation of the fertility of land as analogous phenomena; Charbonnier cites a statement from *Capital* (p. 151): "all progress in capitalist agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil; all progress in increasing the fertility of the soil for a given time, is a progress towards ruining the lasting sources of that fertility."

Ultimately, however, Marx was tied to the productivist horizon that impregnated economic thinking of his times. Charbonnier summarizes (p. 155; emphasis in the original):

Marx seems to realize belatedly how much he depends on a mode of relation to the world dominated by the schema of production: the irreversibility of the processes that this relation entails, on both a sociopolitical level (producing, i.e., making history) and a material and ecological level (producing, i.e., accumulating waste), leaves no room for manoeuvre for any relationship *other than productive, even non-productive*.

Economist and historian Karl Polanyi is best known for his work *The Great Transformation. The Political and Economic Origins of Our Time* (1944) in which he analysed the position of economy in modern society, with a focus on the era of industrialization in Europe. In Polanyi's view, the economy ought to be embedded in society as a whole instead of being considered an independent sphere of activity. As Charbonnier notes, Polanyi thought that the economy is embedded in nature in analogous terms as the economy is embedded in society (p. 157):

Basically, if *The Great Transformation* makes it possible to link nature and politics closely, this is because Polanyi invites us to conceive of this link not as a response to the emergence of environmental risks in late industrial civilization, but as an element already integral to democratic politics. Socialism, which according to him is best fitted to carry out this programme, is defined by the ambition to 'transcend the self-regulating market by consciously subordinating it to a democratic society', a subordination that expresses a spontaneous tendency of the social body to protect itself against whatever attacks it.

Polanyi saw markets not only as a mechanism mediating the exchange of material stuff among people but also as a platform that shapes the relationships of people to one another. In particular, markets create scarcity of things that are not really needed by anyone; this is what we nowadays call "overconsumption". Thus, although land is used and resources acquired in increasingly efficient ways, the result has not been socially recognized affluence but rather an experience of scarcity. The transition to a coal economy strengthened this "felt scarcity" by transforming the main source of energy, coal, to a marketable product; the relation of economy to nature had changed; Charbonnier writes (p. 163):

[B]ringing nature into economics appears to be the central issue of modern policies, all the more so as technological means soon massively increase the raw quantity of socially available energy, and therefore of what is taken from the environment. Agricultural transformations and industrial transformations are separated by a time lag of several decades, even several centuries, but beyond these technological and chronological differences, it is the same logic whose effects are amplified.

As is well known, modern social sciences originated in the 19th century. Polanyi connected this origin with a seemingly paradoxical claim that at the background was a rediscovery of

society itself. In his view, the motive force of this process was the emergence of a worker's culture of resistance which challenged the legitimacy of the economic system based on private property and markets. Said in another way, people became aware of the existence of society as a more or less organized formation when it became obvious that acute problems of livelihood can have only social solutions. Next, when social solutions to the problems of livelihood were sought, social inequality was exposed. This, in Polanyi's interpretation, brought the relations of society to land again on the agenda: Society depends ultimately on the resources of land, but these are governed and utilized in an extremely unequal way; conflicts over land cut across the whole society. Thus, Charbonnier cites Polanyi (p. 165): "man and nature are practically one in the cultural sphere".

As a result, the social body is traversed by a double-tiered tension: on the one hand between individuals and society, and on the other hand between society and nature. These tensions create a complex blend due to an analogous relation between nature and society (society depends on nature's product), and society and individuals (the fates of individuals depend on their position in society). The latter aspect in this blend is, of course, a consequence of the inequality between different social classes, but this inequality is strengthened by the unequal distribution of the products of land.

As Charbonnier writes (p. 168), Polanyi succeeded in formulating a synthetic view of the role of nature for human social life:

[W]hat makes Polanyi's thinking so effective is that it manages to hold together the idea of a fundamental alliance of society and nature, of human beings as economic and political actors with their environment, and the fortuitous sociological contrast between the promoters of agrarian conservatism and the socialist movements. This contrast translates the harmful alternative between, on the one hand, a movement that aims at protecting society against the effects of the market but sacrifices all that binds society to land, and on the other, a movement that aims to protect society and is formulated as an illusory return to premodern social structures that have however become strangely compatible with capitalism.

