

# Nature in György Lukács and Alfred Schmidt: Marxist reflections on the beginning of the Anthropocene

A natureza em György Lukács e Alfred Schmidt: reflexões marxistas no início do Antropoceno

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**Abstract:** This paper critically contrasts György Lukács' and Alfred Schmidt's 1960s interpretations of Marxist reflections on nature. It argues that Schmidt's position on nature produces a literal constructivism that Lukács' ontological perspective avoids. It also argues that Lukács generalises Marx's theory of value in a way that hinders the historical analyses of different social metabolisms, in contrast to Schmidt's more historicised interpretation of value, which draws out important considerations regarding capitalism's relationship with nature. It further argues that both positions, in analysing the Marxist perspective of an emancipated society, not only depart from Marx's positions but also fall into what environmental sociology has termed *exemptionalism*. Finally, it demonstrates how the theorising of István Mészáros and the so-called Metabolic Rift School skilfully reframe the positive aspects and limitations of Schmidt and Lukács' interpretations.

Keywords: Marxism. Ontology. Nature.

Resumo: O artigo apresenta uma contraposição crítica de duas interpretações sobre as reflexões marxianas acerca da natureza nos anos 1960, feitas por György Lukács e Alfred Schmidt. Argumenta que as posições de Schmidt sobre a natureza incorrem, em última instância, em um construtivismo literal que a perspectiva ontológica de Lukács foi capaz de evitar. Por outro lado, o texto argumenta que Lukács faz uma generalização da teoria do valor marxiana que obstaculiza a cognição histórica dos diversos metabolismos sociais, diferentemente da interpretação mais historicizada do valor feita por Schmidt, que tece importantes considerações sobre a relação capitalista com a natureza. Argumenta ainda que ambas as posições, ao voltaremse para a perspectiva marxiana de uma sociedade emancipada, não apenas se afastam das colocações de Marx, mas incorrem no que a sociologia ambiental classificou como *isencionalismo*. Por fim, busca mostrar como as teorizações de István Mészáros e da chamada Escola da Ruptura Metabólica reenquadram proficuamente os aspectos positivos e as limitações das interpretações de Schmidt e Lukács.

Palavras-chave: Marxismo. Ontologia. Natureza.

## Introduction

Lear after year, extreme weather events and environmental catastrophes have made headlines and become part of the daily lives of an increasing number of people, especially in the Global South. This is happening while a wealth of scientific data, accumulated and refined over more than two decades, has repeatedly emphasised the anthropogenic nature of such calamities. Despite this, and various mobilisations aiming to contain climate change and environmental destruction, the course of events points to a deepening of the human impact on the planet, driven by globalised capitalist production.

With reference to the Anthropocene, diverse perspectives within philosophy and the human sciences are seeking a theoretical framework that can account for the current state of the

relationship between humans and nature. Within Marxism, those elements calling for ecosocialism are revisiting historical controversies concerning the very idea of nature and its relationship with humanity. In light of these recent climatic developments, this text turns to one of these controversies: the brief correspondence in the 1960s between Alfred Schmidt, a leading figure at the Frankfurt Institute for Social Research and author of a classic book on the idea of nature in Marx, and the Hungarian philosopher György Lukács, who in the 1960s was engaged in his final effort to construct a Marxist ontology.

The argument presented here is that Schmidt and Lukács have distinct theoretical concepts of nature, with scopes and limits that, to a certain extent, complement each other. Lukács' ontological perspective on nature is valuable in proposing a substantive movement of nature, represented by the proposal for a critical dialogue with the natural sciences, while Schmidt's theorising encounters a constructivism that loses sight of the objectivity of the natural world.

Lukács advances a generalisation of Marx's theory of value to include all social beings that constitutes an understanding of the historicity of the various forms of 'metabolism' between humans and nature. While Schmidt presents an interpretation of Marx's theory of value that emphasises its roots in capitalism and draws from its important reflections on interactions with nature under capitalism.

