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## COMMODITY CHAINS AND THE GLOBAL ENVIRONMENTAL HISTORY OF THE COLONIAL AMERICAS

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**DEBATE**

**Colapso ambiental e histórias do capitalismo**

## ABSTRACT

The present article explores some of the problems that the contemporary environmental collapse brought to the writing of history and suggests, following in the footsteps of other scholars, that one of the main present challenges is to combine a global history of capital with the time of nature. Approaches based on the history of specific commodities are discussed in light of contemporary historiographical debates. In the last section I explore two examples — the histories of Brazilian gold and North American ships — to show how the method can help develop a global environmental history of the colonial Americas from a critical perspective, i.e. a history of capital that transcends the methodological nationalism that is still part of the discipline and effectively incorporates the time of nature as part of a unified analytical perspective.

## KEYWORDS

Commodity Chains; Capitalism; Colonial America.

Is global history still possible, or has it had its moment? With this question, Jeremy Adelman argued in a 2017 essay that “it is hard not to conclude that global history is another Anglospheric invention to integrate the Other into a cosmopolitan narrative on our terms, in our tongues” (ADELMAN, 2017). A cosmopolitan global history that at times resembles a history of globalization did indeed seem to be the ideal narrative for the world that emerged after the end of the Cold War. Such an association has been common among critics, and for good reasons, but it is not exclusive to the global turn of recent decades. The central metanarrative of the historiography (and the broader social sciences in general) has been a product and producer of the processes of inclusion and extension of democracy in the contemporary world, which in turn allowed it to be combined with developmentalist narratives, whether we consider the classic formula of modernization theory of the post-WW2, whether we look at the post-1989 globalizing world. Such modernizing narratives can be read as manifestations of a triumphant centrist liberalism, to use Immanuel Wallerstein’s (2011) term, which have been shaping the structures of knowledge since the nineteenth century.

According to Adelman, the ascension of the new right across the world in recent years has shown the limits of this cosmopolitan global history. The bigger problem, however, is that the limits of the broader developmentalist paradigm has been evidenced by a crisis that has put humanity itself into question: the environmental collapse. Some call it the Anthropocene, others Capitalocene, but the conclusion is only one: the era in which human beings have become a geological force is in the process of making the planet uninhabitable for most living beings.<sup>1</sup> At the basis of this crisis is the same world that presented itself as universalizable in the aftermath of World War 2 and as inevitable after the Cold War. “The mansion of modern freedoms”, Dipesh Chakrabarty argues, “stands on an ever-expanding base of fossil fuel use. Most of our freedoms so far have been energy-intensive” (2009, p. 208). The problems that have inspired much of the historiography in recent decades are still here: reducing inequalities, stimulating inclusion, and expanding citizenship. But the possibilities for such a project have to deal with concrete material limitations that have been largely ignored in contemporary debates on inequality (MARQUES; PARRON, 2021).

The current environmental collapse is clearly global. The devastation of the Amazon or the many Latin American environmental disasters of recent years are tied to the dramatic proletarianization and urbanization processes in China (which in turn are connected to broader exchanges that include all of the developed and developing world) (ARBOLEDA, 2020; SVAMPA, 2019). The accumulated evidence of this global environmental collapse shows not only the failure of a modernizing project, but also calls for an approach that can effectively integrate the systemic dimensions of our past and present problems. The global history described by Adelman does not seem prepared to deal with these challenges, which does not mean that a global approach has become unnecessary, as the author himself notes in his conclusion. The effort of global historians to transcend the methodological nationalism that has been part of the discipline since the nineteenth century, with its role in the legitimation of emerging nation states, must be further explored; not because the world of free trade will generate prosperity across the world, but because global processes as we have seen

<sup>1</sup> For a summary of the debate focusing on Brazil, see Pádua (2016). On the concepts of Anthropocene and Capitalocene, see Moore and Parenti (2016).

are the foundation of the environmental collapse of our times. Thus, one of the main challenges for scholars is to develop a more effective and critical global perspective that manages to incorporate the times of nature.

Chakrabarty points in that direction when he mentions the insufficiency of global history (at times treated as a synonym with a history of capital) and the need to think of a history of the species but offers little beyond reaffirming the tension between the two approaches. Unfortunately, the author quickly dismisses previous generations of environmental historians for their interpretation of humanity as a biological agent instead of a geological agent, as a “maker of climate”.<sup>2</sup> The emphasis of environmental historians of the twentieth century may have been on man as a “prisoner of climate,” but they nonetheless offer valuable insights to deal with the problems raised by Chakrabarty and others. Donald Worster, who has been calling for a “planetary history” since the late 1980s, offered a stimulating model based on three levels of analysis that dynamically interacted with each other: a first one focusing on natural ecosystems over time (including human beings and, therefore, somewhat similar to the history of the species that Chakrabarty has been calling for); another one dealing with the different forms of political-economic organization and their interactions with nature, the so-called “mode of production”; finally, a third level should look at the mental structures through which people deal with the other two levels. In other words: nature, political economy, and thought (WORSTER, 1990a).<sup>3</sup> Worster’s piece was the object of a debate at the time of its publication that anticipated many of the issues — such as the problem of scales and the limits of the discipline — that have been currently debated among global historians. “If we get too obsessed with particularities,” Worster replies inspired by Crosby, “the public may not be truly helped by our writings to think clearly and coherently about the larger issues of our time — the relation of nature and capitalism, the collective myths and institutions of nations and civilizations, the workings of imperialism, the fate of the earth” (WORSTER, 1990b, p. 1143).

A global environmental history capable of transcending the modernizing paradigm that came with the triumph of centrist liberalism is one of the most urgent tasks for historians in the context of the current environmental collapse. Some of the main recent efforts to develop a global environmental history, however, have been marked by a strong methodological individualism that continues to pervade the social sciences. Daniel Headrick’s recent book, *Humans Versus Nature: a Global Environmental History*, for example, offers a long and detailed environmental history of humanity based, on the one hand, on the human impacts on the rest of nature and their changes over time and, on the other hand, on how nature had an impact on humans through natural disasters and other less catastrophic forms. Although talking about change over time, Headrick’s perspective does not allow to effectively analyze it: “What

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<sup>2</sup> A careful reading of the fourth chapter of Braudel’s *Mediterranean*, for example, does not fit very well in this description. “Everything changes, even the climate. Nobody now believes in the invariability of the elements of physical geography,” Braudel argues in his discussion of the Little Ice Age. He then continues: “Everything changes and climates with the rest’. But if they do change, it may be because of man’s intervention. In one place climate change might be the result of large-scale deforestation, in another the result of neglected irrigation, or abandoned crops which can be disastrous in arid regions” (BRAUDEL, 1972, p. 267-268).

