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Capitalism and Degrowth: Dialectic of Opposing Fantasies

Marina Aristova

MA in Philosophy;
Stasis Center for Practical Philosophy,
European University at St. Petersburg, Gagarinskaya st. 6/1A,
St. Petersburg, Russia;
E-mail: maristaa132@gmail.com

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Abstract:
The Entropy Law, the theoretical inspiration for the ecological movement known as degrowth, describes an irreversible transition from a state of heat to a state of cold associated with energy dispersal. However, it is not entropy that interests us here, but rather the phantasmagorical images associated with it, such as the heat death of the universe, time's arrow, and cold decay, that could explicate the fantasies behind two opposing economic principles: capitalism and degrowth. As Slavoj Žižek suggests, fantasy is the means of escaping the unbearable Real. In this article, the capitalist compulsion to burn is posited as a response to the traumatic encounter with the Real, the imagery of cold decay, or, in its ultimate form, the heat death of the universe. The capitalist fantasy of escaping cold decay by burning fossil fuels is opposed to the degrowth fantasy of extinguishing global fire. These two opposing fantasies intertwine and reflect each other, producing the dialectic of fantasies.

Keywords:
Dialectics, fantasy, entropy, degrowth, capitalism, Georgescu-Roegen

Introduction

In the early 2000s the Adbuster activist group in Lyon, France, adopted a provocative slogan — "Degrowth" — to emphasize their radical break with "sustainable development" and to resist the capitalist appropriation of environmental rhetoric. They promoted the idea that economic growth is incompatible with Earth's regenerative capacity (Liegey and Nelson 2020: 7–9). Both the term "degrowth" (*decroissance*) and its theoretical inspiration came from the theory of Romanian mathematician Nicholas Georgescu-Roegen (1971), whose works were read by the members of the activist group at the time. Georgescu-Roegen's innovation was to analyze economic processes through the lens of the Entropy Law, or the second law of thermodynamics. In a closed system heat flows in only one direction — toward a state of cold, and as time passes, energy dissipation will only increase. The ultimate point of entropic decay is the heat death of the universe, a state of complete coldness where no more energy exchange is possible (ibid.: 201–02). When applied to political economy, the Entropy Law implies that the industrial burning of fossil fuels only creates the illusion of growth while serving the tendency of entropy to dissipate energy. Consequently, as Georgescu-Roegen (2011: 123) argues, economic growth needs to be halted. The imperative to stop economic growth can be found in various environmental projects, which are not necessarily connected with Georgescu-Roegen's theory, but that solidify the value of degrowth for ecological thought more generally.

Nevertheless, it is unconventional within the philosophical field to opt for degrowth as the opposite of capitalism, as it is more expected to see a Marxian project in this role. More controversially, degrowth's theoretical basis relies exclusively on the scientific positivist understanding of reality, with little philosophical input. Furthermore, the theory of the heat death of the universe is widely criticized and has yet not been proven (Kutrovátz 2001). So the question is: Why should we delve into a theory that is not only purely positivistic but is also subject to change? In response, I should note that in this article I do not focus on entropy as a physical phenomenon, but only draw inspiration from its imagery. Soviet philosopher Evald Ilyenkov wrote a work that was also inspired by the Entropy Law called "Cosmology of the Spirit" with the subtitle

"a Philosophical-Poetic Phantasmagoria Based on the Principles of Dialectical Materialism" (2017). Similarly, this article's primary focus is the phantasmagorical aspect of entropy. The heat death of the universe, the arrow of time (a synonym for entropy), and inextinguishable fire will be explored as characters in the ideological fantasies that constitute two opposing economic principles: capitalism and degrowth. The opposition between capitalist and degrowth fantasies corresponds to the thermodynamic opposition between heat (fire) and cold. The capitalist fantasy is centered around the idea of escaping cold decay by engaging in excessive acts of burning. The degrowth movement, on the other hand, is based on the opposing fantasy of extinguishing global fire.

Marx and Georgescu-Roegen: Two Critiques of Capitalist Growth

Despite methodological differences, Georgescu-Roegen's critique of economic growth intersects with Marx's thought. As the theoretical basis of the degrowth movement, entropy operates as an "arrow of time" (Georgescu-Roegen 1971: 128), that allows for economic growth to happen. This insight resonates with Marx's idea of capitalism's robbery of a worker's lifetime. At the same time, Marx's dialectic of production and consumption corresponds to the dialectic that can be found in ecological economics.

In *Grundrisse*, Marx (1973 [1939]: 90–91) describes the dialectic of production and consumption. These two opposites reflect each other in a manner that renders them nearly identical. Production is at the same time a consumption, since in the process of production, a significant amount of raw material is being destroyed for the creation of a product. Marx refers to this process as *productive consumption*. Consumption is also immediately a production. In the process of consumption, food is destroyed, but through this destruction a living body is produced. Marx refers to this as *consumptive production* (ibid.: 93). Productive consumption and consumptive production are part of one process of mutual mediation (ibid.: 90) a similar dialectic can be found in Georgescu-Roegen's (2011) analysis of economic process.