When reflecting on a communist society based on Marxist theorising, both authors set out a development of labour and an imposition on the natural world that loses sight of the dimension of natural limits and environmental crisis. This undermines the positive aspects of each of the theories and reveals, in terms of environmental sociology, the *exemptionalism* of both. That is because, ultimately, they see human interaction as *exempt* from the constraints and impacts of its actions on the extra-human natural world.

Finally, argue how István Mészáros and, later, the so-called school of metabolic rift, reframe the positive aspects of both Schmidt and Lukács for a more fruitful perspective on both the contemporary environmental crisis and the reflection on an emancipated society that establishes a qualitatively distinct and sustainable relationship with the extra-human natural world.

#### Ontology, nature, and metabolism

Shortly after the 1962 publication of his doctoral thesis entitled *The Concept of Nature in Marx*, Alfred Schmidt (2014) sent it to the Hungarian philosopher György Lukács. As is evident from the title of the work, Schmidt was seeking to understand the way in which nature appears in Marxist thinking. In 1963, he received a complimentary response from Lukács, saying that it represented an important scientific advance, especially because it engaged in a processual interpretation of Marxist reflection, and was not simply a contrast between a young and an old Marx (Lukács, 1963).<sup>1</sup>

Unable, at the time, to go into the details of Schmidt's argument, Lukács limited himself to just one observation "of principle [prinzipielle]":

<sup>&</sup>lt;sup>1</sup> This correspondence is mentioned by Tertulian (2005, p. 211) and was recently taken up by Haug (2021) for Lukács' reflections on ecological materialism.

[...] however much you [Schmidt] emphasise in several places the objectivity of reality, the analysis of the metabolism between society and nature has in several places a fatal similarity [fatale Aehnlichkeit] with History and Class Consciousness. This appears particularly sharply when you reproach old Engels for considering nature in an ontologically objective way – supposedly in opposition to Marx's method. I, however, consider that the concept of metabolism with nature, which is of central importance, is based on the ontological objectivity of nature itself independently of society [Lukács's emphasis]. Only on this basis can labour, social activity and society itself be consistently understood from a philosophical point of view. All of Marx's considerations are based on this method. Since I, with History and Class Consciousness, am primarily to blame for the wrong method, I consider it my duty to express this conception quite clearly (Lukács, 1963, unpaginated).

The question of principle raised by Lukács relates to the core of Schmidt's concerns, that is, the place of nature in Marxist thinking and, more generally, in historical-dialectical materialism. In his letter Lukács (2003) makes critical reference to the way in which he himself, forty years earlier, in *History and Class Consciousness*, had shrunk the importance of the extra-human natural world within society by reducing nature to a "social category" whose form and content would always be, in various ways, socially determined (Haug, 2021, p. 108-113).

Schmidt's position, which Lukács criticised was, however, less radical than that expressed in *History and Class Consciousness*. In *Marx's Concept of Nature*, Schmidt (2014) indicated more clearly the existence of an extra-social natural world beyond social determinations. He emphasised that it would only be possible to speak of this extra-human dimension from the point of view of the socially and historically determined relationship that we establish with it, especially through work, and without extrapolating it to a discourse on its existence independently of society.

Nevertheless, the closeness of Schmidt's position, and Lukács' position in *History and Class Conscious*ness, lies in them both rejecting a realistic ontological perspective on nature. For both, human cognition and actions regarding the natural world are always permeated by social determinations, which implies always considering them from a social perspective. Both approaches contrast with that of Engels (2020), insofar as he engaged in a theoretical project that sought to establish a connection between the natural sciences in order to theorise about a dialectic of nature, its laws of movement, the development of being, etc., which have an independent existence beyond social determinations.

For Schmidt (2014), Engels' effort constitutes a "naive realism" that assumes an ahistorical and anti-dialectical position by seeking to construct an ontology of nature. This is problematic because, according to Schmidt, it implies a supra-historical approach; both because it seeks to realistically grasp the existence of a nature without human mediation, and because it results in a worldview with ahistorical dimensions, which ends up also naturalising the social world, reducing it to a general objective law of development.

According to Schmidt (2014), a genuinely dialectical perspective should not concern itself with a positive explanation of the structure of being but should assume the critical historical function of considering the contradictions between human beings in their praxis and their historical actions.