<sup>3</sup> See contributions of Cronon, White, Merchant and others, as well as Worster’s response in the same edition.

has changed over time was not the desire of humans to exploit their environments, but the technological and organizational means they developed and employed against the rest of nature — and their consequences” (HEADRICK, 2020, p. 2-3). Humanity itself is characterized as having an intrinsic impulse to extract as many natural resources as possible, depending only on existing technologies in order to do it on a larger or smaller scale. The annihilation of history comes with the universalization of an indistinct humanity seeking to explore nature to the fullest degree.

Headrick’s book is only the latest example of a traditional historiographical tendency to project an indistinct humanity as the motor of history and main source of all contemporary environmental problems, a view that is attuned to some of the main perspectives in the Anthropocene debate (HORNBORG, 2010).<sup>4</sup> If we consider, for example, pre-Columbian native societies we can find a number of differences in the ways they deal with nature. Interpretations that describe all of them as having an unsustainable relationship with the environment are as untenable as those reviving the myth of the “Noble Savage”.<sup>5</sup> Scholars such as William Balée e Eduardo Góes Neves have shown that native groups of the Amazon, for example, radically manipulated and transformed the forest without necessarily producing the processes of destruction and social collapse that have fascinated other observers of ancient societies (BALÉE, 2013; NEVES, 2012). Outlining this diversity is key to understanding the conflicts over nature and its resources that continues to shape the world today. The model offered by Worster and his emphasis on the role of specific modes of production — with a more open interpretation of the concept — has the merit of avoiding the frequent flattening of history that can be found in a number of global environmental histories, thus contributing to the development of an approach that can effectively track structural changes over time (WORSTER, 1987).

## WHO FEARS WORLD-SYSTEMS? A BRIEF HISTORY OF THE HISTORY OF COMMODITIES

If capitalism as a historical system (or mode of production, if we continue with Worster) is one of the main forces behind the current environmental collapse, then one of our main tasks must be to understand its development over time. Henri Lefebvre offers a good starting point when suggesting that

capitalism has many facets: landed capital, commercial capital, finance capital — all play a part in practice according to their varying capabilities, and as opportunity affords; conflicts between capitalists of the same kind, or of different kinds, are an inevitable part of the process. These diverse breeds of capital, and of capitalists, along with a variety of overlapping markets — commodities, labour, knowledge, capital itself, land — are what together constitute capitalism (LEFEBVRE, 1991, p. 10).

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<sup>4</sup> This problem in environmental histories is a product of the widespread influence — not always explicit — of rational choice theory in the social sciences.

<sup>5</sup> For an example of the first, see Elizabeth Dore (1994).

The combinations that form the system can be explored in more concrete ways by tracking the historical trajectory of specific commodities, an approach that has become very popular in recent decades, especially after the global turn.<sup>6</sup> Histories of commodities are not part of a coherent body of work in theoretical and methodological terms, but the examples that have been produced over the last half century can offer important insights for dealing with the issues discussed earlier.

Despite important precursors such as Harold Innis's "staple thesis" or the famous "economic cycles" of historians such as João Lúcio de Azevedo and Roberto Simonsen, world-system scholars connected to the Fernand Braudel Center, at Binghamton University, played a central role in the development of a specific approach to the history of commodities. In several articles, Immanuel Wallerstein and Terence Hopkins developed the concept of commodity chain as a strategy to track not only how capitalism combined multiple forms of labor in global processes of production over time, but also how the non-commodification of some of its links allowed for even larger profits in capital accumulation processes. According to the authors, capitalism is characterized by an international division of labor and "the boundaries of this division of labor are therefore appropriately defined by the effective geographical reach of the production and labor processes thereby integrated, and not by town or national boundaries" (HOPKINS; WALLERSTEIN, 1986, p. 158). They also offer a few suggestions on how to develop the approach, with a preliminary analysis of two specific commodities, ships and wheat, but the procedure also appears in other moments of the work of Wallerstein and other scholars associated with the Fernand Braudel Center. It is important to note that their focus is on the process of production:

take an ultimate consumable item and trace back the set of inputs that culminated in this item — the prior transformations, the raw materials, the transportation mechanisms, the labor input into each of the material processes, the food inputs into the labor. This linked set of processes we call a commodity chain (HOPKINS; WALLERSTEIN, 1977, p. 128).

The concept of global commodity chain in turn appeared in a 1994 work organized by Gary Gereffi and Miguel Korzeniewicz that was clearly inspired by the work of Hopkins and Wallerstein, who also contributed with one chapter in the book. According to the editors, "the analysis of a commodity chain shows how production, distribution, and consumption are shaped by the social relations (including organizations) that characterize the sequential stages of input acquisition, manufacturing, distribution, marketing, and consumption" (GEREFFI; KORZENIEWICZ; KORZENIEWICZ, 1994, p. 2).

One of the works that best exemplifies the strength of an approach based on specific commodities, which came from a very strong dialogue with the world-system perspective, is Sidney Mintz's *Sweetness and Power: the Place of Sugar in Modern History*, first published in 1985. In this work Mintz develops a few insights that had already appeared in previous works, as in his famous article on proletarians and slaves. After noting the problems that can be found in the then current definitions of "proletarian" and "slave" that looked at the two categories isolated from each other,

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<sup>6</sup> The best-known example may be *Empire of cotton: a global history* (BECKERT, 2014).



without noting the articulations of both to the world economy that produced them, Mintz concluded that it was necessary to show in more detail how the fruits of labor of European proletarians and Caribbean slaves produced specific economic articulations between them. Those articulations would be further explored in *Sweetness and Power*, which gives equal weight to the production and consumption of sugar. One of its great merits is to put sugar at the center of a mutually constitutive relationship between the Caribbean and Europe, thus avoiding treating the commodity merely as the background of a history of slavery and slave trade, as a large part of the historiography had been doing until then. This history includes not only the efforts of enslaved Africans to survive in this new setting, a theme to which his previous production had already made crucial contributions, but also the place of this history in the making of modernity.