Georgescu-Roegen (2011) established a novel academic discipline known as *ecological economics* that relies on thermodynamics as a tool to analyze economic processes.[1] Ecological economics later inspired a major ecological movement called *degrowth*, which advo-

[1] The initial name of ecological economics was "bioeconomics" (Georgescu-Roegen 2011).

cates for the cessation of capitalist growth and extractivism (ibid.). Georgescu-Roegen suggests that the process of economic growth is a form of energy theft. Natural resources as unique low entropy containers are being emptied out while the extracted energy ends up being dispersed. Georgescu-Roegen argues that "thermodynamics thus began as a physics of economic value and has remained so" (ibid.: 83). He invokes the works of Sadi Carnot, French engineer and the originator of thermodynamic theory, who sought to optimize the *economy* of a heat engine. Carnot established the fundamental distinction between two types of energy based on their availability for economic processes: "available or free energy that can be transformed into mechanical work and unavailable or bound energy that cannot be so transformed" (ibid.: 98). To explain this distinction, the Entropy Law must be introduced. Entropy is "an index of the amount of unavailable energy in a given thermodynamic system at a given moment of its evolution" (ibid.: 99).[2] For instance, if there is a sufficient quantity of fuel in a car (fuel represents energy available for the transformation into mechanical movement of a car), entropy as an index of *unavailable* energy would be low. The more resources (especially fuel) available for combustion that stay preserved, the lesser the entropy. High entropy, on the other hand, represents the state *after* combustion. After energy is transferred to the mechanical process, the car produces waste that disperses into the atmosphere in a high entropy form. This disorganized remainder is no longer available for heat production as its entropy is too high and close to the state of chaos. The second law of thermodynamics, also known as the Entropy Law, states that "entropy (i.e., the amount of bound energy) of a closed system continuously increases or that the order of such a system steadily turns into disorder" (Georgescu-Roegen 2011: 83). In other words, the Entropy Law states that a system's entropy will always increase and over time all low entropy entities will dissipate. Both fossil fuels and human beings are subject to decay, forced to run out of energy if a linear, non-philosophical perception of time is assumed. But it is precisely the perception that allows capitalism to function, so for now this scientific assumption of the linearity of time will be followed.

The fear of decay creates a pathological interplay between entropy and false resistance to it. The best way to demonstrate this would be to comprehend life from the standpoint of thermodynamics. Some authors argue that life contravenes the Entropy Law as life

[2] Georgescu-Roegen gives a simplified definition of entropy for the purposes of clarity.

seems to maintain a substantial degree of organization — a living body — thereby resisting the decay into a cold state of chaos (ibid.: 84). But it is able to resist decay only if there is an input of energy from the outside achieved via the destruction and consumption of other low-entropy objects (e.g., food as a source of calories; wood that provides heat to maintain body temperature). If extended to the level of political economy, economic growth also creates an illusion of resisting entropy. For instance, the transformation of copper ore into copper sheets requires heat treatment (ibid.: 82). Thus, it only appears as though an industrial furnace has the capacity to create order out of disorder, while inevitably leading to an increase in entropy. Analogous to Marx's opposition between production and consumption, a similar dialectic of "destruction" and "resistance" can be found within Georgescu-Roegen's theory. "Consumptive production" of the human body could in this case correspond to the "destructive resistance" of economic growth.

Nevertheless, this dialectic of destruction and resistance can only function within a paradigm of linear time. It is Arthur S. Eddington who called entropy "time's arrow" (ibid.: 233). The arrow of time's linearity and irreversibility can be traced back to one of the earliest formulations of the Entropy Law: "Heat flows by itself only from the hotter to the colder body, never in reverse" (ibid.: 99). In the absence of external intervention, heat flows linearly and only in one direction: toward a state of cold. This way, a linear timeline is established. This linearity engenders the very possibility of capitalist expansion, as the arrow of time guarantees the irrecoverable nature of energy sources creating scarcity that allows capital accumulation to occur. Georgescu-Roegen writes: "In entropy terms, the cost of any biological or economic enterprise is always greater than the product" (ibid.: 83–84). This increasing cost serves as the measurement of linear time. The arrow of time progresses along with the burning of natural resources. Marx exposes a similar phenomenon in capitalist production. According to Artemy Magun (2009: 90–109), Marx's representation of capitalist time is also linear, and that capitalism appropriates both leisure and working time: "capital [...] seems to grow from the sheer force of time" (ibid.: 100). The cost of a worker's lifetime can never be equivalently recuperated: the wage in the capitalist system never covers the value produced by laborers. The surplus value which allows capital to function is created by surplus labor time that is not paid for (Marx 1992 [1867]: 325). Capitalism steals a worker's lifetime by converting it to labor time (ibid.: 667). Therefore, this robbery of time, which generates surplus value, can

manifest itself in several instances. First, time can be stolen from the workers and converted into labor time. Second, the energy extraction from low entropy resources can also be regarded as time theft since the low entropy state of burned fossil fuels can never be recovered, and the irreversible arrow of time only propels the dissipation of energy. Linear time allows for non-equivalent exchange to happen: both in terms of the destruction of low entropy resources and in terms of the destruction of lifetimes. The proximity of these types of robbery has already been noted by Marx: "It attains this objective by shortening the life of labor-power, in the same way as a greedy farmer snatches more produce from the soil by robbing it of its fertility" (ibid.: 376). Even though Marx did not yet have the conceptual tools to classify both of these robberies as the exact same crime of stolen time, he placed them in close proximity.

