

REVIEWS

TO DISMANTLE INJUSTICE YOU SHOULD UNDERSTAND ITS ROOTS

Alf Hornborg, *Nature, Society, and Justice in the Anthropocene: Unraveling the Money-Energy-Technology Complex* (Cambridge: Cambridge University Press, 2019), 242 p. ISBN 9781108554985

Alf Hornborg is one of the key figures defining the field of human ecology, which focuses on the very foundations of human-environment interactions. His latest book provides readers with an overview of his main research interests. Through a multidisciplinary inquiry, he explains the roots of the ecological crisis that we are facing and provides an analysis for the political struggle against it. The analysis of the “holy trinity” of money, energy, and technology tackles the very foundation of the current hegemonic ideology based as it is on the abstraction of the free market. To call this “holy trinity” a complex (as in the “Money-Technology-Energy Complex”) is important because it helps us to understand how all three of its pillars historically coevolved to form its current complexity, all the while without losing its roots in appropriation and exploitation. To discard this complex, a just socio-economic transformation must be committed to a degrowth and postcapitalist scenario.

Hornborg grounds his analysis in contemporary ecological Marxism, political ecology, ecological economics, and posthumanism. The anthropological background of the author is notable in his curiosity in exploring how the complex of money, energy, and technology that we take for granted works. He traces the origins of the complex to the Industrial Revolution, when faith in the abstract idea of the economy was established. Money allows us to place trust in exchange during trade and avoid the relations of moral obligation between actors on the market. At the same time, money becomes a fetish and makes goods appear as commensurable. In this sense, it does not serve purely as a token but works also as an object of trust, instead of there being trust between people. Machines become fetishes too, as invention is detached from the flow of the materials in which they are deployed.

Ecologically unequal exchange is what puts this “global magic” to work. The foundations of the global market were established alongside the emergence of colonial exploitation. The Atlantic triangle market was built upon the exploitation of the labour of African

slaves and the dispossession of land for cotton plantations in North America and set the unequal biophysical flows precisely to accumulate the embodied resources through trade in the imperial centres of Europe. The textile industry technologies fuelled by coal were not just an effective invention, they were created with the underlying objective of imperial domination over the bodies of slaves and the expropriation of land. These dynamics of asymmetric exchange from the beginning of capitalist industrialisation have expanded to the current globalised economy, where the comparative advantage of cheap and disposable land and labour supply the accumulation of embodied resources among the few who actually benefit. A recent study by Dorninger et al.¹ empirically quantifies the net import of embodied materials, energy, labour, and land of the high-income countries over the period 1990–2015 and thus supports the EUE theory. With a larger amount of harnessed energy, the complex appropriates more time and space and grows in complexity. Therefore, some people dissipate a substantially larger amount of energy than others.

However, the complex cannot grow infinitely. Hornborg explains how the complex is bounded by biophysical limits. Dematerialisation of the economy is illusory because it is built on the accumulation of embodied energy and requires further expansion. Transgressed planetary boundaries indicate that the bubble is about to burst. The way out of this problem is to redesign the artefact of money to reflect the way that it is bound to energy and space. To increase sustainability and diminish inequality at the same time, Hornborg suggests that each state should issue a complementary currency (which would allow purchasing only local goods and services) and should distribute it as a basic income to all its residents. In a very clear manner, he offers answers to twenty-seven frequently asked questions about his proposal. For example, the effects of the proposal in very different local conditions would according to the author lead to variations of consumption patterns and calibration of resource endowments, or in the less fertile regions the radius that is used to define a region should be larger than in fertile regions. We can understand this as an attempt to limit the economy within the ecologically sane boundaries of the metabolic resource flows while simultaneously fostering the ability of local communities to fulfil their needs in a specific and appropriate way.

Hornborg makes his writing approachable through personal accounts, for example of his farming endeavours (115) and anthropological research (200, or 217). Another characteristic of his writing is devotion to the clarity of the arguments.

The anthropocene, the unprecedented situation of a socially transformed global environment, could according to Hornborg have various understandings, many of them emphasizing the blurred lines between the intertwined social and natural aspects. Nevertheless, for the author it is ultimately important to maintain ontological distinctions between nature and society as well as between subject and object. The

¹ Christian Dorninger et al., “Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century”, *Ecological Economics* 179 (January 2021).

specifically human ability to produce and use symbols constitutes languages. In the end, this unique ability enables people to make arbitrary cultural choices.

Similarly, the Cartesian dualism between subject and object, in which sentience and agency are relevant only to the subject, remains analytically important for Hornborg, especially for the notion of fetishism, a form of attributed agency to objects, which is nevertheless socially created. Hornborg criticises the posthumanist tendencies to melt down boundaries between the object and subject as well as between society and nature, locating in these tendencies a political incapacity to focus on specifically human subjects, and especially their economic activity, which is ultimately what is wreaking environmental havoc on the Earth.