The first sweetened cup of hot tea to be drunk by an English worker was a significant historical event, because it prefigured the transformation of an entire society, a total remaking of its economic and social basis. We must struggle to understand fully the consequences of that and kindred events, for upon them was erected an entirely different conception of the relationship between producers and consumers, of the meaning of work, of the definition of self, of the nature of things (MINTZ, 1978; 1986, p. 214).

Mintz's book has been justly lauded as the best precursor of the recent wave of works on the history of commodities. Since its publication, many academic and non-academic works on specific commodities have appeared. Unlike Mintz, however, part of these works has been repeating some of the problems described earlier. The volume edited by Steven Topik, Carlos Marichal, and Zephyr Frank, for example, offers great examples of the strength of an approach based on commodity chains. Seminal articles such as those by Paul Gootenberg on cocaine or Marichal's analysis of the cochineal show how the commodity chain can be a powerful analytical tool (TOPIK; FRANK; MARICHAL, 2006). When taken together, however, and especially with the introduction and conclusion of the book, in which the editors repeatedly recognize some important precursors to the approach but make every possible effort to distance themselves from old systemic perspectives, the essays seem to have stopped halfway in the analysis. In the words of Arnold Bauer:

the editors of this book are acutely aware of politics and power, but by straining to distance themselves from the long list of previous, and largely Marxist-inspired, 'theories' in order to create a new niche for the 'commodity chains approach' we are left with strands of interesting research along with an unassuageable hunger for an approach that might, more comprehensibly, further an explanation of fundamental problems (BAUER, 2007).

The limits of an excessive disciplinarization of the approach based on commodity chains appear in *From Silver to Cocaine* in two different ways. First, despite the promise to analyze production, circulation, and consumption as an integrated process, most chapters focus on the middle part of this equation — trade — the sector that has historically produced the largest volume of primary sources. The focus on production appears as an old-fashioned procedure, as revealed in a few footnotes, while



consumption is the object of much less attention than initially promised. Secondly, in their efforts to avoid old systemic approaches, thus developing a perspective that attributes a similar dynamism to all stages of the chain and rejects old notions of center and periphery, the authors explored the commodity chain as a unit of analysis instead of a unit of observation. For Hopkins and Wallerstein, however, the commodity chain is a tool to analyze systemic processes and not an end in itself. This systemic component was ejected from the book edited by Topik, Marichal, and Frank, as has been the case with other historians who are suspicious of classic explanatory models in the social sciences.

Returning to the classic uses of the concept of commodity chain can offer a powerful instrument to understand the plurality of times of capitalism as a historical system and its shifts over time. When Hopkins and Wallerstein argued that non-commodified links of chains could produce larger profits they were pointing to these different times. This also appeared in a 1966 article by Giovanni Arrighi that showed how not all proletarianization processes (looking more specifically at Rhodesia) favored the accumulation of capital. The analysis of commodity chains, therefore, can map out the heterogeneity of capital accumulation processes, which have made use of multiple forms of labor as a simple look at the iPhone today quickly shows (MERCHANT, 2017, Chapter 2). When doing field work in the Amazon during the 1970s, sociologist José de Souza Martins found a number of cases of coerced labor and chains of indebtedness that tied laborers to their employers, links of commodity chains that not rarely involved the activities of great multinational enterprises. “The time of capital,” Martins concludes, “is concretely not only the unilinear time of progress, of modernization, of the rational conduct in relation to ends and development” (MARTINS, 1994, p. 7; CAMPOS, 2017). Arrighi argues in a similar direction when saying that

the problem with the simple “proletarianization as capitalist development model” is that it ignores not just the realities of southern Africa’s settler capitalism, but also many other cases, such as the United States itself, which was characterized by a totally different pattern — a combination of slavery, genocide of the native population and the immigration of surplus labor from Europe (ARRIGHI, 2009).

The heterogeneity of historical capitalism also includes the different forms of appropriation of nature, bringing us back to Worster’s three levels. A certain concern with the times of nature was already implicit in the world-systems perspective but was better developed later by the works of Stephen Bunker and, more recently, Jason Moore. Considering as his starting point the history of the Amazon in the long *durée*, Bunker emphasized the interdependence between productive and extractive activities in the world system. Since they depended on the specific location of natural resources, extractive activities tended to be geographically dispersed while the productive sectors of central zones could be concentrated in specific areas. The centrality of natural resources for the existence and reproduction of the capitalist world system made Bunker skeptical about perspectives that excessively focused on determinations coming from the center, leading him to emphasize the importance of the local in global developments. And the tool for integrating these multiple scales of the system was precisely the commodity:

A focus on exported commodities allows analysis of the modes of production and extraction from which the commodity emerges at the regional and local levels and of the technological and market changes which determine demand for it at the global level. [...] They serve as a bridge between different levels of analysis. A focus on specific commodities also permits analysis of the ecological, social organizational, and demographic effects both in the region of extraction and in the region where its eventual transformation contributes to the acceleration of production and consumption (BUNKER, 1985, p. 49).

Jason Moore raised similar issues in his eco-historical reading of Wallerstein's work, especially with his concept of "commodity frontier". The many commodity frontiers (which, according to Moore, were different from the pre-capitalist *resource frontiers*) that are at the center of global capitalism in its historical trajectory made use of extra-human nature as a substitute for technological transformations that could increase the rate of profit in capital accumulation processes: "land (forests, silver veins, fertile soils) was organized by empires, planters, seigneurs, yeoman farmers and many others, as a *force of production in servitude to the commodity form, as a mechanism for maximizing the productivity of labour*" (MOORE, 2010, p. 36, emphasis in original). Although using a different language and conceptualization, Moore echoed Bunker's concern with the multiple scales of historical capitalism so that extractive processes in the peripheries could be incorporated as fundamental elements of the system as a whole.

The 'local' environmental transformations precipitated by these frontiers were not simply *consequences* of European expansion; they were in equal measure constitutive of such expansion, condition as well as consequence. Degradation and relative exhaustion in one region after another were followed by recurrent waves of global expansion aimed at securing fresh supplies of land and labor, and thence to renewed and extended cycles of unsustainable development on a world-scale (MOORE, 2003, p. 309, emphasis in original).