While it is clear that the theft of leisure time is considered unethical in the Marxist paradigm, it is much less apparent why the same ethical claim can be extended to the fate of low entropy containers. As previously shown, the dissipation of energy happens through heat. Heat is the ultimate accelerator of low entropy natural resource destruction. The more heat humanity generates, the more the arrow of time progresses. But where does this time's arrow lead? Here we can find an interesting inversion. Even though the fatal transition from low to high entropy occurs through heat, the ultimate point of destruction is the state of cold, the heat death of the universe. The heat death of the universe is a state in which there can be no more exchange of energy, no heat can be produced, no order, including life, can persist. The end point is cold chaos (Georgescu-Roegen 1971: 201–02). This will be, according to this article's main thesis, the traumatic event behind the capitalist fantasy of regenerative fire that constitutes the function of capitalist growth. The thermodynamic opposites of heat and cold, or of fire and cold, will further be shown to constitute the opposing ideological fantasies of both capitalist growth and degrowth.

Pyro-economy and Capitalist Growth

The opposition between heat and cold in thermodynamics could, in the sociocultural imaginary, be transferred to the opposition between capitalist growth and degrowth. Capitalist growth could be described as an "economy of fire," or pyro-economy. This term is developed out of Michael Marder's (2020) concept of *pyropolitics*. This concept intends to capture a shift that occurred in the twentieth

century when it became possible to think of politics not only as geopolitics, which is built around the demarcation of territories and the seizure of land, but also as "pyropolitics," or "the politics of fire" (ibid.: 3). Pyropolitics does not represent the next stage in the development of politics; the geopolitical paradigm still prevails. Pyropolitics includes such diverse phenomena as slash-and-burn agriculture, combustion engines, burning of forests for pasture, self-immolation, industrial-scale burning of fossil fuels, global warming, "incendiary" protest speeches, the fires of the Inquisition, revolutionary fire, aerial bombing (ibid.). Even though some instances of pyropolitics can be traced back to the Ancient Greeks, Marder argues that the twentieth century marked the heyday of pyropolitics, especially after the outbreak of the First World War (ibid.: 2). And it was precisely during that period that the effects of capitalism became most evident. Marder links the intensification of pyropolitical processes to the increase in fuel consumption, both for production and for war. So to separate this economic aspect from other sociocultural phenomena of pyropolitics, I would further use the term *pyro-economy* to designate the connection between fire and capitalist growth.

Pyro-economic occurrences have already been demonstrated in Georgescu-Roegen's works: Carnot's engine illustrates the direct connection between heat distribution and economic efficiency. Georgescu-Roegen's works reveal the inseparability of thermodynamics and the industrial economy. Nevertheless, other theoretical frameworks can be used to illustrate the functioning of pyro-economy, such as Andreas Malm's *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (2016). According to Malm, it is impossible to explain the development of capitalism without considering the role of fossil fuels. Malm draws attention to a paradoxical historical transition from hydropower, a free and abundant renewable energy source, to expensive, scarce, and polluting fossil fuels. This transition began during the Elizabethan leap, the sixteenth-century increase in coal consumption, that took place two centuries before the beginning of the industrial use of coal (ibid.: 273–78). It created a market for fossil fuels that, unlike the use of commons such as rivers, operated according to the market's individualistic logic. Although coal was more expensive than hydropower, it was more pliable to capitalist monopolization. Unlike hydropower, oil and coal could be transported and used as commodities in trade, and fossil fuel deposits could be occupied by force. It became possible to move factories, which had previously been spatially bound to rivers, to the cities, where the density of the population ensured

cheap labor (ibid.: 249–54). Malm demonstrates that capitalism as we know it today would not have been possible without fossil fuels, a special element in the accumulation of capital, or more precisely, *fossil capital* (ibid.: 268). The role of fossil fuels, integrated into commodity production, was to facilitate labor productivity through the power of combustion (ibid.: 249). Fossil fuel combustion became the central part of the economy, or, as I suggest, of the pyro-economy. The accumulation of fossil capital was accessed via the burning of fuel, but the fossil fuel market had to be separated from the traditional Marxian circuit of capital accumulation (ibid.: 277). The second circuit, the "fuel circuit," operated according to the logic of primitive accumulation and was predicated on the expropriation of land (ibid.: 276–77). Consequently, pyro-economy's crucial element, aside from the burning of fossil fuels, is the appropriation of natural resources via brutal colonial practices so as to feed the industrial flames with a constant flow of energy.

Pyro-economy's colonialist aspect can also be analyzed via another theoretical framework. As Oxana Timofeeva suggests in her book *Solar Politics* (2022), George Bataille's concept of the restrictive economy can be used to explain the colonial seizure of energy flows. Bataille introduces his theory of general and restrictive economy in his book *The Accursed Share* (1988 [1949]). His critique of political economy focuses not on production but on consumption, or more precisely, on the expenditure of the surplus generated in the production process. In a restrictive economy, this surplus is reinvested in production to facilitate further growth (ibid.: 25). Bataille notes the flawed logic of such restrictive economic growth: "In other words, the possible growth is reduced to a compensation for the destructions that are brought about" (ibid.: 33). Here Bataille resonates with the idea that Georgescu-Roegen would postulate 20 years later. Without relying on thermodynamic theory, Bataille exposes the growth paradigm of restrictive economy as illusory. Growth is revealed as mere "compensation for the destructions," or a false resistance to decay, a resistive destruction. The general economy, on the other hand, is concentrated on nonproductive expenditure of the surplus, which presupposes an economy of generosity and gift (ibid.: 38). This type of economy could be called "solar" (Timofeeva 2022: 63–67). However, the term "solar" does not imply the use of "renewable" solar energy. As Timofeeva argues, the discourse of "sustainable development" belongs to the domain of the restrictive economy, as it also seeks to integrate solar energy into a new cycle of "development" (ibid.: 115). Such an obsession with accumulating

