

# Rule of nature or rule of capital? Physiocracy, ecological economics, and ideology

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## Abstract

This century has not been kind to mainstream economics. It has failed to notice the planet is burning. An anti-ecological discipline, it pays scant attention to natural limits. If its moments of 'peak prometheanism' were achieved in the 1980s, in this essay I ask how far back does the rot go? Some ecological economists locate the wrong turn in the nineteenth century. Before that was physiocracy – the name means 'rule of nature.' The physiocrats were the first to call themselves 'economists' and are often credited as founders of the discipline. They were the first to formalise political economy as an objective science tasked to anatomise general economic laws. Could the physiocrats represent the foundation of a genuinely 'ecological' tradition of economics? In the bulk of the essay I subject physiocracy to critical analysis, with a focus on its relationship to agrarian capitalism and laissez-faire economics, and with attention, in addition, to social class, colonialism, environmentalism, and the growth paradigm. I ask whether physiocracy was science masquerading as mysticism or the reverse. The essay concludes with reflections on the ideological character of the discipline of economics and the limits of 'image-focused' alternatives such as Kate Raworth's 'doughnut economics.'

## Introduction: A tale of two doughnuts

This century has not been kind to economics. In 2008, its foremost practitioners failed to predict the crash. Famously, in deferential Britain, economists sent a letter of apology to Queen Elizabeth II. And now it is coming under fire for its failure to notice the world is burning. Economists, in their neglect of climate breakdown, "are failing the world, including their own grandchildren and great-grandchildren," blaze Andrew Oswald and Nicholas Stern (2019) in the newsletter of the Royal Economic Society. "Humans of the future" are likely to "judge our profession harshly." They evidence their disciplinary auto-critique with surveys of journal content. *The Quarterly Journal of Economics*, for example, has been edited from Harvard since the late 1800s and is the top-ranked journal in the field (according to the 2019 Web of Science impact-factor ranking). On climate change the number of articles it has published is – don't hold your breath – precisely zero. In indignation, Oswald and Stern seek to rally their colleagues: economics "must be at the heart of" discussion of climate change. In my view, their diagnosis of the ecological illiteracy of economics is essentially correct but a different conclusion should be drawn.

As a way into the subject, let us ask: has mainstream economic theory *ever* been ecologically minded? Clearly, in the neoclassical system, material constraints are brushed aside. It obscures from view the dependence of economic action on energy and natural resources, treating them as free gifts. In the judgment of ecological economist Paul Christensen (1992,

p.76), it “lacks any representation of the materials, energy sources, physical structures, and time-dependent processes that are basic to an ecological approach.” Joan Martinez-Alier (1997) agrees. It discards completely “the biophysical framework within which the human economy [is] necessarily inscribed.” Arguably, peak Prometheanism was reached in 1981 when the Chicago School economist Julian Simon (1981) declared that “no meaningful physical limit” exists to the world economy’s propensity “to keep growing forever.” Or perhaps it arrived a little later, in 1987, when the so-called Nobel Prize for Economics was awarded to Robert Solow “for his theory of economic growth based on the dispensability of nature,” as Jay Griffiths (2000, p. 192) sardonically described it.

Solow’s notoriety among ecological economists stems from his paper on ‘The Economics of Resources’ (1974). He begins with a supercilious kvetch: he had been “suckered” into reading *The Limits To Growth*. The essay then proceeds to knock down ‘limits’ arguments. Given that the exhaustion of this or that resource leads us to switch to others, there is in principle “no problem. The world can, in effect, get along without natural resources.” The latter phrase is an ‘if...then’ conjecture, but it’s of a piece with Solow’s general approach: on natural resource availability (not a major problem), the substitutability of resources (invariably sufficient), economic production (a function only of capital and labour), and broader ecological problems (sit back and be optimistic), not to mention North-South inequality (convergence is inevitable).

Solow was, however, a ‘new Keynesian,’ aware that the market as imagined in economics classes can never exist in reality and that the inevitable imperfections necessitate state intervention. In *The Economics of Resources* (1974, p. 177) he puts it like this: “Many discussions of economic policy boil down to a tension between market allocation and public intervention. Marketeers keep thinking about the doughnut of allocative efficiency ... and *dirigistes* are impressed with the size of the hole containing externalities, imperfections, and distributional issues.” When applied to non-renewable resources, the doughnut is the wonders that can be accomplished by markets (“including futures markets”), while the hole is “our actual oligopolistic, politically involved, pollution-producing industry” – which is hardly “what the textbook ordered.”

In the work of Simon and Solow we see clearly the elision of nature in economic theory – and they are representative of mainstream economics in general. But how far back does the rot go? To approach an answer, one could do worse than bite into another doughnut, Kate Raworth’s *Doughnut Economics*. Raworth (2017) is dismissive of mainstream economics, not least for its neglect of the economy’s embeddedness in the biosphere. She draws a new image of the economy, one that is embedded “within society and within nature, and powered by the sun.” To “the early economists,” she goes on, “Earth’s importance for the economy was self-evident. ... In the eighteenth century, François Quesnay and his fellow physiocrats took their name from their belief that agrarian land was the key to understanding economic value. Yes, these early economists based their ecological thinking narrowly on agricultural land alone, but at least the living world got a mention. From there, however, things began to go awry.” The physiocrats’ successors, Smith and Ricardo, recognised land, alongside labour and capital, as factors of production, but they prepared the way for further degeneration (Dale, 2012). By the late twentieth century mainstream economics included only labour and capital as factors,

“and if ever land did get a mention, it was as just another form of capital.” As a result, Raworth concludes, “mainstream economics is still taught today with scant attention paid to the living planet that supports us and the blazing star whose energy we depend upon. It relegates ecological stresses such as climate change ... to the periphery of economic thought, until they become so severe that their damaging economic impacts demand attention.”