Schmidt's view (2014) is that Marx would have positioned himself differently from Engels. He would not have resorted to a worldview or to a positive principle to ontologically explain non-human reality. On the contrary, nature would appear in his thinking as always mediated by interaction with human beings, only through the 'forms of social labour' and, therefore, be historically rooted.

This interpretation presents Schmidt with some problems. The first relates to his attempts to separate the reflections of Marx and Engels regarding an ontological and realistic position on nature. This conflicts with the records in letters and books where the positions of both converge on the issue (Foster, 2020).

Secondly, and more importantly, Schmidt's interpretation is at odds with the moments in which Marx refers to an ontological discourse when dealing with nature. Schmidt's (2014) solution is to indicate that although Marx does, at various moments in his theorising, point to a relationship beyond the interaction between human beings and nature, he does not do so in a positive way, and does not theorise this relationship abstractly and ahistorically. In Marx there is, what Schmidt (2014) calls, 'negative ontology', moments in his output in which there is a recognition of 'supra-historical' determinations, but which are not theorised positively.

Schmidt's interpretation places Marx in a position of greater scepticism and distance in relation to the natural sciences, which becomes particularly problematic when he turns to the analysis of the idea of metabolism in Marxist thinking. Despite recognising Marx's interest in the natural sciences, Schmidt (2014) understands that his use of the term is analogical and speculative, a heuristic resource for thinking about social relations and for critical reflection on political economy (Saito, 2021, p. 105-114).

Schmidt's departure from both an ontological perspective and the substantive importance of the natural sciences also leads to problems in his interpretation of Marx's thinking on the contours of an emancipated society. Schmidt's (2014) understanding is that the mature Marx assumed a sober and instrumental position in relation to nature, one which would promote, within communism, technological development increasingly focused on its external domination, with repercussions also on the internal nature of individuals. The extra-human natural world would always remain a non-identical moment of the social, but its capacity for 'revenge' on human beings, in Engels's terms (2020), would be increasingly undermined by a growing tendency towards human domination.

The problem with Schmidt's interpretation is that by refusing a positive ontological exposition of nature based on the natural sciences; neglecting Marx's research on metabolism, also in a scientific sense; and referring to a perspective in which humans increasingly dominate nature, he assumes a position that comes close to what Anna Petterson (1999; Malm, 2018, p. 35) called literalist constructivism: the idea that human praxis constructs nature (Haug, 2021, p. 107).

In Schmidt's case, however, this occurs in a more nuanced way, in the sense that nature itself figures in his theoretical framework subsumed by human praxis. That is, even if his perspective, derived from a particular interpretation of Marx, does recognise an irrepressible 'non-identity' of the extra-human natural world, such a natural world would be faced with a unilateral advance of human labour and production. Extra-human nature would not figure in

Schmidt's interpretation as having its own objective dimension which impacts the social world.

Years after the publication of *The Concept of Nature in Marx*, when reflecting on the possibility of 'ecological materialism', Schmidt recognised this problem. In the preface to his 1993 work, he indicates the need to recognise more substantively the action of the extra-human natural world on the social (Haug, 2021, p. 107; Saito, 2021, p. 113).

Schmidt's observations shed light on the importance, from an ecological point of view, of the substantive and autonomous materiality of extra-human nature. Theorising that adopts a literalist constructivism can, by neglecting the substantive action of the extra-human natural world on the social, lose sight of the idea of natural limits and unforeseen consequences of human praxis. More recently, this literalist constructivism appears in theorising that, by claiming an inseparable intertwining between nature and society, ends up defending the very idea of an 'end of nature', it having been subsumed to human praxis, or of the 'production of nature' advanced by capitalism (Malm, 2018, p. 29–37).

Alongside this more literal concept of the construction of extra-human nature, there are other theories that adopt idealist constructivism – following Petterson's classification – that reduce the natural world to ideas or language. Since thought and discourse constitute an inescapable dimension of our cognition of nature, the natural world is the result of the ideas and narratives that we present regarding it. There are multiple epistemic communities regarding this view. By removing a proper and autonomous ontological referent of the natural world, these perspectives can, more radically, open a dangerous opportunity for the various denials of the current serious environmental crisis (Malm, 2018, p. 21-28).