surplus energy propels the restrictive economy to conquer new sources of energy. Timofeeva shows that this drive for appropriation extends to the cosmic scale, so that even the sun, as a major source of energy, becomes an object of colonization, for instance in such projects as the Dyson sphere, the project of harvesting solar energy by building a spherical megastructure around a star (ibid.: 102). This perpetual hunt for energy resources to burn constitutes the basis of pyro-economy.

Capitalist Growth and its Flaming Fantasy

Capitalist growth, as has been shown, is predicated on the functioning of fossil capital and the colonial expansion and appropriation of energy flows. Psychoanalytic theoretical frameworks can elucidate the phenomenon of pyro-economy. In *The Phoenix Complex: a Philosophy of Nature* (2023), Michael Marder uses the psychoanalytic perspective to analyze sociocultural practices related to fire. His concept of the phoenix complex presupposes a set of ideas that suggest fire's regenerative property to revive what has been burned (ibid.: 1). As Marder demonstrates, "the phoenix seizes fire by giving herself to it" (ibid.: 2). Such seizure and control of fire occurs in such instances as the industrial burning of the fuel, the use of war weapons, slash-and-burn agriculture, or animating "dead" machines through combustion (ibid.: 3, 19). All of these sociocultural and political practices are supposed to manifest rejuvenation and revival via controllable fire. Marder considers these collective and individual practices to be symptoms of the phoenix complex that is embedded in every mind and body, but has yet remained undiagnosed (ibid.: 1). He reconstructs the phoenix complex logic by analyzing the affects that slip through the "censorship" of consciousness and manifest in cultural practices (ibid.: 4). Marder's analysis of the phoenix complex can be taken further by asking why the phoenix aims to regenerate in the first place, and why fire is chosen as the regenerative element. Marder's thinking here resonates with Georgescu-Roegen's perspective:

> Impatience with mortality and with the physical changes an aging being experiences goes hand in hand with the desire for unlimited energy. (Entropy is, after all, the energy equivalent *of death and dying in a system*.) Combustion has a central place in the energy paradigm that, breaking matter down, effects a fast release of heat and light, the fiery element of the phoenix. (Marder 2023: 20)

"Impatience with mortality" and entropy as the equivalent of death is what motivates the continuation of heat production. Fire seems to be the opposite of a decomposing frigid body, just as in thermodynamics, where heat, associated with growth, is the opposite of cold. Marder further notes that the phoenix complex is motivated by disgust with the dead decomposing (ibid.: 22). It is both the image and the smell of a rotting body that is horrifying to humans. The practice of burning bodies with aromatic herbs eliminates the smell and any reminder of traumatic experiences of witnessing decay (ibid.: 21). And if the phoenix complex is present at both the individual and the collective levels, as Marder states, then the striving for combustion that constitutes pyropolitics is structurally parallel to the psychocultural attempts to ward off disgusting images of death. Hence, it can be assumed that pyro-economic practices emerge as a response to a traumatic event that is the encounter with cold decay on a collective level.

In his work *Beyond the Pleasure Principle* (1964 [1920]), Sigmund Freud analyzes the compulsion to repeat within the context of traumatic neurosis. The compulsion to repeat functions as a means of reenacting the traumatic event in an active rather than a passive role. For trauma to occur there does not have to be an actual physical injury. The mere witnessing of death could trigger "war neuroses," as analysis of patients who had lived through the First World War showed. As Freud suggests, there are similarities between war neuroses and "traumatic neuroses of peace" (ibid.: 12). One characteristic of traumatic neurosis is being triggered by fright. Unlike fear and anxiety, fright takes the subject by surprise (ibid.: 12). Out of this fright develops a repetition compulsion so that the traumatic event can be reenacted. Applying this logic to phenomena associated with the phoenix complex could reveal them as manifestations of the "compulsion to burn." The act of starting a fire brings relief and a sense of control while the traumatic event itself is repressed: "…the compulsion to repeat must be ascribed to the unconscious repressed" (ibid.: 20). I suggest that in the case of the compulsion to burn, the unconscious repressed is the traumatic encounter with the coldness of death, entropic decay in its multiple forms.

The repressed traumatic event need not necessarily have happened in the past. This has been pointed out by Slavoj Žižek: "the Lacanian answer to the question 'From where does the repressed return?' is therefore, paradoxically: 'From the future'" (2008b: 58). For Žižek, the traumatic event consists of the encounter with the Real, that which, according to Lacan, resists symbolization but always

returns as a symptom (ibid.: 74–77). Žižek argues that in analysis, "meaningless imaginary traces" take on meaning retroactively, after the event has gone through the symbolization process. However, these imaginary traces were already there before the event took place (ibid.: 57–58). Žižek argues that even though the traumatic event has not yet happened or is not even expected to happen, there is already a place for it in a "fantasy-space" (ibid.: 74). Thus, it could be suggested that the future traumatic event is the heat death of the universe as the ultimate point of cold decay. The idea of the heat death of the universe was first formulated in the mid-nineteenth century and has since appeared sporadically in the sociocultural imaginary, however, not as a consciously acknowledged threat. The reason for this may be that although the Real of cold decay resists symbolization, a fantasy has a tendency to produce "phantasmic creations" that mirror the traumatic event:

> The relationship between fantasy and the horror of the Real it conceals is much more ambiguous than it may seem: fantasy conceals this horror, yet at the same time, it creates what it purports to conceal, its "repressed" point of reference (are not the images of the ultimate horrible Thing, from the gigantic deep-sea squid to the ravaging twister, phantasmic creations par excellence?). (Žižek 2008a: 6)

If we suggest that this traumatic event is already present in a fantasy-space even before it has happened, then we need to turn our attention to the fantasy itself. Žižek (2008b: 45) states that a fantasy is formed to help the subject escape the traumatic Real. According to the definition given by Jean Laplanche and Jean — Bertrand Pontalis (1988: 314), fantasy (or phantasy) is an "imaginary scene in which the subject is a protagonist, representing fulfillment of a wish (in the last analysis, an unconscious wish) in a manner that is distorted to a greater or lesser extend by defensive forces." This "fulfilling of a wish" would, in Žižek's perspective, be the wish to escape the Real by creating a "fantasy-scenario which obfuscates the true horror of a situation" (Žižek 2008a: 6). In the case of the pyro-economic fantasy, I suggest that the Real of cold decay as the image of absolute catastrophe is masked by the fantasy in which the subject plays an active role by starting regenerative fire that sustains life indefinitely. Therefore, I propose that capitalist growth is based on the fantasy of restarting the fire that is supposed to ward off the traumatic imagery of cold decay, the repressed phantasmic image of the heat death of the universe.

Similarly, the degrowth movement, as the dialectical opposite of capitalist growth, is based on the symmetrical fantasy with phantasmic imagery that is no less traumatic.

Degrowth and the Fantasy of Extinguishing Global Fire

Vincent Liegey and Anitra Nelson, prominent degrowth advocates, activists, and scholars, define degrowth as

> a movement of activists and theorists who highlight the limits to growth. Degrowth means the transformation of society and the adoption of new models with qualitative, human-oriented and Earth-centered characteristics such as conviviality, autonomy and enjoyment of life, along with establishing principles consistent with ecofeminism and social and environmental justice. (Liegey and Nelson 2020: 20)

The term "degrowth" raises controversy as some claim that its Latin prefix "de-" is associated with "decay" and "decline" (ibid.: 16). Degrowth activists attempt to counter this presumption by emphasizing that a significant part of the degrowth movement is the building of communities according to the principles of human prosperity, the gift economy, solidarity, and sharing. They create alternative forms of economic systems and develop their own currencies, such as the Local Exchange Trading System, to ward off speculation (ibid.: 64). Nevertheless, the main goal of a "missile word" such as "degrowth" is to negate the predominant assumption that "growth is good," which is unreflectively accepted by the international community (ibid.: 2). Degrowth has its roots in the protests against Gross Domestic Product standards that were established at the 1944 Bretton Woods conference (ibid.: 26–27). Georgescu-Roegen's writings, published in the 1970s, were later adopted as the theoretical basis of the movement by activists in France protesting the growth of capitalism in the early 2000s (ibid.: 7–8). In the face of global warming's disastrous consequences and fossil capital's unrelenting perpetuation, the degrowth movement claims to be the force opposing capitalist growth. Pyro-economic capitalist growth and degrowth are dialectical opposites in the same genus: economic growth. If the former is based on fantasy, the latter is no exception.

In *Sublime Object of Ideology*, Žižek (2008b: 44–45) illustrates his concept of ideological fantasy through the Lacanian interpretation of Freud's description of the "burning child" dream:

> A father had been watching beside his child's sick-bed for days and nights on end. After the child had died, he went into the next room to lie down, but left the door open so that he could see from his bedroom into the room in which his child's body was laid out, with tall candles standing round it. An old man had been engaged to keep watch over it, and sat beside the body murmuring prayers. After a few hours' sleep, the father had a dream that his child was standing beside his bed, caught him by the arm and whispered to him reproachfully: "Father, don't you see I'm burning?" He woke up, noticed a bright glare of light from the next room, hurried into it and found that the old watchman had dropped off to sleep and that the wrappings and one of the arms of his beloved child's dead body had been burned by a lighted candle that had fallen on them. (Freud 2010 [1900]: 513–14)

In *The Four Fundamental Concepts of Psychoanalysis* (1998 [1973]), Lacan gives his own interpretation of this dream. He believes that the reason for the father's awakening is his encounter with the unbearable Real. As we have already seen, the very function of fantasy is to escape the traumatic Real. Lacan demonstrates that by waking up, the father faces a more pliable reality, the fantasy: "The place of the real, which stretches from the trauma to the phantasy — in so far as the phantasy is never anything more than the screen that conceals something quite primary, something determinant in the function of repetition" (ibid.: 60). Žižek (2008b: 45) continues Lacan's thought and applies it to the sociopolitical phenomenon of ideology. Žižek's point is that social reality is structured by the ideological fantasy that masks the traumatic Real and functions as an escape from its horror. This function of fantasy has already been demonstrated in the context of capitalist growth. However, to accentuate the specificity of the degrowth fantasy, I intend to analyze the dream of the "burning child" in greater detail. What is important in Lacan's interpretation of this dream is that the feeling of guilt is at its center. The horror of guilt comes along with the imagery of fire. In this dream the fire is not regenerative and life-giving, but hellish and punishing. It represents the father's sins: "What is he burning with, if not with that which we see emerging at other points designated by the Freudian topology, namely, the weight of the sins of the father" (Lacan 1998 [1973]: 34). The father manages to wake up and mask the fire of the Real with the fantasy of social "reality," where he can still prevent the fire from spreading. Analogously, it is feasible to suppose that a similar dream, an encounter with the Real of uncontrollable fire, is what makes degrowth activists