As this passage brings up, the political reaction to the dominance of the markets was inherently double-faced: both socialist solidarity and conservative backlash were possible. Charbonnier illustrates the setting by taking up Polanyi's point about the historical

background of fascism which is uncomfortably timely at present (p. 163); in Polanyi's view, the social and economic background of German fascism was in Ricardo's England.[10] Polanyi backed this note with an analysis of what he called a "counter-movement" to the "discovery of society" – i.e., that the dominance of the markets over social relations awoke active opposition. Essentially, this opposition could take two mutually conflicting forms, progressive or reactionary, and particularly in the countryside where a key question was the relationship of ordinary people to land, "the conservative reactionary variant gained the upper hand over socialism when it came to bringing land into the sphere of politics" (as Charbonnier writes, p. 165).

An essential lesson taught by the critical work of Marx and Polanyi is that the ecological question is deeply intermingled with the structures of society (p. 170; emphasis in the original):

It becomes evident with Polanyi that the political history of nature in modern societies gives a new meaning to the division of the terrain between liberalism, socialism and conservatism. Advocates of the markets, social justice and the nation supported divergent conceptions of collective relationships to the physical and living world. More radically, one could say that it was on this issue that they diverged: *the liberal pact, its socialist reorientation, and the conservative confiscation of the political affordances of the land can be read as distinct strategies aimed at building a normative system based on relationships of subsistence, habitation and knowledge of the world.*

"The Great Acceleration" – and the Hangover That Followed

Modern economic thought consolidated its position at the shift to the 20th century, strongly supported by rapid industrialization in leading capitalist countries. Then, for the next half a century, political upheavals dominated the scene in the shape of two world wars and the Great Depression in between. Thereafter followed a period of almost continuous economic growth that covered most of the second half of the 20th century; it has become known as "the Great Acceleration." Charbonnier characterizes the role of the environment during the Great Acceleration with the phrase "eclipse of nature". What happened?

The jury is still out, there is no simple answer to the question, but an important factor has certainly been that the political stability of industrialized countries was supported by an increase in the average affluence of populations; also, economic inequality was considerably reduced compared with the decades before WW1. The "welfare promise" is a good shorthand for the social atmosphere.[11]

Charbonnier, too, specifies economic growth as a factor that "worked as the main legitimization of capitalism" in the post-WW2 decades. In addition, he presents a "second hypothesis" which suggests that the new economic consensus succeeded in hiding from sight, or 'masking' the real extractive basis of the economic system (p. 179-180):

This [second hypothesis] consists of seeking, in the technological and institutional arrangements specific to the post-war period the characteristics that partly made the acceleration of the economic rhythm, and therefore the revival of an extractive concept of political liberty, to a certain extent invisible. ... [W]hat is invisible, or rendered such, is the network of material dependencies that configured this era. It then becomes clear that a series of factors, both social and material, feed into ecological insensitivity: the adoption of an energy system apparently without constraints or limits – dominated by oil and nuclear power – leads to massive outsourcing of the ecological costs of development in space and time, i.e. the transferring of these costs and risks to marginal regions and their postponement to the future.

Charbonnier adds an interesting historical actor into the discussion: Herbert Marcuse (1898-1979), a social critic well known for half a century ago but nowadays all but forgotten. Marcuse's most famous book, *One-Dimensional Man. Studies in the Ideology of Advanced Industrial Society* (1964) was a scathing "Freudo-Marxist" criticism of what began to be called "the consumer society". The point was that economic growth produced an insatiable urge for the individual enjoyment of affluence without any qualitative differentiation as regards to environmental constraints.

But as Charbonnier emphasizes – and with this he returns to the main theme of his book, namely, that that tragedy of the modern society is that nature has actually allowed the superfluous overuse and misuse of the resources of Earth that we experience today (p. 186):

The stagnation of critique during the Thirty Glorious Years[12] that Marcuse and many other critical theorists deplored was certainly due to the power of conviction of growth and comfort. But, more deeply, it was connected to this negativity of material affordances, to this paradoxical capacity of the geo-ecological order then being set up to make the effective conditions of collective integration into ecological dynamics something abstract, distant, even immaterial. Politically, the literally ungraspable, invisible character of the material conditions of common existence explains the transformation of critical thinking. ... The consolidation of the market and the technological conquest of the world made possible by the temporary establishment of effective counterweights, thus made it possible to prolong the promises, however old, of the liberal pact.

The previous note refers to the Great Acceleration, but it also describes, of course, quite accurately the dilemma we are facing at present: What is to be done to change the pattern of globally unequal extractive economic development? What to do next?