Hornborg's criticism of posthumanist authors like Anna Tsing and Donna Haraway targets the obfuscation of boundaries that complicates our understanding and makes it, needlessly, more difficult to identify the roots of current crises and in the end stand in the way of tangible political solutions. In the process of assuming the human-nature relation as an always-changing amorphous hybrid described with a fancy vocabulary, we lose the ground below our feet that is necessary for a sound strategy. On page 194 he criticises a literary style that is "personal and anecdotal, the engagement with theory is journalistic and superficial", or even implying, that "academic success may be inversely proportional to clarity". The criticism of key authors of posthumanism, notably Bruno Latour, for avoiding political positionality might have been read today in a different light after the publication of Latour's *Down to Earth* in 2018, which specifically goes in the direction of clarity and political positioning.

Hornborg criticises several "false solutions" to the crisis, which might make the book difficult reading for many people already involved in environmental activism. For example, activists in the global North might be torn between promoting politically unfeasible policies for degrowth on the one hand and personal lifestyle choices that do not provide a way out of the current crisis on the other. Lifestyle choices alone cannot be a solution because they are partially produced by historical inequality and are not universally accessible. For the same reason, even modern industrial workers in the core regions serve more to sustain capitalism than to act as its antagonists. Precisely in the current moment we can observe the debates about just transition and the socially sensitive phase-out of coal industries in the EU. The attempts to provide regions with loads of cash, promising new green jobs and more material prosperity falls short of reversing ecologically unequal exchange precisely because it fosters the idea of economic progress. This conundrum is illustrated by Tadzio Mueller,² who argues that to make a transition just it needs to be firstly based on a large-scale and rapid cut of carbon emissions and not on a compromise with labour representatives, who serve rather the

² Tadzio Mueller, "As Time Goes by...: The Hidden Pitfalls of the 'Just Transition' Narrative", *Just Transition Research Collaborative* (14 June, 2018), <https://medium.com/just-transitions/mueller-fc3f434025cc>.

interests of the captains of industry. In this light it seems illusive to look for a common ground between mine workers and the ecological movement in the form of higher wages, because it would keep the profoundly unjust design of the economy locked in.

Moreover, we simply cannot get out of the trap of ecologically unequal exchange by a solely technological fix, for example by replacing all fossil fuels with renewables. In this case, the globalised capitalist economy would still remain exploitative, just pushing towards different commodity frontiers based on different minerals. Although it might be possible to slow the rate of carbon emissions, the Money-Technology-Energy Complex would still concentrate the embodied land and labour in the centres and in no way could we talk about sustainability.

What is interesting in Hornborg's argument is its resemblance to the theory of the imperial mode of living described by Brand and Wissen.³ The imperial mode of living shares with ecologically unequal exchange the background of ecological economics and political ecology, providing a connection between the abstract economy and the global biophysical materiality of production. Unlike Brand and Wissen, Hornborg does not engage in the political science perspective on hegemony, something which could have enriched the political viability of his analysis.

The suggestion of basic income in complementary currency supposes a functional democratic state, nowadays a globally rare condition, located perhaps only in Scandinavia. What kind of basic income are people escaping from failed states and currently living in refugee camps on the border of the European Union entitled to? Hornborg opens up the debate, which we can see unfolding for example in degrowth conceptualisations of the state.⁴ It is worth noting that Hornborg's key message of redesigning the artefact of money is not accompanied by a similar effort to redesign technology in a way that makes it possible to escape the pitfalls of an ecologically unequal exchange. Although not present in the book, the debates about the redesign of the state as well as redesign of technology has profoundly developed in recent years within the degrowth community.⁵

The current coronavirus crisis opens up previously unthinkable horizons and a certain form of basic income is now being proposed, for example even in an editorial of the *Financial Times*.⁶ The plea for localisation of economic activity is central to Hornborg's political argument, and redesigning money to reflect spatial dependency

³ Ulrich Brand and Markus Wissen, *The Limits to Capitalist Nature* (Lanham: Rowman & Littlefield International, 2018).

⁴ Giacomo D'Alisa and Giorgos Kallis, "Degrowth and the State", *Ecological Economics* 169 (March 2020).

⁵ See, for example, Christian Kerschner, Petra Wächter, Linda Nierling and Melf-Hinrich Ehlers, "Degrowth and Technology: Towards feasible, viable, appropriate and convivial imaginaries", *Journal of Cleaner Production* 197, no 2 (2018), pp. 1619–1636.

⁶ "Virus lays bare the frailty of the social contract", *Financial Times* (April 3, 2020), <https://ft.com/content/7eff769a-74dd-11ea-95fe-fcd274e920ca>.

is its key condition. He is far from promoting isolated islands of positive deviance. The changes he suggests call for a rupture that would open up a path to the imaginaries of postcapitalist society. His analysis offers a solid analytical apparatus to distinguish sustainable propositions from hijacked ideas that, in the end, only serve to foster the current ideology based on exploitation.

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