wake up to the fantasy, in which it is still possible to extinguish the fire. The traumatic imagery of the Real, in the case of the degrowth fantasy, would also be connected with the destructive fire that burns the object of care and thus evokes feelings of unbearable guilt. Given the prevalence of metaphors of the earth on fire within environmental writings and protest art, it can be assumed that the phantasmic object of burning is the earth. The fantasy is supposed to shield the subject from the traumatic Real and make them an active agent — the one who is supposed to extinguish the fire and halt its spreading. The degrowth fantasy is, thus, a dialectical opposite of the capitalist fantasy of restarting the regenerative fire. The latter constitutes a social reality in which economic growth is ensured by the repeated burning of resources, which keeps away the cold of decay. The degrowth fantasy, on the other hand, pushes its adepts toward certain forms of resistance against global fire.

Impossible Fantasy of the Degrowth Revolution

The degrowth movement's goals are defined by its fantasy of extinguishing the fire of fossil capital. Aside from building communities with alternative economic principles, degrowth's larger aim is to stop capitalist growth. Even though degrowth is criticized for not being explicitly engaged in anticapitalist class struggle (Huber 2022: 100–10), some Marxists rely heavily on the theory of degrowth. Japanese philosopher Kohei Saito (2024), who synthesizes degrowth with Marxism to create the concept "degrowth communism," proposes to use the "3.5% principle"[3] for mobilizing planetary-scale protest against both capitalist growth and climate change (ibid.: 177). Saito calls his "Degrowth Manifesto" "a version of Capital for this new era" in the hope that it would inspire "the path to the bright future to come" (ibid.: 178). Saito (2023: 216) invokes Walter Benjamin's quote:

> Marx says that revolutions are the locomotive of world history. But perhaps it is quite otherwise. Perhaps revolutions are an attempt by passengers on this train — namely, the human race — to activate the emergency brake. (Benjamin 2003 [1940]: 402)

Although this logic is quite revolutionary, degrowth as a movement does not accept revolutionary methods. According to Magun

[3] The "3.5% principle" means that if participation in protest exceeds 3.5 percent of the population, the demands of the protesters are likely to be met.

(2013: 241–42), every revolution is driven by the force of negativity. At some point, this negativity turns inward. This moment is frightening for degrowth because, as Marder demonstrates, it is where a collapse into pyropolitics can happen. Marder invokes a cliché of revolutionaries who "are scorched by the fires they have kindled" (2020: 54). Moreover, he states that the revolution demands that the "body politic be purged of every impurity if it is to be reborn from the ashes of the previous regime" (ibid.: 64). This is where the phoenix complex, which degrowth opposes, comes forward and repels degrowth activists.

But there is another aspect of revolution that is closely related to the problem of the arrow of time that makes capitalist growth possible in the first place. In the first part of this article we have seen the parallels between the Marxian and "entropic" perspectives on capitalist growth. Both demonstrate that the linear paradigm of time allows capitalism to feed on non-equivalent exchange: the irreversibility of time's arrow steals both the lifetime of a worker and the time of low entropy objects, especially natural resources. But is there a way to reverse entropy's linearity? There is no such ambition in the theory of degrowth: it does not question the arrow of time's law or its implications. The primary reason for this is that degrowth is strongly intertwined with scientific discourse. This implies a certain degree of rigidity in the application of physical laws within the field of ecological economics. To revolt against the Entropy Law would mean subverting the very foundation upon which this theory is built. This is precisely what happens in a revolutionary temporality, wherein a rupture in time opens the groundless abyss (Magun 2013: 144). In his book *Negative Revolution* (2013), Magun describes revolution as an element that opens up the possibility of breaking the linearity of time:

> In the imaginary focus of history, foundation coincides with subversion. Like labor in political economy or like death in the field of human possibilities, revolution is an ambiguous element the existence of which allows *the symmetrical (past/future) structure of time* and history. (ibid.: 144)

This symmetry could enable degrowth to counter the linearity of time's arrow and embrace a nonlinear rather than a linear scientific

perception of time. However, as Marder illustrates, this revolutionary, nonlinear time is associated with pyropolitcs. The revolutionary fire is connected with the ability to control time. He demonstrates how revolutions that were thematically unrelated (the French Revolution of 1789; the Russian October Revolution of 1917) actually managed to rekindle the spark of revolutionary flame across time: "the spark of a bourgeois rebellion jumps over to the discourse of Communist revolutionaries. It migrates across spiritual and physical space, time, and political regimes" (Marder 2020: 49). Marder refuses to explain this transmission in terms of the events' similarity, insisting that such time travel by the revolutionary spark is possible because "fire is time itself" (ibid.: 49). Fire can then produce a nonlinear movement of time and create a rupture in the linear arrow of time. Marder provides an analysis of Lenin's "zigzag" between the real and the ideal that allowed him to control time itself:

> Lenin outshone everyone in his aptitude for controlling the intensity of revolutionary fervor, following the famous zigzag in a negotiation between the real and the ideal, cooling things down and firing them up again. Provided that fire performs the work of time by encouraging the destruction (e.g., oxidation) of finite beings, *control over fire is control over time itself* — its deliberate speeding up ("The Bolsheviks could only accelerate the process") and deceleration ("the part of the fire hose"). (ibid.: 50)

Consequently, in order to complete its project of resisting economic growth, degrowth must confront that which enables the capitalist accumulation of energy: the arrow of time. However, this demand paralyzes the movement because, first, it presupposes the subversion of the movement's very foundation — the scientific or linear perception of time; second, it compels degrowth to engage with pyropolitics. The Real of the inextinguishable fire is too frightening for degrowth activists, so any attempt to delve into pyropolitics seems suicidal, since there is not yet any imagery of "cold" revolution in the degrowth imaginary. Nevertheless, the dialectic between the opposing fantasies already presupposes an exchange of traits. The imagery of both fire and cold is already present in the ideological fantasies of both opposites. And, as we will see further, the revolutionary fire, albeit in an unexpected form, eventually penetrates the degrowth fantasy.

Mutual Reflection of the Opposites. The Imagery of the Two Ends of the World

The opposite of pyro-economy is degrowth as they belong to the same genus, that is, the relation to economic growth. Each of these economic principles is based on the fantasy that enables them to operate. The fantasy of escaping cold death by compulsory burning is opposed to the fantasy of extinguishing global fire. At the same time, both fantasies mutually reflect each other. According to Hegel (2010 [1812]: 368), the opposition is the form of negation that presupposes the reflection of the opposites. Magun notes that the Hegelian opposition (or contrariness) is not in fact an "extreme, maximum difference": the master and slave do not form a Hegelian opposition, it is the opposition between "master-slave" and "slave-master" that would be the illustration of one (Magun 2013: 28–29). Within Hegelian opposition, the mutual reflection involves the interweaving of the opposites. Between the two opposing economic principles, both of which have corresponding opposing fantasies, mutual reflection takes place as well. Pyro-economy has certain features of degrowth, while the instances of pyropolitics penetrate the degrowth ecological thought.

For instance, Malm (2021),[4] a prominent opponent of capitalist growth, questions the refusal of climate movements to use pyropolitical forms of action against fossil capital, as this decision has a paralyzing effect. He writes about his participation in one of Ende Gelände's protests in 2016, which ended up forcing Vattenfall, a Swedish energy company, to suspend its electricity production in Lusatia (Germany) for 48 hours. Activists broke through the fence and entered the site, but they refused to cause any damage to the infrastructure (ibid.: 161). A possible explanation for the climate activists' reluctance to embrace pyropolitical methods is the degrowth fantasy, elements of which are also present in the rhetoric of other environmental groups, which produces an aversion to imagery of fire. For climate activists, the traumatic Real is strongly linked with imagery of burning, thereby impeding certain forms of action. However, the very existence of Malm's book, which engages the reader in envisioning a pyropolitical solution to the pyro-economic problem, can be seen as an illustration of the opposites' mutual reflection. Opposing fantasies do not completely exclude each other but rather

[4] Andreas Malm does not rely on Georgescu-Roegen's theory, but he strongly opposes capitalist growth.

interpenetrate each other's phantasmic imagery. Therefore, it is possible for the degrowth fantasy to be pierced by the imagery of fire, which is fought with the means of fire.

"Cosmology of the Spirit" (2017) by Ilyenkov also serves to illustrate the mutual reflection of opposing fantasies. In this work, Ilyenkov states that the highest role of intelligent matter is to save the universe from its "thermal dying" through a self-sacrificial cosmic-scale atomic explosion. The explosion will be powerful enough that it will be able to reheat the universe. While remnants of the old civilization will be destroyed, matter, which by necessity contains the property of intelligence, will recreate intelligent forms in the new reheated universe (ibid.: 165). In this way, thinking spirit "as one of the attributes of universal matter" will continue to exist (ibid.: 182).

At first glance, this line of thought resembles pyro-economic thinking. First, it seems to be driven by the fantasy of starting a regenerative fire. Second, it directly articulates the dread before the heat death of the universe. But on closer examination, Ilyenkov's thought proves to be more complicated than that. Throughout the text, he mentions that in order to escape "thermal dying," "the reverse process" is necessary, although he is not sure what exactly this process can consist of scientifically (ibid.: 181). This aspiration to "reverse" a seemingly inescapable destiny resembles the idea of reversing the arrow of time itself, which makes Ilyenkov's project truly revolutionary. Within Ilyenkov's phantasmagoria, a time rapture is produced that breaks the very foundation of capitalist growth by subverting time's linearity. The revolutionary fire of Ilyenkov's cosmic explosion takes time under its control. The second aspect that radically distinguishes Ilyenkov's idea from pyro-economic thinking is the absence of a colonialist mindset. This cosmic explosion is not intended to be exploited for the colonial seizure of energy flows. On the contrary, this project presupposes the sacrifice of all remaining planetary resources for the sake of the universe.