No simple answers are on offer, whatever we might wish. Charbonnier formulates his answers – or, rather, elements for answers – in the last four chapters of the book; it is impossible to go through his arguments in this review, which already is all too long. He draws into the discussion both Bruno Latour's *We Have Never Been Modern* and Dipesh Chakrabarty's "The Climate of History: Four Theses" as well as an admirable collection of other authors. He characterizes the dilemma as follows, in Ch. 10 entitled *The End of Modern Exception and Political Ecology* (p. 209):

[T]he expectations of justice that have characterized the historic trajectory of the moderns since the eighteenth century are linked to the wager that there would be a mutual reinforcement of democratization and enrichment, in which political and economic heteronomies were exorcized at one and the same time. But the world constructed by this singular conjunction of ideals turned upside down, in which new aspirations were formed.

The dilemma which we are facing is precisely the relation between material affluence and human autonomy. Climate change demonstrates the collapse of the belief in an automatic connection between these two goals. Charbonnier seeks for ways to critically examine the heritage that has carried forward and hardened the belief in the "liberal pact" during the last half a millennium or so. As to where resources for such criticism can be found,

Charbonnier points toward a solution that brings Bruno Latour's work on the agenda: the *resymmetrization* of relations that have glided apart in modernity, i.e., relations between *society and nature*, between *modern and premodern* (or "nonmodern"), between *social classes and the "social body"*, and between *sex and gender*. The last chapters of the book elaborate upon these goals.[13]

As a conclusion I return to Charbonnier's methodological perspective that he calls an *environmental history of political ideas*; I take two citations from the last chapters of the book. First, a methodological rule from Ch. 11 entitled *Self-Protection of the Earth* (p. 246):

By asserting from the start that the field of the political and the field of the ecological are, if not completely coextensive, at least impossible to separate, the methodological proposition of the environmental history of ideas therefore already contained a thesis: the transformation of our political ideas must be of a magnitude at least equal to that of the geo-ecological transformation that climate change constitutes.

Finally, a concluding citation from the last chapter entitled *Conclusion: Reinventing Liberty* (p. 262):

[T]o what extent can the interminable process of the acquisition of liberty be captured by a material history, and how does this history challenge the meaning of this conquest? We can clearly see here the discrepancy with the classic thesis of historical materialism, formerly at the centre of the critical landscape. For historical materialism, praxis was intended to produce liberty at the same time as it produces the human world. Henceforth, the environmental history of political ideas must, by shedding light on the geo-ecological opportunities on which modern political reason has relied, protect and extend the sphere of liberty by guaranteeing the reproduction of the living world.

Afterthought: Powers of Nature and Political Ecology

A remarkable feature of the historical chain of arguments Charbonnier presents is how pertinent most of them sound relative to current discussions – for instance, say, debates that preceded the Finnish parliamentary elections in April 2023. This feel of actuality demonstrates that the intellectual heritage he goes through is highly relevant today.

Charbonnier's analysis reveals something fundamentally important about how the relationship of our modern society to nature has been forged. Charbonnier's work has exposed a legacy that matters.

The core of our environmental predicament, in a historical perspective, is not only that we humans have modified nature in many ways to our peril, not to speak of other denizens of the earth; the core of our predicament is that nature has allowed this to happen. The secret is *nature's pliability in the face of human-induced modifications*.^[14] But this statement needs qualifications: nature is, of course, pliable also in the face of modifications initiated by other organisms. All organisms change their environments; ecosystems are built by active, continuous interactions between different types of organisms. In this sense, humans are not different from the others. The dramatic asymmetry between humanity and other denizens of Earth comes from the efficiency of human actions. Thus, ultimately, the most disturbing part of Charbonnier's narrative is that nature has, through her pliability, provided the potential for humans to succeed in large-scale exploitation that has all too often turned destructive.

To clarify this perspective, I proceed by revisiting a series of themes that Charbonnier's book raises up; the points are tentative, this is a big theme that requires serious, long-term thinking.