Finally, there is an elusive aspect of capital that cannot be so easily captured by the analysis of commodity chains (and that is absent in the definition offered by Lefebvre at the beginning of this section). The generalization of commodity production in capitalism is marked by the production of abstractions, as demonstrated by Marx in the famous first chapter of *Capital* and by a voluminous bibliography that has explored the concept of commodity fetishism and attempted to develop a critical theory of value. In the words of Marx himself,

the commodity-form, and the value-relation of the products of labour within which it appears, have absolutely no connection with the physical nature of the commodity and the material relations arising out of this. It is nothing but the definite social relation between men themselves which assumes here, for them, the fantastic form of a relation between things (MARX, 1990, p. 165).

The synchronization of different forms of concrete labor through the world market thus produces a “real abstraction,” the real abstraction of value, whose endless accumulation operates then as a determining factor in the planetary dynamics of capitalism.<sup>7</sup>

It was precisely this absence in the histories of commodities offered by Mintz and Eric Wolf (whose classic *Europe and the Peoples Without History* had been published a few years before *Sweetness and Power*) that called the attention of Michael Taussig in a critique of both books, which he saw as examples of an undertheorized anthropological interest in history (TAUSSIG, 1989). However, theorizing capital and capitalism does not eliminate the need to think about its historical development. The trajectory leading to the dissemination of the commodity form and the abstract domination of life in which everything can be exchanged for everything — and that includes the making of an abstract nature that can also be commodified and exchanged — concretely depended and continues to depend on an array of heterogeneous relations, as we have seen with José de Souza Martins and Giovanni Arrighi, a heterogeneity that can be tracked by following the circuits of the commodity. In this sense the critical theory of value asked by Taussig must be combined with the analysis of the “trajectories of commodities as ‘tracers’ through the veins and arteries of a developing political and economic system,” as Mintz and Wolf argued in their reply (MINTZ; WOLF, 1989). This is certainly a difficult synthesis, but still a necessary one. In the words of William Sewell Jr., “we need to keep both sides of the dialectic between abstract reversible temporality and concrete irreversible temporality in view at all times” (2008, p. 532). Reproducing only the abstract temporality of capitalism is the object of economists obsessed with mathematical models that, according to him, “reproduces the abstraction of universal exchange as if it were the whole truth about the economy, rather than one dialectical pole in a fundamentally contradictory complex” (SEWELL, 2008, p. 527).

## THE PRODUCTION OF CIRCULATION: SHIPS AND GOLD

Two more concrete examples of the history of commodities — ships and gold — can help explore some of the issues discussed above. The two commodity chains are related to my current projects: an environmental history of the transatlantic slave trade and a global environmental history of mining in Brazil. Both cases could be explored in all their geographical and chronological extension, but I will follow here a “national” starting point — focusing on North American ships and Brazilian gold — to emphasize issues related to methodological nationalism and to show how the approach also allows for more specific temporal and spatial framings. The larger objective is showing how the history of commodities offers one way to integrate society and nature within a systemic perspective.

### Floating forests

The strong methodological nationalism of U.S. historiography has become one of the main targets of a number of works associated with the global turn. At the

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<sup>7</sup> There is a vast bibliography on commodity fetishism and value form theory. For an excellent overview, see Peter Hudis’ *Marx’s concept of the alternative to capitalism* (HUDIS, 2012).

center of nationalistic narratives of U.S. exceptionalism is the history of New England, considered by many to be the main motor of a march for progress that allegedly characterized the nation since its early days. It was against this sort of parochialism that Thomas Bender called for a “wider cosmopolitanism” in *A Nation Among Nations: America’s Place in World History* (2006). According to him, the history of the United States can only be fully understood within a global context since its early days. Not coincidentally, references to New England in Bender’s book are very few. His narrative of the colonial era in fact focused on the slave colonies of the South, framing this history within the broader developments of Atlantic slavery. The perspective offered by Bender has some strengths since this North American exceptionalism centered on New England played an important role in erasing the importance of black slavery for the region and, consequently, for the nation, turning it into the “peculiar institution”.<sup>8</sup>

But is ignoring the history of New England the best strategy for this? Tracking the main commodity chains of the region may reframe its history within a broader context, making clearer not only the role of coerced labor and natural resources in its development, but also its importance for the history of capitalism.<sup>9</sup> The slave system that proved to be crucial for the development of New England was in fact located outside North America, more specifically in the Caribbean. The initial settlement of New England had fishing, the fur trade, and exports of timber as its main goal, but in all three cases England offered only a relatively small market for them. Despite the demand for masts and pitch for its naval industry, for example, the flows of these goods from the Baltic remained cheaper. After experiencing a crisis in the mid-seventeenth century, and a decline in the migratory flows from England, New England became articulated to an expanding Caribbean (besides a persisting and important connection to the Madeira, the Canary Islands, and the Iberian Peninsula). The most fundamental motor of this connection was the plantation revolution in the Caribbean, which radically reshaped places like Barbados, Jamaica, Guadeloupe, Martinique, and Saint Domingue. Northern North America supplied a large volume of cod to feed the growing population of enslaved Africans of the Antilles, timber for the construction of the plantations, slave quarters, boxes, and barrels for transporting goods (the slave plantation was one of the greatest forces behind the devastation of New World forests), and even whale oil to illuminate the sugar mills (since labor during harvest took place 24 hours a day) (KIMBALL, 2009, p. 430).

An important merchant sector emerged in New England over the seventeenth and eighteenth centuries for the shipping of goods from the Caribbean slave societies and US southern colonies, a sector that emerged associated with a powerful shipbuilding industry. The latter was probably the main manufacturing sector in colonial North America, providing ships not only to New England merchants, but also as an important

<sup>8</sup> The fact that American temperate zones generated societies with slaves instead of slave societies facilitated later ideological constructs that erased the history of slavery in those regions. Southern Brazil offers a clear parallel, with the development of “a different Brazil”, in the famous title of Wilson Martins’ work. Recent works have emphasized the centrality of indigenous and African slavery in New England in spite of the absence of great export plantations. See Melish (1998), Warren (2016) and Newell (2015).