Were the physiocrats the ancestors of today’s ecological economists? Christensen (1992), answering the question “where economics went wrong,” draws the line in the mid-nineteenth century. The classicals – Petty, Cantillon and the physiocrats, Smith and Malthus – adopted a “physical approach to production” and recognised that economies run on matter and energy, but this recognition was obliterated by the neoclassical revolution. Kenneth Stokes (1992) describes ecological economics as neo-physiocratic, and Cutler Cleveland (1999) and Ole Bjerg (2016) follow suit, pointing to the physiocrats’ “steadfast belief that Nature was the source of wealth” and their “emphasis on the real dimension of the eco.” Peter Bartelmus (2012) sees Quesnay as the first ecological economist, while for Steve Keen (2016), “the Physiocrats were the only School of economics to properly consider the role of energy in production. They ascribed it solely to agriculture exploiting the free energy of the Sun, and specifically to land, which absorbed this free energy and stored it in agricultural products.” Alf Hornborg (2013, p. 52) draws a line connecting the physiocrats to ecological economist Nicholas Georgescu-Roegen (for, in energy terms, he viewed industry as “completely tributary” to agriculture and mining) and another line that divides modern mainstream economics, on one hand, and Marxist and ecological economics on the other. The latter currents retain “the concern of Physiocracy and classical economics with the physical, material aspects of economic activity” (Hornborg, 2014, p. 86).

Physiocratic thought was influential not only in France but overseas too. Richard Grove has documented the labours of physiocratic reformers in Mauritius, notably Pierre Poivre. They marshalled climatic arguments against deforestation and persuaded the colonial authorities of their importance. They turned the island into a site for innovative experiments in “systematic forest conservation, water-pollution control and fisheries protection” (Grove, 1995, p. 9). One physiocrat-authored ordinance in 1769, for example (Grove, 1995, p. 220), “attempted to redress the complex impact of destructive artificially induced environmental change, including processes, such as soil erosion, which were little known in Europe but highly characteristic of denuded tropical lands.” Grove (1995, p. 223) goes so far as to propose that “environmentalism was, to a great extent, born out of a marriage between Physiocracy and the mid-eighteenth-century French obsession with the island as the speculative and Utopian location for the atavistic ‘discovery’ of idyllic societies or the construction of new European societies.”

What did the physiocrats themselves say? Keen (2016) quotes the proto-physiocrat Richard Cantillon who in 1730 stated that “The Land is the Source or Matter from whence all Wealth is produced.” Turgot spoke of the land as offering “a pure gift to him who cultivates it,” of “profits [which] always come from the earth,” and of the “revenue of the soil, a gift of nature” (Turgot, 2011, pp. 30, 65; and in Gudeman and Rivera, 1990, p. 32). For Mirabeau (in Gudeman, 1980, p. 247), “the land is the mother of all goods,” and, with Quesnay, he wrote of “the

spontaneous gifts of nature.” In nature, Quesnay remarked (1962, p. 204), “everything is intertwined, everything runs through circular courses which are interlaced with one another.”

In their holism and in their reverence for nature as all-generative and regenerative, anthropologist Stephen Gudeman supposes (1980, p. 247), the physiocrats may seem more closely aligned with “exotic tribal groups such as the Bemba or the Bisa” than with our world today. However, he adds, there was another side. They “also maintained that nature is the *source of a surplus*, ... as not only returning costs but yielding something more.” In this essay I suggest that this second facet, nature as the wellspring of profit and rent, was the physiocrats’ *only* concern. Their identification of land as the source of value was the cornerstone of their manifesto for agrarian capitalism – a system geared to the accumulation of capital by farmers and landowners. I submit that the physiocrats are more properly seen as the *font* of the tradition that issues in Simon and Solow, and not its prelapsarian antithesis. Economics didn’t simply ‘go wrong’ in the 1870s (although it did that too); it had been ‘wrong’ all along.

### **Providential positivism: economics as science as ideology**

Economic theory is normally thought of as a discipline geared to the (more or less accurate) description of economic processes and to the scientific elaboration of concepts, models and modes of reasoning that facilitate our understanding of economic behaviour. It also, however, contains ontological, epistemological and metaphysical claims. These concern what ‘the economy’ *is*, its ‘construction,’ its claims to scientific status and its position within a broader field of social (including symbolic) relations. They pertain to what economics ‘does,’ its effects on the world, and what interests it serves and how it serves them – in short, its performative and ideological functions. The physiocrats were the first to be labelled economists and are commonly credited as the founders of the discipline. Certainly they were the first to formalise political economy as an objective science, tasked to anatomise general economic laws (Røge, 2013). They originated the concept of the ‘national economy,’ which they theorised as a system, comprehensible because subject to laws (Fourcade, 2009). It was their great merit, as Marx puts it in *Theories of Surplus Value* (1861-63), to have conceived of the system of production as a “physiological” form of society, “arising from the natural necessity of production itself” and “independent of anyone’s will or of politics, etc.” They aspired to map out “the whole production process of capital as a process of reproduction” – indeed, according to Rosa Luxemburg (2003, p. 3), they were the last to attempt this before Marx himself. They, moreover, developed the concepts of capital and profit, and Quesnay’s *Tableau Economique* has been hailed as a forerunner of “modern numerical techniques, capital theory and general equilibrium theory” (Gudeman, 1980). On all these achievements a voluminous literature exists. I wish instead to look at the ideological assumptions that are stated explicitly in, or smuggled into, their works. Was physiocracy “science masquerading as mysticism,” as Peter Gay suggests (1996, p. 349)? Or the reverse?

The physiocrats’ most obviously mystical commitments were spiritual and religious. They were restoring ‘oeconomia’ from a submerged ‘oikonomia,’ to use Giorgio Agamben’s terms (2011, pp. xi, 277; see also Holmes, 2018, p. 47). *Oikonomia* identifies God’s revelation in the ordering of the material world and human populations. *Oeconomia* refers to the management of people and things – in accordance, of course, with divine disposition. Apropos physiocracy,

Agamben (2011, p. 278) remarks on “the curious circumstance that the modern science of economics and government has been constituted on the basis of a paradigm that had been developed within the horizon of the theological *oikonomia*.” Or as Istvan Hont has put it (2005, p. 104), the basis of Quesnay’s economics, in his faith that God’s purposes on earth could be discerned in the laws of nature, was “an elaborate theodicy.” Theology played midwife at the birth of scientific economics.