Some time ago, another theoretical movement emerged that opposed constructivist perspectives on nature, but at the same time brought with it significant problems. Called New Materialism, this movement criticised the centrality that various theories, including Marxism, give to praxis or human ideas and discourses, and neglects the agency of the multiple beings involved in social interactions. Contrary to a human/social focus, what this New Materialism proposes is something characterised as a 'flat ontology', which indicates that all objects have agency, whether they are organic or inorganic (Malm, 2018, 78-118).

When thinking about contemporary environmental problems such as, for example, climate change, New Materialism insists on shifting the focus of analysis from social relations that organise the particularity of our metabolism, such as capital, to recognising the *agency* of the various beings in this process: coal, oil, carbon dioxide, methane, oceans, etc. (Malm, 2018, 78-118).

Within the Marxist tradition, this attribution of *agency* to inorganic objects is characterised as fetishism (Malm, 2018, p. 110; Hornborg, 2019, p. 177-192). It becomes particularly problematic because there is an intrinsic link between *agency* and *responsibility*, which is crucial for the diagnosis of contemporary ecological problems. Instead of shedding light on the specificity of the anthropogenic dimension of the profound environmental problems that we experience today, under capitalist relations, New Materialism claims, as fundamental, the distribution of *agency* across networks of humans and non-humans (Malm, 2018, p. 110-112).

Given these different perspectives on nature, the brief exchange between Schmidt and Lukács takes on interesting characteristics. Schmidt's rejection of Engels' objective ontology of nature, independent of society, clashes with Lukács's development of an ontology of social being, an idea which occupied the final decade of his life.

As Lukács explains in his letter, he distances himself from the influential position he had advanced in *History and Class Consciousness* forty years earlier, which reduced nature to a social category. In the preface to his 1967 work (2013, p. 14–28) he notes that the correct understanding of labour and social being depends on an ontological foundation independent of and beyond the social world.

With his ontology, Lukács' aim was, through a return to Marx, to develop an interpretation that could contribute to a rebirth of Marxism, amidst the distortions of Stalinist thinking. This return to Marx was, to a considerable extent, and particularly in relation to our concerns here, a return to Engels.

Although Lukács had criticised Engels' generalisations about dialectics in the 1960s, his ontology is based on a perspective of the immanent development of being that is close to his proposal of a dialectic of nature. In a certain sense, Lukács' ontology has its 'beginning' there, in an outline of a natural objectivity, characterised as a 'self-movement that rests upon itself'. A universal, dynamic metabolism that becomes more complex, in interactions also marked by contingency, and composed of three large spheres that interpenetrate each other: the inorganic being, the organic being, and the social being (Lukács, 2012; 2013).

Lukács saw himself as a dilettante within natural sciences (Lukács, 1969, p. 19). He points to the possibility, as Engels had done before, of a critical dialogue with the most diverse sciences to philosophically trace the determinations, the imbrications, and the complexifications of being. He indicated the processes of ontological continuity and discontinuity; the specific interactions between inorganic being that gave rise to the emergence of life, of organic being, and, later, of germs of consciousness from which, finally, the social being emerged. The emergence of each new sphere represents a qualitative leap that brings continuities and discontinuities with the preceding spheres and a necessary relationship between them (Lukács, 2012; 2013).

The novelty introduced by the social being according to Lukács' ontology lies in the emergence of a qualitatively distinct consciousness, capable of initiating teleological processes of a complexity unparalleled by organic being. Referring once again to Engels, Lukács highlights the role of work in the achievement of the metabolism between human beings and nature. From here he derived the basic categories of human praxis, constantly in contact with an objectivity that is both modified by teleological acts and which modifies and determines human subjectivity and the social being (Lukács, 2013).

There is a unity of consciousness and objectivity in these processes, but it does not translate into an identity. Human beings always act constrained by the objectivity of the extra-human world, they have the capacity to affect nature as a whole and, from this objectivity, create entirely new objects, but this extra-human world always remains a "[...] self-movement that rests upon itself [...]" (Lukács, 2013, p. 48), it is never completely subsumed by the social being.