[1] Affordances of the land. From the perspective of human sustenance, the term *affordance* captures a key aspect of the pliability of nature – or, more precisely, *affordances*, in the plurals. Nature offers a rich variety of goods that humans have learned to use. This has allowed humans to construct harmonious linkages – oftentimes, and to some extent – between natural preconditions and subsistence systems of most variable kinds. To turn this claim into political terminology Charbonnier adopts *sovereignty* and *property* as key terms; these he uses to make understandable the stabilization of European pre-modern societies at the phase when European nation states were gradually taking shape. During this process, environmental conditions apparently persuaded, if not "seduced" people to believe in the possibility of permanent productivism and economic growth. This promise has turned out to be false, but its legacy made us believe in continuous economic growth driven by the markets. The end point was "the Great Acceleration", supported by human-created geo-ecological conditions that have seemed like a blueprint of human progress on the global scale that nature herself has drawn.

Economical ideologies matter – the geo-ecological reality of the liberal pact attests for this; human-created material reality ('second nature', however temporarily stable) can be forged to support the imagery to a surprising degree. *Affordances of the land* is a great term to use as a starting point for this analysis.[15]

[2] *Modifiability of nature*. In the course of the historical process that Charbonnier describes, nature has been amazingly pliable. Or, more precisely, basic human activities backed by 'affordances of the land', *subsisting, dwelling and knowing* (to use Charbonnier's terms) have comfortably fitted into 'first nature' and offered a practically functional fundament for a sustained 'second nature' – but, with the provision that the scales are right. It is possible to envisage a harmonious result on relatively limited spatial scales, which also has happened throughout history; expansion to larger scales makes a difference.

[3] *Adaptability of social-ecological regimes*. The modifiability of nature means that nature can offer a model of providential guardianship that humans are able to enforce. In Antiquity, the cycling of water on the geophysical scale was used as an exemplary fact; this was extrapolated to a view that God has designed natural conditions on Earth to fit human needs.[16] God has faded away (not completely, though!), but a view that nature's laws may support society's laws has survived in modernity.

[4] *Space*. Every organism, also the human organism, needs space. In the living world space is not a Cartesian, linearly delimited and stable "depot." Quite to the contrary: biological space takes shape through processes that maintain life. Thus, space is conquered by every organism that succeeds in living and working in correspondence with the conditions that are within reach in their *ambience*.[17] Such a harmonious relationship breaks down if (or when) the processes maintaining the specific characteristics of the environment that the organisms in focus require are thrown into disarray.

Charbonnier translates the human need of 'space' to the field of governance by connecting *sovereignty* and *property* together when he describes the early modern stage. This connection has endured, as we noted above.

[5] *Social tensions*. The potential of securing social harmony in the face of the reality of the liberal pact is limited; Polanyi's note that Ricardian economic thinking prepared ground for 20th century fascism offers an indication. Charbonnier has also an interesting passage on Joseph Schumpeter's notion of 'creative destruction' which describes the relationship

between the vanishing of "old" and the origin of "new" in productive structures; this idea has been used, and is nowadays increasingly used way too carelessly, with a total neglect of the loss of livelihood of those tied to the "old" that disappears. Charbonnier writes (p. 99): "In the transitional period of the early nineteenth century, when the industrial form of society has not yet been translated into solid regulatory institutions, destruction still prevails over creation, and it is the social order overall that suffers."

It is disturbingly easy to come up with examples of similar social tragedies, or imagined tragedies connected with measures that support "green transition": the yellow vest movement in France; the agrarian defence movement in the Netherlands; the support enjoyed by the *True Finns* party in Finland; and so on.

[6] *A final question: What are the implications?* I think two sets of questions rise into focus.

First: How to achieve the 'resymmetrization' that Charbonnier discusses in the final chapters of his book?

Second: How to form a picture of the limits of nature's adaptability? I present some thoughts on this question. I think that ultimately the adaptability of ecological nature rests on the incredible vitality of microbial processes – ecosystems stand on microbial shoulders.[18] In other words: how ecosystems look like on the scale of human observational capacity does not reveal their potentiality of productivity and growth. Every gardener knows this: they owe the fertility of the soil to microbial processes that are not visible to the naked eye.