As deistic materialists, the physiocrats conceived of the cosmos as a “great machine” in “perpetual movement,” in Mirabeau’s words (in McNally, 1988, pp. 122-3), one that God had set in motion but which is then “animated and directed by its own springs” without the need for outside direction. Quesnay (1962, p. 53) divides natural law into physical and moral categories, each of which is decreed by the Supreme Being. Physical law refers to “the regular course of all physical events in the natural order,” moral law to social behaviour insofar as it conforms to the physical laws. These laws, “instituted by the Supreme Being,” are “self-evidently the most advantageous to the human race.” The economy, likewise, is understood as an intricately constructed machine—“la machine économique” in Mirabeau’s phrase (in McNally, 1988, p. 111). It, and other social subsystems such as the state, function properly only if they adhere to the “supreme laws” (McNally, 1988, p. 122).

In its method and metaphysics we can call this ‘providential positivism,’ for it holds the study of social order to be a science in the manner of astronomy or mechanics, with a comparable inherent orderliness. As Louis Dumont once observed (1977, p. 41), Quesnay’s holistic and equilibrium-oriented conception of political economy resulted “from the projection on the economic plane of the general conception of the universe as an ordered whole.”

It may sound paradoxical, but the physiocrats viewed the existing order in France as artificial, such that their task was to urge its reconstruction along natural lines. Searching for “the natural laws which form the basis of the best government possible” (Quesnay, 1962, p. 53), they found them in monarchy, enlightened despotism, a centralised state, colonialism, class domination, private property, and the market economy—institutions that, coincidentally or not, all existed in late eighteenth-century France and were compatible with, and in most cases essential to, the expansion of capitalism on the British model that the physiocrats happened to favour. In essence, they urged the state to undertake a passive revolution, one that would abolish feudal privileges and establish the framework for “an English-style transformation of agrarian economy” (McNally, 1988, p. 89). To have openly advocated the anglicisation of French political economy would have raised eyebrows, against the backdrop of Britain’s defeat of France in the world war of 1756-63. Divinely ordained natural law offered a suitably non-treacherous euphemism.

### **Cultivating social hierarchy**

In what did the physiocrats’ bourgeois horizon consist? Above all, their concepts of property, class, and wealth. Natural law decrees that those who have property can lawfully dispose over it. Property ownership, in Quesnay’s deafening words (1962, p. 232), should be guaranteed to its lawful possessors, “for SECURITY OF OWNERSHIP IS THE ESSENTIAL FOUNDATION OF THE ECONOMIC ORDER.” Property, for the physiocrats, is the single inviolable right. Its assured possession, uninhibited by customary claims, is the bedrock of the

prosperity and endeavour of all social classes (Saisselin, 1992, p. 76).<sup>1</sup> It is what connects private interests together within an overarching order, enabling individuals to interact economically in a way that marries their own interest to the needs of public virtue and happiness. Their notion of class, Rémy Saisselin (1992, p. 72) points out, superseded feudal and Christian traditions, not to mention myths of the nobility's superior race. That is, it abstracts from "rank, privileges, precedence, prestige, and tradition," emphasising instead productive property and the economic actor's role within the purportedly natural order. Their model contrasted with the focus on the economy as the extension of the royal household, that one finds in the traditional monarchical states of Europe (and beyond).<sup>2</sup> Instead they construe the economic space as that of the nation, with free individuals engaging in material activity, overseen by the state.

On wealth, likewise, the physiocrats' conception is impeccably agrarian-bourgeois. They helped to shift definitions of wealth away from the extent of land held (the feudal yardstick) and away from commodities and bullion (the mercantilist focus) and toward land *insofar as it is productive*. The true wealth of the nation is not the stock of land or accumulated goods but the flow of *revenues*; its source is not foreign trade but *production*, above all the consumable produce of agriculture, forestry and mining (Quesnay, 1972; see also Huberman, 1937; Rubin, 1979). The power of the state, as Quesnay put it (1972), is based not on the possession of land but on its flourishing, for on this depends "the permanent well-being of the tax-paying section of a nation."

None of this has anything in common with Gudeman's 'Bemba and Bisa.' Quesnay (1962, p. 257) made this crisply clear in his description of "the savages of Louisiana." Although they enjoyed "many goods, such as water, wood, game, and the fruits of the earth," these "did *not* constitute wealth because they had no market value." Only after they had begun to trade with European settlers did some of their goods "acquire market value and become wealth." The products of land, he wrote elsewhere (*pace* Cutler Cleveland), "do not by any means constitute wealth in themselves. They constitute wealth only in so far as they are necessary to man *and in so far as they are exchangeable*" (Quesnay, 1962, p. 83, emphasis added). The land, in short, may be the ultimate source of wealth, but it is agriculture that causes wealth to increase. And not agriculture in the abstract, but particular agents. It is "the wealth of the farmers which renders the land fertile; the cultivation of the land entails considerable expenses, and the more these expenses are increased, the more fruitful the land is, and the greater are the gains for the country workers, the profits for the farmers and the revenue for the proprietors" (Quesnay, 1962, p. 106).

This last comment makes it seem that although the agent of increase is agrarian capital, the resulting revenues will be distributed among the various classes. But that is not the point at all. The physiocrats' case unmistakably promoted class polarisation in the interests of 'primitive accumulation.' It may be an exaggeration to say that they openly advocated this. Cantillon, for example (in Grove, 1995, p. 191), harboured misgivings over inequality, famously likening the very rich to "pikes in a pond" who devour their smaller neighbours.

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<sup>1</sup> The physiocrats found inspiration in John Locke's views on liberty and on private property, and in Calvinist perspectives on the link between the saving of money and the saving of souls. I am grateful to the peer reviewers for this and several other observations.

<sup>2</sup> For example, Mauryan India, discussed in Dale (2017b).