As Timofeeva notes, it resembles an act of fearless self-immolation:

> Ilyenkov's cosmology presents a dialectical passage from the restricted economy to the general on the cosmic scale. His project of consuming the world by fire is both Bataillean and Socratic. Nothing contradicts common sense so much as the ultimate performance of consciousness, in which we "practice the good" by undertaking the task of the ultimately nonhuman violence, becoming general, solar, volcanic. (Timofeeva 2022: 111–12)

This Bataillean fire does not serve the purpose of the restricted economy, which would aim to capture energy flows for further growth. The colonization logic is incompatible with self-sacrificial fire. As Marder (2020: 150) points out, drawing on Bachelard, the peculiarity of the phoenix is that she is able to be reborn from her own ashes, not from the ashes of others. Ilyenkov's phantasmagoric project can be considered the epitome of the opposing fantasies' mutual reflection. By targeting entropy, the linear arrow of time itself, Ilyenkov ends up suggesting to fight pyro-economy with revolutionary cosmic fire.

Pyro-economic capitalist growth, as the dialectical opposite of degrowth, is no exception to dialectical inversions. Its fantasy of regenerative fire is transformed under the influence of the discourse of "sustainable development." The fire of the "sustainable" pyro-economy must become "cold." Green capitalism has become part of capitalist ideology, creating the illusion that it is somehow possible to escape global warming by simply running the industry on the "cold" fire of "renewable energy" without shutting down the industrial furnaces. Nevertheless, as Marder (2023: 242–46) points out, the production of renewable energy is also based on the destruction of finite resources. For instance, to provide fertilized land for the cultivation of biofuels, forests are burned down: the Amazon rainforest is the prime example of this process. Biofuel does not escape the pyropolitical logic. As Timofeeva (2022: 115) notes, the current tendency to switch to "renewable" energy sources, especially solar energy, reveals the propensity of green capitalism to colonize another type of energy flow. The only difference is that this time, this seizure is supposed to be "clean," as opposed to the "dirty" extraction of carbon fuels. This "cold" and "clean" fire only appears as such, changing the imagery of the ideological fantasy, while the compulsion to burn never diminishes its force.

Nevertheless, this mutual reflection of opposites is supposed to collapse into contradiction. According to Hegel (2010 [1812]: 374–75), if opposites can coexist in the process of mutual reflection, then contradiction implies the exclusion of one of the opposites. Neither ecological economics nor the degrowth movement will be able to exist if the pyro-economy is to complete the destruction of civilization with its compulsion to burn.

In 1923, Robert Frost wrote a poem called "Fire and Ice":

Some say the world will end in fire,
Some say in ice.

From what I've tasted of desire
I hold with those who favor fire.
But if it had to perish twice,
I think I know enough of hate
To say that for destruction ice
Is also great
And would suffice.
(Frost 1942 [1920]: 268)

Frost's poem introduces two opposing images of the end of the world: in fire and in ice. The poem's opposites correspond to the two images of the traumatic Real that structure the fantasies of capitalism and degrowth. Frost brilliantly captured that the two perspectives of the end of the world lead to the splitting of society. Those who say the world will end "in ice" live with the ideological fantasy of starting regenerative fire. Those who "say the world will end in fire" have the fantasy of extinguishing it. Yet there is no "if." The world will perish twice. Without any intervention, both ends of the world will happen one after the other. In the light of such catastrophic perspectives, the described opposition of fantasies cannot be sustained indefinitely. This raises the following questions: What will be a way out of this opposition? Do the resources of the Hegelian dialectic offer a viable solution? As we have seen, the differences within the given opposition form inversions of each other through the process of mutual reflection (Hegel 2010 [1812]: 368–69). These opposites intertwine, but synthesis is still not possible. Such attempts prove to be illusory, like the "cold fire" of green capitalism. A subversion of the linear arrow of time might be posited as a solution, however it is either considered impossible, as in the theoretical framework of degrowth, or is not clearly articulated, as in the case of Ilyenkov's project. Therefore, the idea of confronting the arrow of time also does not provide a clear way out of this opposition. Eventually, as Hegel (2010 [1812]: 374–75) posits, these mutually reflected opposites collapse into contradiction, at which point the opposites are no longer able to coexist. This collapse of opposing fantasies corresponds to the climate crisis that disrupts the symmetry of opposing fantasies. These opposing phantasmagorical images of the end of the world are neither symmetrical nor equivalent. They do not share the same level of immediacy. In the face of climate change, a collapse into contradiction is inevitable. According to Hegel (ibid.: 377–78, 405), once the contradiction's breaking point is reached, and the relation between the opposites is

destroyed, we arrive at the "ground" or the foundation of the thing, which is supposed to broaden the perspective and overcome the contradiction. Once the contradiction is overcome, further movement of negativity and the progression of history is possible. In our case, however, the optimistic perspective on human history is no longer tenable, as the climate catastrophe threatens to destroy civilization as we know it. Regrettably, this article does not offer an optimistic way out of this opposition. My purpose was to articulate the opposition between the two symmetrical fantasies that constitute the degrowth movement and capitalism, respectively, and to reveal what remains undiagnosed in the sociocultural imaginary. The contradiction that emerges out of this opposition presents humanity with an exclusionary choice between the two terrifying images of the end of the world. And since the world is already aflame, perhaps, it is more reasonable, as Frost suggests, to hold with those who "say the world will end in fire."

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