As a corollary, "ecosystem collapse" is very nearly a myth. Ecosystems rarely collapse, they primarily change; and if an ecosystem collapses, that happens as a consequence of some drastic external catastrophe – a strike of a meteorite, a massive volcanic eruption, a nuclear war, or something similar. The effects of human modification on local scales do not qualify as "collapse", not even such a case as the eutrophication of the Baltic coastal waters: a sea teeming with blue-green algae is an ecosystem, albeit drastically changed. Or, when a black-earth grassland is plowed over and transformed to a field, it is changed, but nothing "collapses", except in the formal-trivial sense that a native grassland is replaced with a field. – But creeping and continuous large-scale change is a different matter again; climate warming, acidification of the oceans, decline of pollinators, light pollution, microplastics in soils and waters count as examples. More nuance is needed in

our vocabulary, in particular terms that also hint at what to do; "collapse" does not meet this need.[19]

This interpretation sets demands on the goal-setting of environmental social thought. The picture I have painted resembles what Gregory Bateson analyzed as a *double bind*: an acute dependence on something without really knowing what this something is and what it demands. We depend on nature but don't know precisely what we depend upon. An assertion like "if nature dies, humans die" tells us nothing. The question is: Where is the limit between adaptation and destruction when nature is changed? Is there such a limit? How do we detect the limit? – Nature does not give unambiguous advice.

To conclude: There is no short answer to the question formulated in the title; or only an inadequate answer such as: "Human political society is anchored in nature both tightly and loosely, it depends." Tightly: the thriving of nature is the ultimate standard; but loosely: standards we perceive do not stem from "nature in herself", they stem from human-constructed 'second nature'. The thing is: some aspects of the historical 'second nature' work just fine, but some aspects are failures that pave the way for an ultimate catastrophe.[20] – We wish to draw clear distinctions between these aspects of the 'second nature' we are facing, but we cannot.[21]

Postscript

Charbonnier's argument appears convoluted in some passages, but I believe the theme itself is so complex it cannot be framed as a simple, linearly flowing presentation. Whatever the case, the book is absolutely worth reading as many times as needed: the main theses are vitally important.

Once more: the human urge to dominate nature is not a purely human "intellectual construct". The malleability of nature has allowed human material expansion; out of this real historical experience has grown a supporting pillar for the economic doctrine and practice of liberalism; this has, unfortunately, got support from how liberal modernity could shape its 'second nature' to fit its founding mythology (see Charbonnier's citation on p. 7 above).

The real problem then is: How to build another type of relationship that would correspond to the actual crises we are facing vis-a-vis the current ambient environment of humanity?

A "frontal attack" is doomed to failure; everything cannot be changed with one stroke. We have to figure out what is a first move that leads to a second move, and a third move, and so on, and so forth.

Yrjö Haila

Notes:

[1] Cicero, *The Nature of the Gods* (Penguin Classics, 1992, 185; translated by Horace C. P. McGregor).

[2] I explore this point in my "The Biosphere and the Garden. Nature as infrastructure?" in: Jarno Valkonen, Veera Kinnunen, Heikki Huilaja and Teemu Loikkanen (eds) *Infrastructural Being. Rethinking Dwelling in a Naturecultural World* (Springer Nature, 2022) (pp. 171-195).

[3] Eric D. Beinhocker, *The Origin of Wealth. Evolution, Complexity, and the Radical Remaking of Economics* (Harvard Business School, 2005) provides background material for this point.

[4] James J. Gibson, *The Ecological Approach to Visual Perception* (Lawrence Erlbaum Associates, Publishers; 1986) characterized affordances as follows (p. 127, emphasis in the original): "The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill. The word to *afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. By it I mean something that refers to both the environment and the animal in a way no existing term does. It implies the complementarity of the animal and the environment. ... [T]hey [affordances of a particular environment] have to be measured *relative to the animal*."

[5] Joseph Schumpeter, *History of Economic Analysis* (Routledge 1994 [1954]; citations p. 143). 'Tooled knowledge' is a remarkable term that Schumpeter adopted as a reference to knowledge that grew out of practical experience; he located its origin to the emergence of 'laical intellectual' in the late Middle Ages.

[6] The critical importance of colonialism for the stabilization of European economies (including the U. S.) remained undetected to a surprising extent to earlier social theorists. American sociologist W. E. B. Du Bois (1868-1963) was a glaring exception; as an African-American he experienced racism at first hand throughout his long life. See Gurminder K. Bhabra and John Holmwood, *Colonialism and Modern Social Theory* (Polity Press, 2021); the authors regard the individual liberty assumedly provided by the European modern state as a fake in similar terms as Charbonnier.

[7] Anthony Wrigley, *Continuity, Chance, and Change. The Character of the Industrial Revolution in England* (Cambridge University Press, 1988).