That said, the *Tableau* and most other physiocratic texts are paeans to wealthy capitalist farmers. Only the farmer, and *not* his hirelings “produces more than the wages of his labor,” indeed he “is the unique source of all wealth” (Turgot, 2011, p.9). Turgot made abundantly clear that the physiocratic goal of surplus-producing agriculture presupposed ‘primitive accumulation,’ the diremption of the peasantry from the land and their transformation into “wage-labourers” (Turgot, in McNally, 1988, p. 142). For Quesnay, likewise (1962, pp. 205, 212), the “most honourable, praiseworthy, and important” citizens of the realm are the aristocrats and the landowners, followed by the “wealthy husbandmen [farmers] and wealthy merchants.” “The rich,” and the landowners who inject capital into agriculture, are the esteemed classes, for they maintain the land “in a cultivable state,” they “cause the soil” to produce, and they distribute the net product to the artisans and farm workers, providing them with jobs and subsistence, as well as taxes for the sovereign and tithes for the clergy (Quesnay, 1962; Turgot, 2011, p. 96). It is wealthy farmers and merchants who “stimulate agriculture, conduct its operations [and] safeguard the nation's revenue” (Quesnay, 1962 p. 247). It is their demands that the government should meet before all others, for they invest the capital that leavens the bread for all, as contrasted with “the small-scale cultivation carried on by poor métayers [sharecroppers]” (Quesnay, 1962 p. 234). The latter work largely to feed themselves, so the land should not be “entrusted” to them. It should go to the wealthy and their animals. Not peasants but “animals should plough and fertilize your fields” –and, as a bonus, they fertilise the fields with their dung, generating richer harvests (Quesnay, 1962 p. 260; 1976, p. 301). Cultivation by wealthy landowners reaps scale economies, and this justifies the expediting of enclosures and the replacement of people by cattle. Mirabeau for example (in McNally, 1988, p. 120) criticised those “barbarous” laws which impede “the proprietor from enclosing his field, his pastureland, his woods.” They “violate the laws of property.” Quesnay concurred (1962, pp. 213, 234-5). Proprietors should lease their lands “only to rich farmers,” and lands “should be brought together into large farms worked by rich husbandmen.” Poor peasants should be thrown off their plots, to become wage labourers. And competition among labourers should be encouraged, “in order to save as much expense as possible.”

In these respects the physiocrats’ goals were perfectly plain: to press government to remove obstructions to the flow of capital into agriculture and to put its weight behind wealthy ‘improving’ farmers (or agricultural “entrepreneurs”), the vanguard agents of the shift to capitalist agriculture on English lines (Meek, 1962a, p. 24). Less visible but no less ideological was the appearance of these same commitments in ‘scientific’ guise, as assumptions nested within physiocratic value theory and their models of economic reproduction. “In depicting the economy as a self-regulating mechanism,” David McNally argues (1988, pp. 111, 118), Quesnay “deemphasized the social and political assumptions of his model.” Crucially, he places the landed proprietors and their revenue at the centre of his zigzag in the *Tableau*, such that without their revenues the entire economy would collapse. As to value theory, what appears to some as a progressive recognition of our reliance on nature is more accurately seen as a rationalisation of the enrichment of big landowners and the exploitation of the workforce. The physiocrats’ *produit net* arises from a peculiarity of nature, “the earth’s bounty” (Quesnay, 1962, p. 115). Because nature yields more than the expenses of the landowning noble and capitalist farmer, their receipt of rent and profit, their entitlement to the bulk of the surplus, is fully justified. The thesis that the land produces value, which appears earthily materialist,

is a mystification that serves particular social ends: enclosures, capital accumulation, and aristocratic power.

### **And God said, *Laissez faire***

“The whole magic of well-ordered society,” as Mirabeau and Quesnay saw it, “is that each man works for others, while believing that he is working for himself” (Quesnay, 1962, p. 70). Agriculture, industry, commerce, prices, and so on, Guillaume Le Trosne insisted (in McNally, 1988, p. 123), “must not be objects of administration and should be left to the free interaction of particular interests.” Turgot (in McNally, 1988, p. 134) reasoned that “in all respects in which commerce may interest the State, unrestrained individual interest will always produce the public welfare more surely than the operations of the government.” The state, Quesnay and company are saying, provides the legal and institutional integument that allows the economic machine to reproduce itself, driven and regulated by the principle of individual self-interest. Evidently, physiocracy anticipated the idea of the ‘invisible hand.’ Yet on this question some uncertainty exists, due not least to Michel Foucault’s claim (2008, pp. 285-6) that physiocratic *laissez faire* represented the *antithesis* of Smith’s invisible hand. Smithian theory, he says, represented a liberal critique of the physiocrats’ despotism – their urge to vest all power over the nation’s business in an economically omniscient state, one that knows no external “limitation” or “counterbalance” and which “completely controls” economic life.

Now, it is well known that Smith raised criticisms of aspects of physiocratic thought, from a liberal-democratic position, and his confidence that individuals’ efforts will ‘naturally’ lead to prosperity and progress was greater than theirs (Rubin, 1979). But to present this as an opposition is misleading. It flies in the face of the physiocrats’ concern to stake out *liberal limits* to state intervention. Foucault (2008, p. 285) partially acknowledges this when presenting the physiocrats as having argued for the limitation of government power “by the evidence of economic analysis which it knows has to be respected.” But even if this took form as a call for governmental omniscience, ‘economic analysis,’ here, is at bottom a reference to the independent power of bourgeois property. They justified the separation of the political and economic spheres, and presented the laws of the market as natural laws anterior to social order. In Turgot’s vision (2011, p. 256), the “course of commerce is no less necessary and no less irresistible than the course of nature,” and government should surrender itself to both, and not seek to regulate. Quesnay campaigned tirelessly for free trade: for “no barriers at all [on] external trade in raw produce,” and for “FULL FREEDOM OF COMPETITION” as the policy that is “THE MOST CORRECT, AND THE MOST PROFITABLE FOR THE NATION AND THE STATE” (Nisbet, 1975; Quesnay, 1962, pp. 235-7). The most salient practical example of this was the physiocrats’ vocal and influential advocacy for the 1760s reforms, under Louis XV, which sought to completely and rapidly liberalise the grain trade. These reforms, historian Steven Kaplan describes (1976, p. xxvi and *passim*), marked an attempted shift from “intervention” to *laissez faire*. They required the government to break its “unwritten covenant with consumers” by declaring subsistence as no longer its paramount responsibility. Instead, subsistence was “for the individual to work out on his own.” Thus the reforms, being “an experiment in (a theoretically) free market economy,” were also a



milestone in the transformation of relations between state and society, between political power and economic power, and the public and private sectors.