Human action on such objectivity, moreover, is always limited. In the complex tangle of causalities and contingencies that constitute reality, the intervention of the social being is always finite, incapable of grasping all the consequences of its actions. There is always a 'period of consequences', in which it is necessary to deal with the unforeseen results of human action on the world (Lukács, 2013, p. 70-75). On these foundations, Lukács' ontology presents the process of development of the social being, which points to a continuous 'moving away from natural barriers', the basis of a growing 'socialisation of the social being', and an overcoming of the constraints immediately posed by the extra-human natural world (Lukács, 2013, p. 159).

In the process of development of the social being, Lukács was not particularly interested in an 'ecological materialism', and he ignored the issue of environmental destruction and its impacts on the social being. However, by continuing with Engels' project — which is marked by ecological traits (Foster, 2020) — as the basis for his reflection on the social being, Lukács opens the way for a materialism that manages to escape the problems of other theorisations, see above.

This perspective had the potential – ultimately frustrated – to not fall into a literal constructivism, whether in the more radical version advanced by himself in *History and Class Consciousness*, or in the more nuanced perspective of a *negative ontology* and domination of nature by Schmidt. By proposing a realist ontology, based on a critical dialogue with the natural sciences, Lukács places the idea of metabolism into a substantive and not just analogical sense, although he recognises its limitations here. Furthermore, by proposing a general perspective of the unfolding of the inorganic, organic and social being, and the specificities of each of these spheres, Lukács refers to the substantive materiality of the real, without assuming the fetishistic positions of New Materialism.

So, we find Lukács' perspective a useful theoretical framework for diagnosing contemporary environmental crises. By proposing a realistic ontology that considers the unity and interconnection between the various dimensions of being without losing the specificity of each of its spheres, Lukács' proposal deviates from what environmental sociology has characterised as *exemptionalism* – the criticism that various concepts of the social world view it as exempt from the impact it has on the environment (Catton; Dunlap, 1978, p. 42-43).

Lukács' proposal faced this problem in a surprising way: his analysis of Marx's theory of value as a support for the 'removal of natural barriers' and the development of the social being. On this specific point, Schmidt's statements are more interesting, even though both end up suffering *exemptionalism*.

### Value, nature, and emancipation

On the objective basis of the extra-human 'self-movement that rests upon itself,' Lukács thinks about the development of the social being as being primarily based on the process of 'moving away from natural barriers'. To revive Marxist reflections, he bases his argument on a peculiar generalisation of the theory of value. With this, he advances a problematic link between labour and the social forms that organise it, which contrasts with Marx's theorising.

On more than one occasion at the end of the 1960s, Lukács (2012, p. 359; 2012, p. 421; 2008, p.

138) took a position on this generalisation of the labour theory of value as being 'implicitly' present in pre-capitalist works producing use values, and also in communism even when the production and circulation of goods ceased (Mészáros, 2002; Hudis, 2012; Van Der Laan, 2020).

This contrasts with the historicity attributed by Marx (1985a, p. 56; 2012) and Engels (1987, p. 294-295) to the theory of value. Lukács, however, remains theoretically consistent with such a generalisation, which occupies a prominent place in his ontology by 'animating' the development of the social being. There is, in this, a trans-historical law of reduction of *socially necessary labour time*, which is achieved by the meeting of the various teleological acts in production, even if the various individuals involved in this process are not aware of this result. A law to which individuals must adapt 'under penalty of ruin', regardless of what they think about it. Even though variations may occur when faced with such a law, it necessarily ends up imposing itself (Lukács, 2013, p. 113-114).

As such, Lukács ends up explicitly generalising a set of categories that are typical of capitalism: a compulsory reduction of working time, the indirect social production of capitalism, the opacity of economic valuations, and socially necessary working time itself (Van Der Laan, 2020, p. 104-134). All these categories are specific to the uncontrollable movement of capital, but in Lukács' theory they are, together, transposed to the entire social being.