<sup>9</sup> A focus on endogenous explanations, with great contributions from the social history of the 1970s, disconnected the history of New England from the history of capitalism (based on analysis of the culture and mentality of rural producers in the region). For an overview of this scholarship, see Naomi R. Lamoreaux (2003).

export product. By the second half of the eighteenth century, ships were the fifth main North American export in terms of value. If we combine the gains from the shipping of goods, the contribution of this sector to the North American balance of payments was close to that of tobacco, the main export good coming from Chesapeake. Something between one third and 40 percent of all vessels of the British Royal Navy were built in the United States, according to estimates from different scholars. As John McCusker and Russell Menard show (1991), the shipbuilding industry was a product of the fortuitous combination between, first, vast extractive resources — in this case, the huge trees from New England forests, which were excellent for masts; secondly, the free time that family rural labor typical of New England offered and that could be used in other industries; and, third, the great international demand that accompanied the ascension of England, which did not have the necessary resources for its navy and continued to depend on the Baltic trade.

A relatively small number of workers performed the necessary labor in North American shipyards, with their numbers varying from one to six according to the different stages of building a ship, from putting together the hull to the rigging and setting up the sails. The bibliography on the subject is relatively thin, but the presence of slaves and servants seems to have been common, even if in small numbers. Most shipyards were in the North, especially in Massachusetts. Poor children were frequently given to shipyard owners to learn the arts of shipbuilding, living with indentured servants and a few enslaved Africans, who worked in the many different activities related to shipbuilding (GOLDENBERG, 1976, p. 54-76). The necessary products for building a ship were basically timber (for the hull and masts), iron (anchors, tools, and nails), linen and hemp (sails and rigging), pitch and tar (for sealing the hulls and the cordage). Slave ships followed a similar pattern, although with differences in the design and perhaps a larger demand for iron for the collars and chains (although this also varied over time and space).<sup>10</sup>

Let's take a more careful look at timber (which also stimulated other commodity chains such as iron for the axes to cut the trees or to be used in the sawmills). The largest forests that provided most of the material for building ships were located in northern New England, in the colonies of New Hampshire and Maine. Similarly to the Amazon, forests in the region had been the object of manipulation by various indigenous groups for centuries before the European invasion, including the selection and maintenance of specific trees that were important sources of food, such as oaks, chestnuts, hickories, and walnuts. Consequently, these trees could be found in large numbers by the time European settlers arrived, who commodified the forests of the region in response to Atlantic demands (and therefore made use of the “dead labor” of the indigenous who had manipulated the forest for centuries). The white oak was used to plank the ships and to produce staves for the barrels that were used to pack Caribbean sugar and Iberian wines. The black oak in turn was used in those ship parts that remained underwater for their resistance to tropical worms. The chestnuts were also used for their resistance. As demand for timber increased in the mid-seventeenth century, a significant number of sawmills were quickly established across the Piscataqua river on the frontier of the present-day states of New Hampshire and Maine (ROBERTS, 2019, p. 101).

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<sup>10</sup> A comparison between different slave ships can be found in Radburn and Eltis (2019).



Extracting timber was hard work, usually performed during the winter when the snow cushioned the fall of trees and facilitated their transportation to the nearest river. Some lumbermen froze to death. Animals were necessary to carry the timber to the river, from where it was taken to the sawmills. The timber was then processed into different formats, including the highly sought masts made with oaks. The volume of wood used on a ship was significant. According to Wallerstein, a Dutch warship used around 2,000 century-old oaks, which meant 50 acres of forest (WALLERSTEIN, 1974). “No other technical object, perhaps with the exception of fire,” Diogo Cabral argues, “consumed so much timber like the building and maintenance of a ship”. Something around 3,600 cubic meters of wood — two times the annual average of brazilwood exports in the sixteenth century — were necessary only for the basic structure of a ship (CABRAL, 2014, p. 172). A task that remains to be done is to calculate the volume of wood that was used in the construction of the millions of slave ships that crossed the Atlantic, allowing us to visualize and articulate the human and environmental costs of the transatlantic slave trade.

The demand for timber, as William Cronon notes, did not produce deforestation to the worrying level that pervaded the writings of local authorities (the third level offered by Worster, which had a number of implications for the relationship between British authorities and New England settlers). Still, a few species were devastated by the commodification of the forest and their use in the shipbuilding industry, especially the white pine, an extremely tall tree that did not exist in Europe and was excellent for producing masts. Shipbuilding demands therefore produced an expansion of the frontier in search for specific trees without necessarily producing generalized deforestation (although this also happened to some extent).<sup>11</sup> The timber industry, however, stimulated associated sectors such as cattle-raising and foodstuff production, two great consumers of forests (CRONON, 2003, chap. 6).<sup>12</sup> Not coincidentally, a large number of conflicts with native groups in western New England and their French allies took place at the turn of the seventeenth century. As the commodity frontier advanced, conflicts with indigenous peoples increased (CLARK, 1970, chap. 5).

The great naval potential of North America soon reflected on the transatlantic slave trade, with the production of ships for US slave traders as well as for exports, including for merchants from other nations.<sup>13</sup> US-built ships appeared in the transatlantic slave trade before US slave traders themselves because of the monopoly of the Royal African Company (founded in 1672) over this commerce. The end of the monopoly would only come after the Glorious Revolution and the actions of independent slave

<sup>11</sup> A similar process took place in Brazil as the gold rush stimulated the building of canoes to be used in the riverine routes connecting São Paulo to Mato Grosso, leading to the disappearance of specific tall trees in certain areas in the Brazilian countryside. See *Caminhos e fronteiras*, (HOLANDA, 2008, p. 178).

<sup>12</sup> On the tensions produced by British perceptions over deforestation and its consequences for British naval power, see Roberts (2010).