If we step back and survey the broader historical context and its intellectual trends, the physiocrats and Smith appear alike as critics of mercantilism and progenitors of economic liberalism. The context was the rise of mercantile and then agrarian capitalism in Italy, the Netherlands, England, France and their colonies. It underlay, and was reinforced by, transformations in the sciences (Galileo and the Newtonian model of a physical order regulated by its own laws), philosophy (Descartes, utilitarianism), and intellectual culture (the Enlightenment). The increasing connectedness of economic activities through market transactions enabled 'the economy' to be conceived of as law-governed, analogously to natural processes and amenable to analysis with similar scientific methods (Meek, 1962b).

Out of these ingredients a vision began to be constructed of the market economy as an autonomous system, one that is by nature self-regulating, is best left to find its own equilibrium, and tends to harmonise individual and social interests. This proto-liberal vision was given shape by English, Dutch and French economic theorists such as Hugo Grotius, John Locke, Pierre le Pesant (alias Boisguilbert), Bernard Mandeville, and Cantillon. In contrast to traditional, theocratic and autocratic justifications of social order, they laid the foundations for a model of social order as arising unintentionally and automatically from the aggregate actions of myriad individuals seeking to improve their lives, processes that manifest in the forces of supply and demand, and with the tendency of some to gain at the expense of others being checked not by sovereign power but by market competition (Tieben, 2012). In France, the evolution of this idea ran through Boisguilbert and Cantillon.

The seminal concept of Boisguilbert was the 'natural' economic order: that economic order arises from the aggregate acts of individual self-interest (Heilbron, 1998). He portrayed the economy as akin to the physical systems studied by Descartes and Newton, a system in ceaseless motion (or circulation), with wealth unfolding in "a continual exchange of what one has in excess with another, taking in return that which the person one is dealing with has in plenty" (Faccarello, 1999). Just as physical processes regulate themselves to restore nature's balance when disturbed, in the economic sphere the market tends to equilibrium, distributing justice to all through the mechanism of proportional prices (Tieben, 2012). Thanks to the "spirit of all markets" as they manifest in the "desire for profit," an "equilibrium" or "balance" is created between supply and demand (Boisguilbert, in Boltanski and Thévenot, 2006). To achieve this, one must "laissez faire la nature" (Boisguilbert, in Christensen, 2003). Accordingly, the state's principal task is to construct a framework to enable the workings of natural law to play out, through the self-regulating market mechanism (McNally, 1988). Working by analogy with Newtonian physics, which modelled the cosmos as a harmonious mechanism operating through divinely established laws, Boisguilbert *et al.* deduced the socio-political complement. A harmonious society depends on the continuous reproduction of wealth, and government, in their model, should allow the natural laws of the economy to run their course without let or hindrance. Quesnay was later to develop this line of thinking, to infuse it with a Taoist philosophy of 'wu-wei' (achieving goals through non-action (Hobson, 2004)), and to coin the phrase 'laissez faire, laissez passer.'

Cantillon's framework built on Boisguilbert's (Benitez-Rochel and Robles, 2003). His writings, too, prefigure the invisible hand, with the economy presented as "as an interconnected whole made up of rationally functioning parts" that tends to equilibrium. The engine and guarantor of equilibrium is the "free play of self-interested entrepreneurs" (I'm borrowing Robert Ekelund and Robert Hébert's paraphrase: 2013, p. 79). It "keeps the system in adjustment by their conduct of 'all the exchange and circulation of the State.'" The adjustment process is driven by the self-interested pursuit of profit, a motive of such universal ubiquity that it takes the position in Cantillon's inquiry which "Newton's 'universal principle of attraction' (i.e., gravity) took in his" (Ekelund and Hébert 2013, p. 78). Ergo, economies function perfectly well without intervention in their internal mechanisms; indeed, government interference tends to breed perverse effects. Crucial actors in the equilibrating process are 'entrepreneurs' – a term which, in its modern usage, Cantillon coined. But in his economic hierarchy they occupy a middling rank, subordinate to the gentry, the landowners, on whom the entire population depends (Cantillon, 2001, p. 92). An arresting thesis of Cantillon (and altogether neglected, except by Michael Perelman) concerns the free play of market competition as the mechanism by which the social hierarchy is fixed into place. He was one of the first, perhaps the first, to recognise that a system of prices could produce and reproduce essentially the same social hierarchy as does a feudal system based on the direct command over labour. Market forces are not simply a mechanism of value circulation but a force of social control (Perelman, 1983, p. 71). In the *Essay on the Nature of Commerce*, for example, he spells out how the market-mediated polarisation of property generates harmonious hierarchy. From a condition of hypothetical equality, those petty proprietors who are relatively "lazy, prodigal, or sickly" will have no option but to sell their land to he who is "frugal and industrious." The latter "will continually add to his Estate by new purchases and will employ upon it the Labour of those who having no Land of their own are compelled to offer him their Labour in order to live."<sup>3</sup> In Cantillon we see the stirrings of a secular concept of liberal governmentality, in which political economy sets the frame for social order, with class division determined and justified by economic competition rather than divine decree.

### **The natural law of inexhaustible wealth**

The conception of 'the economy' as a distinct entity that comprises phenomena (prices, money, trade, etc) that move in orderly ways and are subject to the operation of laws is a fundamental element of the growth paradigm—the ideology of economic growth. By this I mean the idea that growth is good, imperative, essentially limitless, and the principal remedy for a litany of social problems. In physiocratic times, the growth paradigm was still embryonic. Growth was not assumed to be naturally rapid, continuous or infinite. To them, all wealth stemmed from a sector, agriculture, which was, as Turgot noted, subject to diminishing returns. For Quesnay (1759), too, growth was a fragile sprout. It could easily be thrown into reverse, for example by onerous taxation, the "personal vexations" of rural folk, or the excessive diversion of income to luxury expenditure.

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<sup>3</sup> Cantillon (2001, p. 6). Some political theorists suppose the market-driven harmonisation of private interests to be a trope unique to British political economy of the era, but one finds it in Cantillon too. E.g. Wood (2012, pp. 24-25, 168).