[8] Marcel Mauss, Durkheim's nephew (1872-1950), explored more systematically the significance of the material basis for social life; a collection of his texts on this topic is in Nathan Schlager (ed.), *Marcel Mauss, Techniques, Technology and Civilisation* (Berghahn Books, 2006).

[9] Charbonnier builds an explicit analogy to Timothy Mitchell's notion of "carbon democracy" in his *Carbon Democracy: Political Power in the Age of Oil* (Verso, 2013).

[10] The passage in Polanyi's *The Great Transformation* (p. 32) is worth citing in full: "Market society was born in England – yet it was on the Continent that its weaknesses engendered the most tragic complications. In order to comprehend German fascism, we must revert to Ricardian England's century. The Industrial Revolution was an English event. Market economy, free trade, and the gold standard were English inventions. These institutions broke down in the twenties everywhere – in Germany, Italy, or Austria the event was merely more political and more dramatic. But whatever the scenery and the temperature of the final episodes, the long-run factors which wrecked that civilization should be studied in the birthplace of the Industrial Revolution, England."

[11] An example from current discussions; Martin Wolf, the chief economist of *Financial Times* wrote in his column "The UK's future depends on improving economic performance" (16 April, 2023): "Modern democracy itself would not have been born if it were not for the opportunities created by sustained growth. Political stability, too, depends on the positive-sum politics that economic growth creates. If, as now, in the UK and other high-income countries, the economy stagnates, politics becomes fraught, since one group cannot have more without others having less. The struggle becomes more bitter if the labour force shrinks relative to the population and so tax-funded transfers tend to rise as a share of national incomes."

[12] This refers to the French shorthand of The Great Acceleration, *Trente Glorieuses*.

[13] Incidentally (and crucially), Charbonnier's main arguments give flesh to Bruno Latour's somewhat amorphous notion of "moderns".

[14] This is definitely a case in which we need to come up with as many synonymous terms as possible to get a feel for the multidimensionality of the issue; thus, to begin with: natural systems are *pliable, modifiable, malleable, adaptable, yielding, tolerating, complying,* However, terms that carry a connotation of "control by humans" are forbidden!

[15] Quinn Slobodian's thorough analysis of the ideology of the founding figures of neoliberalism confirms that their creed actually was anchored in a similar pair of concepts; Slobodian refers to "the erstwhile Nazi jurist" Carl Schmitt's concepts *imperium* (as a reference to "bounded territorial states where governments ruled over human beings) and *dominium* (as a reference to "the world of property, where people owned things, money, and land scattered across the earth" in his *Globalists. The End of Empire and the Birth of Neoliberalism* (Harvard University Press, 2018) (p. 10); a modernized version of Charbonnier's 17th century terms *sovereignty* and *property*, one might conclude.

[16] Clarence Glacken, *Traces on the Rhodian Shore, Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (University of California Press, 1967) is a magisterial source on this.

[17] 'Ambient environment' is another term favoured by James J. Gibson in his 'ecological psychology'; he contrasted it with a purely physical view of the environment (*The Ecological Approach*, p. 8): "This [physicalistic] way of thinking neglects the fact that the animal-object is surrounded in a special way, that the environment is ambient for a living object in a different way from the way that a set of objects is ambient for a physical object."

[18] For a good introduction, see Paul G. Falkowski, *Life's Engines. How Microbes Made Earth Habitable* (Princeton University Press, 2015).

[19] I explore this question in my article "Luonnon muuttuminen, tuhoutuminen, sopeutuminen ja toipuminen – ja epävarmuus", to be included with an English translation in a catalogue published by the artist duo *IC-98* (2023, in preparation).

[20] Ville Lähde described this situation as follows (emphasis in the original): "[H]uman practices do not change the world at will and whim. In Cicero's terminology, changes are possible only *within* the dynamics of the first nature. One cannot meander the river without the river, and one cannot use water to fertilize the fields without soil to be tilled and plants to be cultivated. When these changes have been effected, second nature will form the new framework for the future. However, first nature remains active within this framework. It is not a tabula rasa blown away by the force of history." In: "Gardens, climate changes, and cultures. An exploration into the historical nature of environmental problems"; pp. 78-105 in Yrjö Haila and Chuck Dyke (eds), *How Nature Speaks. The Dynamics of the Human Ecological Condition* (Duke University Press, 2006) (p. 80).

[21] Climate change seems different by setting an iron-hard standard, but (always "but"!), whatever happens in the future, we have only human-constructed 'second nature' available when we try to prevent the worst from happening.