<sup>13</sup> Despite the large Luso-Brazilian role in the slave trade, there is very little data on the origins of Portuguese slave ships, especially for the colonial era (there are, in fact, few works on shipbuilding as a whole for the period). The Dutch shipbuilding industry in turn was fundamental for the construction of its commercial hegemony in the seventeenth century, stimulating the expansion of the commodity frontier (as well as pitch and tar) in Scandinavia and the Baltic. There is also little data on the place of construction of Dutch ships, but most seems to have been built in Amsterdam. The best documented branch of the traffic is the British, with more than 8,000 voyages indicating the place of construction of vessels, followed by the French (323) and the US (251).

traders in the British public sphere, opening the way for a more active participation of US-based merchants. This participation, however, was only possible after the development of another key New England staple: rum. While the sugar from British and French Caribbean plantations was sent to Europe, the molasses that came out of those same units went mainly to North America, especially to New England, which became the home of a large number of distilleries. The product satisfied specific demands in Africa, especially on the Gold Coast, which then became the main slave trading area for US-based merchants. Sean Kelley (2018) finds a few cases in which basically all captives were exchanged for full cargoes of rum. A non-negligible number of those slaves were carried to North America (including Massachusetts, where a small number ended up in the shipyards, building the ships that would carry other slaves), but the great majority went to the French and British Caribbean, especially to Barbados, where they produced not only sugar, but also the molasses (and coffee and indigo, among a few other staples) that would be transformed into rum to be exchanged for other captives that would then be carried on North American ships to the Americas.<sup>14</sup>

The strength of the North American shipbuilding industry acquired new meaning after US independence, with the development of new ship designs in the context of wars against the old metropolis (especially the war of 1812), ultimately leading to the construction of the fastest ships in the world. Its efficiency reflected, for example, on US dominance in whaling industry and the widespread presence of US-built ships in the transatlantic slave trade. Merchants involved in the traffic to Cuba and Brazil purchased many US ships (eventually also using the US flag to circumvent British authorities). By the mid-nineteenth century US-built ships carried around 60 percent of all captives illegally disembarked in Brazil (MARQUES, 2016).

## The nature of money

Similarly to the histories of New England, endogenous explanations have also been extremely influential in the Brazilian historiography of the last half century. In both cases, the focus on local, regional, and national developments were combined with the conclusions established by new economic historians, who separated the development of Europe from the history of colonialism. A great number of works that had explored the connections between capitalism, empire, and slavery came to be seen as outmoded, allowing historians to focus on their national and regional histories on both sides of the Atlantic. In Brazil, these conclusions were embraced by scholars eager to disconnect the history of colonial Brazil from the history of capitalism. The problem, as Patrick O'Brien (2005) would later recognize, was that the bricks of research in local and national archives did not automatically lead to the construction of a solid explanatory structure, something that became clear after the contributions of experts on Asian history such as Dennis Flynn, Kenneth Pomeranz, and Bin Wong, among others, all of them central figures in the global turn of recent decades.<sup>15</sup>

The scholarship on internal markets in Portuguese America is vast and extremely rich, as a quick glance at the prize-winning collection *História de Minas Gerais* shows.

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<sup>14</sup> All estimates come from [www.slavevoyages.org](http://www.slavevoyages.org), unless otherwise noted.

<sup>15</sup> For a brief overview of this debate, see *Unidades de análise, jogos de escalas e a historiografia da escravidão no capitalismo* (MARQUES, 2020).



Its section on economy exemplifies the wealth of historiographical developments from the 1970s to the present; the structures of everyday life and the linkages produced by mining in the region are explored in detail. References to the global processes of which these regional developments were part, however, are very few. João Antonio de Paula (2007, p. 298-299) offers a few paragraphs on the centrality of gold for the “so-called primitive accumulation of capital”, outlining some of its effects on the Portuguese economy. In the opening text, José Newton Coelho Meneses also makes a few remarks on this: “neither separated nor an exclusive reflection of the Metropolis, this economy is presented with its peculiarities and as part of the vast Portuguese world” (2007, p. 275).

Approaches such as a renewed imperial history and Atlantic history have also inspired a number of works in Brazil, but it is striking how they remained separated from a systemic perspective.<sup>16</sup> Historians reacted to the Anglocentrism of Atlantic history by developing the concept of South Atlantic and offering rich studies of its peculiarities and weight (after all, Portuguese America was the main destination of enslaved Africans in the early modern era). But the concept also became reified, being used only in a few occasional formal comparisons.<sup>17</sup> The possible entanglements between the North and the South Atlantic disappeared. It is easy to see how global history may become some form of imperial history under new guise (to go back and expand on Adelman’s point on global history as an Anglospheric invention). There is little room in the recent historiography on the Portuguese empire for articulations that transcended the formal limits of the empire itself. Despite the many perspectives connecting Portuguese America to Portugal, Angola, Goa, among other Portuguese overseas possessions, the main question remains: what was the broader world of which the Portuguese empire was part?<sup>18</sup>

One possible strategy to reintegrate this history into these wider processes is to track the commodity chain of gold. Searches for the yellow metal were at the basis of European overseas expansion in the late Middle Ages, with African gold playing a central role in this process as the classic works of Fernand Braudel and Vitorino Magalhães Godinho showed (BRAUDEL, 1953; GODINHO, 1963). The conquest of America increased the volume of gold circulating in the world, but it was actually silver that shaped the first two centuries of colonial history in the New World. Some gold continued to come out of Africa and increasingly from New Granada, but the scale of its circulation was effectively transformed only with the gold discoveries of Minas Gerais by the late seventeenth century. By the mid-eighteenth century the value of gold extracted from the Americas came close to that of silver, followed by the boom in Mexican silver that came with the Bourbon reforms (TEPASKE, 2010, p. 16).

What were the uses of these precious metals? O’Brien offers a good description of their main function in the early modern era:

as universally acceptable forms of purchasing power, and as durable reserve assets of intrinsic and (supposedly) stable

<sup>16</sup> For an overview of this reception, see Marquese (2013).

<sup>17</sup> An important exception here is the book *O trato dos viventes: formação do Brasil no Atlântico Sul, séculos XVI e XVII* (ALENCASTRO, 2000).

<sup>18</sup> For broader takes on the Portuguese empire, see Novais (1979) and Adelman (2006, p. 13-55).

value — backing and promoting the gradual evolution of diverse forms of paper credit — precious metals had long been highly significant for the functioning of states, for the development of national economies, and for internal and international commerce (O'BRIEN, 2005).