These caveats notwithstanding, Quesnay and friends made a seminal contribution to growth ideology, in several ways.<sup>4</sup> Their contribution to the 'market paradigm' and their agrarian-capitalist redefinition of wealth are discussed above. As has widely been noted they also originated the idea of production as a surplus producing activity (although this idea, in a vaguer form, had been adumbrated by William Petty (Pearson, 1957)). They posited wealth expansion as the defining measure of whether or not natural law, and thereby the Supreme Being's will, is being followed. The entire "moral and physical advantage" of a society, for Mirabeau (in Cleveland, 1999, p.126), is summed up in its capacity to increase the surplus product. For Quesnay, similarly (1962, p. 55, emphasis added), following natural law means observing whichever "sovereign laws would *abundantly increase the wealth* necessary for men's subsistence and for the maintenance of the tutelary authority." He equates socio-economic improvement with capital accumulation, and he comes close to identifying virtue with growth and profits. "The administration of a kingdom," he counsels (1962, p. 257), must aim to procure for the nation "the greatest possible abundance of products and the greatest possible market value." What economists can do is supply policymakers with "knowledge of the true sources of wealth, and of the means of increasing and perpetuating them"; this will spur virtuous circles, for "wealth attracts men; men and wealth make agriculture prosper, expand trade, give new life to industry, and increase and perpetuate wealth" (Quesnay, 1972, p. 22). Again and again he enjoins the state to take measures to expand the nation's revenue. And what measures should they be? Among others, to put "wealthy men" in charge of rural trade and "agricultural enterprises" (farms), "in order to enrich yourselves, to enrich the state, and to enable inexhaustible wealth to be generated" (Quesnay, 1962, pp. 88, 260). And of course, as discussed above, to deregulate the grain trade, allowing market forces to strengthen—including enclosures and proletarianisation (McNally, 1988). This will raise profits, investment, productivity, revenues, and so on in a virtuous circle. Above all, the physiocrats were the first to argue that wealth expansion depends on increasing valuable output and that this requires economic reorganisation on market lines. They were pioneering theorists of, and propagandists for, capital accumulation, and, as such, they were the fathers of "growth economics" (Brewer, 2010). Turgot in particular has a claim to be the first to posit capital accumulation as the primary source of growth and to see continual growth over indefinite time periods as a normal state of affairs. According to McNally, he went so far as to analyse capital accumulation as "the decisive process within all sectors of the economy," with its driving force seen as saving: "The spirit of economy in a nation continually tends to increase the sum of its capitals" (in McNally, 1988, p. 82).

A further fundamental element of the growth paradigm is the links it establishes between economic growth and historical progress, national prowess and global leadership (aka imperialism). The crucible in which it took shape was the transition from feudalism to capitalism, which was a global process involving conquest and interstate rivalry, colonialism and slavery, and commercial expansion. Here too, the physiocrats were early adopters of the creed. Quesnay liked to remind readers and policymakers that growth is conducive not only to welfare but to warfare too. The aim for each state, he writes (1962, p. 81), is to rapidly

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<sup>4</sup> We may note, tangentially, the etymological fit between physiocracy and the growth paradigm, in that *φύσις* originally derives from *φύω*: "to grow" (Schliephake, 2016).

“progress to a high degree of power and prosperity.” He criticises feudal attitudes to land, for they emphasise land ownership *per se*, forgetting “that the true foundation of the military strength of a kingdom is the nation’s prosperity itself” (Quesnay, 1976, pp. 94-5; 1962, p. 160). As McNally (1988) has pointed out, drawing on Trotsky’s theory of uneven and combined development, the physiocratic impulse to emulate Britain was motivated by geopolitical rivalry. Britain’s military machine had become “inexhaustible,” in Quesnay’s words (in McNally, 1988, p. 146), “by reason of its ever-renascent wealth” perpetually replenishing the Treasury. To compete, the French state must revolutionise the economy as a whole – and if no gradual path toward the English model could be discerned through empirical study, rationalism offered the physiocrats an alternative approach.

The agrarian-capitalist trajectory that England undertook in the seventeenth century was adopted in the eighteenth across northern France (Normandy, Picardy, Île-de-France (Engels, 1877)), but also in other French territories, including the plantation slave economies of Saint Domingue and the Iles du Vent (Pierre Pluchon, in Blackburn, 1997, p. 439). The physiocrats were ambivalent toward slavery – Quesnay and Mirabeau opposed it, others did not – and toward colonialism (Røge, 2013; Dobie, 2010). Quesnay favoured a liberal reform of the empire, with slaves bought, freed and settled in colonies where they would work the fields with “military-like organization.” Damien Tricoire (2017, p. 33) describes the strategy as “tutelary colonisation,” the aim being to ‘civilise the Negroes,’ above all through instructing them – still an underclass – on how to produce cane sugar. In Mauritius meanwhile, Poivre, who we encountered above, aspired to build the island into a “powerful colony” and a centre of spice cultivation (Grove, 1995). This should prompt us to briefly revisit physiocratic environmentalism. The unprecedented degree of environmental damage that Poivre *et al.* were addressing through environmental science and innovative reform was occasioned by the worldwide drive to enclosure, a process that was justified and applauded by the physiocratic programme. In a sense, Poivre’s stance was ‘we broke it, therefore we own the problem, and the solution.’ The title of Grove’s book, ‘Green Imperialism,’ captures this neatly.

A final element of the growth paradigm to which the physiocrats made a seminal contribution is the yoking of economic growth together with the Enlightenment schema of historical progress. The immediate spur to the development of the latter, Ronald Meek suggests (1976), was the European encounter with the ‘primitive’ peoples of the New World. From this, some began to spin a new narrative of the human story as a history of social progress. If ‘they’ are at the primitive stage, had ‘we’ once occupied it too? If so, how had ‘we’ got from there to here? In *The Origin of Fables* (in Meek, 1976, p. 27), Bernard de Fontenelle – who was, incidentally, Boisguilbert’s cousin – sketched the rudiments of a stadial progress theory. In the first ages of the world, human beings were mired in the same depths of ignorance and barbarism as “the Kaffirs, the Lapps, or the Iroquois today.” But just as the Greeks long ago evolved into rational beings, so too, given time and tutelage, will the Native Americans. With the original stage of humanity imagined as savage and contemptible, the conceptual space was created for a liberal-imperialist ‘stages’ model of progress to emerge, one that alloyed rhetorical universalism to the presumption of European command and control. Jesuit missionaries were innovators here, but Turgot, writing in 1750, is generally acknowledged as the first to have proposed that historical progress is, at bottom, an economically-driven stadial