Lukács sees in this movement the multiple processes of estrangement of individuals, in the most distinct social complexes. In a way, he inserts an optimistic view of this law into the economic sphere, because despite it being achieved through the degradation, and even the sacrifice of individuals, ultimately it is responsible for the development and enrichment of individuals and even of the human race as a whole (Lukács, 2013, p. 580-581).

Schmidt (2014), on the other hand, is more precise in his historical delimitation of Marx's labour theory of value and, from there, draws important conclusions regarding the capitalist organisation of the metabolism between human beings and nature (Burkett, 1997, p. 166-168). The separation between direct producers and means of production, the generalisation of the commodity form, the work conducted privately that is confirmed *post festum* in the process of exchange in the market, generate a peculiar form of relationship with nature, when compared to pre-capitalist societies.

In this context, the value-form that guides capitalist production, based on abstract labour as the substance of value, does not consider the extra-human natural dimension. As with any mode of production, the capitalist cannot do without nature and, in fact, takes it as a prerequisite. However, the natural world does not figure, in its concreteness, dynamics, and finitude, in the abstract relationship of the value-form (Schmidt, 2014).

This is further complicated by the fetishisation and reification of capitalist production. They establish a double process of mystification: both social relationships between human beings and their relationships with nature do not appear as direct relationships but are subsumed under a distortion of the commodity form and the capitalist market (Schmidt, 2014). The result is a specifically capitalist, compulsory law to reduce socially necessary labour time, organised around a supposedly infinite accumulation process that, in Schmidt's terms (2014), imposes itself on a non-identical, but passive, extra-human nature.

Despite the differences between Lukács and Schmidt, their interpretations overlap to a certain extent when they deal with Marx's perspective of human emancipation. Here the *exemptionalism* of both authors appears more explicitly and, consequently, so do the limits of their approaches to nature.

A privileged viewpoint for considering this convergence comes from Marx, in the third volume of *Capital*, where he briefly deals with an emancipated society. In them is his famous distinction between a 'realm of necessity' and a 'realm of freedom', highlighting the intractable importance of the metabolism between human beings and nature.

'Marx (1986) states that the realm of freedom "[...] in fact only begins where the act of working ceases, which is determined by necessity and external utility; therefore, by the nature of the thing, it lies beyond the sphere of properly material production" (Marx, 1986, p. 272-273). In the realm of necessity,

[...] Freedom in this field can only consist in socialised man, the associated producers, rationally regulating their interchange with Nature, bringing it under their common control, instead of being ruled by it as by the blind forces of Nature; and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature. But it nonetheless still remains a realm of necessity. Beyond it begins that development of human energy, which is an end in itself, the true realm of freedom, which, however, can blossom forth only with this realm of necessity as its basis. The shortening of the working day is its basic prerequisite (Marx, 1986, p. 273).

Lukács and Schmidt recognise the inescapable *otherness* of extra-human nature. An emancipated society would not completely subsume the natural world into the social world. On the contrary, the dimension of freedom within it depends on a process of communist reorganisation of the metabolism between human beings and nature. Both authors interpret freedom in the realm of necessity from a narrow conception of what Marx called 'the rational regulation of metabolism'.

Lukács (2013, p. 531) uses Marx's passage to reaffirm his ahistorical view of the law of labour-value for all human sociability. The rational regulation of metabolism, as well as 'community control' and 'least possible effort' would be in the 'pure language of economics, whose essence is a constant pressure to reduce socially necessary labour time — which would continue to exist in a communal society.

Instead of an organising principle of production in a communist society, the 'most dignified and most adequate conditions of human nature' mentioned by Marx are interpreted by Lukács as the introduction of a 'fissure' in the economy, which will continue to be governed by the constant 'pressure' for increased productivity. Regarding extra-human nature in an emancipated society, beyond the indication of its otherness, Lukács says no more than that "[...] the enormous expansion of knowledge of nature through work and the sciences arising from it can only intensify the metabolism between the two, elevating it to unimaginable heights" (Lukács, 2013, p. 530).