The history of money is therefore the history of the creation of a world market, the development of European fiscal-military states, and the institution of specific economic environments, marked by a number of financial innovations. This history, however, has been frequently told within certain methodological limits. While a number of debates around larger questions marked the first half of the twentieth century, such as those raised by Earl J. Hamilton's classic work on the role of New World metals in the European price revolution, the second half of the century witnessed the growing dominance of endogenous explanations of European development. The recent global history debates challenged much of this methodological nationalism by putting the history of money at the center of the debate and giving a renewed attention to the role of silver in Asian trade, in this way connecting the history of places like Potosí and Zacatecas to the creation of global trade circuits.<sup>19</sup>

This shift in the terms of the debate, however, came at a certain cost, especially with the abandonment of efforts to conceptualize capitalism as a historical system and integrate these different dimensions of its history (the creation of a world market, financial revolutions, the expansion of states, and the interrelated exploitation of labor and appropriation of nature on global scale). The history of money allows us to reconnect these different aspects, including its colonial dimensions, with an interpretation capable of integrating the multiple times of capitalism. This plurality of times includes the abstract temporality of capital, which is largely based on the history of money: "it is however precisely this finished form of the world of commodities — the money form — which conceals the social character of private labour and the social relations between the individual workers, by making those relations appear as relations between material objects, instead of revealing them plainly" (MARX, 1990, p. 168-9). Thus, the history of money is strategic for understanding the system as a whole, but for this it is necessary to unroll the many threads of this process, looking, for example, at how the emergence of London as the financial capital of the world was connected to the labor of enslaved Africans who were forced to dive into the cold waters of Minas Gerais to gather the gold that would eventually end up in British banks. The history of money will remain incomplete if it does not fully incorporate the processes of material production that made these changes possible, among which was mining in the Americas.<sup>20</sup>

What were the effects of the production of money in eighteenth century Brazil? Some of them are well known: frontier violence and enslavement (especially in the early moments of expansion) of native peoples, inflows of thousands of enslaved

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<sup>19</sup> For a brief overview of the debate, see Marques (2020, p. 91-93).

<sup>20</sup> It is striking how books on the history of money, such as the one by Christine Desan, tend to ignore the colonial dimensions of the production of coins. The colonies here appear only in the discussion on the circulation of coins in colonial North America (DESAN, 2014). More recently, the stimulating book by David McNally, which sought to emphasize the violent aspects of the history of money, and including the laudable effort to incorporate slavery into the history of capitalism, remains centered on the Anglophone world (MCNALLY, 2020).

Africans, and the devastation of the Atlantic forest. Hal Langfur and Maria Leônia Chaves de Resende estimate that 86 violent conflicts involving Portuguese settlers and native groups such as the Botocudo and the Puri took place between 1760 and 1808 (LANGFUR, 2014, p. 139). At the same time, the flows of enslaved Africans into the colonial space reached unprecedented levels, going from 460,000 people in the second half of the seventeenth century to almost 900,000 in the following half century. A large number of these slaves were carried to the mining zones or to the associated sectors that formed the economic space of gold. As we have seen with New England timber, the gold also stimulated a number of other activities such as cattle raising and foodstuff production, which in turn increased the demand for enslaved laborers in the more connected internal markets of the eighteenth-century colonial space (CARRARA, 2007; MATHIAS, 2012; OLIVEIRA, 2011). These commodity frontiers had large environmental costs in the Brazilian interior. According to Warren Dean estimates, gold extraction in eighteenth century Brazil led to the devastation of 4,000 km<sup>2</sup> of the Atlantic Forest (DEAN, 2013).

At the other end of this chain were the global uses of gold, also producing multiple effects on different parts of the world. Quantification of the global flows of gold is complicated because gold — circulating in the form of coins, bars, and dust — is almost synonymous with contraband so that much of this discussion is based on very shaky evidence. Historians Leonor Freire Costa, Maria Manuela Rocha, and Rita Martins de Sousa have offered what may be the only global estimates of the Brazilian gold flows (COSTA; ROCHA; SOUSA, 2013, p. 51). According to them, Europe received only 72 percent (618,1 tons) of the total volume of gold extracted from Brazil (estimated at 856,5 tons by Noya Pinto). 44 percent of this volume (272 tons) remained in Europe, the rest flowing into other continents, especially Asia. Still according to Costa, Rocha, and Sousa, this means that 240,4 tons of gold did not reach Europe. Their work focuses on the flows to Europe, but there were flows of gold directly from Brazil to the rest of the Americas, Asia, and Africa. Much of this gold remained within the colony, allowing — along with long chains of indebtedness — for the emergence of growing internal markets that supplied the mining zones. A small part of it also went to the neighboring Spanish American territories but there have not been any attempts at quantification for this so far. Equally unknown is the amount of gold that went directly from Brazil to Asia. In the case of Africa, in a co-authored article with Gustavo Acioli Lopes, we have suggested that almost 47 tons of gold were carried to the Bight of Benin and the Gold Coast during the first half of the eighteenth century (MARQUES; LOPES, 2019). Thus, the amount of gold that stayed in Brazil was probably around 193,4 tons (leaving aside the flows into Spanish America and Asia).

While silver was the main force behind European participation in the Asian trade, the fragmented economies of the Indian sub-continent did have some demand for gold (PARTHASARATHI, 2011). The Portuguese government sent remittances of both silver and gold to finance its political presence in India while individual merchants sent bullion as part of exchanges in the *Carreira da Índia*, the trade route that connected Lisbon to Goa. The Brazilian gold boom intensified this route and there are a few indications that some gold was smuggled directly from Salvador to India through the Cape of Good Hope (LAPA, 2000, p. 269; RUSSEL-WOOD, 2014, p. 221). Brazilian gold also intensified the Asian trade conducted through the Levant, with ships from northwest Europe stopping at Lisbon on their way to the Mediterranean. One of the key goods exchanged by the bullion carried by Europeans were Indian textiles, which became

a critical component of the transatlantic slave trade.<sup>21</sup> Combined with cheap tropical goods such as sugar and tobacco, this Asian trade also contributed to the expansion of consumption and new patterns of labor in Western Europe (LEMIRE, 2018).

In Africa, Brazilian gold allowed for Luso-Brazilian slave traders, mostly coming from Bahia and Pernambuco, to consolidate their participation in the slave trade at Costa da Mina, from where they had been expelled by the Dutch in the mid-seventeenth century. Bahian and Pernambucan tobacco were important to open those doors already by the late seventeenth century, but Brazilian gold provided a fundamental dynamism that ensured the success of that trade. British, Dutch, French, and even Danish slave traders sought merchants coming from Brazil in the hope of exchanging slaves for gold. African authorities at Costa da Mina in turn tried to establish direct connections to the Luso-Brazilians to access the yellow metal, which was used to pay for armies in local conflicts. The Gold Coast became an importer instead of an exporter of gold (and an exporter instead of an importer of slaves). The ascension of Dahomey on the Slave Coast and of the Ashanti on the Gold Coast were strongly connected to the flows of Brazilian gold into the continent. Terms like “gold slaves” and “Portuguese slaves” became widespread to describe those considered to be the best slaves, who were selected for merchants coming from Brazil (MARQUES; LOPES, 2019).