process. In the 'discourses on universal history' he maps out a stadial history of the human race, depicting progress as a process of civilisation, one that is defined by increasingly advanced socioeconomic formations (from hunting to pastoral to agricultural and—implicitly—commercial), with the expansion of the economic surplus as the basic motor of change, and commerce and colonisation as vital accelerators (Nisbet, 1975; Tricoire, 2017). In identifying a historical ladder stretching from barbarism to civilisation, Turgot's progress concept hammered the diversity of human populations into a distinctive temporal-economic chain, with the richer nations (and 'races') indexed as history's vanguard. As Uday Mehta observes (1999, p. 84), because Turgot "mapped the idea of historical progress onto the notion of the stages of human development," the theory was perfectly suited to legitimate liberal colonialism. The nations that were adopting this notion of progress were simultaneously institutionalising capitalist economic forms and cultivating the ideology of growth. The narratives of progress, growth, and marketisation coalesced together in the liberal mind. The assumption—for Turgot and the liberal rhetoric that he helped inspire—was that growth benefits all. Turgot (2011, p. 256) cites the iron industry as an example: as it declines in prosperous Britain so will it flourish in France, Germany and thence to Siberia and the Americal colonies and beyond, until a global "balance" is achieved. But, in fact, the favoured few enjoyed quicker growth and used this platform to dominate the rest.

### **Value, alienation, enterprise**

Were the physiocrats propounding science in the form of mystification, or the reverse? The answer is 'both.' They contributed to knowledge of the inner workings of capitalist economy but each step in their argument, each concept they used, was suffused with ideological preconceptions, and contributed to the constitution of economics as an apparatus of bourgeois power. Most immediately, this was in the sense that they voiced and gave shape to the interests of a hegemonic class project: to convert France's political economy to the English model, with agrarian capitalists as vanguard force and principal beneficiaries. To this end, they presented capital accumulation as the general interest, justified capitalist exploitation and appropriation—including its egregiously 'primitive' moments (enclosures, colonialism)—in the language of welfare, growth and national power, and promulgated idealised models of economic behaviour that function only if the mass of the population accept their position in the social hierarchy. The social hierarchy in the physiocratic model is essentially modern, in that it marries entrenched hierarchy to incessant fluidity. The "bourgeois class," Gramsci once wrote (1971, p. 260), portrays itself "as an organism in continuous movement," one that absorbs "the entire society." Let us adapt this thought by substituting 'the economy' for bourgeois class. As we've seen, the physiocrats contributed as much as any group of thinkers to conceptualising the economy as an organism in continuous movement, one that absorbs the entire society into the circuits of capital.

Economics, then, did not 'take a wrong turn'; it began life as the intellectual avatar of commodity fetishism. Nor should the physiocratic approach to nature be taken as a model for ecological economics. They wrought the concept in several ways, all of them deeply problematic. First, they constructed economics and nature as "non-interactionist"; that is, economics does not theorise nature in its interrelations with human society but takes it as a

given (Gudeman, 1980). Secondly and relatedly, they saw in nature simply natural resources, 'free gifts' for exploitation (just as Smith, Malthus, Ricardo and John Stuart Mill after them; (Foster, Clark and York, 2010)). Thirdly, they theorised market economy as ordained by natural law, with the corollary that economic science should emulate the natural sciences. With this, capitalism is *naturalised* – literally, with capitalist social relations posited as natural and eternal, alongside limestone and onions – and sanctified, for nature's laws are God's laws. Rather marvellously, Mother Nature had given birth to eighteenth-century capitalism which had always existed. Thus, the tendencies the physiocrats championed – to enclose and encroach on land, to deregulate markets – were not processes of class domination but individuals following nature's course. They were, moreover, pioneers of the line of argument that contravening the market is contravening the laws of nature. It was only a short step to the likes of Joseph Townsend and Edmund Burke, who inveighed against market-inhibiting welfare legislation on the grounds that it interferes with the laws of nature (Holmes, 2018).

In short, the physiocrats were propagandists for liberal capitalism, and helped construct a discipline, political economy, to defend and naturalise it. It's little wonder that paeans to physiocracy are nowadays published by the Heartland Institute (Ebeling, 2016), the Future of Freedom Foundation (McElroy, 2010), and other thinktanks belonging to the Koch-funded climate denial apparatus (Greenpeace, 2017). But did the physiocrats also contribute to *critical* political economy? Notwithstanding the caveats discussed above, in a backhanded way indeed they did, through their theorisation of the systemic character of capitalism, and in particular the concept of value. Marx (1861-63) credited them with a "great" contribution, namely that "they derive value and surplus-value not from circulation but from production." For him (1863-78), physiocratic analysis was the first attempt "to analyse the nature of surplus-value in general," and "the first systematic conception of capitalist production." These two insights cohere together, for conceiving of economic affairs as a system requires attention to what connects its parts (market transactions) and, in turn, what enables commensuration (value). The recognition of value as a homogenous, circulating economic element was conjoined to the understanding of the economy as a dynamic totality. As long as the market was a subsidiary crutch to the organisation of livelihoods, qualitative connotations of value prevailed (Mirowski, 1989, p. 146), but with the emergence of market society as an integrated system – clearly visible in Britain and in patches on physiocracy's home turf – the universal operation of prices drew attention to the commensurability of commodities and the question of what renders them commensurable.