In turn, Schmidt's (2014) interpretation of Marx on an emancipated society is close to Lukács', since his employment of the idea of a negative ontology also claims an irrepressible otherness of extra-human nature. Marx, according to Schmidt (2014), argues that communism would

intensify, and capitalism would accelerated, the trans-historical tendency of human domination over nature, and that this would be done to the detriment of the extra-human natural world for the benefit of human beings alone, with the help of immense technological resources, and with the least possible expenditure of time and immense and diverse consumption (Burkett, 1997, p. 170-173).

What Lukács values positively, Schmidt laments in terms of the domination of extra-human nature. Both converge, however, in the characterisation, supposedly supported by Marx, of a growing imposition on a passive nature. And Schmidt adds a further tone of pessimism: in dialogue with psychoanalysis, he argues that the domination of external nature implies a suppression of the 'internal' nature of human beings.

What Lukács and Schmidt lose sight of in their interpretations of Marxist reflections is, principally, the idea of 'metabolic rift' (Marx, 2013, p. 572-573). Marx and Engels' repeated dialogue with the natural sciences, particularly in their struggle against Malthusianism, led them not only to an apology for technological and scientific development but also to the recognition of natural limits and the potential destructiveness of labour on the human world. Marx's research on capitalist agriculture pointed to the possibility of there being an 'irremediable rift in the metabolism between human beings and nature. Marx's studies on metabolism in the final decade of his life also referred to climate change, the horrors of animal farming, and deforestation resulting from the impact of human production in various historical periods, but especially that which occurred under capitalism, with its demand for an increasingly shorter time for capital turnover (Saito, 2021; 2023).

In the final decades of his life, Marx also studied pre-capitalist societies and other modes of organising the metabolism between society and nature, pointing to the possibility of resisting capital and for a revolutionary transition based on pre-capitalist communal property. There are indications that the study of natural sciences from an ecological perspective and the investigation of pre-capitalist societies are connected, moving towards an emancipated and sustainable social formation (Saito, 2021, p. 326-329; Saito 2023).

What appears clear is that the Marxist position of transition and emancipation avoids 'blind' productivism and indicates the potential to mobilise science and productive forces in a direction different from that which it took under the law of labour-value. It is interesting to note, as an example, how in one of the drafts of the well-known letter to Vera Zasulich, in which Marx alludes to the possibility of Russian village communes making the transition to socialism without going through capitalism, he indicates that the capitalist crisis "[...] will end with its own elimination, with the *return* of modern societies to a *higher form of the 'archaic'* type of collective property and production" (Marx, 1881, unpaginated). In our view, such a statement indicates neither a romanticised return to a pre-capitalist life, nor a blind belief in the development of productive forces.

The fundamental issue here, however, is that the idea of a 'rational regulation of metabolism' between human beings and nature mentioned by Marx is a counterpoint to his diagnosis of a 'metabolic rift'. This means that from the perspective of an emancipated Marxist society there is no narrow rationality that subsumes everything under a 'blind' expansion of productivity and consumption. Marx (1985b, p. 265) insisted on the need to preserve the conditions of metabolism for future generations. The qualitative character of the transformations in a

communist society does not, therefore, have at its core a merely quantitative reduction of working time and an expansion of consumption by technological means, but brings with it the need for another relationship with extra-human nature.

By ignoring these issues, the fruitful aspects of both Lukács' and Schmidt's theorising are lost.

The substantive materiality of Lukács' ontology of extra-human nature, which points to its own movement, to the limitations of labour's intervention, the period of consequences, etc., ultimately ends up encountering *exemptionalism* by only indicating the intensification of the action of labour, science, and technology on nature and ignoring its destructiveness, including of the human world. Schmidt's useful theorising on the relationship between the value-form and nature, although more historically rooted than Lukács' generalisation, is undermined because Schmidt also ends up projecting a unilateral tendency to impose labour on the extrahuman natural world that ends up mimicking capitalist productivism.