Most of the gold extracted from Brazil, however, went to Europe through the traditional Brazil-Portugal route. The effects on the Portuguese economy have been the object of some debate, which should continue to be explored. A significant part of that gold, however, perhaps most of it, went to Great Britain as a result of trade relations and political and diplomatic arrangements that marked the relationship between the two empires by the early eighteenth century. Estimates of the total volume of gold arriving in England varies from one to two thirds of the total volume that went to Europe. As Braudel notes, this English drain of gold was largely a product of political intervention since the fixing of the guinea gold coin at 22 shillings of silver (followed by 21 shillings and 6 pence in 1699 and 21 shillings in 1717) by the government kept the value of gold in England high while silver coins could make their way into Asia. These large inflows of gold helped create a healthy financial environment and a growing intensification of market exchanges in England without great price oscillations and with long term consequences for the Great Divergence of the nineteenth century (BRAUDEL, 1984, p. 361; DESAN, 2014, p. 381-386; MARQUES; MARQUESE, 2020, p. 112).

## AN IMMENSE COLLECTION OF COMMODITIES

Slavery in Portuguese America directly contributed to the construction of the slave Caribbean with the transmission of knowledge, technologies, and capital carried by the Dutch in the mid-seventeenth century, as shown by the pioneering work of Alice

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<sup>21</sup> The Venice mint significantly increased its production of gold coins and Rene Barendse has suggested that “the sequin made from Brazilian gold turned in the eighteenth century to the most common coin for the long-distance trade of the Arabian seas” (BARENDSE, 2009, p. 938, 961). On silver and gold, Barendse offers an interesting example of a voyage from Lisbon to Goa in which the merchant was instructed to carry silver and a few other goods to be exchanged for Indian textiles to be used in the slave trade from Angola. After Goa, the merchant was supposed to go to Salvador and exchange those textiles for gold before travelling back to Lisbon.



Canabrava (2005). In the following century the labor of enslaved Africans in the cold waters of Minas Gerais, Goiás, and Mato Grosso gave a new contribution, this time by giving England the monetary stocks that allowed for the development of a true financial revolution. The new financial instruments were at the basis of the expansion of new investments in productive enterprises, meaning not only the production of manufactures in Great Britain, but also the slave plantations of Barbados and Jamaica (INIKORI, 2002; PRICE, 1991). Stocks of gold also allowed for larger flows of silver towards Asia, where it was exchanged for Indian cotton textiles, which in turn were at the center of the transatlantic slave trade that supplied captives for the Caribbean plantations. In other words, Brazilian gold was fundamental not only for the development of the South Atlantic in the eighteenth century, but also for the expansion of the North Atlantic, which had the slave Caribbean as one of its most dynamic and crucial poles.

In the wheels of commerce of the eighteenth century, Brazilian gold also became connected to North American ships. As the slave Caribbean expanded, so did New England, home of most shipyards during the colonial era. It seems likely that some of those ships even entered into the South Atlantic slave trade. In the early eighteenth century, as a great deal of gold flowed into Portugal, British observers noted how New England merchants built their ships and carried a great volume of timber to be sold in Portugal, occasionally selling the ships themselves (which were probably exchanged for the Brazilian and Portuguese gold coins that increasingly circulated in British America) (PINKERTON, 1812, p. 357).<sup>22</sup> Part of the North American ships were also incorporated by the British merchant fleet, which carried much of the gold between Portugal and Britain (EBERT, 2011). The key point here, however, is that the main factor behind the growth of New England, as more than one scholar has noted, were the “invisibles,” the provision of services — namely shipping — that the New England merchant community came to dominate in intra-colonial and inter-colonial trade (since they were not restricted to the British Caribbean), a world that depended on slavery and the slave trade to exist (BAILEY, 1990; RICHARDSON, 1991). North American vessels became increasingly important for the shipping of goods (including living commodities) between Africa, the Caribbean, the Iberian Peninsula, and North America. The growth of New England in turn, with a strong consuming market of British manufactured products, played a central role in the development of England and the Industrial Revolution.<sup>23</sup>

Wealth in historical capitalism presents itself as an “immense collection of commodities,” with their double nature. The monetization of Europe allowed for the lubrication of exchanges and the commodification of everything, including human beings and the rest of nature, with value coming to dominate the world of production and consumption. The generalization of money was one of the central components of this process. “One of the main features of what is schematically referred to as the ‘transition from feudalism to capitalism,’” Pierre Vilar argues, “is the transition from a system of social relations where monetary arrangements are secondary and subordinate, to one in which money (in the broadest sense) plays a major role” (1976, p. 25). In historical terms, this process took the more specific form of a system based on the relationship between precious metals and financial innovations that allowed

<sup>22</sup> About gold coins in British America, see Solomon (1976, p. 36-37).

<sup>23</sup> Although underestimating the weight of Caribbean economies, see Harley (2015).

for the making of an unified space for the multiplication of money, or the making and accumulation of capitalist money. “Enterprises, wage labour and market exchange existed to some small degree, at least, in many previous economic systems,” Geoffrey Ingham contends, but “their expansion into the dominant mode of production was made possible by the entirely novel institution of a money-producing banking system” (INGHAM, 2008, p. 87-88). At the other end of this process were the enslaved Africans working in the rivers of Minas Gerais and New Granada, indigenous people in the Peruvian and Mexican mines, peasants, servants, and slaves in the shipyards and forests of New England, in all cases producing significant environmental impacts. Each commodity that was consumed was made possible by the wide articulation of different worlds, which allowed for circulation itself with the production of coins as well as ships to carry those same coins. In this sense, the world of commodities depended and continues to depend on the organic relationship between the appropriation of nature and the exploitation of human labor, a relationship that is mediated by value, which shapes the contemporary world, including its structures of knowledge. Fortunately, a long tradition contesting those same structures in and out of academia offer us a glimpse of hope in the context of environmental collapse.

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