Marx, as is well known, reworked these concepts for critical analysis. By value he understood the mechanism of compulsive commensuration that comes into being in a society of generalised commodity relations – a historically specific society divided on class lines between owners of capital and propertyless workers. Value, for him, is the representation of wealth under capitalist conditions and the engine of alienation. It *governs* capitalist economy, and is the secret of its organisation of people and nature. The heartbeat of the system is accumulation: the expansion of value. Far from being anti-ecological, Marx's rejection of physiocratic value theory in favour of his labour theory of value opens the door to an

ecologically-oriented critique of political economy.<sup>5</sup> His labour theory of value, one should note, has little in common with the value theory of Locke or Smith,<sup>6</sup> and it does not treat value as a material ether but as a social relation abstracted of all materiality. In his words (1867; 1861-3), his concept of value is “a definite social mode of existence of human activity,” in contrast to the physiocrats for whom it “consists of material things—land, nature, and the various modifications of these material things.” Nor is Marx’s value theory a normative quest to affirm labour’s social worth over and above nature. Rather, it is the core element of a multifaceted critique, one that integrates the theory of capital accumulation (self-expanding value that accumulates through the exploitation of wage labour) with a critique of classical political economy for its neglect of the specific social form of capitalist production. It understands alienation and exploitation in capitalist conditions as a conceptual dyad: labour produces the value that capital uses to dominate the world, establishing structures that alienate the worker from herself, from other workers, their products, and nature. Capitalist reproduction thus appears as a systemic totality: geared to compulsive accumulation, resting on the exploitation of labour, and treating the realms of nature and social reproduction as ‘external’ and thus as the source of ‘free gifts.’ A system based on value cannot genuinely ‘value’ the natural and social-reproductive processes on which human life depends.

This approach may be contrasted with that which prevails among ecological economists today. Take for example Raworth. Her book is helping to enlighten the discipline of economics in respect of its ecological and ethical shortcomings, and she is certainly right to propose that a new way of thinking about the economy is urgently needed. However, as Gills and Morgan point out (2019), in neglecting to consider the “system of capital accumulation with its commitment to material growth of economies,” she leaves unexplored the fundamental dynamic of the system. She does not apprehend the world economy as a system based on compulsive relations of class and competition, indeed she barely mentions capitalism and has little conception of social class (and certainly not as a dynamic category). For her, the goals of the economy are not determined principally by social structures but by a “paradigm” –in essence, the framework of mainstream economics. For radical change, it follows, we need to find the flaws and fix the frame, appeal to the ethics of business leaders and introduce tougher regulation of business, with altered tax regimes and incentives for improved product and process design. The market system should remain, but its power should be “wisely embedded within public regulations, and within the wider economy” (Raworth, 2017, p. 70). The heroes in her new image of economics are not wholly different to Quesnay’s, for they are chiefly entrepreneurs (the designers of new business models, the inventors of digital currencies, etc.) and consumers (investing their savings ‘ethically,’ using complementary currencies). The capitalist ownership model which has dominated the nineteenth and twentieth centuries, she argues (2017), is not determined by social relations of production, entrenched relations of power, or the compulsion of the market, but is merely “one among many possible enterprise designs.” A different enterprise design is the non-profit, and the decision to produce this way, rather than for profit, is ultimately a question of will and ethics. We can for example set up “no-growth enterprises” which pay “resilient financial returns” to investors. If such steps are

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<sup>5</sup> From a burgeoning literature, see e.g. John Bellamy Foster, *Marx’s Ecology*, Andreas Malm, *The Progress of this Storm*, and Kohei Saito, *Karl Marx’s Ecosocialism*.

<sup>6</sup> For discussion and references, see Dale (2016, chapter 2).

taken many-fold, they would dethrone the growth drive from its place at the heart of the financial system (Raworth, 2017, p. 232). As regards the environment, Raworth (e.g. in Mobertz, 2017) advocates the greening of business. Firms should make profits, but ecologically. Anita Roddick, founder of Body Shop, is a trailblazer. In contrast to CEOs who believe their firm's mission "is to increase its profits, ... she set out to create a business that was socially and environmentally regenerative by design" (Raworth, 2017, p. 197).

## Conclusion

Political economy, and value theory in particular, took a turn toward mystification with the marginalist revolution of the 1870s. Re-theorised as a subjective category, value found itself removed from labour and from nature. Surplus value disappeared from sight, erasing exploitation. Social class vanished, and nature too. 'Environment' eventually found its way back into economics, not as its radical basis but as an issue area, with its proper little sub-discipline (see e.g. Dale, 2017a). All of this belongs to the story of the unfolding social and environmental catastrophes today. But the 1870s turn was not from useful to useless. It was from bad to worse. In this paper I have, following convention, taken the physiocrats as the first economists. I argued that the tribute they paid the role of land was largely insofar as it served rapacious ends. In their view, those who possess nature and put fences around it are entitled to its surplus value. Their positivist misreading of value as a natural substance underlay their justification of the systemic value transfer from labour to capital. Some physiocrats were pioneers in environmentalism, yet the inherent logic of their system necessitated ongoing enclosures and the despoliation of natural habitat. And although some physiocrats advocated the abolition of slavery, they were defenders of colonialism, and their ideology of progress became a powerfully influential buttress of it. Their major economic policy proposal, the removal of political restrictions and moral restraints on grain markets, was designed above all to enable the bourgeoisie and landowning nobility to accumulate capital (Goldman, 1973). The political economy they crafted while making this case was an avowedly objective, value-free science, even as it relied on a positivist metaphysics which packaged market relations as the natural outcome of humanity's need for subsistence and capitalism as the natural telos of human progress. In a sense they espoused materialism, in that their economic laws supposedly derive from man's "three original needs": subsistence, preservation, and "the perpetuation of his species" (Quesnay, 1962, p. 59). But their materialism was vulgar and ahistorical, it did not lend itself to critical analysis of capitalism's specific forms of wealth appropriation (Burkett, 2009). Instead, the economic logics that they championed gained a grip on the world and are now imperilling subsistence, the preservation of human life, and the perpetuation of homo sapiens and other species.

In its essentials, physiocracy set the tone for economics to come. That is to say, economics became in a sense a science, but of the idealised workings of capitalist markets. A strange science, then, in that its basis is commodity fetishism. This is why Oswald and Stern are mistaken to suggest that economics should be at the heart of any serious analysis of climate breakdown, and why Raworth's doughnut does not go far enough. The obliteration of ecology by economics is not an aberration, or a myopia that can be overcome with a corrective lens or different 'image.' Rather, it expresses a truth: the fidelity of the discipline to the economic



order that begat it. Any serious addressing of the economic causes of climate breakdown will indeed entail a transformation of economics, but in the form of negation, through the overcoming of the system that it represents, justifies, and naturalises.

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