#### Final considerations

The exchange between Schmidt and Lukács and their reflections, emerged at a time that, decades later, would be classified as the Great Acceleration. A period, beginning in the 1950s, when the production of capital took a dizzying leap, as evidenced by figures for economic growth, population growth, production, and energy consumption. The period was also marked by increasing human impact on nature: increased carbon dioxide emissions, reduction of the ozone layer, acceleration of species extinction, deforestation, etc. This is the period informally called the Anthropocene, a time when the activity of capital became a force, with such a profound impact on the planet that it would rival other natural forces, destabilising the interactions of the Earth System (Angus, 2023). It is not surprising, therefore, that Lukács and Schmidt, despite their opposing assessments, identify the unilateral advance of science, technology, and work over extra-human nature.

Alongside this immense growth in capital production, with its impact on the natural world becoming increasingly evident, regarding its global scale and its natural limits, the 1960s also marked the emergence of the modern environmental movement.

It is in this context that István Mészáros advanced another revisiting of Marx that reframes the problems we address here in Schmidt and Lukács. Considered to be Lukács's great intellectual heir, Mészáros (2006) published *The Theory of Alienation in Marx* in 1970. In it, he highlights the various processes of estrangement from their roots in Marx's works. He also briefly emphasises the estrangement of the relationship with nature: that science and technology subsumed to the imperatives of capital, act towards the destruction of extrahuman nature.

Over the following decades, these considerations by Mészáros (1987; 2002) would deepen and form an important framework for his theorising. He would explicitly return to an ontological approach to argue about what he called first-order and second-order mediations. The first-order being the concrete imperative of the metabolism between human beings and nature, present in any society; and the second-order mediations being imposed by capital — from the separation of direct producers from control of production, to the State, through money, the world market, etc. —, and which led to the organisation of a hierarchical system, which expands in a compulsive, uncontrolled and uncontrollable manner.

Mészáros' (2002) diagnosis is that the socio-metabolic order inaugurated by capital will activate absolute limits, and that its 'blind' expansionism cannot be contained within the parameters of the capital system itself. Importantly, Mészáros (2002) also affirms the presence of second-order mediations imposed by capital in post-capitalist societies that describe themselves as socialist. Inspired by Marxist positions, and as a counterpoint to this, he defends a perspective of human emancipation that substantially resumes control of social production for associated producers and a social organisation that respects both the autonomy of individuals and sustainability in the relationship with the extra-human natural world — a sustainability that is certainly impossible under the socio-metabolic order of capital (Mészáros, 2002).

Mészáros, thereby, developed an important and pioneering reframing of both the compulsive, uncontrollable and destructive movement of capital, and the need for an emancipated society to break with such determinations.

In the early 2000s, the so-called Metabolic Rift school, inaugurated by Paul Burkett (2016) and John Bellamy Foster (2000), recognised Mészáros' pioneering approach to the sociometabolism inaugurated by capital and its destructiveness of the extra-human natural world. In its more than two decades of existence, this school would take steps forward that, in their own way, would concretise Mészáros' considerations. It would, for example, conduct a much more substantive and critical approach to the natural sciences than that alluded to by Mészáros (Angus, 2023). It would demonstrate in more detail how Marxist materialism was close to the natural sciences and the importance that both Marx and Engels attributed to the dangers of capital's destructiveness on the extra-human natural world (Foster 2000; Burkett, 2016).

In an even more concrete form than Mészáros, the school of Metabolic Rift succeeds in both retaining the useful aspects of Lukács and Schmidt's theorising whilst avoiding their problems. The fruitful dimensions of a substantive ontology of the natural world, defended by Lukács, are taken up again on the more solid basis of critical dialogues with contemporary advances in the natural sciences. In turn, the historicity of the theory of value and its relationship with the extra-human natural world, theorised in an informative but incipient way by Schmidt, is developed in a much deeper, more diverse, and broader way by Mészáros and the school of Metabolic Rift (Burkett, 1997).

Both these dimensions, the substantive ontology of extra-human nature and the historicity of the law of value, are found in the indication of natural limits to the uncontrollable expansionism of capital, which allows Mészáros and the school of Metabolic Rift to avoid the *exemptionalism* that both Schmidt and Lukács encountered. All of this has as its counterpoint the project of an emancipated society, distinct from a quantitative imposition of science, labour, and technology on nature, which is guided by a qualitative change in the way in which the metabolism between human beings and nature takes place.

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